U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#23-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: August 2 - 8, 2013

Turbine Operation

McNary had 11 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. Unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
4	Jun 24 – Jun 30, 2014	About one year.	Rewind contract.
11	Jun 28 – Jun 30, 2014	About one year.	Rewind contract.
3	Jun 4 – Sep 27	About four months.	Turbine bearing issue.

Adult Fish Passage Facilities

On August 2, 4 and 6, the McNary fisheries biologists performed measured inspections of the adult fishways. Whenever the juvenile facility was in primary bypass mode, the fisheries staff helped to monitor the picketed leads. Visual fish and video lamprey counting continues along with temperature monitoring. The nightly lowering of Oregon ladder entrance weirs, SFEW1, SFEW2, NFEW2 and NFEW3, for adult lamprey passage continues. Monitoring of the weirs has revealed no problems.

Fish Ladder Exits: During the inspections, both ladder exits met all Fish Passage Plan criteria. Project personnel continued to clean the picketed leads at both exits regularly. Eurasian milfoil continues to be a problem. On August 6, at the Washington exit, PSMFC resolved an interference issue with the count station PIT tag detectors.

At the Oregon exit, our differential monitoring of the traveling screens revealed no problems. On August 5, the biologist removed a small amount of debris from the traveling screen trough. Due to encoder (electronic controls) issues, weir 340 remains in manual mode with the automatic controls being bypassed. Because of the weir location, there will be no adverse affect on the ladder exit's operation.

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. On August 6, the technical staff replaced an analog encoder in with a digital encoder at W2 to see if this would improve performance and reduce calibration drift.

On August 7 and 8, the electrical staff removed a motor from W1 (which is not in service) and installed it in W3. This returned the weir to automatic operation. The old motor was sent out to be rebuilt. The project will rotate out the weir motors over time, having all of them eventually rehabilitated.

At the Oregon ladder entrances, all points were in criteria. At the north powerhouse, we only occasionally noted slack in NFEW2's south cable. At the south entrance, we continue to note calibration drifts. Despite calibration, SFEW2 continues to experience drift. Project personnel will continue to examine all weir problems.

Oregon ladder collection channel velocities averaged 1.4 feet per second. Surface readings appear to be more accurate than the meter, which is not designed for the hydraulic conditions seen in a fish ladder.

Auxiliary Water Supply System: The Wasco county PUD in the Washington ladder remained out of service until August 6, at 1500 hours, at which time the PUD restarted the unit. The bypass system operated well while the turbine unit was out of service. 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 season continues with alternating days of primary and secondary bypass with the switch occurring every morning at 0700 hours, with no deviations from this schedule to report. We bypassed 35,700 smolts and 280 juvenile lamprey this week.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse and spillway was very light, consisting mostly of Eurasian milfoil, which continues to arrive on project in light patches. Winds and project operations continued to affect debris dispersal.

The fisheries staff found no problems when measuring trash rack differentials and no racks were raked this week. We noted no problems this week except the ESBS rope at 1C slot had to be removed from the orifice inflow. We noted no harm to fish.

ESBSs/VBSs: ESBSs are deployed in all units. The screens at 2A, 3A and 7B slots remain in timer mode. On August 3, the operator switched the ESBS in slot 8C to timer mode after the screen triggered alarms. No camera inspections occurred this week. Camera inspections will resume on August 13.

VBS differential monitoring efforts revealed 1 screen out of criteria. On August 8, the project cleaned this screen and 5 others. During VBS cleanings, we observed no juvenile lamprey mortalities or smolt mortalities.

We will use the slots at units 4 and 11 to cycle in rehabilitated VBSs over time.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with no problems observed. As mentioned above, the ESBS rope in slot 1C was removed from the orifice inflow. For VBS rehabilitations, we will close orifices at units 4 and 11 as needed with spares being opened nearby.

All systems operated well in automatic mode. This week, the electrical staff adjusted the limit on the back up air compressor for the rectangular screen bubbler system. The fisheries staff continued to monitor the channel during VBS cleanings, VBS replacements and during primary bypass operations.

