U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#22-2015

Project: McNary
Biologist: Bobby Johnson
Dates: July 24 - 30, 2015

Turbine Operation

McNary had 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. Turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
12	Feb 8 – Aug 1	About 6 months.	Rewind contract.
5, 6 & 13	Jul 28	1.1 hours total.	Extended-length submersible bar screen (ESBS) camera inspections.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on July 25, 27 and 29. Visual adult fish counts, review of video tape for adult lamprey counts and exit temperature monitoring continued. All systems continued to be monitored closely 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. The potable water reservoir continued to be filled by a City of Umatilla fire hydrant as needed. The reservoir supplies only basic water needs. A contract for repairs or replacement has not yet been awarded. 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.

At the Washington ladder exit, the operators adjusted the regulating weir set point and the mechanics performed scheduled maintenance on the tilting weirs on July 27. Debris was minimal in the exit area.

At the Oregon ladder exit, weir 340 remained in bypass mode due to a failed encoder. Ladder operation was not adversely affected. On July 30, debris accumulations increased from light to moderate as aquatic vegetation became more prevalent along the Oregon shore.

Fishway Entrances and Collection Channel: At the Washington entrance, all entrance inspection points met criteria. The mechanics performed scheduled maintenance on the entrance weirs on July 27. At the Oregon ladder, the north powerhouse entrance weirs, NFEW2 and NFEW3, and the south powerhouse entrance weir, SFEW1, measured depths of 7.8, 7.9 and 7.9 feet, respectively, on July 25. That day, the biologist requested all Oregon ladder entrance weir set points to be adjusted 0.2' deeper so the weirs would operate in criteria yet maintain both pool differentials in criteria. Collection channel surface velocities averaged 1.4 feet per second.

Auxiliary Water Supply System: The PUD turbine unit in the Washington ladder had three interruptions in service this week. As reported last week, from July 22 at 0655 hours to July 25 at 1223 hours, the unit was out of service for scheduled maintenance. On July 27, from 0630 to 0718 hours, the unit was again out of service due to a leaky seal and the loss of shaft cooling water. On July 30, from 1826 to 1913 hours, the unit was again forced out of service by an obstructed gland water filter. The last two outages occurred because the unit is running on raw water, which needs to be strained. The bypass system functioned properly during the outages.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees. One interruption in service occurred this week. On July 30, from 0640 to 0644 hours, fish pump 1 was out of service due to low cooling water flow. The raw water strainer was cleaned immediately.

Fish pump 2 is currently under contract for major overhaul. On June 23, a contractor damaged the rotor stator during disassembly. This damage would not have delayed the pump repairs. On July 28, cracks were found at the flange radius on the pump shaft during ultrasound tests. If shaft replacement is required, the fish pump overhaul completion might be delayed to March, 2016. Completion was previously expected in 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 July 25, 27 and 29. This week, 80 juvenile lamprey and 2,705 smolts were bypassed. The sample included increasing numbers of juvenile shad.

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 except when northeast winds would temporarily move accumulations toward the Oregon shore. New incoming debris was minimal until July 30, when a moderate influx of woody material and aquatic vegetation occurred along the Oregon shore. No high trash rack differentials were recorded and no racks were cleaned. No problems were observed in the gatewell slots.

ESBSs/VBSs: All operational turbine units have ESBSs installed. Screens were installed in unit 12 on July 27. The screens in slots 1A, 3B and 11C remained in timer mode. Camera inspections at units 5, 6 and 13 revealed no problems on July 28.

No high VBS (vertical barrier screen) differentials were recorded and no screens were cleaned. VBS rehabilitations continued. Rehabilitated VBSs were installed in slots 12A, 12C and 13A on July 24 and 25. Unit 12 was used as a staging area for the exchange of worn VBSs for rehabilitated screens.

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

All systems functioned satisfactorily in automatic mode. On July 26, at 0730 hours, the side screen cleaning brush triggered a timing alarm. The device was found in the cleaning position and jammed while traveling downstream. The biologist used the controls to rotate the brush off the screen and moved the device slightly upstream. The mechanism was then moved downstream to the park position. The cleaning brush was returned to automatic mode and operated flawlessly thereafter. The cleaning device most likely jammed on debris.

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. As smolt numbers decreased, the sample rate increased from 10.00 to 20.00 percent. 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
157.6	128.5	78.9	64.5	70.9	69.6	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on August 4.

Invasive Species: The zebra mussel station examinations on July 25 revealed no problems.

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

United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) personnel continued bird hazing activities. Onsite hazing will conclude August 1.

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. The fisheries mechanic continued to install bird wire on the downstream navigation lock wing wall handrail, where gulls and cormorants were observed roosting.

A small grebe group was observed in the forebay along with an occasional gull, pelican, tern and osprey. Small numbers of gulls, pelicans and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay boating restricted zone (BRZ).

