U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#19-2015

Project: McNary
Biologist: Bobby Johnson
Dates: July 3 - 9, 2015

Turbine Operation

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. 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	Jul 6 – 9	About 3 days.	Doble testing and unit maintenance.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on July 3, 5 and 9. Visual adult fish counts, review of video tape for adult lamprey counts and exit temperature monitoring continued.

On July 8, twenty one adult sockeye mortalities were observed in the navigation lock. Also, this week, two adult sockeye mortalities were noted in unit 6 gatewell slots, two were recovered at the juvenile facility separator and one was observed on the Oregon ladder picketed leads. Heat stress was the likely cause of the loss. All system will continue to be monitored.

On July 7, at 1011 hours, well house pump 3 seized and was removed from service. This left only well house pump 2 supplying the project with potable water. Some systems, such as unit glade water, were switched to raw water as pump 2 was surging and only used as required to maintain the potable water reservoir. The Oregon ladder fish pumps and the Wasco County Public Utility District (PUD) turbine unit in Washington ladder remained on potable water.

On July 9, at 0430 hours, well house pump 2 failed, resulting in the loss of water supply to the reservoir. At 0644 hours, the PUD unit had a brief outage as it was switched to raw water. At about 0900 hours, a low reservoir alarm came in. At 0908 hours, both fish pumps were removed from service. For the Oregon ladder, only one fish pump can be operated on raw water. At 0916 hours, fish pump 1 returned to service with raw water for cooling. The ladder weirs were set as outlined in the Fish Passage Plan (FPP).

The north powerhouse entrance weir, NFEW3, was raised out of the water in order to maintain the pool differential at 1.0 to 2.0 feet. The measured differential was 1.8 feet. NFEW2 measured at 6.4 feet.

At the south powerhouse entrance, SFEW1 and SFEW2 were raised to maintain the pool differential at 1.0 to 2.0 feet. The measured differential was 1.3 feet. SFEW 1 and SFEW2 measured 6.4 and 6.5 feet, respectively.

Later that morning, maintenance crews received permission from the City of Umatilla managers to use a fire hydrant to supply potable water to the reservoir. This source will not provide enough water to operate the fish pumps. The reservoir will supply water to some projects systems though most systems will remain on raw water. Port-a-pots and bottled drinking water were again brought on project.

The project maintenance chief is working on two fronts. First, purchase a booster pump so both fish pumps can run on raw water. The maintenance crews will have the booster pump installed and running by July 13. The Oregon ladder will only have one functional fish pump until this occurs. Second, prepare a contract so one of the well pumps can be replaced. The raw water line has a strainer which must be cleaned so potable water is preferable to have for the fish pumps.

Cleaning the raw water strainer requires a fish pump outage. The fish pumps were not designed for repeated restarts which can result in eventual failure. On July 9, from 1643 to 1654 hours, fish pump 1 was out of service for strainer cleaning.

Fish Ladder Exits: Both ladder exits met all criteria. The picketed leads are being cleaned as required including weekends and the July 4 holiday, when the general maintenance crew was called in to clean the Oregon ladder leads.

At the Washington ladder exit, debris was very light to minimal. This week, the operators reset three regulating weir alarms. On July 9, the regulating weir set point was adjusted.

At the Oregon ladder exit, the debris load was light to moderate with aquatic vegetation predominating. Exit weir 340 remains in bypass mode due to a failed encoder. Ladder operation will not be adversely affected. The operators adjusted the regulating weir set point on July 5 and 9. The biologist cleaned the traveling screen debris trough on July 5, removing sticks and aquatic vegetation.

Fishway Entrances and Collection Channel: At the Washington entrance, all entrance inspection points met criteria.

For July 9, the Oregon entrances are described above. Other than that day, all inspection points were in criteria.

Collection channel surface velocities averaged 1.3 feet per second, including a slower velocity recorded on July 9.

Auxiliary Water Supply System: On July 9, the PUD turbine unit in the Washington ladder had a brief outage as described above. The unit had no other interruptions in service.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees. The disruption in service and switch to one fish pump operation on July 9 is described above. Pump 2 is currently under contract for major overhaul. The repairs should be completed by 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 3, 5, 7 and 9. This week, 200 juvenile lamprey and 295,992 smolts were bypassed. The subyearling Chinook peak out-migration may have occurred with the hottest weather of the year so far.

