U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#16-2015

Project: McNary
Biologist: Bobby Johnson
Dates: June 12 - 18, 2015

Turbine Operation

McNary had 10 to 11 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
12	Feb 8 – Aug 1	About 6 months.	Rewind contract.
3	Jun 9 – 19	About 10 days.	Bearing inspection.
10	Jun 10 – 18	About 8 days.	Bearing inspection.
1, 2 & 4	Jun 16	1.4 hours.	ESBS camera inspections.
9	Jun 17 – 27	About 10 days.	Brush failure and replacement.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on June 13, 15 and 17. NOAA fisheries did their inspection on June 17. Visual adult fish counts continued. The project biologist installed temperature probes at the exits on June 14 as water temperature monitoring began on June 15. A probe was also installed at the juvenile facility separator.

At the Oregon ladder, the fish pump 1 governor oil pump failed on June 15. The fish pump was removed from service at 0937 hours, leaving only fish pump 3 in service. The operators raised NFEW3 out of the water by 1002 hours and completed adjustments to SFEW1 and SFEW2, which required raising them, by 1345 hours in order to maintain a 1.0 to 2.0 feet pool differential at both entrances per the Fish Passage Plan (FPP). Criteria results are discussed below.

The maintenance staff determined the quickest course of action was to remove the governor oil pump from fish pump 2, which is out of service for overhaul, and install this pump at fish pump 1. The work was completed and fish pump 1 was restarted on June 17 at 1510 hours. At this time, NFEW3 was lowered along with SFEW1 and SFEW2 being reset to their criteria depth of 8.0 feet or deeper. Fish pump 1 blade angle was increased to 30 degrees at 1524 hours. Fish passage appeared unaffected during the one fish pump operation of the Oregon ladder.

Fish Ladder Exits: Both ladder exits met all criteria. Debris loads in the area of the exits were generally minimal to light with brief influxes of aquatic vegetation. Picketed leads were cleaned as required, including the weekend.

At the Oregon ladder exit, the operators adjusted the regulating weir set point on June 15. Also that day, the general maintenance staff removed a log from weir 335. The mechanics replaced air lines at the count station on June 16.

Fishway Entrances and Collection Channel: At the Washington entrance, all entrance inspection points met criteria except entrance weir W3 which measured 7.8 feet on June 17. There was also an alarm and the weir was reset. On June 19, the biologist examined the entrance data and found that W2 had not moved since May 4. The operator found the weir in manual mode and returned it to automatic operation. W2 not being in automatic mode may explain why W3 was out of criterion.

At the Oregon ladder north powerhouse entrance, the pool differential and weir NFEW2 remained in criteria all week. From June 15 to 17, NFEW3 was raised above the water line and out of criterion due to the fish pump outage described above.

At the south powerhouse entrance, the pool differential measured 0.9 feet and was out of criterion on June 15 before SFEW1 and SFEW2 were raised to a level which would maintain a 1.0 to 2.0 feet differential. Once raised, the weirs were out of criteria from June 15 to 17. SFEW1 and SFEW2 measured depths of 5.6 and 5.7 feet, respectively, on June 17.

Collection channel surface velocities averaged 1.4 feet per second, which includes two days of one fish pump service.

Auxiliary Water Supply System: The Wasco County Public Utility District (PUD) turbine unit in the Washington ladder had no interruptions in service. One alarm was triggered and reset on June 15.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees except as described above when fish pump 1 was out of service from June 15 to 17. 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 June 13, 15 and 17. This week, 1,300 juvenile lamprey and 97,100 smolts were bypassed.

Sample tank water temperatures continue to be monitored. The mechanical and electrical staffs are considering a swamp cooler installation in the wet lab.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was minimal to light and generally centered on the powerhouse except when northeast winds would temporarily move accumulations toward the Oregon shore. New incoming debris was minimal. The debris was a mix of woody material and aquatic vegetation. No high trash rack differentials were recorded and no trash racks were cleaned.

One problem was observed in the gatewell slots. At slot 1A, the ESBS rope was found drawn into the south orifice intake on June 16. The south orifice was closed and the north orifice was opened. The rope was tighten, which removed the slack, by the general maintenance staff. No apparent injury or fish mortality was observed.

