U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#25 - 2011

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: August 12 - 18, 2011

Turbine Operation

McNary had 12 units available for power generation this week. Units 1 and 10 remain out of service for the rewind contract which will be completed in approximately six months to one year. On August 12 and 13, from approximately 0600 to 2000 hours, units 3 and 4 along with transmission line 2 were out of service for a BPA contract which required working in the proximity of the transmission line. On August 16, 17 and 18, units 11, 12 and 14 respectively were out of service for approximately ten hours each for turbine bearing level indicator installation. Also, on August 16 and 17, units 2 and 4 were out of service for 1.7 and 4.3 hours respectively for VBS replacement in 2A and 4A slots. On August 18, the VBS at 14B slot was replaced while the unit was out of service as stated above. The hard constraint one percent criterion continues with no units running outside the criteria.

Adult Fish Passage Facilities

On August 14, 16 and 18, the McNary fisheries biologist performed measured inspections of the adult fishways. Adult fish counts, video review for lamprey passage, water temperature monitoring, and nightly lowering of Oregon entrance weirs, NFEW2, NFEW3, SFEW1 and SFEW2 continued.

Fish Ladders: During measured inspections, all Fish Passage Plan criteria were met on both ladders.

At the Oregon exit, measured differential readings revealed no problems with the traveling screens though one differential alarm occurred and was reset.

Fishway Entrances and Collection Channel: Washington ladder entrance weir, W3, measured 6.1 to 7.5 feet all week. These readings may have been affected by potential programming errors in the control system. The Oregon south powerhouse entrance weir, SFEW2, has a failed LED which has not yet been replaced. Until then, the dial indicator on the weir cable drum will be used for measurements. All other inspection points on both ladders were in criteria. Collection channel velocities averaged 1.3 feet per second.

Auxiliary Water Supply System: For the week, fish pumps 1 and 3 operated with blade angles of approximately 30 degrees with one interruption in service recorded. On August 16, both pumps were out for service for 10 minutes to test the cooling water backflow preventer. Pump 2 remains out of service due to a major overhaul. The project now estimates the return to service date to be January 31, 2012.

The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool with no interruptions in service. On August 13, at 1416, the Wasco County PUD unit returned to service. During the outage, the bypass system was fully functional.

Juvenile Fish Passage Facility

Collection for daily transport continues with no interruptions to report.

For the report week, 66,705 smolts were transported and 310 juvenile lamprey were enumerated.

Forebay Debris/Gatewell Debris/Oil: During the week, forebay debris remained moderate. Debris continues to be monitored throughout the project with half of the debris being on the upstream face of the spillway. Trash rack differential monitoring revealed no significant problems and no racks were cleaned. Repairs to the damaged trash rack hoist and cleaning device continue. No problems were seen in the gatewell slots. The slot at 1B remains dewatered as the issue with the headgate for that slot has not yet been resolved.

ESBSs/VBSs: ESBSs are deployed at all units except at 1A, 1B and 10B slots. Rehabilitation continues on the two spare ESBSs. This work should be completed by late August. The screens in 3B and 13A slots remain in bypass mode. No ESBS camera inspections occurred this week due to VBS replacement at 2A slot.

VBS monitoring revealed no screens out of criteria. However, from August 16 through 18, nine screens were cleaned as a preventative measure. During VBS cleaning operations, torn screens were found in 2A, 4A and 14B slots. The units were temporarily removed from service, fish were evacuated and the VBS was replaced with rehabilitated screens which were previously stored at unit 1. All three units are now available for service. No harm to fish was noted. Two units are out of service as 3 VBSs are missing in unit 1 and 1 VBS in unit 10 is missing. Screen rehabilitation has already been accelerated.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Forty two orifices were utilized this week and no blockages were observed. Since 1B slot is dewatered, a make up orifice remains open at 1C slot. All system operated well in automatic mode. Besides daily checks, the channel was also monitored during VBS cleaning and replacement.

Transportation Facility: Collection for transport and daily smolt monitoring continues. The primary PIT tag system is activated to run continuously. Balloon tests of the PIT tag lines revealed no problems. The PIT tag equipment continues to receive weekly checks. The secondary (C and D) PIT/bypass gates remain off and closed for collection. The sample gates remain activated for continuous operation.

Fabrication of the new raceway "lamprey friendly" tailscreens continued. The pace of fabrication has been slowed by the start of fish truck operations as maintenance personnel also drive the fish trucks.

Transport Summary: The barge season concluded with barges departing from McNary on August 12, 14 and 16 without any difficulties.