The B side sample tank water temperature continued to be monitored; with the temperature over 70 degrees all week. The fisheries staff monitored fish in all areas for signs of heat stress. Smolts suffering from heat stress were noted at the separator all week. A sturgeon mortality (approximately 16 inches in length) was also removed from the separator. Most fish mortalities were observed from 0700 to 1400 hours each day. Sample tank mortality rates ranged from 4.5 to 8.5 percent this week. Descaling rates ranged from 0.3 to 2.1 percent. Hot weather continues to be a grave concern. The wind did mix the forebay at times.

The juvenile facility was never without potable water on July 9. Due to the loss of the well pumps (described above), water use was limited. That day, the wet lab and the passive integrated transponder (PIT) tag room air conditioning units were switched to raw water until a well pump can be repaired.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was minimal to very light and generally centered on the powerhouse except when northeast winds would temporarily move accumulations toward the Oregon shore. New incoming debris was minimal to very light and consisted of mostly of aquatic vegetation.

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

No problems were observed in the gatewell slots. Approximately 35 smolt mortalities were noted on the upper edge of the vertical barrier screens (VBSs).

ESBSs/VBSs: All operational turbine units have extended-length submersible bar screen (ESBSs) installed. Screens were not installed at unit 12 as this unit is out of service. The

screens in slots 1A, 3B and 11C remained in timer mode. No camera inspections occurred this week as high water temperatures were a concern.

Rehabilitation of VBSs continued. No high VBS differentials were recorded and no screens were cleaned.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. All systems functioned satisfactorily in automatic mode. On July 7, the transition screen cleaning brush triggered an alarm. The operators reset the timing alarm without incident. A mechanic examined, cleaned and lubricated the device. Also, that day, the general maintenance staff conducted scheduled maintenance on the emergency floor panel air hoists. Stairwell lights were replaced as needed.

Bypass Facility: During the bypass season, primary and secondary bypass modes return all fish are to the river. 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.

Due to extreme hot weather and warming water temperatures on July 5, the sample rate was reduced to 0.25 percent in an effort to reduce the number of fish handled. Also, the cleaning and removal of algae from the system has been required 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
172.2	132.0	86.1	66.3	72.0	70.9	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: Cooling water strainer examination results on July 7 are recorded in Table 3 below. Unit 12 is out of service. All noted lamprey are juveniles. All identifiable smolts were subyearling Chinook, clipped or unclipped.

Table 3. Cooling Water Strainer Results.

Unit	Live Lamprey	Lamprey Mortality	Live Smolts	Smolt Mortality
1	0	0	3	144
2	0	3	0	3
3	0	0	0	1
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	1	0	0
8	0	4	0	0
9	0	4	0	1
10	0	5	0	1
11	0	7	0	0
12	NA	NA	NA	NA
13	0	0	0	1
14	0	4	0	86
Total	0	28	3	237

Invasive Species: The next zebra mussel station examinations will occur in late July.

Avian Activity: Avian counts are recorded in Table 4 below.

United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) personnel continued bird hazing at the project. Boat hazing and limited lethal take of cormorants concluded on July 9. The second shift will conclude on July 11.

Bird hazing distress calls remain deployed around the project and continued to function satisfactorily. The fisheries mechanics and the general maintenance staff continued to clean the bird hazing water cannon pump intake as needed.

Juvenile gulls were observed in the forebay along with an occasional small group of grebes, a cormorant, pelican, tern or osprey. Gulls, pelicans and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay zone.

Gulls, terns and cormorants were observed in the tailwater area feeding in the spillway flow along with pelicans along the edges. Tern and pelican numbers remain high as gull and cormorant numbers remain low. Terns and pelicans continued to feed in the powerhouse flow

with gulls and cormorants occasionally observed. Seventy five pelicans are estimated to be in the area of the project.

Table 4. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Jul 3	Forebay	6	0	0	0	3
	Spill	4	0	15	23	0
	Powerhouse	0	0	10	3	0
	Outfall	0	1	0	9	0
Jul 4	Forebay	1	0	1	0	2
	Spill	2	0	20	55	0
	Powerhouse	0	4	14	37	0
	Outfall	0	3	0	17	0
Jul 5	Forebay	2	0	0	0	0
	Spill	6	5	35	54	0
	Powerhouse	1	1	18	25	0
	Outfall	0	2	0	16	0
Jul 6	Forebay	11	0	0	0	0
	Spill	5	5	45	50	0
	Powerhouse	0	0	25	13	0
	Outfall	0	1	0	11	0
Jul 7	Forebay	1	0	0	0	0
	Spill	3	1	4	32	0
	Powerhouse	0	2	10	24	0
	Outfall	2	0	4	32	0
Jul 8	Forebay	0	0	3	1	0
	Spill	0	7	35	39	0
	Powerhouse	0	0	25	30	0
	Outfall	0	0	3	1	0
Ju1 9	Forebay	3	1	0	0	0
	Spill	0	4	35	67	0
	Powerhouse	0	0	35	24	0
	Outfall	0	1	5	6	0

