U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#17-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: June 21 - 27, 2013

Turbine Operation

McNary had 11 to 12 units available for power generation this week. On April 1, the hard constraint one percent criteria began. No units ran outside the criterion this week. Unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
14	Sep 18 – Jul 3	About ten months.	Turbine bearing issues continue.
3	Jun 4 - Jul 31	About two months.	Turbine bearing issue.
4	Jun 24 – Jun 30, 2014	About one year.	Rewind contract.

Adult Fish Passage Facilities

On June 21, 23 and 26, the McNary fisheries biologists performed measured inspections of the adult fishways. When the juvenile facility is in primary bypass, the fisheries staff helped to monitor the picketed leads. Visual fish counting continues. On July 1, video monitoring and counting of adult lamprey will begin. On June 23, the COE exit temperature monitoring program began. Deployment of the probes was delayed by software issues with the Hoboware.

The nightly lowering the Oregon ladder entrance weirs, SFEW1, SFEW2, NFEW2 and NFEW3, for adult lamprey passage continued. Monitoring of the weirs has revealed no problems.

Fish Ladder Exits: During the inspections both ladders met all Fish Passage Plan criteria.

The project cleaned picketed leads regularly at both ladder exits. The amount of Eurasian milfoil has increased at the project. At the Oregon exit, our differential monitoring of the traveling screens revealed no problems. The operators reset one traveling screen alarm.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria except on June 23, when W2 and W3 measured 7.7 and 7.9 feet, respectively. The technical staff calibrated the weirs, tailwater and pool sensors the next day. Spill turbulence is causing calibration drifts which are very difficult to correct. Also, weir, W3, has a slight amount slack in its south cable.

At the Oregon ladder entrances, all points were in criteria. At the north power house entrance, NFEW2 only had a slight amount of slack in its south cable at times. At the south power house entrance, we continue to note calibration drifts at SFEW1.

The project will continue to examine all weir issues.

The Oregon ladder collection channel velocities averaged 1.7 feet per second. We continued to use surface readings.

Auxiliary Water Supply System: For the report week, the Wasco county PUD in the Washington ladder had no interruptions in service.

For the Oregon ladder, fish pumps 1 and 3 operated all week with blade angles of 30 degrees with no interruptions in service. Fish pump 2 remains out of service for major overhaul which will require a contract.

The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool.

Juvenile Fish Passage Facility

The spring season with alternating days of primary and secondary bypass with the switch occurring every morning at 0700 hours continued. One deviation from this schedule occurred.

On June 24, at 0700 hours, the collection channel again had a high water alarm. The system was switched to primary bypass as normally scheduled. The main flume overflowed for approximately 20 minutes. One smolt was rescued at the main flume flush opening which is now screened. Sixteen smolts were rescued at the junction box. No fish were lost thanks to the quick response of the fisheries staff. The flume covers at the junction box have been clamped down. The flume over flow issue has been referred to district engineers.

Overflow at an entry hatch in the main flume where it passes through the project on the 6th floor also threatened the project's computer system. The project will re-seal the hatch.

On June 25, from 0700 to 1200 hours, the system remained in primary bypass so the issue in the collection channel could be resolved and tested which will be discussed below. Five hours of sampling were missed.

We bypassed 155,703 smolts and 1,200 juvenile lamprey this week.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse was light. Debris along the spillway remains very light. Incoming debris has decreased though we are seeing more Eurasian milfoil. Weather and project operations also affected debris dispersal.

The fisheries staff found no problems when measuring trash rack differentials. The project did not clean any racks this week.

After last week's trash rack cleaning, we removed several sticks from the gatewell slots. This week, we noted one problem in the slots. On June 26, the ESBS rope at 1B slot was removed from the orifice inflow.

ESBSs/VBSs: ESBSs are deployed in all units. The screens in 2A, 3A and 7B slots remain in timer mode. No camera inspections occurred this week due to a fish rescue at unit 4 and the juvenile collection channel issue. Both are discussed below.

VBS differential monitoring revealed 7 screens out of criteria. On June 21, 25 and 26, the project cleaned these screens and 4 others. During VBS cleaning operations, we observed 3 juvenile lamprey mortalities and 15 smolt mortalities.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with no problem observed.