Trucks departed McNary on August 13, 15 and 17 with every other day transport beginning on August 17. There was no trip on August 18. Some minor repairs were necessary this week. Items repaired included fish trailer indicator lights on August 13, a facility drain hose on August 15 and a trailer hatch on August 17.

River Conditions

River conditions during the week are outlined in Table 1 as provided by the smolt monitoring staff whose data day runs from 0700 to 0700 hours. Clarity data was provided by the control room. The summer spill program, which designates 50 percent of total flow continued. Spill was briefly closed so allow transit of the fish towboat and barge safe transit to and from the juvenile fish facility.

The smolt monitoring staff continues to gather water temperature data which is reported separately.

Table 1. 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
217.7	187.0	108.5	93.4	67.7	67.1	6.0	5.2

Other

Inline Cooling Water Strainers: The next examination will occur in early September.

Invasive Species: The next zebra mussel station examination will also be in early September.

Predatory Bird Observations: Bird counts continued with the forebay area being checked once a day and the tailwater area being checked twice a day. Bird numbers appear to be decreasing. In the tailwater area, high counts were 20 gulls, six pelicans and nine cormorants. Most birds were seen in the spill basin. An occasion pelican or cormorant was noted at the bypass outfalls. The water cannon operated well.

In the forebay area, the high count was eleven juvenile gulls with an occasional tern or osprey observed. No grebes were seen on project.

Research: Four research activities are in progress. These include the study of the Oregon ladder exit area by the traveling screens, the adult lamprey passage study, gas bubble trauma examinations and the ODFW angling survey for small mouth bass.

Project: Ice Harbor
Biologist: Mark Plummer
Biological Technician: Stephen Jeffers
Dates: August 12 - 18, 2011

Turbine Operation

Turbine units 2, 3, and 4 were available for operation during this reporting period. Turbine unit 1 remained out of service for annual maintenance. Turbine units 2 and 4 went out of service for a short period August 17 to permit STS inspections. Turbine units 5 and 6 remained out of service for BPA work.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult and juvenile fish passage ways August 15 and 16.

Fish Ladders: All north and south adult fish ladder inspection areas (picketed leads, head differentials, fishway exits, and depth over weirs) were within criteria. The adult collection channel velocity is within criteria.

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) was off sill with a depth of 8.0 feet and off sill with a depth of 7.9 feet. The north powerhouse entrance (NFE) was on sill with a depth of 8.2 feet and off sill with a depth of 8.0 feet. The north shore entrance (NSE) was on sill with a depth of 7.4 feet and on sill with a depth of 7.2 feet. Fishway entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All channel/tailwater differentials were in criteria, except the north/channel tailwater diffential during both inspections. On these inspections, the north fish ladder channel/tailwater differential was at 0.7 feet. The powerhouse shift operator was notified. Repairs to the north adult fish entrance NSE 1 weir lifting mechanism on August 5 lead to the failure of NSE 2. Both entrance weirs are now on sill and cannot be operated. NSE 1 bulkheads are in and NSE 2 is operating. Further repairs will require a dive crew. Repairs are tentatively scheduled for September 12 after the end of the spill season. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: Normally, 2 of the 3 north shore fish pumps are operated. All north shore fish pumps were available for operation. North shore fish pump 1 tripped an under voltage relay on August 12 at 0350 hours. The pump would not restart and North shore fish pump 3 was placed into service. Pump #1 returned to service on August 15, and Pump #3 was placed on standby. South shore fish pump 1 remains out of service due to vibration issues at the gearbox shaft. Currently, 6 of 8 south shore fish pumps are operating.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: No problems to report. Debris is accumulating in the forebay. Fish ladder exits are clear of debris and the bubblers are operating.

STSs/VBSs: STS rotations are in continuous run mode as the average length of both the subyearling Chinook and the migratory sockeye being is below 120 mm. No problems were observed during the August STS inspections. Turbine unit 3 STS inspections will be conducted August 29.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass is in operation. 20 orifices are open.

Juvenile Bypass Facility: The bypass was put into operation March 23.

Fish Sampling: Fish sampling for the 2011 season concluded July 7.

Removable Spillway Weir: The RSW is in operation.

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
41.3	35.7	31.1	25.7	70	69	6.2	6.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: One adult lamprey mortality was found in the turbine unit 5 cooling water strainer on August 16. No other fish mortalities were recovered.

Invasive Species: No zebra mussels were observed during this period.

Spill for fish begin April 3, 2011.