Cormorants and pelicans along with an occasional gull or tern were noted feeding at the juvenile bypass outfall with pelicans being the predominate species. Pelicans were also observed roosting on the rocks downstream in the wildlife park.

Research: Gas bubble trauma (GBT) examinations did not occurred this week due to the high number of heat stressed fish noted in the separator. The adult lamprey passage study continued.

Project: Ice Harbor
Biologists: Ken Fone
Dates: July 3 - 9, 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 4 was out of service on July 7 from 0459 hours to 0938 hours, due to the wicket gate lock solenoid not releasing on start-up and failure of exciter DECS-B.

Units were operated within the 1% peak efficiency range (hard constraint).

Unit 6 scroll case was unwatered on July 8 for annual maintenance. There were no fish observed during this operation.

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on July 6, 7, 8, and 9.

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) depth and channel/tailwater differential were in criteria, except for a depth of 7.6 feet on July 6 which occurred when the gate was slightly off of sill in manual control. The powerhouse operator was informed and the gate was lowered down to sill The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria on all inspections. The north shore entrance (NSE) 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 taken out of service at 0846 hours on April 22 to replace the pre-lubrication pump. Six of the eight south shore AWS pumps were operated.

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: STS operation was changed from continuous-run mode to cycle-run mode on July 9 due to the average fork length of subyearling Chinook being greater than 120 mm at the Lower Monumental Fish Facility. Inspection of each unit's STSs and unit 4 VBSs occurred on June 22 and 24. No screen problems were 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 5BN was found to be not working on June 22 due to a bad light switch. Orifice 5BS was opened and 5BN closed until the switch was repaired on July 8.

Juvenile Fish Facility: Fish are being routed through the bypass, except when sampling operations are occurring.

Fish Sampling: Sampling days alternate from Monday and Wednesday, to Tuesday and Thursday, each week. Sampling did not occur this week, per the 2015 Fish Passage Plan, Ice Harbor Section 2.4.1.2.e.2, due to the sampling facility water temperature being 71.9 and 71.8 degrees F on the morning of July 7 and July 9, respectively.

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
26.6	19.9	16.8	8.3	71	70	11.8	11.2

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly inspections of unit 5 and unit 6 cooling water strainers occurred on July 6. There were no fish found. The other strainers will be checked the week of July 20.

Invasive Species: No new exotic species have been found.

Avian Activity: Daily bird numbers observed are shown in Table 2 below. Total bird numbers moderately decreased from last week. Many of these birds were roosting on Eagle Island. Contracted land-based hazing of piscivorous birds for 8 hours per day ended on June 30.

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

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 3	---	---	---	---	---
July 4	---	---	---	---	---
July 5	---	---	---	---	---
July 6	42	13	3	0	31
July 7	44	3	6	0	24
July 8	76	10	31	0	19
July 9	68	6	16	0	17

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 3 - 9, 2015

Turbine Operation

The units are being operated in hard constraint of the 1% operational 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 at 0800 hours on June 22 for annual maintenance with an estimated return of service of July 16, 2015. Units 4 and 5 were rotated out of service on July 7 and Units 2 and 6 on July 8 for STS inspections.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on July 3, 4, 5 and 8.

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 5.4 to 5.8 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 6.0 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 20 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-15% surface coverage. No problems were observed in the gatewells.

STSs/VBSs: STSs were operating in continuous-run mode due to average sub-yearling Chinook length being less than 120 mm until July 8. STSs began operating in cycle mode on July 8. 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 with the exception of July 9 with 20 orifices open.

Collection Facility: Operated in collection for transport mode. No facility problems this period.

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

River Conditions

Routine spill in support of fish passage was initiated at 0001 hours on April 3. 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
25.5	19.7	12.8	7.3	70	70	5.0	4.5

*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 prawn.

