U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#04-2015

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 20 - 26, 2015

Turbine Operation

McNary had 13 units available for power generation this week. On April 1, the hard constraint one percent criteria will begin. Until then, units can run outside the soft constraint 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
12	Feb 8 – Oct 9	About 8 months.	Rewind contract.
5 to 8	Mar 20	9.2 hours.	Transmission line outages for BPA.
11	Mar 21 at 1709	After 72 hours test.	Unit officially returned to service.
14	Mar 23	10.5 hours.	Transmission line restriction and outage for BPA.
1 to 4, 13	Mar 23	2.7 to 3.4 hours each.	Transmission line outages for BPA.

Adult Fish Passage Facilities

On March 22, 24 and 26, the McNary fisheries staff performed measured inspections of the adult fishways. Preparations for the adult fish counting season continued. Preparations included orientation of fish counting contractor personnel at McNary Dam on March 20 and the rebooting of count station computers on March 24. The picketed leads will be lowered March 31, followed by the resumption of visual adult fish counts on April 1.

Fish Ladder Exits: Both ladder exits met all Fish Passage Plan criteria during measured inspections.

No problems were encountered at the Washington exit and only a light amount of debris was in the area of the exit. We cleaned the trash rack as needed. Exit set points were adjusted on March 22.

Light debris remains in the Oregon exit area. Traveling screen differentials continued to be satisfactory. This week, removed a small log from weir 335 on March 24. For safety and practical reasons, the weir was switched to manual mode during log removal. Maintenance staff also adjusted the pressure on the air driven count window cleaning brush on March 24.

Previously, the brush had been operating too quickly and stopping too suddenly. Crews also repaired the exit area lighting this week.

Fishway Entrances and Collection Channel: All Washington ladder entrance inspection points met criteria this week.

All Oregon ladder inspection points met criteria this week. On March 23, from 1341 to 1733 hours, Oregon ladder entrances were placed in manual mode during a power outage in support of BPA transmission line service. The south powerhouse entrances underwent electrical maintenance on March 24.

Collection channel surface velocities averaged 2.0 feet per second.

Auxiliary Water Supply System: The Wasco County PUD turbine unit in the Washington ladder had one interruption in service this week. The unit was out of service from 1307 to 1730 hours on March 23, in support of the above mentioned BPA transmission line outage. During the outage, the bypass system functioned well.

Except during the BPA transmission line outage, both Oregon ladder fish pumps operated satisfactorily this week with blade angles of 30 degrees. Due to the loss of power, fish pumps were out of service 1407 to 1733 hours on March 23. Pump 2 is currently out of service for major overhaul under contract. This work is should be completed by September 2015. On March 26, project personnel installed the intake stop logs necessary for the unwatering and isolation of Pump 2. These stop logs needed to pass structural and safety inspections first before being utilized.

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

Juvenile Fish Passage Facility

The facility remains shut down for winter maintenance, which is nearing completion. As mentioned above, the juvenile fish facility will be "watered up" on March 30. The first day of secondary bypass is scheduled to take place on April 6, which coincides with the planned start of ESBS installations.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was moderate to heavy with a light amount of incoming debris. Most of the debris was centered at the powerhouse.

This week, trash rack differential measurements at unit 4 reached 2.1 feet with the unit loaded at 79 megawatts. Approximately 2.8 ten-yard truck loads of debris were removed from the unit 4 trash racks on March 23. No ESA listed species or lamprey were noted in the debris.

No problems were seen in the gatewell slots.

ESBSs/VBSs: All ESBSs remain in their raised positions. The project staff has nearly concluded maintenance. Screen installations are slated to take place from April 5 to 15 in similar fashion as the last six seasons in support of juvenile lamprey passage.

VBS rehabilitation also continued during the winter. When ESBS installation begins, we will resume VBS differential monitoring.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The orifices remain closed for winter maintenance which is nearing conclusion. We continued to bleed channel air in order to remove moisture. The channel will be re-watered and bypass operations will begin on March 30.

