U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: June 28 – July 4, 2013

Turbine Operation

McNary had 10 units available for power generation this week. On April 1, the hard constraint one percent criteria began and no units ran outside the criterion this week. On July 3, project and district personnel had a conference call on warm water turbine operations in support of juvenile fish passage. 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 issue resolved. After testing and minor issues, unit returns to service.
3	Jun 4 - Jul 31	About two months.	Turbine bearing issue.
4	Jun 24 – Jun 30, 2014	About one year.	Rewind contract.
11	Jun 28 – Jun 30, 2014	About one year.	Rewind contract.
6	Jun 29	2.8 hours.	Replace VBS section.
10	Jul 3 to 4	About 16.5 hours.	Unit in and out of service due to a bearing relay issue.

Adult Fish Passage Facilities

On June 28, 30 and July 3, McNary fisheries biologists performed measured inspections of the adult fishways. Fisheries staff help monitor picketed leads when the juvenile facility is in primary bypass mode. Visual fish counts and temperature monitoring continues. Video monitoring and counting of adult lamprey began July 1.

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: Both ladder exits met all Fish Passage Plan criteria during inspections. Project personnel continued to clean picketed leads at the exits regularly. The amount of Eurasian milfoil has increased.

On July 1, PSMFC personnel resolved PIT tag detection issues at the Washington count station. The Washington ladder exit weirs underwent scheduled maintenance on July 3. At the Oregon exit, our differential monitoring of the traveling screens revealed no problems. The operators reset two traveling screen alarms this week. On July 1, these screens received scheduled maintenance.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Spill turbulence continues to cause 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.

Oregon ladder collection channel velocities averaged 1.5 feet per second. We continue 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. Oregon ladder, fish pumps 1 and 3 operated 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 with no deviations from this schedule. We bypassed 437,609 smolts and 2,700 juvenile lamprey this week.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse was light to moderate as Eurasian milfoil mats arrived. Debris along the spillway remains very light. The amount of incoming debris has decreased. Weather and project operations also affected debris dispersal.

The fisheries staff found no problems when measuring trash rack differentials except for slot 5A which measured 1.0 to 2.0 feet. The debris possibly originated from slot 4C which was skipped due to a nesting duck which was noticed when unit 4 was removed from service. Project personnel did not clean any racks this week.

This week, we noted one problem in the slots. From June 28 to 29, hydraulic fluid was removed from slots 11A and 11B. The headgates in these slots had loose fittings which the project found when removing the unit from service.

ESBSs/VBSs: ESBSs are deployed in all units. The screens at 2A, 3A and 7B slots remain in timer mode. On July 2, the fisheries staff switched the screens at unit 14 to automatic mode. Also, that day, camera inspections at units 3, 4 and 11 revealed no problems.

VBS differential monitoring revealed 19 screens out of criteria. The project cleaned these screens and 16 others this week. We cleaned some screens more than once. The arrival of Eurasian milfoil had a profound impact on juvenile fish operations. When cleaning the VBSs, we observed 61 juvenile lampreys and 91 smolt mortalities. We rescued 3 live juvenile lamprey.

On June 29, the biologist noted a tear in the top panel of the VBS in slot 6B. Project personnel replaced this panel with a new one and returned the unit to service.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with one problem observed. We removed a partial debris blockage from the orifice at 5A slot. We noted no fish issues. From June 28 to 29, during the hydraulic leak mentioned above, the orifices at unit 11 were closed with spares opened at unit 12. No oil entered the system.

All systems operated well in automatic mode. The fisheries staff monitored the channel during VBS cleaning along with primary bypass.

On July 1, the rectangular screen air burst back up compressor received scheduled maintenance. On July 4, we turned off the compressor due to excessive noise. The maintenance staff will examine it next week as the air burst system is supplied by the station service air which is highly reliable.

Only July 3, an electrical technician in shrouded the control system's PLC as the morning sun was making it difficult to read.

