U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2015

Project: McNary
Biologist: Bobby Johnson
Dates: September 18 - 24, 2015

Turbine Operation

McNary had 12 to 14 of 14 units available for power generation. The hard 1 percent constraint continued. No turbine units ran outside the constraint. Turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
13 & 14	Sep 21–24	3.4 days.	Units out of service for transformer bank 7 Doble testing.
3	Sep 22	4.4 hours.	Oil head packing adjustment.
10–12	Sep 22	2.0 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 September 19, 21 and 23. 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 water temperatures continued to decline slowly.

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

At the Washington ladder exit on September 19, the operators reset one regulating weir alarm. Next, they adjusted the regulating weir and tilting weir set points. Aquatic vegetation quantities were minimal in the exit area.

At the Oregon ladder exit, on September 19, the operators reset one regulating weir alarm. They also adjusted the regulating weir and tilting weir set points. On September 21, the operators adjusted the regulating weir set point. On September 22, the operators reset two tilting weir alarms.

On September 23, the new motor and brake assembly mentioned last week at tilting weir 340, tested successfully. In addition, a new encoder was installed. On September 24, weir 340 returned to service in automatic mode. The operators also adjusted the regulating weir and tilting weir set points. Debris loads remained light in the area of the Oregon exit. On September 19, a biologist removed aquatic vegetation from the traveling screen debris trough.

Fishway Entrances and Collection Channel: Criteria for all entrances are pool differentials measuring between 1.0 and 2.0 feet, and weir depths measuring 8.0 feet or deeper.

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

At the Oregon ladder, all entrance inspection points met criteria. On September 21, the electrical staff completed overload breaker installation for weir NFEW3.

Collection channel surface velocities averaged 1.6 feet per second.

Auxiliary Water Supply System: The Wasco County Public Utility District (PUD) turbine unit in the Washington ladder had two interruptions in service. On September 21, from 0655 to 0940 hours, and on September 24, from 1451 to 1706 hours, the unit was out of service for the transformer bank 7 testing mentioned above in Table 1. During the outages, the bypass system functioned satisfactorily.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees and no interruptions in service. Fish pump 2 is currently under contract for major overhaul with completion scheduled for April, 2016.

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 from this schedule. Secondary bypass occurred on September 19, 21 and 23. This week, 12 juvenile lamprey and 20 smolts were bypassed. No smolts were examined on one of the four data days with a 25 percent sample rate. 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 been decreasing.

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

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 installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. ESBS camera inspections conducted in units 10, 11 and 12 revealed no problems on September 22. Operators had to reset the screen in slot 12C after the inspection.

No high VBS (vertical barrier screen) differentials were recorded and no screens were cleaned. VBS rehabilitations continued.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use.

All systems functioned satisfactorily in automatic mode. This week, the rectangular screen cleaning brush cycling time ranged from 180 to 240 minutes. The fisheries staff continued to monitor the north side dewatering valve and observed no new problems.

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 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.

On September 24, the general maintenance staff painted the full flow flume dress coupler that had been replaced last winter.

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. On September 24, spillbay 2 was removed from service for spillgate inspection.

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
103.5	71.4	0.0	0.0	66.5	65.1	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on October 6.

Invasive Species: The zebra mussel station examinations on September 23 revealed no problems.

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

Table 3. McNary Project Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Sep 18	Forebay	0	0	0	0	0
	Spill	25	14	0	0	0
	Powerhouse	15	0	0	0	0
	Outfall	4	1	0	0	0
Sep 19	Forebay	1	0	0	0	0
	Spill	0	22	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Sep 20	Forebay	0	0	0	0	0
	Spill	3	48	0	0	0
	Powerhouse	0	1	0	0	0
	Outfall	0	2	0	0	0
Sep 21	Forebay	0	0	0	0	0
	Spill	0	1	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Sep 22	Forebay	0	0	0	0	0
	Spill	18	6	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Sep 23	Forebay	0	0	0	0	3
	Spill	12	6	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Sep 24	Forebay	1	0	0	0	0
	Spill	6	7	0	0	0
	Powerhouse	1	0	0	0	0
	Outfall	0	0	0	0	0

In the forebay observation zone, a small flock of grebes or a gull was occasionally noted. 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, roosting on the navigation lock wing wall and occasionally feeding in the powerhouse flow. Overall bird numbers have declined. It appears they are feeding on juvenile shad.