All systems operated well in automatic mode. The fisheries staff monitored the channel during the central processor issue discussed below, during VBS cleaning activities and during primary bypass operations.

The backup battery replaced last week was for the channel's central processor. On June 24, at 0700 hours, the central processor's main power supply began to intermittently fail. The result was the side dewatering valves searching of their start point each time the power cut out. The valves closed which caused the high water alarm. The fisheries staff was able to stabilize the channel manually in about 20 minutes.

The technical staff worked on the control system but did not find the power supply issue. At 1435 hours, they returned the channel to automatic operation. At 1600 hours, the assistant biologist again found the side valves closing and returned them to manual operation. Overnight, the fisheries staff monitored the channel and operated the valves manually. The processor was also resetting the screen cleaning mechanisms' timers so the fisheries technician had to run them manually also.

On June 25, the lead of the technical staff examined the issue and found the faulty processor power supply which he replaced by 0830 hours. Also, the lead reprogrammed the system so the valves would not close after a power loss or processor issue. The fisheries staff monitored the channel until 1200 hours when secondary bypass began.

Transportation Facility: With the spring bypass season, both primary and secondary bypass modes return all fish are to the river. PIT tag detection will occur in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring will occur on secondary bypass days. We turned the sample gates on and off every other day to be on with secondary. 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 lines. Also, PSMFC preformed the weekly test of the PIT system. The secondary PIT/bypass gates remain off and open for bypass season.

Transport Summary: No fish transport is taking place at this time.

River Conditions

River conditions during the week are outlined in Table 2 as provided by the smolt monitoring staff, PSMFC. The data day runs from 0700 to 0700 hours. PSMFC continued their daily temperature reports. The summer spill season which requires 50 percent of flow being spilled continues.

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
275.7	216.2	138.3	108.4	60.7	59.8	6.0	6.0

*****Control room data.

Other

Inline Cooling Water Strainers: The next strainer examination will occur on July 2.

Invasive Species: On June 23, the zebra mussel station examination revealed no problems.

Avian Activity: We continue bird counts with each zone being observed once a day usually in the morning. In the forebay area, we observed an occasional group of grebes, a pelican, tern, cormorant, osprey or gull. Also, we noted pelicans, cormorants and gulls on the rocks by the Washington boat dock. We saw no grebes elsewhere on project. In the tailwater area, we had high counts of 20 gulls, 15 pelicans and 33 terns with an occasional cormorant noted. Most of the birds were in the spill basin with the pelicans feeding on adult shad along the navigation lock wing wall. Some of the pelicans were also working the Oregon shore. We observed an occasional pelican by the bypass outfall.

Hazing personnel continue to work 7 days a week with 2 shifts covering the day light hours. The fisheries staff continues to work with the propane and water hazing cannons to keep them functioning well.

Research: The FGE study at units 6, 7, 12 and 13; GBT examinations and the Oregon exit traveling screen study continue. The adult lamprey passage study will begin soon.

Fish Salvage: On June 25, we found only 1 unclipped subyearling Chinook mortality in the unit 4 scroll case. In the associated draft tube on June 26, we rescued 20 adult channel catfish. We also saved one 6 foot and one 8 foot sturgeon.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: June 21 - 27, 2013

Turbine Operation

Turbine units 1- 4 and 6 are in service. Turbine unit 5 remained out of service due to blade cracking. Turbine units 3, 4, and 6 were out of service June 25 and turbine units 1 and 2 were out of service June 26 for short periods to perform STS/VBS and cooling water inspections.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways June 24, 25, and 26.

Fish Ladders: The north and south shore adult fish ladder inspection areas (picketed leads, head differentials, fish way exits, and depth over weirs) were within criteria.