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.

On June 28, the fisheries mechanics repaired the drive chains on the sample tank crowding devices. On July 2, PSMFC found one of their PIT tag computers had been turned off. We have no understanding how or why this happened. Also, that day, the fisheries mechanics repaired welds on the porosity unit's perforated screen just upstream of the separator.

Transport Summary: Fish transport in not in progress at this time.

River Conditions

River conditions during the week are outlined in Table 2 as provided by the PSMFC smolt monitoring staff. 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. This week, due to flow in excess of powerhouse capacity, 50 to 58 percent of flow was spilled.

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
288.1	269.3	167.7	135.2	65.1	60.4	6.0	6.0

*****Control room data.

Other

Inline Cooling Water Strainers: The results from the cooling water examination on July 2 are reported in Table 3. We recovered 45 smolt mortalities. Of these, 43 came from unit 1. We observed no other species of interest.

Table 3. Cooling Water Strainers at McNary Dam.

Unit	Lamprey Alive	Lamprey Dead	Unit Total
1	0	2	2
2	0	0	0
3	0	0	0
4	0	0	0
5	0	1	1
6	0	0	0
7	0	2	2
8	0	0	0
9	0	3	3
10	0	1	1
11	0	0	0
12	0	3	3
13	0	2	2
14	0	0	0
Total	0	14	14

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

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 pelican or osprey. Also, we noted pelicans, cormorants and gulls on the rocks by the Washington boat dock.

We observed no grebes on project.

In the tailwater area, we had high counts of 35 gulls, 27 pelicans and 35 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 high counts of 3 pelicans and 5 terns by the bypass outfall with an occasional cormorant or gull noted.

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 30, we found no fish in unit 11's scroll case. At the unit's draft tube, on July 2, we rescued nine adult channel catfish. Two of these were lost. We also saved one juvenile sturgeon.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: June 28 – July 4, 2013

Turbine Operation

Turbine units 1- 4 and 6 are in service. Turbine unit 5 remained out of service due to blade cracks.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways July 1, 2, and 3.

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:

	19-Jun	24-Jun	25-Jun	26-Jun	1-Jul	2-Jul	3-Jul
CHANNEL VELOCITIES IN SOUTH FISHWAY:	2.2	1.9	1.8	2.2	2.2	1.8	2.4
DIFFERENTIALS & DEPTHS:							
Ladder Exit	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Ladder Weirs	1.1	1.1	1.1	1.1	1.1	1.1	1.0
Counting Station	0.1	0.1	0.1	0.1	0.1	0.1	0.0
North Fish Ladder							
Ladder Exit	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Ladder Weirs	1.2	1.2	1.2	1.2	1.2	1.1	1.2
Counting Station	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Collection Channels							
South Shore	1.7	1.6	1.8	1.8	1.8	2.0	1.3
North Powerhouse	1.1	1.0	1.9	1.3	1.1	1.0	1.0
North Shore	2.1	0.8	1.0	1.2	1.2	1.4	1.1
Weir Depths							
SFE 1	8.7	7.7	8.6	8.5	8.6	9.4	9.0
NFE 2	9.2	7.7	9.0	8.7	9.1	9.7	9.2
NSE 1	6.4	7.9	8.0	8.0	7.3	7.7	8.1
CRITERIA POINTS:							
Channel Velocities	YES	YES	YES	YES	YES	YES	YES
Differentials							
South Fish Ladder							
Ladder Exit	YES	YES	YES	YES	YES	YES	YES
Ladder Weirs	YES	YES	YES	YES	YES	YES	YES
Counting Station	YES	YES	YES	YES	YES	YES	YES
North Fish Ladder							
Ladder Exit	YES	YES	YES	YES	YES	YES	YES
Ladder Weirs	YES	YES	YES	YES	YES	YES	YES
Counting Station	YES	YES	YES	YES	YES	YES	YES

