U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2015

Project: McNary
Biologist: Bobby Johnson
Dates: June 26 – July 2, 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.
7	Jun 30	5.8 hours.	Clean brush rigging.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on June 26, 28 and July 2. Visual adult fish counts and exit temperature monitoring continued. On July 1, review of video tape for adult lamprey counts began. Also, on July 1, National Oceanic & Atmospheric Administration (NOAA) fisheries personnel inspected the fishways.

On June 26, the new potable waterlines were tied into the project system. During the tie in, the project was without potable water. For the Oregon ladder, only one fish pump can be operated on raw water. From about 0806 to 2220 hours, the ladder had only one functional fish pump as described below.

From 0806 to 2210 hours, fish pump 1 was out of service. From 0806 to about 0845 hours, fish pump 3 was out of service for the cooling system to be switched to raw water. From about 2200 to 2220 hours, fish pump 3 was out of service to return the cooling system to potable water.

From about 0806 to 2210 hours, the north powerhouse entrance weir, NFEW3, was raised out of the water per the Fish Passage Plan (FPP) in order to maintain the pool differential at 1.0 to 2.0 feet. The measured differential was 1.3 to 1.4 feet. NFEW2 was in criteria at 8.0 to 9.2 feet.

During the same time frame, at the south powerhouse entrances, SFEW1 and SFEW2 were raised to maintain the pool differential at 1.0 to 2.0 feet. Initially, both weirs were at 8.0 to 8.1

feet. However, the pool differential was 0.9 feet. At about 1008 hours, both weirs were raised to 5.2 feet, which resulted in a pool differential of 1.2 feet.

The Oregon ladder was inspected early on June 27 to insure the system was in criteria, which it was. No disruption of fish passage was noted.

From about 0748 to 2210 hours, the Wasco County Public Utility District (PUD) turbine unit in the Washington ladder was also cooled with raw water. Brief unit outages occurred during the switch to and from raw water. No adjustment to the ladder was required.

Fish Ladder Exits: Both ladder exits met all criteria. The picketed leads are being cleaned as required including weekends and in lieu holidays.

At the Washington ladder exit, debris was minimal. On June 26 and July 2, the operators reset a regulating weir alarm. This week, one tilting weir and three regulating weir set point adjustments were made.

At the Oregon ladder exit, the debris load was minimal to moderate with woody material and aquatic vegetation predominating. On July 1, exit weir 340 was set to bypass mode after the encoder failed. Ladder operation will not be adversely affected. The operators adjusted the regulating weir set point on June 26.

Fishway Entrances and Collection Channel: At the Washington entrance, all entrance inspection points met criteria. Oregon entrance operations on June 26 are described above. Other than that day, all inspection points were in criteria. On June 1, SFEW1 and SFEW2 were calibrated. Collection channel surface velocities averaged 1.3 feet per second.

Auxiliary Water Supply System: On June 26, PUD turbine the unit in the Washington ladder was cooled with raw water 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 on June 26 is described above. One other interruption occurred on July 1 at 1120 hours, when pump 3 tripped off line due to insufficient cooling water flow to the bearings. The outage was brief as the flow was quickly adjusted. 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 27, 29 and July 1. This week, 1,000 juvenile lamprey and 184,226 smolts were bypassed.

The sample tank water temperature continues to be monitored. The B sample tank water temperature was over 70 degrees for the first time on July 1. The fisheries staff monitored fish in all areas for signs of heat stress. Smolts suffering from heat stress were noted at the separator on June 27 and July 1. Continued hot weather is a grave concern. Wind and storms did mix the forebay at times.

The facility was without potable water on June 26 as described above. Potable water dispensers and port-a-pots were used that day. Also, the wet lab and the passive integrated transponder (PIT) tag room were without air conditioning (AC) during the potable water outage as both AC units use potable water. Fans were brought in to circulate the air. On June 27, the mechanic working on the potable water and AC systems noted the PIT tag room was not cooling. The mechanic added Freon to the AC unit.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was minimal to moderate and generally centered on the powerhouse except when northeast winds would temporarily move accumulations toward the Oregon shore. New incoming debris was minimal to light and consist 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 49 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 3B and 11C slots remained in timer mode. On June 27, the ESBS brush mechanism on the screen in 1A slot was noted not to be cycling properly. After the operator calibrated the brush, they switched it to timer mode. The Bonneville Power Administration (BPA) requested ESBS camera inspections not to occur this week. Also, high water temperatures were a concern.