Table 1. Adult Fishway Performance at Ice Harbor Dam:

	11-Jun	12-Jun	17-Jun	18-Jun	19-Jun	24-Jun	25-Jun	26-Jun
CHANNEL VELOCITIES								
SOUTH FISHWAY:	1.6	2.2	1.8	1.8	2.2	1.9	1.8	2.2
DIFFERENTIALS/DEPTHS:								
Ladder Exit	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Ladder Weirs	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Counting Station	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
North Fish Ladder								
Ladder Exit	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
Ladder Weirs	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Counting Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Collection Channels								
South Shore	1.8	1.9	1.9	1.2	1.7	1.6	1.8	1.8
North Powerhouse	1.4	1.3	1.2	1.3	1.1	1.0	1.9	1.3
North Shore	1.1	1.1	1.7	1.6	2.1	0.8	1.0	1.2
Weir Depths								
SFE 1	8.6	8.7	8.6	8.7	8.7	7.7	8.6	8.5
NFE 2	10.4	9.4	9.5	10.2	9.2	7.7	9.0	8.7
NSE 1	8.8	8.9	8.0	8.6	6.4	7.9	8.0	8.0
CRITERIA POINTS:								
Channel Velocities	YES	YES	YES	YES	YES	YES	YES	YES
Differentials								
South Fish Ladder								
Ladder Exit	YES	YES	YES	YES	YES	YES	YES	YES
Ladder Weirs	YES	YES	YES	YES	YES	YES	YES	YES
Counting Station	YES	YES	YES	YES	YES	YES	YES	YES

Table 1. Adult Fishway Performance at Ice Harbor Dam – continued:

	5-Jun	6-Jun	10-Jun	11-Jun	12-Jun	17-Jun	18-Jun	19-Jun
North Fish Ladder								
Ladder Exit	YES	YES	YES	YES	YES	YES	YES	YES
Ladder Weirs	YES	YES	YES	YES	YES	YES	YES	YES
Counting Station	YES	YES	YES	YES	YES	YES	YES	YES
Collection Channels								
South Shore	YES	YES	YES	YES	YES	YES	YES	YES
North Powerhouse	YES	YES	YES	YES	YES	YES	YES	YES
North Shore	YES	YES	YES	YES	YES	NO	YES	YES
Weir Depths								
SFE	YES	YES	YES	YES	YES	SILL	YES	YES
NFE	YES	YES	YES	YES	YES	SILL	YES	YES
NSE	YES	YES	YES	YES	SILL	SILL	YES	YES

The north adult fish way collection channel differential was out of criteria June 24. The entrance is on sill with 2 fish pumps operating. The collection channel differential cannot be lowered without shutting down a fish pump. The entrance is being operated in manual mode to prevent excessive up and down movements and wear. The center fish way weir 2 remains out of service. Center fish way weir 1 is being operated. Fish way entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All channel/tail water differentials were in criteria. Channel/tail water differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: Two of the 3 north shore fish pumps were operated without problems. Six of 8 south fish pumps are in service. All south fish pumps are available for operation.

Juvenile Fish Passage Facility

Fore bay Debris/Gate well Debris/Oil: No problems to report. Fish ladder exits are clear of debris and the bubblers are operating.

STSs/VBSs: STSs are in operation. No problems were found on the June inspections. STS/VBS inspections are scheduled for July 23 and 24. Turbine strainer inspections will be done at the same time.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile bypass is watered up with 20 open orifices. No problems with the incline screen cleaner brush.

Juvenile Bypass Facility: No problems to report.

Fish Sampling: The first sample took place April 8. Sampling days will alternate from Monday and Wednesday to Tuesday and Thursday each week.

Removable Spillway Weir: The RSW is in operation. Spill for fish began April 3, 2013.

Fish Sampling:

June 25:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	---	---	---	---
UC-CH	---	---	---	---
C-CH-O	4	0	0	0
UC-CH-O	5	0	0	0
C-SH	1	0	0	1
UC-SH	1	0	0	0
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	---	---	---	---
UC-SOCK	---	---	---	---
TOTAL	11	0	0	1

June 27:

Species	Sampled	#De-scaled	Morts	Avian Marks
C-CH	---	---	---	---
UC-CH	---	---	---	---
C-CH-O	20	0	0	0
UC-CH-O	30	0	0	0
C-SH	5	0	0	1
UC-SH	5	1	0	2
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	----	---	---	---
UC-SOCK	---	---	---	---
TOTAL	60	1	0	3

River Conditions

River conditions during the week are outlined in Table 1.

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
62.5	42.0	31.8	13.2	62	62	7.0	5.5

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Main turbine unit cooling water strainer inspection results for June are outlined in Table 3.