On March 26, the fisheries staff repaired the overflow screens at the dewaterer transition area. During tests, we noted that the transition screen cleaner had developed and air leak which was immediately repaired. The fisheries maintenance staff also found the rectangular screen cleaner motor had a gearbox leaking oil. This motor raises and lowers the cleaning brush. Repairs were also completed the same day. The mechanism will be tested on March 30. A new motor has been ordered.

The dressing coupler at the junction of the full flow pipe and the primary bypass gate structure was replaced on March 25.

On March 26, we removed, cleaned and reinstalled the forebay elevation indicator. The stilling well had become obstructed with debris, which resulted in inaccurate readings. We installed a cap on the still well, which should resolve the issue of debris blockages.

Bypass Facility: The facility remains unwatered for winter maintenance which is nearing completion. This week, the fisheries staff continued general facility preparations and rehabilitated the A and B side separator isolation gates. In addition a potable water line was repaired on March 25.

The two power outages at the facility on March 23 in support of the BPA transmission line outages mentioned above, totaled less than 30 minutes and had no ill effects on juvenile fish facility operations.

The smolt monitoring staff began preparations for the fish sample season this week.

River Conditions

River conditions during the week are outlined in Table 2 as provided by the control room. This data runs 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
207.1	178.0	0.0	0.0	45	45	6.0	5.7

No spill occurred this week. The TSW in spill bay 19 is scheduled to be installed and attached to a spillway crane next week. The TSW in bay 20 is already in place and attached to a spillway hoist. The spring spill season in support of fish passage will begin April 10.

Other

Inline Cooling Water Strainers: The next cooling water strainer examination will occur on April 7.

Invasive Species: On March 22, the zebra mussel station examinations reveal no problems.

Avian Activity: Bird counts will resume on April 1, when the 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. Bird hazing distress calls remain deployed around the project. On March 30, we will activate the bird hazing water cannon. On April 1, APHIS will begin hazing at the project.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 20 - 26, 2015

Turbine Operation

Unit 3 was taken out of service on July 7, 2014, at 1346 hours to investigate a generator electrical grounding problem, for annual maintenance and remains out of service to finish its conversion into a fixed-blade unit to remedy an oil leak from the hub. Unit 3 also underwent digital governor upgrades. Unit 4 was taken out of service from 1222 hours to 1332 hours on March 20 to de-energize line 2 to accommodate an electrical check of unit 3 wiring. Units 6, 5, 4 and 2 were taken out of service one at a time on March 23 and 24 for STS installations. Unit 1 was taken out of service on March 26 from 0658 hours to 1413 hours in support of STS installation and installation of transducers and associated wiring on 1B STS frame.

Units were operated above the 1% peak efficiency range on March 26 to meet a BPA load request. Unit 3 was operated below the 1% peak efficiency range on March 23 for commissioning testing.

Adult Fish Facility

Fish facility personnel inspected the adult fishways on March 23, 24, 25, and 26.

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 surfaces 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 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 depths of 7.3 feet, 7.4 feet, and 7.4 feet on March 23, 24, and 26, respectively. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria, except for differentials of 0.9 feet, 0.7 feet, and 0.8 feet on March 24, 25, and 26, respectively. These out-of- criteria locations were reported to the electricians for calibration on March 24. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

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 depths of 7.3 feet, 7.4 feet, and 7.4 feet on March 23, 24, and 26,

respectively. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria, except for differentials of 0.9 feet, 0.7 feet, and 0.8 feet on March 24, 25, and 26, respectively. These out-of- criteria locations were also reported to the electricians for calibration on March 24. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

South shore channel velocities were in criteria. The channel velocity criterion is 1.5-4.0 feet/second.

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was approximately 50 square yards of debris observed in the forebay. Surface debris coverage in the gatewells ranged from 0% to 10%.

STSs/VBSs: Unit 6 and 5 STSs, unit 4 and 2 STSs, and unit 1 STSs were installed on March 23, 24, and 26, respectively.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass was "watered up" and 20 orifices were opened on March 18. The bird abatement hydrocannon was placed into service on March 25.

Juvenile Fish Facility: The main raw water pipe and branching pipes to the fish facility were filled on March 25.