Transportation Facility: Both primary and secondary bypass modes return all fish are to the river. PIT tag detection occurs in the full flow pipe during primary bypass operations and throughout the facility during secondary bypass operations. Smolt monitoring occurs only during secondary bypass days. Sample gates are turned on and off as need daily to insure that sample gates function only during secondary bypass operations.

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.

This week, fish facility mechanics added welds to the porosity control unit's perforated plate.

Transport Summary: Fish transport will not occur at McNary this year.

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 personnel 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
179.3	165.0	89.9	82.7	70.5	68.7	6.0	6.0

*****Control room data.

Other

Inline Cooling Water Strainers: The results of the cooling water strainer examination on August 6 are reported in Table 3. We found 22 lost smolts of which 20 were from unit 1. The remaining 2 were from unit 14. We observed no other species of interest.

Table 3. Cooling Water Strainers Inspection Results at McNary Dam, August 6, 2013.

Unit	Live Lamprey	Lamprey Mortalities	Unit Total
1	0	10	10
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	1	1
9	0	1	1
10	0	6	6
11	0	0	0
12	0	0	0
13	0	0	0
14	0	3	3
Total	0	21	21

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

Predatory Bird Observations: We continued bird counts with each zone being observed once a day usually in the morning. In the forebay area, we observed high counts of 34 grebes, 12 juvenile gulls and 2 pelicans along with an occasional osprey. Also, we noted cormorants and gulls on the rocks by the Washington boat dock.

We observed no grebes elsewhere on the project.

In the tailwater area, we had high counts of 10 gulls, 6 pelicans, 4 cormorants and 12 terns. All of the birds were in the spill basin.

We observed high counts of 6 pelicans and 10 cormorants with an occasional tern by the bypass outfall. Pelicans and cormorants appear to have figured out how to fish at the outfall.

On August 3, the last shift of APHIS hazing concluded. The fisheries staff continues to work with the propane and water hazing cannons to keep them functioning well.

Research: The Oregon exit traveling screen and adult lamprey passage studies continued as did GBT examinations.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: August 2 - 8, 2013

Turbine Operation

Turbine units 1, 2, and 6 were in service the entire reporting period. Turbine units 3 and 4 went out of service August 5 in support of turbine unit 4 maintenance. A malfunctioning disconnect forced turbine unit 3 out of service when turbine unit 4 began annual maintenance. This malfunction prevents the isolation of unit 4 from the transmission line. Turbine unit 5 remained out of service due to blade cracks.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways August 5, 6, and 8.

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. The south fish ladder picketed leads require frequent cleaning due to aquatic vegetation fouling.

Fishway Entrances and Collection Channel: The center fish way weir 2 remains out of service. The south adult fish pumps will need to be shut down to remove the bulkhead in front of the weir. Currently, center fish way weir 1 is being operated. Fishway entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All fish way entrances were within criteria on sill with less than 8 feet of depth. All channel/tail water differentials were in criteria, except the north shore. The north shore channel/tail water differential was 2.7 feet on August 5 due to the entrance weir being on sill with 2 fish pumps operating. 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 were operated without problems. All 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 satisfactorily.

STSs/VBSs: STSs are in continuous run-mode operation. No problems were found on the July inspections. Next month's STS/VBS inspections are scheduled for August 20 and 22. 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 in service. The incline screen cleaner brush is operating satisfactorily.

Juvenile Bypass Facility: No problems to report.

Fish Sampling: The first sample was April 8 and the last sample of the season was performed July 15.

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

Fish Sampling: Juvenile fish sampling concluded July 15.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. 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
31.1	24.3	21.0	14.0	70	70	7.2	7.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Main turbine unit cooling water strainer inspection results for July are outlined in Table 2 below.

Table 2. Cooling Water Inspection Results for July 2013, Ice Harbor Dam.

Date	Unit	Results
23-July	6	None
23-July	5	Not inspected – unwatered for blade repair.
23-July	3	None
23-July	2	None.
25-July	4	1 juvenile lamprey mortality
25-July	1	1 juvenile lamprey mortality

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

Avian Activity: Formal bird counts began April 8 and are in progress. APHIS hazing activities ended June 30. The fish facility is conducting bird observations when possible.

