U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#15-2014

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: June 6 - 12, 2014

Turbine Operation

McNary had 12 units available for power generation this week. On April 1, the hard constraint one percent criteria began. No units ran outside the criterion. Turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
11	Sep 18, 2013 to Nov 15, 2014	About one year and two months.	Turbine bearing issue continues.
4	Mar 27 to Nov 15	About 7.5 months.	Turbine bearing issue continues.
9, 10 & 12	Jun 10	1.3 hours total.	ESBS camera inspections.
2 & 13	Jun 11	62 minutes total.	Trash rack cleaning.
1, 3, 10 & 12 to 14	Jun 12	4.7 hours total.	Trash rack cleaning.

Adult Fish Passage Facilities

On June 7, 8 and 9, the McNary fisheries biologist performed measured inspections of the adult fishways. Visual adult fish counts continued. The fisheries staff is checking the exits on all shifts when the juvenile system is in primary bypass. The adult lamprey passage season and exit temperature monitoring will begin June 15.

On June 18, we will examine the lamprey passage structure at SFEW2 with a camera to see why we could not fully open the structure to one foot. We had difficulty with the east side of the structure.

Fish Ladder Exits: Both ladder exits met all Fish Passage Plan criteria during measured inspections. Despite slight increases in the quantity of tumbleweeds, debris loads remained fairly low near the exits.

The Washington exit generally has more debris and we have cleaned the picketed leads more often at this location. On June 7, weir 339 triggered and alarm and the operator reset it without incident.

At the Oregon exit, our differential monitoring of the traveling screens revealed no problems. Two false differential alarms occurred, which the operator reset. On June 7, the phone at the count station failed. That day, we provided a radio to the counters and temporarily repaired the phone, which works intermittently.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Occasionally, both weirs have a very slight amount of slack in their cables. Slack occurs most often at W3's south cable. In the near future, the project will replace the LED's for W2 and W3 with a panel view, which will integrate into the new control system better. The panel view has been ordered.

At the Oregon ladder entrances, all inspection points were in criteria. On June 8, the north powerhouse entrance weir (NFEW3) cables appeared to have a very slight amount of slack. The South powerhouse entrance (SFEW2) continues to drift in and out of calibration. We hope to complete the upgrades of the Oregon entrances in the near future. Collection channel surface velocities averaged 1.6 feet per second.

Auxiliary Water Supply System: For the report week, the PUD turbine unit had no interruptions in service. Fish pumps 1 and 3 ran satisfactorily with blade angles of 30 degrees. Pump 2 remains out of service for major overhaul which will require a contract for the winter of 2014–2015. The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool without any interruptions in service.

Juvenile Fish Passage Facility

The bypass season continues with alternating days of secondary and primary bypass with the switch occurring every morning at 0700 hours. There were no deviations from this schedule. Secondary bypass occurred on June 7, 9 and 11. We bypassed 91,416 smolts and 14,550 juvenile lamprey this week.

Descaling continues to be a concern. Trash rack and VBS cleaning operations are described below. Our system checks have not yet revealed a local cause for the descaling. All operations have been going well. All work is being performed promptly. Repeated inspections have revealed no problems. On June 15, we will conduct a camera inspection of the separator down wells, separator exits and count tunnels.

Forebay Debris/Gatewell Debris/Oil: Heavy amounts of fine floating forebay debris concentrated in the vicinity of the powerhouse. Most of this fine material was composed of woody material and tumbleweeds. The quantity of incoming debris remains light. Project operations and weather patterns continue to affect debris location.

We recorded no high trash rack differentials this week. On June 11 and 12, the project tested racks in slots 1A, 1B, 2A, 3B, 10A, 10B, 10C, 12A, 12B, 13A, 13B, 14A and 14B. We removed at a total of 7.5 ten-yard truck loads of debris. At units 1, 2 and 3, we had 3.3 truckloads of very muddy tumbleweeds from the bottom of the racks. The debris from the remaining units was a

mix of fresh and old tumbleweeds along with aquatic vegetation. No listed fish species were seen in the debris. One live juvenile lamprey was returned to the river. We observed no problems in the gatewell slots. After trash cleaning, we removed sticks that fell from the truck from the slots.