Project: Lower Monumental Dam
Biologists: William Spurgeon and Elizabeth Lindsey
Dates: August 12 - 18, 2011

Turbine Operation

The units are being operated within the hard constraint of the 1% operation criteria. Unit 2 was taken out of service on July 25 at 0600 hours for annual maintenance and returned to service on August 12 at 1411 hours. Unit 2 was again taken out of service on August 15 from 0934 - 1405 hours for operating gate cylinder removal. Unit 1 was taken out of service on August 15 at 0935 hours for annual maintenance.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC biologists on August 12, 13, 14, and 17.

Fish Ladders: Fishway exit head differential and depth over the weirs were within criteria ($\leq$ 0.5' and 1.0'-1.3', respectively) on all inspections. Picketed lead head differential was in criteria ($\leq$ 0.4' and $\leq$ 0.3' for north and south shore fishways, respectively) on all inspections.

Fishway Entrances and Collection Channel: NSE 1 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: $\geq$ 8' or on sill) on all inspections. While on sill, the gate depth readings were 5.8', 5.5', 5.5', and 5.0 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: $\geq$ 8' or on sill) on all inspections. While on sill the gate depth readings were 6.1', 5.7', 5.7' and 5.5 feet. SSE 2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') this week.

Auxiliary Water Supply System: All pumps were in service and operating during this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 1.3 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-10% surface coverage. No oil was observed in gatewells.

STSs/VBSs: STS operation was changed to cycle mode on August 16 as average fork length of sub-yearling Chinook exceeded 120mm.

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

Collection Facility: No problems occurred this week.

Transport Summary: Barging ended on August 15. Alternate day midi-tanker transport began on August 17.

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
41.0	35.2	17.1	16.4	69.0	68.5	4.9	3.3

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 9. No live lamprey were recovered. Mortalities included 1 juvenile lamprey and 180 Siberian prawns.

Invasive Species: There were no zebra mussels observed at the monitoring stations on July 31.

Pelican presence at the bypass outfall has been infrequent.

Project: Little Goose
Biologists: George Melanson, Rick Weis
Dates: August 12 - 18, 2011

Turbine Operation

Turbine units 1 through 5 were available for service throughout most of the report period. Unit 6 was placed back into service on August 16 following scheduled inspections and maintenance. Unit 4 was taken out of service for scheduled inspections and maintenance on August 17. All turbine operations were within 1% of best efficiency.

Adult Fish Passage Facility

COE and ODFW fisheries biologists performed measured inspections of the adult fishway August 12, 16 and 18.

Fish Ladder: The ladder exit head differentials remained steady at 0 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs ranged between 1. 0 and 1.1 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials measured no differential on all three inspections (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 1.46 and 2.22 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.20 and 8.42 feet (criteria $\geq$8.0 ft), NPE weirs were on sill and depths ranged between 5.10 and 5.62 feet (criteria $\geq$7.0 ft or on sill). NSE weirs remain at fixed elevations of 531.5 feet and depths ranged between 5.24 and 5.66 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities (criteria 1.5 fps) ranged from 1.5 to 1.9 fps near the SSE. NSE staff gauges were not recorded this week due to closure of North shore area.

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris is minimal. Occasional hand removal of debris continued from gatewells.

Spillway Weir: The spillway weir operated in the high crest (622 ft) position.

ESBS/VBS: All ESBS operated within criteria this report period. Drawdowns on units 1 and 2 were performed on August 17. Video inspections of ESBS and VBS 4A through 4C were also performed on August 17. All screens were observed to be in good operating condition.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system operated in criteria with 22 open orifices. Increased orifices inspections and back-flushing continued.

Transportation Facility: Daily fish collection for this period ranged between 142 and 366 for a total of 1,575 for the week. There were 98 mortalities this report period. All fish were transported except for mortalities. Descaling and mortality rates for this report period are 0.5% and 6.2% respectively. Mortality rates exceeded 6% for three consecutive days beginning August 14 and were well below 6% on August 17 and 18. The majority of mortalities was caused by presumed infection of *Columnaris sp*. Examination of the mortalities showed several instances where gill tissue exhibited infection symptoms were consistent with *Columnaris sp*. Three adult Pacific Lamprey were recovered from the collection this week and were transported 1 mile upstream above the dam and released back to river in good condition.

Transport Summary: Every other day barging operations ended with the last barge leaving on August 15. The first miditanker (truck) trip left on August 17.

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
45.1	37.6	14.2	10.9	69.5	67.8	5.8	4.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were inspected on August 16. One Lamprey was found in unit # 1.

Invasive Species: The zebra mussel substrate monitor was inspected on August 11. No mussels were observed. The next inspection is scheduled for September 10.