ESBSs/VBSs: All operational turbine units have ESBSs installed. Screens were not installed at unit 12 as this unit is out of service. The screens in slots 3B and 11C remained in timer mode. ESBS camera inspections conducted on June 16 in units 1, 2 and 4 revealed no problems. During the inspections, we observed four smolt mortalities in slot 2A.

Rehabilitation of vertical barrier screens (VBSs) continued. No high VBS differentials were recorded. The VBSs in units 6 and 12 were inspected, which includes cleaning, on June 17. The general maintenance staff continues to removed sponge from the downstream sides of the VBSs. The fisheries staff observed one juvenile lamprey mortality and four smolt mortalities during the inspections.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS inspections in units 6 and 12, orifices in the affected slots were closed, with makeup water coming from orifices in adjacent slots. For unit 12 (which is out of service), the orifices were not switched back until the next day. As mentioned above, the orifices in slot 1A were switched on June 16. They were also switched back the next day.

All systems functioned satisfactorily in automatic mode. In order to reduce the side dewatering valves operating ranges, on June 12, the west and center floor valves were opened one inch each. With debris decreasing, on June 13, the rectangular screen cleaning brush cycle interval was increased from every 120 to 180 minutes. The drive rollers on all three screen cleaning brushes were lubricated on June 18.

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.

An air hose to the B side sample gate was replaced on June 12 after leaks were found. Sampling was not affected. The A side sample tank anesthetic chambers release valves oil reservoir was found leaking air and was replaced on June 15. Again, sampling was not affected.

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. Routine spring spill in support of fish passage concluded at 0001 hours on June 16 when the summer spill program began. Fifty percent of river flow is spilled in the summer season. The spill pattern was altered for navigation as required. The smolt monitoring staff began recording temperature data on June 15. The results are provided 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
177.1	149.6	88.5	61.2	66.3	65.5	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on July 7.
Invasive Species: The next zebra mussel station examinations will occur in late June.

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 at the project. A second shift continued. Boat hazing occurred on Monday, Wednesday and Friday as scheduled. Limited lethal take of gulls and cormorants continued.

Grebe numbers continued to decline in the forebay with only one bird being observed. Terns were the most active species with an occasional gull, cormorant, pelican or osprey observed. Gulls, pelicans and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay zone.

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Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Jun 12	Forebay	1	0	3	0	0
	Spill	50	1	14	9	0
	Powerhouse	0	0	0	1	0
	Outfall	1	0	0	0	0
Jun 13	Forebay	0	0	1	0	0
	Spill	4	1	5	7	0
	Powerhouse	0	0	1	0	0
	Outfall	2	0	0	1	0
Jun 14	Forebay	0	0	0	0	0
	Spill	4	2	2	1	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	4	0
Jun 15	Forebay	1	0	0	0	1
	Spill	0	0	2	9	0
	Powerhouse	0	0	0	0	0
	Outfall	0	3	0	2	0
Jun 16	Forebay	0	0	0	0	0
	Spill	0	0	1	8	0
	Powerhouse	0	0	0	0	0
	Outfall	0	1	0	6	0
Jun 17	Forebay	1	1	1	1	0
	Spill	10	1	0	25	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Jun 18	Forebay	0	0	3	1	0
	Spill	5	0	9	10	0
	Powerhouse	0	0	0	0	0
	Outfall	2	0	0	6	0

Grebe numbers continued to decline in the forebay with only one bird being observed. Terns were the most active species with an occasional gull, cormorant, pelican or osprey observed. 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. Pelicans were also observed along the Oregon shore at night by the juvenile facility. Pelican numbers appear to be rising. Gulls, cormorants and pelicans were noted feeding at the juvenile bypass outfall. Pelicans and gulls were also observed roosting on the rocks downstream in the wildlife park.

Bird hazing distress calls remain deployed around the project and continued to function satisfactorily. This week, the fisheries staff put the batteries in carriers. The fisheries mechanics continued to clean the bird hazing water cannon pump intake as needed. The general maintenance staff has agreed to clean the intake on the weekends. One of two sprinkler heads jammed on June 17 and was reset. The mechanics also began installing more bird wire on the navigation lock wing wall walkway hand rail.