Table 3. Cooling Water Inspection Results for May 2013, Ice Harbor Dam.

Date	Unit	Results
25-June	6	2 juv. lamprey mortalities.
	5	Not inspected – unwatered – blade repair.
	4	1 juv lamprey mortality.
26-June	1	None.
	2	None.
	3	2 juv. lamprey mortalities.

Invasive Species: No new invasive species were detected this week.

Avian Activity: Formal bird counts began April 8 and are in progress. Hazing activities by APHIS began April 1. The fish facility is conducting bird observations when possible.

Research: South fish ladder adult fish trap operations have concluded for the season.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: June 21 - 27, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 4 was removed from service at 0700 hours on June 17 for annual maintenance. With intake gates previously installed the wicket gates for unit 4 were opened for turbine calibration as part of annual maintenance on June 24. From June 24 at 1353 hours through June 25 at 1717 hours a GDACS computer error recognized the gates being open as the unit in SNL (Spin No Load mode) and recorded a 1% violation. Unit 4 remained out of service throughout this period and therefore was not operating out of the 1% criteria.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on June 21, 22, 23, and 26.

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 NSE 2 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.

SPE 1 and SPE 2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 6.8', 6.0', 6.1', and 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 the gate depth readings were 7.1', 6.3', 6.5', and 5.9 feet. SSE 2 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 and 3 were operated throughout this period. Two pump operation will continue until bearing repair and shaft alignment work is completed on pump 2, approximately August 8.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 2.0 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 operations remain in continuous run mode as subyearling Chinook lengths averaged 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. Collection for Battelle research on subyearling Chinook passage and survival continues.

Transport Summary: Every-other-day barging is occurring with barges departing on odd numbered days.

River Conditions

River conditions during the week are outlined in Table 1.

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
60.4	41.4	17.0	16.5	62.5	61.0	5.0	4.4

*Scrollcase temperatures.

Other

Summer spill began on June 21.

Inline Cooling Water Strainers: Cooling water strainers were inspected on June 5. No live lampreys were recovered. Mortalities included 80 juvenile lampreys, 5 juvenile salmon, and 1 Siberian prawn.

Invasive Species: There were no zebra mussels observed at the monitoring stations on June 2.

Avian Activity: Bird hazing ended for the season on June 2.

Research: PNNL researchers resumed their subyearling Chinook study on May 31. Current plans are for this activity to continue until July 8.

Project: Little Goose
Biologist: Richard Weis
Dates: June 21 - 27, 2013

Turbine Operation

Turbine units 1 through 6 were available for most of this report. Unit 6 was removed from service on June 26 from 0700 to 1600 hours for load testing of the new Gantry crane. Unit 1 was forced out of service on June 20 and was returned to service June 21 due to governor errors. All turbine units were operated within the 1% criteria.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway June 21, 25 and 27.

Fish Ladder: The ladder exit head differentials ranged between 0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs remained steady at 1.1 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials remained steady at 0.0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. 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 1.6 and 2.2 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 7.7 (on sill) and 8.3 feet (criteria $\geq$8.0 ft). As a result of 2 pump operations and decreased channel to head differentials, NPE2 remained closed. NPE1 weir rested on sill and depths ranged from 4.9 to 5.4 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 4.7 and 5.2 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured near NPE ranged between 1.8 and 2.4 fps (criteria $\geq$1.5 fps). Collection channel subsurface water velocity was measured on June 10 using the Hydrologic Current Meter. Three measurements were conducted from near surface, mid depth and near bottom. The subsurface velocity averaged 2.8 fps with 2 pumps operating.

Auxiliary Water Supply System: Fish pumps 1 and 2 operated within criteria ranging between 73 and 75 rpm. Fish pump 3 remains out of service and is undergoing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris was minimal. Gatewells remained clear of debris. After recent rains, iridescence sheens were observed on the water surface in several gatewells. It is suspected that small amounts of oil residue were washed into these gatewells from the intake deck. The sheens dissipated over the following 24 hours.

Spillway Weir: The spillway weir is operational in the high crest position.

ESBS/VBS: All ESBSs operated within criteria this report period. ESBS cleaning brushes were manually operated for inspection on June 19. All brushes operated as designed.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system was operated throughout this period with 23 open orifices.