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 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 3	1100	34	0	0	0
July 4	1100	23	0	0	0
July 5	1100	6	0	0	0
July 6	1100	4	0	0	0
July 7	1100	10	1	0	0
July 8	1105	11	2	0	0
July 9	1100	25	0	0	0

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

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

Project: Little Goose
Biologist: Richard Weis
Dates: July 3 - 9, 2015

Turbine Operation

All turbine units were available for service throughout this report period except unit 3. Unit 3 was removed from service for annual maintenance on July 7. Hard 1% peak efficiency constraint criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on July 5 and 9.

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. 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 1.1 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 7.8 and 8.1 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 4.3 and 4.4 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.1 and 6.5 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 2.1 and 2.2 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 3.8fps.

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: 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 has oil absorbent pads deployed and slight sheen of oil has been seen. All criteria were met. Drawdowns were performed on July 08 on unit 1. All criteria were met.

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

Transportation Facility: The JFF was transporting every other day. GBT (Gas Bubble Trauma) sampling was performed on July 06. No signs of GBT were seen.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 54,768 fish were collected for transport. The descaling and mortality rates were 0.9% and 2.5% respectively. This weekly report period saw 3 adult lamprey removed from the 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
27.3	22.0	10.3	7.4	77.6	69.5	5.9	5.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not checked this week.

Invasive Species: The zebra mussel substrate monitor was inspected on June 02. No zebra mussels were detected.

Avian Activity: Bird hazing ended on June 16. See Table 2 below for count details.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
July 3	0800	39	1	0	1
July 4	1000	73	2	0	0
July 5	1045	68	26	0	1
July 6	1330	42	5	0	0
July 7	1215	68	8	0	1
July 8	1000	62	1	0	1
July 9	0800	58	7	0	0

*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 and Ches Brooks
Dates: July 3 - 9, 2015

Turbine Operation

Units are operating within the hard constraint 1% criteria. Unit 4 is out of service for annual maintenance/six year overhaul with a tentative return to service date of August 17.

Adult Fish Passage Facility

The adult fishway was inspected by Corps or Blue Leaf Environmental biologists on July 3, 4, 5, 6, 7 and 8.

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 with the exception of weir depth readings of 7.8 feet on July 3. South shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections with the exceptions of July 7 and 8 when differentials of 0.8 feet were noted.

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 4.8', 5.4', 5.8,' 5.4', 5.2' and 5.0 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NSE1 remains in the closed position. 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. The out of criteria readings were 0.8', 0.8', 0.7', 0.7', 0.7 and 0.9 feet, respectively. All readings were taken from the electronic display on the FSC board due to the north shore access elevator being out of service.

The collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 1.0 - 1.2 fps and a weekly average of 1.1 fps. Alternative methods of measuring collection channel velocity are being investigated for installation as part of the adult fish ladder control system upgrade.

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris varied with wind strength and direction. Daily gatewell surfaces inspections continue with floating debris being removed by hand basket to prevent orifice blockages. No oil was reported in gatewell slots.

ESBSs/VBSs: Video inspections occurred June 26 - 27. No problems of note were observed.

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

Collection Facility: Collection for transport continues.

Transport Summary: Every other day barge transport is occurring with barges departing on odd numbered days this month.

River Conditions

The RSW was closed following regional coordination, and spill was distributed as defined in the Fish Passage Plan Table LWG-9. This action to improve adult fish passage was implemented at 1210 hours on July 8. River conditions during the week are outlined in Table 1.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (F^{O})		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
28.1	22.8	15.1	10.1	67.0	65.5	5.0+	4.7

*Cooling water intake temperature.

Other

Auxiliary pump 1 (supplies water to the ladder exit) and the three temporary ladder cooling pumps remain in 24 hour operation. Temporary ladder cooling pump 3 was found tripped offline at 1030 hours July 9, the pump was brought back online but tripped again at 1824 hours the same day. An air conditioned enclosure is being built to keep the circuit breaker power housings cool.

Inline Cooling Water Strainers: The next cooling water strainer inspections are scheduled for late July.

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

Avian Activity: Hazing activities concluded June 30. 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 3	1945	0	0	0
July 4	1945	1	1	0
July 5	1945	4	0	0
July 6	1945	2	0	0
July 7	1945	3	0	0
July 8	1945	1	0	0
July 9	1945	0	0	0

Adult Fish Trap Operations: The adult ladder fish trap was not operated due to water temperature exceeding 68.0°F. Adult fish trap water temperatures ranged from 69.3 - 73.2°F this week.

Fish Rescue Operation: No fish rescue occurred.

Research

Onsite research has concluded for the season.