Research: Gas bubble trauma (GBT) examinations continued. So far this month, we have noted nine mortalities in the recovery raceway. On June 17, five of these mortalities were observed. On June 18, a request to decrease GBT monitoring was granted, which will reduce the examinations from twice to once a week.

Preparations for the adult lamprey passage study continued. From June 17 to 18, the lamprey researcher installed the cameras on the framework and then installed the framework in front of the lamprey passage structure at SFEW2.

Project: Ice Harbor
Biologists: Ken Fone
Dates: June 12 - 18, 2015

Turbine Operation

Unit 2 was out of service from 0735 hours to 1615 hours on June 16 for asbestos sampling. Units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on June 15, 16, 17, and 18.

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 on all inspections. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria. 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 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 cycling mode to continuous-run mode on June 3 due to the average fork length of subyearling Chinook being less than 120 mm at the Lower Monumental Fish Facility. Monthly inspection of each unit's STSs last occurred on May 19 and

21. Inspection of unit 3 VBSs and the slot 1A VBS also occurred. No screen problems were observed. The next STS inspections are scheduled for the week of June 22.

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.

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 occurred on June 15 and 17. Sampling results are outlined in Table 1.

Removable Spillway Weir (RSW): Mandated spill for fish passage began on April 3. The RSW is in operation.

Table 1. Fish condition sampling results at Ice Harbor Dam.

June 15:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	---	---	---
UC-CH	2	0	0	0
C-CH-O	31	0	0	0
UC-CH-O	55	1	0	0
C-SH	7	0	0	0
UC-SH	2	0	0	0
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
TOTAL	97	1	0	0

June 17:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	---	---	---
UC-CH	0	---	---	---
C-CH-O	43	0	0	0
UC-CH-O	57	0	0	0
C-SH	1	0	0	0
UC-SH	0	---	---	---
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
TOTAL	101	0	0	0

River Conditions

River conditions during the week are outlined in Table 2 below.

Table 2. 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
46.5	30.4	36.8	10.6	65	64	7.7	5.5

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections last occurred on May 19 and 21. The fish (all mortalities) found were 7 juvenile steelhead, 2 juvenile lamprey, approximately 74 Siberian prawns, and 1 juvenile walleye. The next turbine cooling water strainer inspections are scheduled for the week of June 22. Semi-annual transformer cooling water strainer inspections occurred on June 8. The fish recovered were 33 live juvenile lamprey that were released back to the river in good condition, and 4 juvenile lamprey mortalities.

Invasive Species: No new exotic species have been found.

Avian Activity: Overall bird numbers observed this week (Table 3) decreased from what was observed the previous week. Contracted land-based hazing of piscivorous birds occurred for 16 hours per day. Additionally, concurrent boat-based hazing took place for 8 hours per day, 3 days per week. The hazing program has generally been effective at pushing birds away from the dam.

Table 3. Daily maximum piscivorous bird counts at Ice Harbor Dam

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 12	4	12	0	0	15
June 13	6	12	0	0	12
June 14	8	16	0	0	4
June 15	3	6	0	0	26
June 16	9	10	1	0	18
June 17	0	5	0	0	9
June 18	5	11	1	0	12

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: June 12 - 18, 2015

Turbine Operation

The units are being operated within hard constraint 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.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on June 12, 13, 14 and 17.

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 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 5.6 to 6.1 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 24 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 are operating in continuous-run mode due to average sub-yearling length being less than 120 mm. STS inspections were conducted June 2 and 3 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. No facility problems this period.

Transport Summary: Alternate day barging began on May 22.

River Conditions

Spring spill operation 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
45.8	31.1	21	18.6	66	65	4.6	3.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on June 3. There was one live juvenile lamprey recovered. Mortalities included 12 juvenile lamprey, 2 salmon smolts, and 1 steelhead smolt.

Invasive Species: No zebra mussels were observed at the monitoring stations on June 5.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2. 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
June 12	1100	11	1	0	0
June 13	1100	13	1	0	0
June 14	1100	5	1	0	0
June 15	1100	10	4	0	0
June 16	1100	5	2	0	0
June 17	1100	17	0	0	0
June 18	1100	22	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: June 12 - 18, 2015

Turbine Operation

All turbine units were available for service throughout this report period. Unit 3 was not available for power generation after Headgates were installed to determine work load needed for digital governor controls install on June 8-10. Hard constraints of 1% peak efficiency criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on June 16 and 17.