Transportation Facility: The facility continued collection for transport. Daily fish collection for the week ranged between 3,720 and 8,100 for a total of 42,744. The descaling and mortality rate was 0.7% and less than 0.1% respectively.

Transport Summary: Every-other-day barging operations continued and all loading operations were trouble free.

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
59.2	41.4	17.7	12.2	62.8	61.1	6.0	6.0

*Ladder temperature.

Other

Invasive Species: The zebra mussel substrate monitor was inspected on June 9. No mussels were observed. The next inspection is scheduled for July 8.

Inline Cooling Water Strainers: Cooling water strainers for all units were inspected on June 26. No fish were found.

Avian Activity: The maximum bird count from a single survey included 10 cormorants, 42 gulls and 4 pelicans. The USDA-APHIS bird hazing contract ended on June 14.

Research: WDFW Gas Bubble Trauma research was conducted on June 24. No signs of GBT were seen. UC Davis is performing underwater video monitoring of the new lamprey orifices in the adult fish ladder. University of Idaho is performing Adult Salmon Passage Studies using radio-telemetry. Battelle PNNL is on-site for the second year of BiOp Performance Standard Tests.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: June 21 - 27, 2013

Turbine Operation

Lower Granite had all turbine units available for power generation at the beginning of the report period. As scheduled, turbine unit #6 was removed from service on June 24 at 0632 hours for cavitation repair, followed by annual maintenance. The expected return to service date is December 7.

Turbine unit #3 was taken out of service briefly on June 27 for gatewell dipping operations to help test the feasibility of using the modified 'John Day' screens in the B slots of operating units as well as the C slots. JDA ESBS fish screens were installed in slots 3B and 3C. The outage time was from 1003 until 1118 hours. See the ESBSs/VBSs section below for the results of this June 27 operation. This same procedure is planned to occur for turbine unit #2 in the near future.

The results of descaling rates found in the prior gatewell dipping operations of turbine unit #6 associated slots suggest that the modified JDA screens performed at least as well (descaling rates) as the standard production ESBS screens that have been in long term use at Lower Granite.

Adult Fish Passage Facility

On June 22 – 24 COE fish biologists conducted inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at all fishway entrances during the period inspections.

Weir depths at the south shore fishway entrances also met criteria during all weekly inspections. The north powerhouse fishway entrances were on sill during all inspections this week with depths ranging from 5.0 to 5.4 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet). Weir depths at the north shore entrances ranged from 2.9 to 5.7 feet (criterion $\geq$ 7.0 feet). Only north shore entrance 1 can adjust its' depth relative to the tailwater elevation. North shore entrance 2 is manually set at a compromise depth of 630.0 feet. Normally weir depth readings at the north shore entrances are sacrificed in order to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.96 to 1.22 feet per second and averaged 1.13 feet per second.

Auxiliary Water Supply System: Fish pumps 2 and 3 were run until June 25 without any problems. Fish pump 1 completed testing and was brought back online at 1119 hours on June 25. Fish pumps 1 and 3 are now running and fish pump 2 is in standby mode.

Juvenile Fish Passage Facility

The sample rate at the beginning of the report week was 5%. Because of slowly falling fish numbers the sample rate was increased to 10% the morning of June 24 and remained at that rate for the duration of the report week.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction; none was removed.

ESBSs/VBSs: VBS/ESBS video inspections last took place on June 14 - 15. The next inspections are planned for August 19.

Turbine unit #3 gatewell dipping descaling results: A total of 154 smolts were examined from unit #3 (87 from slot 6A 'standard ESBS screen', 51 from slot 3B, and 16 from slot 6C). Four descaled fish were found in slot 3A (4.60% descaling). One descaled fish was found in slot 3B (1.96% descaling). Zero descaled fish were found in slot 6C (0.00% descaling).

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every 3 hours around the clock in an attempt to keep them free of materials that might impact fish passage. Debris levels were light during the report week.

Transportation Facility: Daily fish collection numbers at Lower Granite averaged 4,281 as subyearling Chinook numbers continued to decline. If fish numbers increase significantly, we will resume direct loading fish barges. Lamprey friendly tail screens (with larger mesh openings) were deployed in all operating raceways the week of May 13 and remained in place during the report week.

