U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#02-2015

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 6 - 12, 2015

Turbine Operation

McNary had 11 of 12 units available for power generation this week. The hard constraint one percent criteria will begin April 1. Currently, operation outside the soft 1% peak efficiency constraint is possible at the BPA's request. Unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
9	Aug 11, 2014 – Mar 12, 2015	About 7 months.	Rewind contract completed after 72 hour test.
11	Sep 18, 2013 – Apr 1, 2015	About 18.5 months.	Turbine bearing issues.
12	Feb 8 – Oct 9	About 8 months.	Rewind contract.
3, 5 & 6	Mar 6	5.6 hours total.	Trash rack cleaning.
13 & 14	Mar 6	About one hour each.	For Wasco PUD testing.

Adult Fish Passage Facilities

On March 8, 10 and 12, the McNary fisheries staff performed measured inspections of the adult fishways. Visual adult fish counts will resume April 1.

Fish Ladder Exits: During measured inspections, both ladder exits met all Fish Passage Plan criteria. This week, both ladder exit control panels underwent scheduled maintenance.

At the Washington exit, we continue to monitor noted the slight leak at the lower east corner of the count station window. For the report week, no issues occurred and only a light amount of debris was in the area of the exit. We continued to clean the trash rack as needed.

At the Oregon exit, on March 12, a regulating weir alarm was reset along with the weir set point. The north traveling screen was in bypass mode and not in use. Apparently, these adjustments occurred during course of control panel maintenance. The screen was immediately returned to service. Light debris remains in the exit area and differential monitoring of the traveling screens revealed no problems.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, for the week, all inspection points met criteria.

All Oregon Ladder inspection points met criteria this week, except for the north powerhouse entrance, on March 8, when NFEW2 and NFEW3 both measured depths of 7.8 feet. The issue with the entrance's tailwater sensor had not yet been resolved. On March 9 and 12, project staff addressed and resolved the problem. The south powerhouse entrance weirs were also calibrated on March 9. On March 12, at 0420 hours, SFEW1 was switched to manual mode due to a high pool differential and issues with the weir limits. Again, the electrical staff addressed this problem.

Collection channel velocities averaged 1.9 feet per second. We took these readings from surface observations.

Auxiliary Water Supply System: On March 6, the PUD turbine unit was tested for approximately one hour. On March 7, at 0907 hours, the unit returned to service after repairs mentioned in last week's report with no other interruptions in service. During this outage, the bypass system functioned well.

For the week, both pumps operated satisfactorily with blade angles of 30 degrees. Pump 2 is currently out of service for major overhaul under contract. This work should be completed by September, 2015.

The juvenile facility remains out of service for maintenance and is not yet supplying the usual 450 cfs to the north powerhouse pool. We will return the system to service on March 30.

Juvenile Fish Passage Facility

The facility remains shut down for winter maintenance, which is nearing completion. On March 30, we will re-water the system.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load remained moderate with a light amount of incoming debris, some of which was passed by the TSW when in use. Most of the debris is scattered across the face of the powerhouse. Trash rack cleaning removed some of the debris. As mentioned in last week's report, on March 6, trash racks were cleaned at units 3, 5 and 6. Differential measurements this week revealed no problems and no other units were cleaned.

Also, on March 6, as mentioned last week, the debris spill operation occurred from 0830 to 1725 hours. The tug was returned to Lower Granite project on March 7.

This week, on March 10 and 11, the project removed very slight amounts of hydraulic fluid with absorbent pads from slot 4C. This is a slot that had a previous sheen detected and reported. We observed no other problems.

ESBSs/VBSs: All ESBSs remain raised and maintenance is nearly concluded. The project plans to install the screens from April 5 to 15 similar to the last six seasons in support of juvenile lamprey passage. VBS rehabilitations also continued during the winter. VBS differential monitoring will resume when ESBS installations begin.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: The orifices remain closed for winter maintenance which is nearing conclusion. The channel will be re-watered and bypass operations will begin on March 30. This week, the fisheries staff replaced the orifice cover at the slot 1A north orifice, which was causing an icing issue last winter.

This week, the project performed scheduled maintenance on the side screen cleaner and the side screen dewatering valves. We also continued to bleed the channel air in order to remove moisture.

At the junction of the full flow pipe and the primary bypass structure, there is a gasket, which the project staff plans to replace. Parts are currently on order.