Fish Ladder: The ladder exit head differentials held steady at 0.0 feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs held steady at 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials held steady at 0.0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit area. 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. RJS was here on May 20 to update hardware and software. 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. Channel to tailwater head differentials ranged between 1.0 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 7.6 and 8.3 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 5.4 and 6.7 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 1.8 and 2.2 fps (criteria 1.5 to 4.0 fps). The monthly June 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. 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 to 0.5 square feet for the week.

Spillway Weir: The spillway weir was operating in the High Crest position. The 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 since a slight sheen of oil had been seen. Drawdowns were performed on Units 1 and 2 on June 15. All criteria were met.

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

Transportation Facility: The JFF was transporting every other day. GBT (Gas Bubble Trauma) sampling was performed on June 15. No signs of GBT were seen.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 73,037 fish were collected for transport. The descaling and mortality rates were 0.7% and 0.2% respectively. This weekly report period saw 2 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
53.6	44.9	16.2	13.4	70.8	67.4	6.0+	5.1

*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 chart for daily counts.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
June 12	1300	26	0	0	0
June 13	1050	71	5	0	0
June 14	1130	40	7	0	0
June 15	0930	55	3	0	2
June 16	1030	71	4	0	1
June 17	1200	115	6	0	1
June 18	1030	78	4	0	2

*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: June 12 - 18, 2015

Turbine Operation

Units are operating in hard constraint of the 1% criteria.

Adult Fish Passage Facility

The adult fishway was inspected by Corps or Blue Leaf Environmental biologists on June 12, 13, 14, 15, 16 and 17.

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 with the exception of June 16 when a differential of 0.9 feet was 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 5.3', 5.1', 5.2,' 5.3', 5.3' and 5.1 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 with the exception of 6.8 feet and 6.9 feet readings on June 13 and June 17, respectively. North shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections with the exceptions of June 16 and 17 when differentials of 0.7' and 0.8 feet were noted. All readings were taken from the electronic display on the FSC board due to the north shore access elevator being out of service.

Collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 0.9 - 1.1 fps and a weekly average of 1.0 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 continued with floating debris being removed by hand basket to prevent orifice blockages. No oil was reported in gatewell slots.

ESBSs/VBSs: The next video inspections are scheduled for late June.

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 in June.

River Conditions

Spring spill in support of fish passage is in progress. 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
44.3	33.3	20.6	20.2	68.0	66.0	5.0	4.3

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were last inspected May 28.

Invasive Species: No evidence of zebra/quagga mussel was observed June 12.

Avian Activity: Hazing activities began April 1. 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. Pelicans have been observed foraging in the Lower Granite tailrace since May 11. Though pelicans are not included in the table below, 20 or more are frequently observed foraging in the tailrace and an additional 15-20 have been observed resting on the sand island downstream from Boyer Park. Pelican and gull numbers are steadily declining.

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

Date	Time (hours)	Gulls	Cormorants	Terns
June 12	0600	2	0	0
June 13	0600	3	0	0
June 14	1945	3	0	0
June 15	0600	4	0	0
June 16	1945	1	0	0
June 17	0600	3	0	0
June 18	1945	5	0	0

Adult Fish Trap Operations: The adult fish trap is operating at a sample rate of 15% Monday through Friday.

Fish Rescue Operation: No fish rescue occurred.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: This study aims to enumerate and characterize natural production of yearling Chinook and juvenile steelhead above LGR with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday through mid June with a goal of collecting 2,000-5,000 genetic samples from yearling Chinook and juvenile steelhead.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study: NPT began steelhead kelt collection March 29. This research project investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. NPT will transport up to 150 kelts to Dworshak National Fish Hatchery as part of this study.

National Marine Fisheries Service (NMFS) In-River Survival: NMFS staff has begun PIT-tagging Chinook and steelhead smolts for their Survival Study to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LGR tailrace. The onsite portion of this study has concluded for the season.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The specific goals are to characterize the migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2014 in natal streams and are diverted to the Sort-By-Code tanks at LGR.