Rehabilitation of VBSs continued. No high VBS differentials were recorded. The VBSs in units 1, 2, 5 and 8 through 11 along with 4A slot were cleaned on June 30 and July 1. The work began at 0500 hours each day. The general maintenance staff continues to removed sponge from the downstream side of the VBSs. The fisheries staff observed one juvenile lamprey and 92 smolt mortalities during the cleaning. Most of the mortalities were in units 10 and 11 and in slot 4A.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS cleaning, orifices in the affected slots were closed, with makeup water coming from orifices in adjacent slots. On the morning of June 30, the general maintenance staff adjusted the orifices from 0500 to 0800 hours. Several high water alarms occurred until the fisheries staff arrived. Orifice attraction lights were replaced as needed. All systems functioned satisfactorily in automatic mode.

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

Some additional debris arrived at the separator during the early VBS cleaning on June 30.

Due to extreme hot weather and warming water temperatures, the sample rate remained at 0.5 percent in an effort to reduce the number of fish handled.

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
166.4	139.9	83.5	70.0	70.6	68.9	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 zebra mussel station examinations on June 26 revealed no problems.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Jun 26	Forebay	0	0	0	0	4
	Spill	0	3	13	22	0
	Powerhouse	0	1	9	3	0
	Outfall	0	0	0	0	0
Jun 27	Forebay	0	0	0	0	2
	Spill	2	4	55	25	0
	Powerhouse	0	0	18	6	0
	Outfall	0	1	0	13	0
Jun 28	Forebay	0	0	0	0	5
	Spill	0	0	40	25	0
	Powerhouse	0	0	7	3	0
	Outfall	0	2	0	18	0
Jun 29	Forebay	0	0	0	0	0
	Spill	0	0	63	28	0
	Powerhouse	0	0	3	10	0
	Outfall	4	1	0	5	0
Jun 30	Forebay	0	0	0	0	2
	Spill	0	0	5	24	0
	Powerhouse	0	0	4	2	0
	Outfall	0	0	3	5	0
Jul 1	Forebay	0	0	0	0	1
	Spill	0	1	21	31	0
	Powerhouse	0	0	17	3	0
	Outfall	0	0	0	0	0
Ju1 2	Forebay	1	0	0	0	0
	Spill	0	0	10	14	0
	Powerhouse	0	0	8	0	0
	Outfall	0	0	0	22	0

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 cormorants continued.

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.

Grebe numbers continued to be low in the forebay with only a small group of birds being observed. An occasional gull or osprey was observed usually while doing other inspections. 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. Tern and pelican numbers remain high as gulls and cormorants appear to be declining. Terns appear to prefer the north edge of the spill flow at times. Terns continued to feed in the powerhouse flow, which is unusual when spill is occurring. This would suggest subyearling Chinook are passing through the powerhouse in significant numbers.

Gulls, terns, cormorants and pelicans 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 continued at the frequency of once per week. On July 1, after 85 fish were examined, the work was halted at 0900 hours due to fish exhibiting heat stress. Six mortalities were removed from the recovery raceway. As the hot weather trend continues, the examination next week may be cancelled. The adult lamprey passage study continued. On July 1, the camera from was raised, examined and cleaned.

Project: Ice Harbor
Biologists: Ken Fone
Dates: June 26 – July 2, 2015

Turbine Operation

All units were available for service. Unit 6 was operated out of priority ahead of unit 3 from 1159 hours on June 28 to 0439 hours on June 29 due to a BPA power system contingency request for generation out of line 3. Units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on June 29, 30, and July 1.

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 depths of 7.8 feet and 7.7 feet on June 29 and July 1, respectively. 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, except for a depth of 7.0 feet on June 29. These out of citeria events occurred when the gates were off of sill (not more than 0.5 feet) in manual control. The powerhouse operator was informed and the gates were lowered down to sill. 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, except when pump 1 momentarily tripped off line at 0051 hours on June 27. 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 operations were 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 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 can be repaired.

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

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

Fish Sampling: Sampling alternates from Monday and Wednesday, to Tuesday and Thursday, each week. Sampling occurred on June 29. The sampling facility water temperature was 71.0 degrees F on the morning of July 1. After consulting with CENWW-OD-T biologists, the decision was made not to sample fish that day, per the 2015 Fish Passage Plan, Ice Harbor Section 2.4.1.2.e.2. Sampling results are outlined in Table 1 below.