Bypass Facility: The facility remains dewatered for winter maintenance which is nearing completion. This week, the fisheries staff completed rehabilitation of the separator, which should extend the life of the separator for three to five years before it needs to be replaced. Also, PSMFC staff upgraded the facility's PIT tag control system.

River Conditions

River conditions during the week are outlined in Table 2 as provided by the control room. Data periods run from 0000 to 2400 hours each day. Water temperature is taken from the unit 1 scroll case.

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
211.4	161.4	45.3	0.0	43	41	4.4	3.8

Spill in excess of powerhouse capacity occurred up to March 9 at 1120 hours, at which time only TSW spill occurred when required for the adult fallback study. Contrary to last week's report, the spring phase of the adult study will occur from February 15 to March 17 with the TSW at bay 20 being opened as scheduled. This week, the TSW was opened from March 8 at 0001 hours to March 11 at 0001 hours.

On March 6, as described last week, a debris spill occurred.

This week, the spillway cranes and busses underwent scheduled maintenance.

Other

Inline Cooling Water Strainers: The next cooling water examination will occur in early April.

Invasive Species: The biologist will conduct a zebra mussel station examination later this month.

Avian Activity: Bird counts will resume in April, when technicians are on shifts. Gulls, cormorants and grebes appear to be in the general area in low numbers. Gulls and cormorants are roosting on the rocks by the Washington shore boat dock and on the navigation lock wing wall. The bypass system is not functional so there are no birds to observe at the outfall. We did note in the bird data for 2014, an increase in pelican and cormorant numbers at the outfall over 2012 (the first year of the new outfall) and 2011 (the last year of the old outfall). Next week, we will deploy the bird hazing distress calls around the project.

Research: As mentioned above, the spring section of the adult fallback study continues.

Fish Salvage: On March 7, no ESA listed species or lamprey were observed at the navigation lock's upper gate during dewatering. On March 10, two unclipped steelhead smolts were removed from the lower navigation lock after dewatering. One smolt was alive and released; the other was lost and partially decomposed. Approximately 17 other fish were salvaged, all of which were lost and in various stages of decomposition. One small mouth bass was recovered and released alive. Also seen were channel catfish, suckers, whitefish, sunfish, sticklebacks, smallmouth bass, and yellow perch.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 6 - 12, 2015

Turbine Operation

Unit 3 was taken out of service on July 7, 2014, at 1346 hours to investigate a generator electrical grounding problem and for annual maintenance. This unit remains out of service to finish its conversion into a fixed-blade unit to remedy an oil leak from the hub, and for digital governor upgrades. As coordinated through FPOM Memorandum of Coordination (MOC) 15-IHR-004, unit 1 was out of service for model validation testing on March 6 from 0740 to 1702 hours. Unit 6 was out of service from 0655 to 1709 hours on March 9 to accommodate the contractor moving the dive barge used for the spillbay 2 modification.

Units 4 and 6 were mistakenly operated out of priority ahead of unit 2 on March 6, from 1105 to 1219 hours, while unit 1 was out of service (with no line switching occurring). As coordinated through FPOM MOC 15-IHR-005, reactive limit testing was done on the units one at a time on March 11, from 1115 to 1322 hours.

Adult Fish Passage Facilities

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

Fish Ladders: The north fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. Criteria for head differentials at ladder exits and picketed leads, and depth over the weirs are 0.5 feet or less, 0.3 feet or less, and 1.0-1.3 feet, respectively. The water surface above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily. The north and the south shore picketed leads were put in their raised positions on November 3, 2014. Adult fish counts ended for the previous season on October 31, 2014.

Fishway Entrances and Collection Channel: The south shore entrance (SFE) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria, except for a depth of 7.3 feet on March 11. NFE entrance gate was switched from manual to automatic control to correct the problem. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria on all inspections. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply (AWS) System: Two of the three north shore AWS pumps were operated throughout the week. Six of eight south shore AWS pumps were operated.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was approximately 100 square yards of debris observed in the forebay. Oil socks were in gatewells 1A and 2C to soak up surface oil sheens.

STSs/VBSs: STSs are raised out of the water for annual maintenance.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass is unwatered for annual maintenance.

Juvenile Bypass Facility: The bypass facility is unwatered for annual maintenance.

Fish Sampling: Sampling operations are scheduled to begin the week of April 1.