ESBSs/VBSs: ESBSs are deployed in all operational units. Only units 4 and 11 are without ESBSs. Camera inspections this week at units 9, 10 and 12 revealed no problems. The screens in slots 7A and 13C slots remain in timer mode. On June 7, project staff found that the screen in slot 8C had "short cycled" (cleaner brush reversing direction earlier than expected). The operator recalibrated the screen afterwards. On June 9, this screen "short cycled" again and the operator switched it to timer mode.

VBS differential monitoring revealed 2 screens out of criteria. On June 7, 9, 11 and 12, we cleaned these and 12 other screens. We noted 3 smolt mortalities and 2 juvenile lamprey mortalities.

On June 6, the VBS in slot 7C slot was replaced. Project personnel also moved the damaged screens stored at unit 11 to the yard for rehabilitation. On June 9, new VBSs will be install in slots 11B and 11C. .

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Forty two orifices were open all week. During trash removals and VBS checks, we closed the orifices in slots where work was being performed and opened spare orifices in adjacent slots. There were no issues and all systems functioned well in automatic mode. The transition screen cleaning device will remain out of service until winter. We noted 1 steelhead smolt mortality on the side brush access platform this week.

Bypass Facility: During the bypass season, both bypass modes return all fish 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.

Sample gates are in operation only during secondary bypass operations (i.e.: in service every-other-day). The gates functioned well. The primary PIT tag system remains off, as the bypass lines provide a better route for the fish than the PIT tag return lines. The secondary PIT/bypass gates remain off and open for bypass. PSMFC personnel continue to perform weekly examinations of the PIT tag detection system.

River Conditions

River conditions during the week are outlined in Table 2 as provided by the smolt monitoring staff, whose data day runs from 0700 to 0700 hours each day. Extended water temperature monitoring will begin June 15.

The spring spill program, which calls for 40 percent of the flow to be spilled, continued. Due to flow in excess of powerhouse capacity, 47 to 59 percent of flow was spilled this week. From

June 9 at 0716 hours to June 11 at 1210 hours, spill bays 19 and 20 in support of TSW removals as previously scheduled. We followed the spill patterns proscribed in the Fish Passage Plan. On June 16, at 0001 hours, the summer spill program, which calls for 50 percent of the flow to be spilled, will begin.

Table 2. River conditions at McNary 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
336.0	278.5	198.9	130.1	60.7	58.1	4.6	4.0

* Control Room Data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur in early July.

Invasive Species: The next zebra mussel station examination will occur in late June.

Avian Activity: Bird counts continue with each zone being counted by the fisheries staff once a day and usually in the morning. Counts are reflected in Table 3 below.

This week, we observed gulls, cormorants and mostly pelicans on the rock by the Washington boat dock. We also noted ospreys and blue herons on project. Bird numbers appear to be decreasing with fish numbers.

Four grebes were observed in the gatewell slots. We removed two of these. The remaining two passed to the collection channel and out of the system, one being removed from the separator. The grebe in the channel mentioned in last week's report also passed out of the system.

Two shifts of USDA hazing continued with boat hazing occurring on Mondays, Wednesdays and Fridays as conditions allow. Also, a light lethal take continues near the bypass outfall during the boat hazing. The bird distress calls deployed along the navigation lock wing wall and around the project appear to have discouraged roosting. The fisheries staff monitors and adjust all hazing equipment as needed. All hazing techniques appear to be working well as most birds continued to concentrate in the spill flow. Grebes concentrated in the forebay. Water cannon and water supply pump monitoring continued.

On June 9, the previously planned infrasound bird deterrent tests were cancelled. Current hazing techniques were determined to work as well.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 6	Forebay	0	0	0	0	25
	Spill	0	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
June 7	Forebay	0	0	0	0	27
	Spill	0	0	1	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
June 8	Forebay	0	0	0	0	20
	Spill	1	0	2	11	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
June 9	Forebay	2	0	1	0	16
	Spill	0	0	0	4	0
	Powerhouse	0	1	0	3	0
	Outfall	0	0	0	0	0
June 10	Forebay	0	0	1	0	18
	Spill	2	2	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	1	0	0	0	0
June 11	Forebay	0	1	1	0	12
	Spill	6	0	3	5	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	5	0
June 12	Forebay	0	0	0	0	10
*	Spill	NA	NA	NA	NA	NA
*	Powerhouse	NA	NA	NA	NA	NA
*	Outfall	NA	NA	NA	NA	NA

* No tailwater counts were conducted on Thursday, June 12.