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

Great blue herons and osprey were also occasionally observed near the project. A large gull flock was noted at the nearby golf course.

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. Bird hazing water cannon issues are recorded in Table 4 below.

Table 4. McNary Project Bird Hazing Water Cannon Issues.

Date	Outage Length	Reason	Result
Sep 21–22	27 hours.	Pump making non-normal noise.	Filled pump oil reservoir and inspected belt. No problem found.
Sep 22	1.5 hours.	Scheduled sprinkler inspection.	No problem found.
Sep 23	Brief.	One of two sprinklers jammed.	Turned pump off and on. No result.
Sep 23	1.6 hours.	One sprinkler jammed.	Sprinkler inspected. No result.
Sep 24	1.5 hours.	One sprinkler jammed.	Sprinkler inspected. Need to order ball bearings. Remain jammed.

Research: The adult lamprey passage study concluded on September 23. The researcher removed the camera frame installed at SFEW2 the same day.

Project: Ice Harbor
Biologist: Ken Fone and Charlie Dennis
Dates: September 18 - 24, 2015

Turbine Operation

Units 4 and 3 were taken out of service for annual maintenance at 0830 hours and 0930 hours, respectively, on August 31. Units were operated within the 1% peak efficiency range (hard constraint). Unit 2 was forced OOS (out of service) on September 21 at 0754 hours, due to a vacuum breaker stuck open.

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on September 21, 22, 23 and 24.

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. Six of the eight south shore AWS pumps were operated throughout the week.

Juvenile Fish Passage Facility

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

STSs/VBSs: STSs are being operated in cycle-run mode. Inspection of STSs in units 1 through 6 and VBSs in unit 5 occurred on September 21 and 23. There were no screen problems observed. The next monthly inspections will occur the week of October 19.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass system 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 pipe.

Fish Sampling: Fish sampling is done for the season.

Removable Spillway Weir (RSW): Mandated spill for fish passage began on April 3 and ended on August 31.

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
24	16.6	0	0	67	66	7.9	7.4

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers were inspected on August 31 (Units 3 and 4 during their annual maintenance), September 21 (Units 5 and 6) and September 23 (Units 1 and 2). Recoveries included 24 juvenile shad and 15 Siberian prawns (all mortalities). The next monthly inspections will occur the week of October 19.

Invasive Species: No new exotic species have been found.

Avian Activity: A relatively low number of piscivorous birds were seen around the dam during the week.

Research: Beginning September 9, sensor fish were released into the unit 1 turbine intake via pipes installed on the STS framework in gatewell slot 1B, in support of the turbine environment characterization study. The current round of sensor fish research ended on September 18. An addition round of sensor fish releases will occur in October.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: September 18 - 24, 2015

Turbine Operation

The units are being operated within the hard constraint 1% peak efficiency 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 6 was removed from service on August 31 at 0725 for annual maintenance and returned to service at 1026 hours on September 24.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on September 18, 19, 20, 21 and 23.

Fish Ladders: Fishway exit head differentials and depth over the weirs were within criteria (≤ 0.5' and 1.0'-1.3', respectively) on all inspections, with the exception of the South ladder (depth over weir) on September 18 with a depth of 0.8 feet. The sensor for the upper diffuser gate control system is in a floatwell. The floatwell is plugged and so the gate must be adjusted manually until the floatwell can be flushed clean. A trouble report has been created and routed to the electrical crew. The gate will be adjusted manually until the system is returned to normal operation. 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 6.7 to 7.0 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in depth or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, gate depth readings ranged from 7.7 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 32 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. STS inspections were conducted September 1 and 2 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was operated with 19 or 20 orifices open.

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

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

River Conditions

No spill occurred during this report period. 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
23.8	14.5	0.0	0.0	65.5	65	5.0	4.6

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on September 2. Live fish recovered included 47 Siberian prawn. Mortalities included 50 Siberian prawn.

Invasive Species: No zebra mussels were observed at the monitoring stations on September 4.