Table 1. Fish condition sampling results at Ice Harbor Dam
June 29:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	---	---	---
UC-CH	0	---	---	---
C-CH-O	29	3	0	0
UC-CH-O	75	1	0	0
C-SH	1	0	0	0
UC-SH	0	---	---	---
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
TOTAL	105	4	0	0

Fin splits that extend all the way to the main body of the fish are categorized as fin injuries. This type of fin injury (mainly in the caudal fin) has been observed in some of the sample fish this season. The seasonal incidence of these fin injuries in all steelhead and Chinook (excluding fry) routinely collected and sampled in the fish facility up to June 29 is 22.1% and 12.3%,

respectively. Fish (predominantly Chinook) were dipped out of gatewell slot 1B and transported to the fish facility to become the fish for condition sampling on June 23. The incidence of fin injuries in this group of Chinook was 2.4%, indicating that some of the fin injuries seen this season may be occurring downstream of the gatewell slots. The freshness of most of the fin injuries observed this season is undetermined, so there is the possibility that some injuries are also occurring upstream of the dam. Fish facility personnel will continue to investigate for possible sources of the injury throughout the juvenile bypass and collection system. On July 1, a video camera was used to inspect the structural joints in the vicinity of the fish separator exit. The joints looked flush, with nothing protruding that could cause fin injuries.

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
36.8	26.4	21.0	9.1	70	68	11.2	6.6

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on June 22 and 24. The fish (all mortalities) found were 19 juvenile lamprey, 42 Siberian prawns, 1 sculpin, and 1 crawdad.

Invasive Species: No new exotic species have been found.

Avian Activity: Daily bird numbers observed are shown in Table 3 below. Gull, pelican, and tern numbers increased significantly this 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. 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 26	38	13	19	0	44
June 27	25	13	0	0	26
June 28	33	22	0	0	21
June 29	10	10	0	0	32
June 30	55	17	11	0	41
July 1	104	14	13	0	17
July 2	---	---	---	---	---

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: June 26 – July 2, 2015

Turbine Operation

The units are being operated within the 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. Unit 3 was removed from service at 0800 on June 22 for annual maintenance with an estimated return of service of July 9, 2015.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on June 26, 27, 28 and July 1.

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 5.5 to 5.6 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 6.0 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 21 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 and continued through this period.

River Conditions

Routine spill operations in support of fish passage began 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
35.1	27.7	17.0	15.4	70	69	5.0	4.9

*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 26	1130	2	0	0	0
June 27	1115	0	0	0	0
June 28	1120	1	2	0	0
June 29	1100	8	0	0	0
June 30	1100	15	0	0	0
July 1	1100	11	0	0	0
July 2	1100	5	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 26 – July 2, 2015

Turbine Operation

All turbine units were available for service throughout this report period except unit 1. Unit 1 was forced out on July 1 at 1100 for pressure relief failure and was returned by 1800. 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 25, 29 and July 2.

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 1.0 and 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials ranged between 0.0 and 0.1 feet (criteria $\leq$ 0.3 ft.). The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

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 1.0 and 1.6 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 7.9 and 8.7 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 6.4 and 7.0 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 1.9 and 2.4 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. Fish pump 1 gear box was rebuilt and is waiting on parts to allow placement of the gearbox into 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 are all deployed and gatewells are cleaned except gatewell 5A which has oil absorbent pads deployed as a slight sheen of oil had been seen. All criteria were met. Drawdowns were performed on June 01 on unit 1. 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 is transporting fish every other day. GBT (Gas Bubble Trauma) sampling was performed on June 29. No signs of GBT were seen.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 60,428 fish were collected for transport. The descaling and mortality rates were 0.6% and 0.5% respectively. This weekly report period saw 1 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.

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
30.8	26.4	10.6	8.6	72.3	70.1	5.8	5.4

*Ladder temperature.

Other

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

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

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
June 26	0800	24	1	0	1
June 27	0800	15	2	0	2
June 28	1430	9	7	0	0
June 29	0730	40	3	0	0
June 30	0900	70	4	0	0
July 1	1050	62	7	0	2
July 2	1200	49	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 and Ches Brooks
Dates: June 26 – July 2, 2015

Turbine Operation

Units are operating within the 1% hard constraint 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 June 26, 27, 28, 29, 30, and July 1.

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 30 when a differential of 0.8 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 5.1', 5.2', 5.5,' 5.1', 5.2' and 5.4 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 with the exception of June 29. The out of criteria readings were 0.9', 0.9', 0.8', 0.8', and 0.5 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.

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 the 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.

River Conditions

Summer spill operations in support of fish passage are 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
36.5	30.8	18.2	15.8	68.0	64.1	5.0+	4.4

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected June 29. Mortalities included 43 juvenile lamprey.

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

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
June 26	1945	0	0	0
June 27	1945	0	0	0
June 28	1945	0	0	0
June 29	0600	0	0	0
June 30	1945	1	0	0
July 1	0600	0	0	0
July 2	1945	0	0	0

Adult Ladder Auxiliary Pumps: Pump 1 (which supplies water to the ladder exit) and the three temporary ladder cooling pumps remain in 24 hour operation.

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 66.2-70.5°F this week.

Fish Rescue Operation: No fish rescue occurred.

Research

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. The attempt to collect kelts for this study concluded June 30.

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. The onsite portion of this study concluded June 30.