Research: No research is in progress at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: August 2 - 8, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 6 was removed from service at 0703 hours on July 29 for annual maintenance. Units were rotated out of service on August 5, 6, and 7 for STS inspections.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on August 2, 3, 4, 5, and 7.

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 or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 7.8 feet. 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 5.4', 4.9', 5.3', 5.9' and 5.1 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 5.8', 5.4', 5.6', 5.8', 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 30.

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. A sheen of oil was observed in gatewell slots 3A and 3C on the August 2 inspection. Oil pads were deployed for each gatewell. No other oil was observed in gatewells during this period.

STSs/VBSs: STSs are operating in cycle mode. STS's were inspected on August 5, 6, and 7. All screens passed inspection.

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. Facility mortality exceeded 6% on August 7 and 8. Percent mortality was 12.5 and 36.5, respectively. The average facility mortality rate this week was 1.6% (58 mortalities out of 3684 sub-yearlings Chinook collected). Sampled sub-yearling Chinook had suspected columnaris rates of 39.4% (13 infected out of 33 sampled) on August 7 and 31.8% (8 infected out of 24 sampled) on August 8.

Transport Summary: Every-other-day barging is occurring with barges departing on even 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
31.6	24.5	16.0	12.0	69.8	68.0	5.0+	5.0+

*Scrollcase temperatures.

Other

Summer spill began on June 21.

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 6. No live lamprey were recovered. Mortalities included 1 juvenile lamprey and 2 juvenile catfish.

Invasive Species: No zebra mussels were observed at the monitoring stations on August 2.

Avian Activity: Bird hazing has ceased for the season.

Research: PNNL biologists completed their onsite subyearling Chinook research activity on July 6.

Project: Little Goose
Biologist: Richard Weis
Dates: August 2 - 8, 2013

Turbine Operation

Turbine units 1 and 3 through 6 were available for service this report period. Unit 2 was removed from service on July 8 at 0700 for a 6 year overhaul. All available turbine units were operated within the 1% criteria.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway on August 3 and 6.

Fish Ladder: The ladder exit head differentials remained steady at 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 ranged between 0.0 and 0.1feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. The air bubbler used to prevent debris accumulations near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.7 and 2.1 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.0 (sill) and 8.2 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 between 5.1 and 5.2 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 4.9 and 5.0 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities measured near NPE ranged between 1.8 and 2.1 fps (criteria $\geq$1.5 fps). Collection channel subsurface water velocity was measured on August 5 using the Rickly Hydrologic Current Meter. Three measurements were conducted from near surface, mid depth and near bottom. The subsurface velocity averaged 3.1 fps with 2 pumps operating.

Auxiliary Water Supply System: Fish pumps 1 and 2 operated within criteria ranging between 74 and 77 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 was removed from service on August 1 at 0915 hours.

ESBS/VBS: All ESBS operated within criteria this report period. All brushes operated as designed. Underwater video inspections of the turbine unit 2 ESBSs and VBSs were conducted

on July 31. All screens were observed to be in good operating condition. Drawdown measurements were performed on August 7 on unit 1. Unit 1 was in 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 barge transport. Daily fish collection for the week ranged between 669 and 2,607 and totaled 10,815. The descaling and mortality rate was 0.4% and less than 0.5% 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
28.1	25.1	8.5	7.4	70.4	69.7	6.0+	6.0+

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were checked on August 7. No fish were found.

Invasive Species: The zebra mussel substrate monitor was last inspected on July 8. No mussels were observed. The next inspection is scheduled for August 12.

Avian Activity: The maximum bird count from a single survey included 11 cormorants, 32 gulls and 2 pelican. USDA-APHIS bird hazing ended on June 14.

Research: WDFW Gas Bubble Trauma research was conducted on August 5. 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. PNNL research will conclude mid August.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: August 2 - 8, 2013

Turbine Operation

Lower Granite had turbine units #1, 2, 4 and 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 #3 was taken out of service on July 29 for annual maintenance. The expected return to service date is August 23.
Turbine unit operations and unit priority varied during the week. See the Adult Fish Trap and Operations to mitigate the temperature differential between adult ladder and tailrace section below.