Terns, gulls and cormorants were observed in the tailwater area feeding in the spillway flow along with pelicans along the shorelines. Terns continued to occasionally feed in the powerhouse flow. Overall bird numbers continued to decline.

Pelicans along with an occasional tern and cormorant were noted feeding at the juvenile bypass outfall. Pelicans were also observed roosting on the rocks downstream in the wildlife park.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Jul 24	Forebay	5	0	0	0	13
	Spill	15	0	34	24	0
	Powerhouse	0	0	1	2	0
	Outfall	0	0	0	2	0
Jul 25	Forebay	4	0	0	0	14
	Spill	5	1	32	38	0
	Powerhouse	0	0	2	3	0
	Outfall	0	1	0	2	0
Jul 26	Forebay	0	0	1	2	14
	Spill	14	0	3	25	0
	Powerhouse	0	0	1	4	0
	Outfall	0	0	0	0	0
Jul 27	Forebay	2	0	1	0	14
	Spill	0	0	15	13	0
	Powerhouse	0	0	0	2	0
	Outfall	0	2	1	1	0
Jul 28	Forebay	0	0	0	0	6
	Spill	0	0	0	6	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	0	0
Jul 29	Forebay	0	0	0	0	7
	Spill	0	0	0	15	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	4	0
Ju1 30	Forebay	0	0	0	0	7
	Spill	0	1	0	13	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	3	0

Research: The adult lamprey passage study continued. On July 29, the camera frame at SFEW2 was raised, cleaned and inspected.

Project: Ice Harbor
Biologists: Ken Fone
Dates: July 24 - 30, 2015

Turbine Operation

Units 6 and 5 were taken out of service for annual maintenance at 0716 hours and 0717 hours, respectively, on July 6. Unit 5 was returned to service at 1650 hours on July 30. All units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on July 27, 28, 29, and 30.

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, except for a depth of 7.4 feet on July 27 caused by the entrance gate being 0.4 feet off of sill in automatic control. The gate control was switched to manual and lowered down to sill. 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, except only one pump was running from 1530 hours to 1615 hours on July 30 when pump 1 was forced out of service to repair a leaky intermediate oil seal. North shore pump 3 was taken out of service at 0846 hours on April 22 to replace the pre-lubrication pump, and remains out of service. 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 cycling mode. Inspection of each unit's STSs and unit 6 VBSs occurred on July 20 and 22. 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 three times per day. Orifice light 6BS was found to be not working on July 10 due to a bad fixture. Orifice 6AS was opened and 6BS closed (with 6BN open) until the fixture can be replaced.

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.

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
31.6	26.1	21.7	16.0	71	70	7.6	6.4

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers for units 5 and 6, units 1 and 2, and units 3 and 4 were inspected on July 6, 20, and 22, respectively. There were 11 Siberian prawns found (all mortalities).

Invasive Species: No new exotic species have been found.

Avian Activity: Daily bird numbers observed are shown in Table 2. Gull numbers increased from last week. The majority of birds observed were roosting on Eagle Island. Contracted hazing of piscivorous birds ended on June 30.

Table 2. Daily maximum piscivorous bird counts at Ice Harbor Dam

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 24	0	0	0	0	0
July 25	0	0	0	0	0
July 26	0	0	0	0	0
July 27	45	8	13	0	32
July 28	110	13	14	0	32
July 29	120	11	41	0	33
July 30	86	5	6	0	46

Research: Hydroaccoustic transducers mounted on the STS frame in gatewell slot 1B, and on 1B trash rack, are collecting data for the turbine intake fish distribution study.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: July 24 - 30, 2015

Turbine Operation

The units are being operated in hard constraint of the 1% operation 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. All units were taken out of service on July 25 at 0625 hours for Doble testing and maintenance on Transformer 1 and Transformer 2. Unit 5 was run at speed-no-load on July 25 from 0625 – 1440 hours. Units 2, 3 and 4 returned to service on July 25 at 1430 hours. On July 30, units 2, 3 and 4 were taken out of service from 1235 to 1340 hours to recover the project from Doble testing. Units 5 and 6 returned to service on July 30 at 1340 hours.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on July 24, 25, 26 and 29.

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 5.7 to 6.0 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, gate depth readings ranged from 5.9 to 6.4 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 17 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-10% surface coverage.
No problems observed in gatewells.

STSs/VBSs: STSs were operated in continuous-run mode due to average sub-yearling Chinook length being less than 120 mm. STS inspections were conducted July 7 and 8 with all screens found in good operating condition.

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

Collection Facility: Operated in collection for transport mode. Sample gates were off on July 30 from 1145 to 1345 hours during power outages required to return Units 5 and 6 and Transformer 2 back to service.

Transport Summary: Alternate day barging began on May 22 and continued through this period.