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

Collection Channels							
South Shore	YES	YES	YES	YES	YES	YES	YES
North Powerhouse	YES	YES	YES	YES	YES	YES	YES
North Shore	YES	NO	YES	YES	YES	YES	YES
Weir Depths							
SFE	YES	SILL	YES	YES	YES	YES	YES
NFE	YES	SILL	YES	YES	YES	YES	YES
NSE	SILL	SILL	YES	YES	SILL	SILL	YES

The center fishway weir 2 remains out of service. The south adult fish pumps need to be shut down to remove the bulkhead in front of the weir. Currently, 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. The South fish pump 6 breaker tripped due to a high temperature alarm June 30. Seven of the 8 south fish pumps (1-5, 7, and 8) are available for operation. South fish pump 6 remains out of service.

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 satisfactorily.

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 conducted 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 was 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:

July 1:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	---	---	---	---
UC-CH	---	---	---	---
C-CH-O	27	0	0	0
UC-CH-O	72	2	0	0
C-SH	10	0	0	0
UC-SH	3	0	0	0
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	---	---	---	---
UC-SOCK	---	---	---	---
TOTAL	112	2	0	0

July 3:

Species	Sampled	#De-scaled	Morts	Avian Marks
C-CH	---	---	---	---
UC-CH	---	---	---	---
C-CH-O	8	0	0	0
UC-CH-O	18	0	0	0
C-SH	5	1	0	1
UC-SH	1	0	0	0
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	----	---	---	---
UC-SOCK	---	---	---	---
TOTAL	32	1	0	1

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
58.6	44.2	46.7	13.3	65	62	5.5	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 June 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. The south fish ladder adult fish trap has concluded.

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: June 28 – July 4, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 1 was removed from service at 0715 hours on July 1 for annual maintenance. Unit 4 was out of service from 0700 hours on June 17 to 1205 hours on June 28 for annual maintenance. Unit 4 was out of service from 0715-1039 hours on July 1 for operating gate cylinder removal. Unit 2 was out of service from 1517-1831 hours on July 1 due to loss of meter inputs to the exciter. The problem with the loss of meter inputs to the exciter also resulted unit 2 having a 1% violation from 1612-1618 hours on July 1.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on June 28, 29, 30, and July 3.

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. On July 1 a clipped adult Chinook mortality was discovered on the south shore fish ladder jump netting. Netting and attachments were intact so the fish would have had to of jumped approximately 8 feet high to end up in the net.

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 6.0', 5.6', 6.0', and 5.8 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 6.2', 6.0', 6.4', and 6.0 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 0.0 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. Collection for Battelle research on subyearling Chinook passage and survival continues through July 7.

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

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
55.7	43.2	18.8	16.5	65.0	63.0	5.0	3.7

*Scrollcase temperatures.

Other

Summer spill began on June 21.

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 2. No live lamprey were recovered. Mortalities included 4 juvenile lamprey and 6 juvenile salmon.

Invasive Species: There were no zebra mussels observed at the monitoring stations on June 7.

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 7.

Project: Little Goose
Biologist: Richard Weis
Dates: June 28 – July 4, 2013

Turbine Operation

Turbine units 1 through 6 were available for all of this report. 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 30, July 2 and 4.

Fish Ladder: The ladder exit head differentials ranged between 0 and 0.2 feet (criteria ≤ 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 ranged between 0.0 and 0.1feet (criteria ≤ 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 1.5 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.0 and 8.4 feet (criteria ≥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 between 5.1 and 5.7 feet (criteria ≥7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 5.1 and 5.7 feet (criteria ≥ 6.0 ft.). Collection channel surface water velocity measured near NPE ranged between 1.5 and 2.2 fps (criteria ≥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.

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

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

measurement across trashracks, ESBSs and VBSs associated with turbine units 1 and 2 were performed on July 2. All measurements were within operating criteria.