Adult Fish Passage Facility

On August 2, 3 and 5 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 with depths ranging from 8.0 to 8.1 feet. The north powerhouse fishway entrances were on sill during all inspections this week with depths ranging from 5.1 to 5.6 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 3.0 to 4.8 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 0.92 to 1.16 feet per second and averaged 1.04 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 25% during 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.

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 very 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. Fish collection numbers at Lower Granite decreased somewhat during the week with an average daily collection of smolts of 895 (versus a daily average of 1,094 last week). 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: Every other day fish barging operations took place on the even numbered days of the report week. Fish are being barged from Lower Granite, Little Goose and Lower Monumental Dams. Barge transport operations are scheduled to continue until August 16 at all 3 dams. The fish transport barges have been operating well without problems of any kind.

Removable Spillway Weir: Mandatory summer spill operations began at 0001 hours on June 21. The RSW was operated in support of general spill operations.

Deviations from the normal summer spill rate of 18 KCFS using Spill Pattern Table LWG – 12 were coordinated between the COE, TMT, FPAC, FPOM, BPA and RCC during the report week. See Adult Fish Trap and Operations to mitigate temperature differential between adult ladder and tailrace section below.

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
26.0	24.0	12.9	6.9	65.3	64.8	5.0+	4.8

*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 July 30. A total of 2 lamprey were found in the strainers over a combined run time of 1,056.9 unit hours. The next cooling water strainer inspections are scheduled for late August.

Invasive Species: The zebra mussel substrate near the adult fishway exit was examined for zebra mussels on August 2. No evidence of zebra mussels was found. The next inspection will take place in early September.

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

Adult Fish Trap and Operations to Mitigate the Temperature Differential between the Adult Ladder and the Tailrace: The adult ladder fish trap did not operate during the week due to high water temperatures in conjunction with low water supply during auxiliary pump operations. System Operational Request #2013-4 was drafted by the TMT on July 23 to increase adult passage and reduce the water temperature in the LGR fish ladder. The SOR requests that the COE to take immediate actions that may increase adult passage and decrease the water temperature in the adult ladder.

There are 3 auxiliary pumps that draw water from elevation 705 feet (about 30 feet below the forebay surface); these pumps were designed to supply water to the fish ladder during the reservoir drawdown test in 1992. On Friday morning (July 26) facility personnel discovered with 2 auxiliary pumps running, the adult trap did not have enough water to begin operation. Also, water temperatures in the ladder were over 71°F. During the Friday (July 26th) TMT conference call, participants recommended that Unit #1 be run all weekend and have project personnel continue to investigate the use of the 3 auxiliary pumps. Participants hoped water supplies would be sufficient to allow fish trap operation so that sockeye salmon could be captured and transported to the hatchery over the weekend (July 27-28). Although trapping and hauling did not occur over the weekend, adult counts of Chinook, Steelhead and Sockeye did increase on Saturday and Sunday. On Monday (July 29th), the Corps followed recommendations obtained from follow up FPAC and TMT conference calls, to return to FOP operations of running Unit #2 with about 12 kcfs and spilling the remainder of total river flow.

Auxiliary pumps #1 and #2 were run for the duration of the current report week (August 2-8). The Corps followed recommendations from the July 31th TMT conference call to place Unit #1 into operation with Auxiliary pumps #1 and #2 supplying cooler water to the fishway. Consensus was reached during a follow-up TMT meeting on Friday August 2 to continue this operation thru the weekend. During another meeting on Monday August 5th, the Corps concurred with TMT and FPAC recommendations to balance concerns over adult fish passage while addressing juvenile fish passage. Since most adult fish actively pass the project during the day whereas the majority of juvenile fish pass the dam at night, project operations were configured as follows:

Beginning on August 5 from 1700 – 0500 hours operate either turbine unit 5 or 4 at speed-no-load (~5 KCFS) and spill the remainder of inflow up to the TDG spill cap. From 0500 – 1700

hours operate turbine unit 1 as the priority turbine unit and spill the remainder of inflow (utilizing the RSW in both cases).

The intent of operation is to provide good attraction flow to the adult fish ladder during daylight hours and to provide increased spill for juvenile fish passage at night.