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
Sept 18	1100	3	2	0	0
Sept 19	1105	2	2	0	0
Sept 20	1100	1	0	0	0
Sept 21	1100	0	0	0	0
Sept 22	1100	2	0	0	0
Sept 23	1100	0	1	0	0
Sept 24	1100	4	0	0	0

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

Project: Little Goose
Biologist: Richard Weis
Dates: September 18 - 24, 2015

Turbine Operation

All turbine units were available for service throughout this report period except units 3 and 5. Unit 3 was placed out of service on August 25 for digital governor installation. Unit 5 was removed from service for its annual maintenance on September 16. Hard constraint 1% peak efficiency criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on Sept. 20 and 24.

Fish Ladder: The ladder exit head differentials ranged between 0.0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs ranged between 1.1 and 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials held steady at 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. 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 8.0 and 8.9 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 4.9 and 6.1 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 4.8 and 6.1 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 1.9 and 2.0 fps (criteria 1.5 to 4.0 fps). The monthly water velocity measured 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 waiting on return to service.

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 ranged between 50 and 1,800 square feet for the week. Fish screen 3A was pulled on September 17 to evaluate the source of an oil leak.

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

ESBS/VBS: ESBSs are all deployed and gatewells are clean except for slot 3A which has a light sheen of oil. Drawdowns were performed on September 24. All criteria were met.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system is running with 18 open orifices.

Transportation Facility: The JFF (Juvenile Fish Facility) continued transporting 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 940 fish were collected for transport. The descaling and mortality rates were 1.0% and 9.8% respectively. This weekly report period saw 2 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
20.8	15.9	0	0	65.0	64.6	6.0+	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: All cooling water strainers were checked on September 19. No fish were seen.

Invasive Species: The zebra mussel substrate monitor was inspected on September 13. No zebra mussels were detected.

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

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
Sept 18	1130	7	22	0	0
Sept 19	1045	22	10	0	0
Sept 20	1250	18	18	0	0
Sept 21	1230	25	9	0	0
Sept 22	1100	25	10	0	0
Sept 23	0800	21	5	0	0
Sept 24	1200	20	24	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 65.0 and 66.

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

Project: Lower Granite
Biologists: Elizabeth Holdren, Robert (JR) Horal
Dates: September 18 - 24, 2015

Turbine Operation

Units are operating within the hard constraint 1% peak efficiency criteria. Unit 5 was removed from service at 0630 hours on September 14 for annual maintenance. Unit 6 was returned to service from annual maintenance at 1208 hours, September 22.

Adult Fish Passage Facility

The adult fish ladder was inspected by Corps or Blue Leaf Environmental biologists on September 19, 22, 23, and 24.

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 gate depth readings were 6.4', 6.4', 6.8', and 6.5 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NSE1 was out of criteria (criteria ≥7' or on sill) on three inspections with gate depth reading of 5.0', 5.0', and 5.1 feet. NSE2 remains set with a chainfall hoist in the closed position to improve channel/tailwater head differentials. North shore channel/tailwater head differential was out of criteria (criteria 1'-2') on two inspections with readings of 0.9 feet. NSEs will continue to be monitored to determine if this operation will be able to maintain head differentials in current tailwater conditions.

The collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 0.9 – 1.0 fps and a weekly average of 0.9 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 gatewell slots.

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

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: Fish transport continues with trucks departing Lower Granite on odd numbered days.

River Conditions

No spill is occurring at this time. 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
22.5	17.9	0.0	0.0	65.0	63.7	5.0+	5.0+

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected September 24. No lamprey or other fish were found.

Invasive Species: No evidence of zebra/quagga mussel was observed September 7.

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
September 18	0630	0	0	0
September 19	1800	2	0	0
September 20	0730	2	0	0
September 21	0745	4	0	0
September 22	0745	2	0	0
September 23	0745	1	0	0
September 24	0745	2	0	0

Adult Fish Trap Operations: The adult trap is in 24 hour operation with a 12% sample rate. Collection of adult fall Chinook for truck transportation to Lyons Ferry Hatchery and for the Nez Perce Hatchery continued this week.

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: Two ~8 inch kokanee were recovered during Dworshak unit 2 fish rescue operation September 21. There were no mortalities.

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 lavaged 9 sub-yearling Chinook September 21. No fish were sacrificed.