Avian Activity: Up to 10 gulls and 4 cormorants have been observed in the vicinity of the dam.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: August 12 - 18, 2011

Turbine Operation

Turbine unit 6 is undergoing exciter rehabilitation. The tentative return to service date for this unit is now August 24. A powerhouse outage for work on a 500 KV line began on August 1. All units were taken off line with the exception of unit 5 which was run for station service power only. The Lower Granite 500KV powerhouse line and main unit transformer bank #2 were returned to service at 1112 hours on August 9. Turbine unit #5 was then returned to service at 1137 hours. Turbine unit #5 went back to "speed no load" for station service generation only at 0602 hours on August 15. Turbine unit #5 was returned back to normal generation at 1745 hours on August 17. Main unit transformer bank #1 and turbine units 1-4 remained out of service during the report week due to a phase bushing problem on transformer bank #1. Final testing on the phase bushing should take place early in the next report week. If all is well, normal generation on turbine unit #1 and/or #2 will resume.

Adult Fish Passage Facility

On August 13, 14, 15, and 18 the Lower Granite COE fisheries biologists performed measured inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria during all fishway inspections this week. Weir depths at the south shore fishway entrances were below criteria on all inspections due to tailwater levels at or below 633.0 feet (at which level these gates bottom out). South shore weir depth elevations remained at 7.8 feet on all inspections during the week (criterion $\geq$ 8.0 feet). Both north powerhouse fishway entrances were on sill during the week due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet). Weir depths at the north powerhouse entrances ranged from 4.8 to 4.9 feet (criterion $\geq$ 8.0 feet). Weir depths at the north shore fishway entrances were out of criteria all week with readings of between 3.9 and 5.3 feet (criterion $\geq$ 7.0 feet). Weir depth readings at the north shore entrances are being 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 0.88 to 1.07 feet per second and averaged 1.00 feet per second.

Auxiliary Water Supply System: There were no problems with the auxiliary water system during the report week.

Juvenile Fish Passage Facility

The juvenile fish facility sample rate was increased from 50% to 100% at 0700 hours on August 15. This was done because there were fewer than 500 fish in the total collection per day and also to accommodate easier loading of the pickup midi-tanker.

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 August 6 - 7. The inspector noted that an approximately 3 foot section of VBS retaining strap was missing in gatewell slot 1-B. He also noted that the mesh was entirely in place. This section will be monitored in upcoming inspections and repaired during winter maintenance. Unit 5 was being run for station service and its screens were not inspected

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Juvenile fish collection gallery orifices were backflushed at regular 3 hour intervals all week. Debris levels were very light during the week. It was not necessary to go into bypass mode to clean the inclined screen during this report period.

Transportation Facility: The fish transportation facility operated well during the week. The downstream raceways remain fully operational in the event fish numbers increase to the point it is necessary to go back to raceway loading.

Transport Summary: The last fish barge of the season departed Lower Granite on August 15 and the first transport truck left on August 17. Truck transport of fish will take place on the odd days of the month in August. Due to low numbers of fish, the midi-tanker was utilized for both truck trips this week. Trucked fish are being released into the Bonneville bypass line. All transport operations went smoothly and according to schedule.

Removable Spillway Weir: The RSW operated normally as part of the spill plan.

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
40.0	35.5	30.3	18.4	66.1	65.3	5.0	4.7

*Scrollcase temperature

Other

Inline Cooling Water Strainers: Cooling water strainers were last inspected for lamprey entrainment on July 28. A total of 41 lamprey were found in the strainers over a combined run time of 3235.5 unit hours. Unit 6 is out of service and was not inspected. The next cooling water strainer inspections are scheduled for August 29.

Invasive Species: The zebra mussel traps near the adult fishway exit were last examined for zebra mussels on the August 6 inspection. No evidence of zebra mussels was found.

Research: Adult fish trap operations continued with a sample rate of 10%. Scale samples are being taken from one out of every 20 hatchery steelhead. All wild steelhead and Chinook captured are being PIT-tagged and scale and genetic samples taken. Any previously PIT-tagged steelhead or Chinook (either hatchery or wild) will have both scale and genetic samples taken for verification purposes. Scale samples are also being taken from one out of every three hatchery Chinook. Sort by code Lemhi origin Chinook are being radio-tagged and scale and genetic samples taken.

Fall Chinook Transport: Trucking of adult fall Chinook to Lyons Ferry Hatchery and the Nez Perce Hatchery at Cherry Lane began on August 18. This operation will continue into November (or until hatchery needs are met).