Research: GBT monitoring and the juvenile survival study continue. The adult lamprey passage study will begin June 15.

Project: Ice Harbor
Biologist: Ken Fone
Dates: June 6 - 12, 2014

Turbine Operation

Turbine unit 2 tripped off on a protective relay action at 1142 hours on May 18 and remains out of service to investigate a problem associated with the turbine shaft bearing. All other units were available for service.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on June 9, 10, 11, and 12.

Fish Ladders: The north fish ladder inspection areas (picketed leads, head differentials, fishway exit, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (picketed leads, head differentials, fishway exit, and depth over weirs) were in criteria on all inspections. Both the north and the south shore picketed leads are down in their deployed positions.

Fishway Entrances and Collection Channel (inspection date order): 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 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.

Auxiliary Water Supply System: Two of the three north shore fish pumps were operated without problems. Six of eight south fish pumps were operated.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Fish ladder exits were clear of debris and the bubblers were operating satisfactorily. There was little to no debris observed in the forebay and gatewells.

STSs/VBSs: STSs are in position for juvenile fish guidance and have been in continuous run mode since May 27. STS inspections and unit 3 VBS inspections were performed on May 19 and 21, with no problems found.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass was placed in operation on March 17. Twenty orifices are open.

Juvenile Bypass Facility: The bypass is in operation.

Fish Sampling: The first sample of the season occurred on April 2. Sampling days continue to alternate weekly on Mondays and Wednesdays, and Tuesdays and Thursdays. Sampling results for June 9 and 11 are outlined in the tables below.

Table 1. Fish condition sampling results at Ice Harbor Dam

June 9:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	1	0	0	0
UC-CH	6	1	0	0
C-CH-O	34	4	0	0
UC-CH-O	41	2	0	0
C-SH	11	0	0	2
UC-SH	12	0	0	0
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	1	0	0	0
TOTAL	106	7	0	2

June 11:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	0	---	---
UC-CH	1	0	0	0
C-CH-O	48	1	0	0
UC-CH-O	66	1	0	0
C-SH	1	0	0	0
UC-SH	1	0	0	0
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
TOTAL	117	2	0	0

Removable Spillway Weir: The RSW is in operation position. Spill in support of fish passage began April 3, 2014.

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
115.0	90.1	64.7	28.5	58	56	3.4	3.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections took place on May 19 and 21. A total of 13 juvenile lamprey mortalities and one juvenile coho mortality were recovered. Transformer cooling water strainer inspections occurred on June 4. Seven live juvenile lamprey were recovered, with no mortalities observed.

Invasive Species: No new exotic species have been found.

Avian Activity: Piscivorous bird hazing began on April 1. The avian deterrent program has generally been effective at reducing the numbers of piscivorous birds near the dam. Daily bird counts are provided in Table 3. Overall, bird numbers decreased from the previous week.

Table 3. Daily Morning Piscivorous Bird Counts at Ice Harbor Dam

Date	Gulls	Cormorants	Caspian Terns	Pelicans	Grebes
June 6	2	24	8	32	0
June 7	0	9	1	8	0
June 8	0	4	1	24	0
June 9	0	2	0	9	0
June 10	0	2	4	8	0
June 11	0	10	0	16	0
June 12	0	4	5	13	0

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

Project: Lower Monumental
Biologists: Bill Spurgeon and K.C. Deife
Dates: June 6 - 12, 2014

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 5 was out of service on June 10 from 0847 to 1649 hours due to an oil leak.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and PSMFC/State biologists on June 6, 7, 8, 9, and 11.

Fish Ladders: Fishway exit head differentials and depths over the weirs were in 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 with the exception of readings of 0.9' feet on June 7 and 11.

SPE1 and SPE2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections with the exception of a 0.8 feet reading on June 11.

SSE1 weir gate was in depth criteria (criteria: ≥ 8' or on sill) on all inspections. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections with the exception of a 0.8 feet reading on June 9.

The collection channel velocity remained in criteria (1.5 - 4.0 ft/sec) this week.