Removable Spillway Weir: The modification of spill bay 2 ogee and flow deflector is complete and the contractor is in the process of removing associated structural framework.

River Conditions

River conditions during the week are outlined in Table 1 below.

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
36.1	25.6	0	0	43	42	3.6	3.1

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections will take place the week of March 23.

Invasive Species: No new exotic species have been found.

Avian Activity: Low numbers of piscivorous birds were seen around the project during the week.

Research: No on-site research is occurring at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: March 6 - 12, 2015

Turbine Operation

The units are being operated within the 1% soft constraint operational criteria. Unit 1 was removed from service on December 10, 2014 for Unit Rehabilitation with an estimated return to service date of January 12, 2017.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on March 9, 10, 11 and 12.

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 NSE2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections with the exception of NSE2 on March 9 with a reading of 7.8'. The operator was notified. North shore channel/tailwater head was in criteria (1'-2') on all inspections.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, the gate depth readings ranged from 6.5' to 7.0 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in depth or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, gate depth readings ranged from 7.4' to 7.7' feet. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections. All south shore channel and south shore tailwater readings were taken with a tape measure due to a power outage from navigation lock maintenance work.

Auxiliary Water Supply System: AWS pumps 1, 2, and 3 were operated throughout this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 126 square yards of forebay debris observed during this period. No oil was observed in the gatewells.

STSs/VBSs: STSs are raised for winter maintenance and are scheduled to be installed the week of March 23rd.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is dewatered for winter maintenance. The primary bypass outfall water cannons are dewatered. Both systems are scheduled to be watered up the week of March 23rd.

Collection Facility: The facility is in winter maintenance mode.

Transport Summary: Transport is not occurring at this time.

River Conditions

Spill for fish passage is scheduled to begin April 3. River conditions during the week are outlined in Table 1 below.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
31.7	25.0	0.0	0.0	43	42	4.6	3.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 2. In all 261 live lamprey were recovered. Mortalities included about 1015 juvenile lamprey and 2 Siberian prawns.

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

Avian Activity: Gulls and cormorants were the dominant piscivorous bird species observed during fish ladder inspections this week.

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

Project: Little Goose
Biologist: Richard Weis
Dates: March 6 - 12, 2015

Turbine Operation

Turbine units 2, 3, 4, 5 and 6 were available for service throughout this report period. Turbine unit one was forced out of service due to packing leaks on February 26. This unit was returned to service on March 3 at 1820 hours. Unit 1 was taken out of service again on March 4 due to a burnt dash pot solenoid. Unit 5 was placed back into service on March 4. Soft 1% peak efficiency constraint criteria are in effect.

Adult Fish Passage Facility

The adult fishway was placed back into service starting on February 23 at 1330 hours. The new Fishway control system does not control weir height as part of the criteria settings. This system will remain manual mode until the juvenile system is watered up. A contractor requested an overnight run in automatic mode on March 9. An inspection on March 10 showed the NPE weir depth out of criteria by 0.9 feet (Criteria $\geq$ 7ft). System was returned to manual mode.

Adult fishway inspections were performed on March 10, 11 and 12.

Fish Ladder: Ladder exit head differentials ranged between 0.0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs remained steady at 1.2 feet (criteria 1.0-1.3 ft.),` and picketed head differentials held steady at 0.0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or in the ladder exit area. The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.0 and 1.8 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 8.8 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 6.1 and 7.7 feet (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.3 and 8.0 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities measured near the North shore entrances ranged between 1.5 and 2.7 fps (criteria 1.5 to 4.0 fps).

Auxiliary Water Supply System: Fish pumps 2 and 3 were started on February 26 and operated within criteria. Fish pump #1 is waiting on parts. Fish pump #3 was turned off from 1215-1250 hours on March 11 for the installation of new cooling water flow gauge. Water velocities were measured at the north Powerhouse using Rickly velocity equipment, averaging flow 2.6 fps.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: The trash/shear boom is currently still on shore. Efforts are underway to have it repaired. Woody debris in the immediate forebay was estimated between 30,000 to 40,000 square feet. Spill to remove Forebay debris occurred on March 12 from 0630 to 0655. Woody debris was observed in gatewells but is unable to be removed with the ESBS in the raised screens.

Spillway Weir: The spillway weir is scheduled to be placed back in service April 3 at the start of spring spill for fish passage.