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 2,651 and 10,810 and totaled 41,805 for the week. The descaling and mortality rate was 0.8% 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
51.1	42.0	18.1	13.4	67.3	65.3	6.0+	5.7

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not checked during this reporting period.

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

Avian Activity: The maximum bird count from a single survey included 12 cormorants, 63 gulls and 4 pelicans. USDA-APHIS bird hazing ended on June 14.

Research: WDFW Gas Bubble Trauma research was conducted on July 2. One fish showed minor signs of GBT. 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 28 – July 4, 2013

Turbine Operation

Lower Granite had turbine units #1 thru #5 available for power generation at the beginning of the report period. Turbine unit #6 was removed from service on June 24 for cavitation repair, followed by annual maintenance. The expected return to service date is December 7. Turbine unit #4 was taken out of service at 0705 hours on July 1 for annual maintenance and is scheduled to return to service on July 25. Turbine unit #5 was taken out of service at 0721 hours on July 1 for slip ring cleaning and was returned to service at 1459 hours. Turbine units #3 and #2 were taken out of service for gatewell dipping operations on July 2 to compare descaling rates between the modified John Day fish screens in slots 3A and 3B with descaling rates from the standard fish screens (ESBSs) in slots 2A and 2B. Turbine unit #3 was out of service from 1007 hours to 1135 hours and turbine unit #2 was out of service from 1215 hours to 1321 hours for this operation.

Adult Fish Passage Facility

On June 28 – 30 and July 1 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 4.9 to 5.3 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 2.8 to 5.2 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 0.98 to 1.20 feet per second and averaged 1.09 feet per second.

Auxiliary Water Supply System: Fish pumps 1 and 3 were run during the week without any problems. Fish pump 2 is now in standby mode.

Juvenile Fish Passage Facility

The sample rate remained at 10% during the entire 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.

Gatewell dipping operations to test the descaling rates of modified John Day (JDA) fish screens in the B and C slots of turbine unit #2 were conducted on July 2. In addition gatewell dipping was also conducted in the B and C slots of turbine unit #2 to serve as a control and allow a direct comparison between the JDA screens and the established ESBS screens.

Fish numbers have been relatively low recently and it has been difficult to obtain sufficient number of fish to make a valid comparison between the screens. It was necessary to go down to 35 feet in order to collect fish.

Turbine unit #3 gatewell dipping descaling results: A total of 16 smolts were examined from unit #3 (2 from slot 3A ESBS screen, 12 from slot 3B JDA screen, and 2 from slot 3C JDA screen). None of these fish were descaled.

Turbine unit #2 gatewell dipping descaling results: A total of 44 smolts were examined from unit #2 (25 from slot 2B ESBS screen, 19 from slot 2C ESBS screen). Two descaled smolts were found in slot 2B (8% descaling rate) and one descaled smolt was found in slot 2C (5.26% descaling rate).

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 remained light during the report week.

Transportation Facility: The JFF operated smoothly during the week. There were no operational problems of any kind with fish collection, fish sampling, or fish transportation equipment. Daily fish collection numbers at Lower Granite averaged 2,740 as subyearling Chinook (mainly) numbers continued to drop. 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 daily 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.

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
52.0	43.2	20.2	18.1	63.3	60.9	5.0+	4.3

*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.

Inline Cooling Water Strainers: Cooling water strainers were last 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.

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 will take place on July 7.

Avian Activity: Formal bird counts and hazing started on April 1. Avian hazing activities concluded for the season on June 30.

Adult Fish Trap: The adult fish trap was shut down at 0845 hours on the morning of Wednesday July 3 due to high water temperatures. The trap water temperature at the time of shutdown was above 70 Degrees F. Water temperatures had increased at the trap by 9 degrees since June 28 until the shutdown date. On July 4 at 0730 hours the adult fish trap was again placed in operation, as water temperatures had decreased below 70 Degrees F. NOAA-Fisheries personnel will continue to monitor the water temperatures closely.

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. Genetic samples will also be obtained from all sockeye sampled.

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.