Any criteria violations at the fishway entrances are related to the failure of the PLC (Programmable Logic Circuit) for automated control. Without automated control, the FCRG (fishway control regulating gate) drifts closed causing the fishway entrance head to go out of criteria at the south shore entrances. Operators are manually controlling the FCRG and fish pumps to maintain head and depth criteria at fishway entrances. The loss of the fishway PLC also caused all weir gates to be placed in local control. This results in criteria violations if monitoring and adjustment does not occur as tailwater level fluctuates. To minimize this, SPE1 and SPE2 are placed on sill.

The replacement PLC for automated control of the fishway has been received. It is being currently being programmed. The automated system is estimated to return to service in June.

The operators have been instructed to conduct a physical inspection on night shift in place of the FPP inspection via data screen conducted normally on that shift.

Auxiliary Water Supply System: AWS pump 3 was out of service on June 9 from 0805 to 1603 hours due to a broken shear pin.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 3.0 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-15% surface coverage. No oil was observed in gatewells.

STSs/VBSs: STS operation remains in continuous run mode due to subyearling Chinook lengths averaging less than 120 mm.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 20 orifices open.

Collection Facility: The facility is in collection for transport mode.

Transport Summary: Every-other-day barging is occurring.

River Conditions

The BPA called for the use of the Bulk spill pattern at 0900 hours on June 5. 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
112.0	89.0	26.0	23.8	58	57	3.5	2.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 19. Two live lamprey and 1 live Siberian prawn were recovered. Mortalities included 9 juvenile lamprey, 35 juvenile salmon, and 1 Siberian prawn.

Invasive Species: No zebra mussels were observed at the monitoring stations on June 1.

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 for the season ended on June 2.

Table 2. Tailrace Counts of Foraging Piscivorous Birds at Lower Monumental Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
June 6	1100	0	1	0
June 7	1100	0	0	0
June 8	1100	2	0	2
June 9	1100	8	0	0
June 10	1100	6	0	2
June 11	1100	0	0	0
June 12	1100	15	2	0

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

Project: Little Goose
Biologist: Richard Weis
Dates: June 6 - 12, 2014

Turbine Operation

Turbine units 1 through 6 were available for all of this reporting period. All turbine units were operated within the 1% peak efficiency range.

Adult Fish Passage Facility

Adult fishway inspections were performed on June 8, 10 and 12.

Fish Ladder: The ladder exit head differential held steady at 0.0 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs held steady at 1.2 feet (criteria 1.0-1.3 ft.). No differentials were observed at the picketed leads (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: Channel to tailwater head differentials ranged between 1.2 and 1.9 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 8.7 feet (criteria $\geq$ 8.0 ft). NPE weirs rested on sill and ranged between 5.7 and 5.9 feet (criteria $\geq$7.0 ft). NSE weirs are in manual and depths ranged between 5.7 and 6.1 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity near the junction pool area ranged between 1.8 and 1.9fps. Surface water velocity ranged between 1.9 to 2.0 fps near the north shore entrance (criteria 1.5 to 4.0 fps). Monthly water velocity readings were averaged using Stream velocity equipment. Measurements were taken 1 foot from bottom, mid elevation and 1 foot below surface. The average was 2.61 fps at the North powerhouse pool.

Auxiliary Water Supply System: All fish pumps operated within criteria.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Estimated amounts of woody debris in the immediate forebay ranged between 5,000 and 10,000 sq ft.

Spillway Weir: The spillway weir was in service in the low crest position during this reporting period.

ESBS/VBS: All ESBS operated without problems. Monthly ESBS brush tests were performed on June 11. All cleaning brushes are working as designed.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile system operated with 22 open orifices.

Transportation Facility: The collection and transportation facility operated within criteria for the report period. A total of 142,180 fish were collected for transport. 7 Chinook sub fry were by-passed. The descaling and mortality rates were 1.0% and 0.07% respectively

Transport Summary: Every other day barging continued during this reporting period. Every other day barging started May 31. All fish collected (other than the 7 Chinook fry mentioned above) were transported.

River Conditions

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
111.3	88.7	32.8	26.7	59.6	58.0	4.2	3.2

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were checked on June 11. Eleven juvenile lamprey mortalities were removed.

Invasive Species: No zebra mussels were observed on the substrate monitor on June 13. The next inspection is scheduled for July 10.

Avian Activity: USDA-APHIS bird hazing was utilized all week.

Table 2. Maximum Daily Bird Counts at little Goose Dam.