ESBS/VBS: ESBS screens are raised and removed from service for maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system is scheduled to be placed back into service March 24.

Transportation Facility: The transportation facility is scheduled to be placed back into service March 26.

Transport Summary: Fish transport is estimated to begin late April.

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
31.1	24.3	0	0	44.2	41.4	5.0	4.4

*Ladder temperature.

Other

Invasive Species: The zebra mussel substrate monitor is scheduled for inspection on April 2.

Inline Cooling Water Strainers: Cooling water strainers on all units were inspected on March 12. A total of 4 dead juvenile lampreys (Ammocoete) were removed.

Avian Activity: Bird counts and hazing will resume in April.

Research: No on site research is taking place at this time.

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: March 6 - 12, 2015

Turbine Operation

Units are being operated within the 1% soft constraint operational criteria. Unit 1 was taken out of service October 21 for annual maintenance, fish screen slot closure work, and dive work associated with installation of the reinforcement bulkhead. Unit 1 remains out of service for recalibration of the governor due to loading and unloading issues. Unit 2 was taken out of service January 5 for permanent fish screen slot closures work and has an expected return to service date of March 19.

Adult Fish Passage Facility

The fish ladder was inspected by Corps biologist March 10, 11, and 12.

Fish Ladder: Fish ladder exit head differential and depth over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. Picketed lead head differential was in criteria (≤ 0.3') on all inspections.

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria (criteria ≥8' or on sill). South shore channel/tailwater head was in criteria (criteria 1'-2') on all inspections.

NPE1 and NPE2 weir gates were in sill criteria (criteria ≥8' or on sill) on all inspections. While on sill the gate depth readings were 7.9', 7.5', and 7.0 feet. North powerhouse channel/tailwater head differential was out of criteria (criteria 1'-2') on all inspections with readings of 0.6', 0.8', and 0.9 feet.

NSE1 and NSE2 were out of criteria (criteria ≥7' or on sill) on all inspections. NSE1 had gate depth readings of 4.4', 4.1', and 3.6 feet. NSE2 had gate depth readings of 3.5', 5.5', and 5.0 feet. The North shore channel/tailwater head differential was out of criteria (criteria 1'-2') on all inspections with differential readings of 0.4', 0.4', and 0.8 feet. NSE2 has been out of service since 2011 passage season and is suspended with a non-adjusting hoist system at an elevation of 630.0 feet. This gate requires a complete rehab and will remain out of service until funding is available. Entrance weir depths are being sacrificed in an attempt to maintain channel/tailwater head differential.

Collection channel velocities were out of criteria (criteria 1.5-4.0 fps) with readings ranging from 0.9 to 1.1 fps and a weekly average of 1.0 fps. Alternative methods of measuring collection channel velocity are being investigated for installation as part of the adult fish ladder control system upgrade.

Auxiliary Water Supply System: The ladder is in two pump operation with AWS pumps 1 and 3 in service. Operation of AWS pump 1 motor in fast speed mode trips the overload on the safety relay during low tailwater conditions. The powerhouse electrical section is investigating the problem. Pump 2 is out of service for lower guide bearing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris and trash rack raking of units 4, 5, and 6 occurred on March 2 and 3. No oil was reported in the gatewell slots.

ESBSs/VBSs: ESBSs are scheduled to be installed the week of March 16.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: The collection channel will be watered up the week of March 16.

Collection Facility: The collection facility will be watered up the week of March 16.

Transport Summary: No fish transport is occurring at this time.

River Conditions

River conditions during the week are outlined in Table 1. Spill is not occurring at this time. Spill in support of fish passage is slated to begin April 3.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (F^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
31.1	25.3	0.0	0.0	44.1	43.3	4.4	3.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: The next inspections are scheduled for late March.

Invasive Species: The first inspection of this substrate will occur in early April.

Avian Activity: Daily piscivorous bird counts are scheduled to begin April 1.

Adult Fish Trap Operations: The adult fish trap was watered up March 11.

Permanent Fish Screen Slot Closures: Permanent closure of unit 1, 2, and 3 fish screen slots have been completed.

Fish Salvage Operation: Unit 2 fish screen slots were dipped March 11. Recoveries included 46 live unclipped sub-yearling Chinook and 1 live unclipped yearling Chinook recovered.

Research

Research: No onsite fish research is occurring at this time.