Transport Summary: The first everyday barge left Lower Granite on May 2. The only research barge of the season (index barging) departed Lower Granite on April 26. Research fish are now being barged along with the general fish collection. Every day barging from Little Goose began on May 3 and Lower Monumental began on May 8. Every day fish barging was scheduled to continue through the month of May. The smaller barges (direct loaded at Little Goose) were taken off line on May 28. The last everyday barge left Lower Granite on June 3. Every-other-day barging is scheduled to take place until mid-August.

Removable Spillway Weir: Mandatory summer spill operations began at 0001 hours on June 21. The RSW was operated in support of general spill operations (*with the following exception*).

On the morning of June 26 a large log (~30 feet by ~3 feet) was found lodged between the trash shear boom and the RSW. In addition three smaller (but still substantial) logs were also stuck in this area. Emergency spill operations to remove woody debris from the RSW are authorized in the FFP (Lower Granite Section 5.1.1). After coordinating with the RCC, the removal operation began at 1300 hours. The spill was shut off at the RSW and the requisite spill volume was shifted to the adjacent bays per FPP Table LWG-11, at this point the logs broke free and drifted over to the RSW opening. The RSW was then reopened and the logs were flushed downstream.

The Project then reverted back to the normal summer spill pattern including RSW spill at the specified volume at 1335 hours the same day.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
58.3	40.4	18.6	18.5	62.0	60.8	5.0+	4.4

*Scrollcase temperature.

Other

Video counts in the adult fish ladder counting room began on March 1 and concluded on March 31. Visual counting between the hours of 0400 and 2000 began on April 1.

Invasive Species: The zebra mussel substrate near the adult fishway exit was last examined for zebra mussels on June 1. No evidence of zebra mussels was found. The next inspection is scheduled for early July.

Inline Cooling Water Strainers: Cooling water strainers were inspected for lamprey entrainment on June 25. A total of 12 lamprey were found in the strainers over a combined run time of 1,729.6 unit hours. The next cooling water strainer inspections are scheduled for late July.

Avian Activity: Formal bird counts and hazing started on April 1. Gulls are presently being hazed from dawn to nearly dusk and the control agents have been very successful in keeping them out of the tailrace area of the dam.

Adult Fish Trap: The adult fish trap was watered up and sampling began on March 4. The sample rate is now 25%. Since in 2013 adult trapping will only be conducted Monday thru Friday the 25% sample rate represents an overall weekly sample rate of 21%. Genetic 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. From this week forward genetic samples will also be obtained from all sockeye sampled.

Fish Salvage: A fish rescue operation was conducted in the scrollcase of turbine unit #6 on the afternoon of June 25. The operation lasted from 1210 until 1500 hours – zero fish were encountered.

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.

Biological Evaluation of Prototype Overflow Weir and 14 Inch Orifice: A prototype overflow weir and enlarged 14 inch orifice were installed into intake gatewell 5A during the winter. These structures were evaluated by UC Davis, Biomark and Blue Leaf Environmental. *The final release of tagged fish for this study took place on June 21.*

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. *Because of zero kelts crossing the separator during the report week this study has concluded for the year.*

United States Fish and Wildlife Service (USFWS), United States Geological Service (USGS), Pacific Northwest National Laboratory (PNNL) and National Marine Fisheries Service (NMFS) –Holdover fall Chinook Study: This study is part of the regional discovery based research titled "Investigating passage of ESA-listed fall Chinook salmon at Lower Granite Dam during winter when the fish bypass system is not operated". This is a cooperative study of the survival and prevalence of the reservoir-type life history of juvenile fall Chinook salmon in the Snake River and the passage of subyearlings and reservoir-type fish through the lower Snake River. This part of the study collects PIT-tagged yearling fall Chinook holdovers in the Sort by Code tanks at LGR from the 2012 release of Dworshak hatchery fish. *This study has concluded for the year.*

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is done to monitor the migration behavior and survival of wild spring/summer Chinook salmon in the Snake River basin. The specific goals are to characterize the migration timing and estimate parr-to-smolt survival to LGR of different 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 2012 in natal streams and are diverted to the Sort by Code tanks at LGR. *This study has concluded for the year.*