Date	Gulls	Cormorants	Caspian Terns	Pelicans
June 6	1	7	0	3
June 7	0	10	0	2
June 8	0	11	0	3
June 9	0	9	0	5
June 10	5	10	0	6
June 11	2	4	0	4
June 12	0	3	0	1

Research: The University of Idaho continued their adult salmonid and adult lamprey passage study. U of I is requesting more antennas to be placed for the lamprey study.

Gas Bubble Disease: No signs of GBT were found this week.

Project: Lower Granite
Biologists: Mike Halter, Elizabeth Holdren and Ches Brooks
Dates: June 6 - 12, 2014

Turbine Operation

Lower Granite had 5 turbine units available for power generation at the beginning of the report period. Turbine unit 6 is out of service for turbine blade seal inspection, the expected return to service date is now July 8. The turbine units are being operated in hard constraint of the 1% operation criteria.

Adult Fish Passage Facility

On June 6, 7, 8, and 9 COE fish biologists conducted inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings at the south shore and north powerhouse fishway entrances remained within criteria during the weekly inspections. Head differential readings at the north shore fishway entrances met criteria during the June 7 inspection, but were slightly below criteria during the other 3 inspections with readings of between 0.8 and 0.9 feet (criterion $\geq$ 1.0 feet).

Weir depths at the south shore fishway entrances met criteria on all inspections this week. Weir depths at the north powerhouse fishway entrances remained on sill this week due to tailrace levels below 636.0 feet (at which level the gates bottom out). Weir depths at both north powerhouse entrances ranged from 6.9 to 7.4 feet. The weir depths at the north shore entrances were out of criteria all week. Weir depths at north shore entrance 1 ranged from 4.8 to 5.1 feet (criterion $\geq$ 7.0 feet). Weir depths at north shore entrance 2 ranged from 5.0 to 5.5 feet (criterion $\geq$ 7.0 feet). North shore entrance 2 remains damaged, and cannot adjust for weir depths automatically; this gate has been manually set at a compromise depth of 630.0 feet. Due to a lack of water at the north shore entrances, weir depth readings are being sacrificed in attempt to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.94 to 1.11 feet per second and averaged 1.04 feet per second.

Auxiliary Water Supply System: Fish pumps 1 and 3 were run during the week with fish pump 2 held in standby mode.

Juvenile Fish Passage Facility

The sample rate remained at 2.0% until 0700 hours on June 12 when it was increased to 4.0% in support of fisheries research activities.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction. No debris spills took place during the week. JFF staff have been monitoring gatewells daily and removing floating debris with a hand basket in attempt to circumvent orifice blockages.

ESBSs/VBSs: ESBSs are deployed in all units and have been operating without issue. The brush cleaning cycle is set for once every 2 hours. The next inspections are scheduled for late June.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every 3 hours around the clock. Debris levels were fairly high with a lot of smaller material moving through the system.

Transportation Facility: Operations went smoothly at the facility during the week. There were some issues with smaller debris in the raceways but nothing that caused plugging of the inclined screen, flumes, or pipes. Lamprey friendly tailscreens (larger screen mesh size) remain installed in all raceways.

Transport Summary: The project switched to every other day fish barging operations on June 1 (May 31 was the first day without a barge departure from Lower Granite). Fish barges are departing Lower Granite on the odd days of the month of June. All barges other than the 2 involved in every other day transport have been returned back to Lower Granite for storage and maintenance work. Due to lower numbers of fish being transported, and the consequent need to run only one fish engine on the barges for aerator water, the decision was made late in the report week to allow the towboat contractors to fuel fish barges on an every other trip basis.

Removable Spillway Weir: The RSW resumed operation with normal spring spill activities on April 3.

River Conditions

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
116.5	92.4	26.8	20.3	57.7	57.1	5.0	3.5

*Cooling water intake temperature.

Other

The adult fish counters began visual counts at the counting window on April 1. The counting hours are from 0400 to 2000 hours PST and are scheduled to continue through October 31.

Inline Cooling Water Strainers: Cooling water strainers were inspected for lamprey on May 27. A total of 181 lamprey mortalities were found in the strainers over a combined run time of 2,929.2 unit hours. The next cooling water strainer inspections are scheduled for late June.

Invasive Species: The zebra mussel substrate near the adult fishway exit was examined for zebra mussels on the June 6 inspection. No evidence of zebra mussels was found.