River Conditions

Spill operations were initiated at 0001 hours on April 3. Spill this period conformed to the specified requirements. Spill was either halted or limited during barge docking and loading operations. 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
30.7	25.3	17.4	12.8	70	68.5	4.8	3.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 6. There were no live fish recovered. Mortalities included 3 juvenile lamprey, 1 salmon smolt, and 11 Siberian prawns.

Invasive Species: No zebra mussels were observed at the monitoring stations on July 3.

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
July 24	1100	1	0	0	**0**
July 25	1100	2	0	0	**0**
July 26	1100	0	0	0	**0**
July 27	1100	0	4	0	**0**
July 28	1100	0	0	0	**0**
July 29	1100	0	0	0	**0**
July 30	1100	1	0	0	**0**

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

Project: Little Goose
Biologist: Richard Weis
Dates: July 24 - 30, 2015

Turbine Operation

Most all turbine units were available for service throughout this report period. Unit 2 is out of service for a Digital Governor installation starting July 14. Unit 6 was removed from service for annual maintenance on July 27. Hard 1% peak efficiency constraint criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on July 26, 28 and 29.

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 held steady at 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials ranged between 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. On July 29 an adult Chinook was found dead between the upstream and downstream picketed leads. This fish was badly decomposed. A Memorandum for the Record (MFR) was written.

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 NSE. NSE 1 and 2 are in manual mode. Channel to tailwater head differentials ranged between 0.8 and 1.6 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 8.3 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 4.4 and 4.5 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.4 and 6.8 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 2.0 and 2.3 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 parts to allow placement of the gear box 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: Spillway weir was removed for the season on June 18.

ESBS/VBS: ESBS screens are all deployed and gatewells are cleaned except gatewell 5A which still has oil absorbent pads deployed as a slight sheen of oil had been seen. All criteria were met. Drawdown measurements were not conducted 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) continued transporting fish every other day. GBT (Gas Bubble Trauma) sampling has ended for the season.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 2,278 fish were collected for transport. The descaling and mortality rates were 0.7% and 0.9% 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
29.5	25.4	10.6	3.9	70.1	69.6	5.6	5.0

*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 July 17. 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
July 24	0800	13	3	0	1
July 25	1100	22	2	0	0
July 26	0800	18	3	0	1
July 27	1130	19	9	0	1
July 28	1120	9	6	0	1
July 29	0724	12	0	0	0
July 30	1000	11	6	0	1

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

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

Project: Lower Granite
Biologists: Elizabeth Holdren
Dates: July 24 - 30, 2015

Turbine Operation

Units are operating within the hard constraint 1% criteria. Unit 4 was removed for service at 0920 hours on 24 June for annual maintenance/six year overhaul. Unit 1 remains in service to improve tailrace conditions for adult fish ladder attraction.

Adult Fish Passage Facility

The adult fishway was inspected by Corps or Blue Leaf Environmental biologists on July 26, 28, and 29.

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', 6.0', and 5.9 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections with the exception of a 0.8 feet reading July 26.

NSE1 remains closed. NSE2 is set with a chain fall hoist at 626.0 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 with head differential readings of 0.6', 0.6', and 0.7 feet. Readings were taken from the FSC (Fishway System Control) board.

The collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 1.0 - 1.0 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. Pump 3 is in standby mode.

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.

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 continues. Collection of adult sockeye fallbacks from the Lower Granite juvenile fish facility separator is ongoing. There has been 5 adult sockeye collected at the JFF for transport to Eagle Fish Hatchery (EFH) since July 15. Collection of adult sockeye from the separator for IDFG emergency transport will continue next week.

Transport Summary: Every other day barge transport is occurring with barges departing on odd numbered days. On July 29, juvenile fish were transported by barge from Little Goose and Lower Monumental and by truck from Lower Granite due to the Little Goose Navigation Lock being out of service for repair.

River Conditions

To improve tailrace conditions for adult passage, the RSW was closed at 1210 hours on July 8 and spill operations were changed to follow FPP TABLE LWG-9. 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
30.6	25.7	11.7	7.0	68.6	67.5	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected July 29. No organisms were recovered.

Invasive Species: No evidence of zebra/quagga mussel was observed July 3.

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
July 24	0600	0	0	0
July 25	1945	1	1	0
July 26	0600	0	2	0
July 27	1930	2	0	0
July 28	0630	1	2	0
July 29	0630	1	0	0
July 30	0630	1	0	0

Adult Fish Trap Operations: Adult ladder fish trap emergency trapping operation of sockeye for transport to Eagle Fish Hatchery (EFH) continued. Trapping time was extended two hours July 27 and is currently operating between 0600 to1400 hours Monday through Friday. There have been 42 adult sockeye collected at Lower Granite adult trap for emergency transport to EFH since the operation began July 13. A total of 47 sockeye have been transported from Lower Granite adult and juvenile facilities to EFH. Emergency transport of sockeye operation will continue next week.

Fish Rescue Operation: No fish rescues occurred.

Research

Onsite research has concluded for the season.