Avian Activity: Formal bird counts and hazing activities began on April 1. Sixteen hour per day hazing efforts began on April 21 and concluded on June 1. Avian hazing is presently taking place 8 hours per day and will continue through the end of June.

Table 2. Daily Average Predacious Bird Counts at Lower Granite Dam.

Date	Gulls	Cormorants	Caspian Terns	Pelicans
June 6	0	0	0	0
June 7	0	0	0	0
June 8	0	0	0	0
June 9	1	0	0	0
June 10	8	0	0	0
June 11	8	0	0	0
June 12	1.5	0	0	0

* Numbers are an average of the morning and evening counts off the JFF separator platform.

Adult Fish Trap Operations: The adult fish trap was watered up and sampling began on March 10. The initial sample rate was 28%. On April 14 at 1400 hours the sample rate was lowered to 15%. Since, as in 2013, adult trapping will only be conducted Monday thru Friday the 15% sample rate represents an overall weekly sample rate of 11%. Genetic/scale samples will be taken from one out of every 10 hatchery steelhead. All wild steelhead captured will be PIT-tagged and scale and genetic samples taken. Any previously PIT-tagged steelhead (either hatchery or wild) will have both scale and genetic samples taken for verification purposes. Up to twenty sort by code Lemhi origin Chinook will be radio-tagged and scale and genetic samples taken.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: The goal of this study is to develop fine-scale genetic profiles for natural origin salmon and steelhead; develop genetic stock identification (GSI) techniques to estimate stock-specific escapement over LGR, monitor abundance, productivity and distribution of naturally produced adult and juvenile steelhead and salmon; research and monitor stock-specific life history characteristics. At LGR the goal of the

study will be to enumerate and characterize the natural production of spring/summer Chinook salmon and steelhead above LGR with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday until the first part of July with the goal to collect between 2,000-5,000 genetic samples each from yearling spring/summer Chinook and steelhead and 500-3,000 genetic samples from subyearling fall Chinook.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study: The goal of this research project is to study the physiology and endocrinology of steelhead kelts to evaluate the feasibility and success of several strategies for rehabilitating and handling steelhead collected at LGR. Also, to understand and identify the suite of physiological changes that occurs in Snake River steelhead during the process of sexual maturity, and to determine changes that occur post spawning that are associated with successful downstream migration and recovery to spawn again. As part of this collaborative study to investigate approaches to increase adult steelhead returns the NPT will select up to 150 fish for transport to the Dworshak National Fish Hatchery holding facility.

National Marine Fisheries Service (NMFS) In-River Survival: This week, NMFS staff began 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 last fish marking activities for this study concluded on Friday, June 13 (after the close of the current report period).

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 2013 in natal streams and are diverted to the Sort-By-Code tanks at LGR.

Biological Evaluation of Prototype Overflow Weir and 14 Inch Orifice: A prototype broad crested overflow weir and 14 inch diameter orifice were installed into intake gatewell 5A during the winter of 2012. These structures are being evaluated by UC Davis, Biomark and Blue Leaf Environmental in order to test whether these structural modifications will reduce passage times and increase survival of fish through the upper portion of the LGR Juvenile Bypass System. Last winter a sharp crested weir was installed in place of the broad crested weir and a prototype LED light ring was installed on the 14 inch orifice. The goal of the study is to assess the biological and debris passage characteristics associated with each style of passage structure (14 inch orifice with light ring and ‘sharp crested’ overflow weir) during the day, and this year also at night. Results of this study will be used to determine whether any redesign of the weir or orifice structures is necessary and to determine which of these structures warrant installation in the remaining gatewells. This study will also help inform future management decisions for structural modifications at other Columbia and Snake River dams. Up to 375 fish of each species (clipped yearling Chinook, clipped subyearling Chinook and clipped steelhead) will be collected from the JFF east raceways during the NMFS survival and transport study sampling.

These fish are PIT-tagged, photographed, evaluated for condition, held overnight and released the next morning for the day release or the next evening for the night release. The fish are released into gatewell 5A or the gallery channel. To further evaluate these structures up to 100 adult steelhead kelts and up to 2500 juvenile lamprey will be PIT-tagged and released. A subsample of each release group will be collected in the Sort-By-Code tanks and examined for injury. Blue Leaf and Biomark are now scheduled to finish completion of their marking work on Sunday, June 15.