Fish Sampling: Sampling operations are scheduled to begin the week of April 6.

Removable Spillway Weir: The modification of spill bay 2 ogee and flow deflector is complete. Routine spill in support of fish passage will begin at midnight on April 3.

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
62.4	46.3	0	0	45	45	6.9	6.7

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections occurred on March 23, 24, and 26. A total of 85 juvenile mortalities and 1 juvenile shad mortality were recovered.

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: Installation of the fish release pipe in support of the spillbay 2 direct fish injury and survival study, occurred on March 19 and 20. Transducers were mounted on the STS frame in gatewell slot 1 B on March 26 in support of the turbine intake fish distribution study.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: March 20 - 26, 2015

Turbine Operation

The units are being operated 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 23, 25 and 26.

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

Fishway Entrances and Collection Channel: NSE1 and NSE2 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.

SPE1 and SPE2 weir gates were in depth or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings ranged from 6.9' to 7.9 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. SSE2 was in criteria (6' above sill) on all inspections. While on sill the SSE1gate depth reading was 7.7 feet. 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 171 square yards of forebay debris observed during this period. No oil was observed in gatewells.

STSs/VBSs: STSs were inspected via rotation on deck on March 18. All screens tested OK and are ready for deployment. Unit 1 STSs were deployed on March 23. All other STSs are raised for winter maintenance and are waiting for replacement of the Navigation Lock LSP2

transformer prior to being deployed. The remaining STSs should be deployed and operational before April 1.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was "watered up" on March 24 at 1430 hours using 6 orifices. The primary bypass outfall water cannons were watered up and placed into operation on March 24.

Collection Facility: The facility was "watered up" for testing on March 25.

Transport Summary: Transport is not occurring at this time.

River Conditions

Routine spill in support of 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 (^{o}F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
55.5	47	0.0	0.0	48	46	4.2	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 approximately 1015 juvenile lamprey and 2 Siberian prawn.

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 20 - 26, 2015

Turbine Operation

All turbine units were available for service throughout this report period. Soft 1% constraint peak efficiency criteria are in effect. All units were rotated out of service for short periods of time in support of ESBS deployments.

Adult Fish Passage Facility

Adult fishway inspections were performed on March 24, 25 and 26.

Fish Ladder: The ladder exit head differentials ranged between 0.0 and 0.1feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs ranged between 1.2 and 1.3 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials held steady a 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 1.6 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.5 and 9.1 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 7.0 and 7.6 feet (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.4 and 7.3 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities measured at the North powerhouse ranged between 1.8 and 2.3 fps (criteria 1.5 to 4.0 fps). The monthly water velocity measured at the north powerhouse using the Rickly velocity equipment (measured 1 foot from bottom, mid depth and surface) averaged 2.6fps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. Fish pump 1 is out of service, waiting on parts. Fish pump 2 tripped an electrical breaker on March 26 at 0549 hours and was returned to service at 0555 hours.

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 11,000 to 21,000 square feet. All ESBSs are now deployed and the gatewells are clean.

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

ESBS/VBS: All ESBSs are deployed and all gatewells have been cleaned. Unit 1 screens were lowered on March 23. Units 2 and 3 screens were lowered on March 24. Units 4 and 6 screens were lowered on March 25 and unit 5 screens were deployed on March 26.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system was placed into service on March 24.

Transportation Facility: The transportation facility is scheduled to be placed into service on March 30.

Transport Summary: Collection for fish transport is slated to begin on May 1, followed byr the first barge departure on May 2.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
59.3	44.3	0	0	47.9	47.7	5.0	4.4

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were inspected on March 26. One lamprey (ammocoete) mortality was removed.

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

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 20 - 26, 2015

Turbine Operation

All units are being operated with the soft constraint 1% operational criteria. The hard constraint one percent criteria will begin April 1. Unit 1 was taken out of service on October 21 for annual maintenance, fish screen slot closure work, and dive work associated with installation of the reinforcement bulkhead. After recalibration of the governor due to loading and unloading issues, unit 1 returned to service at 0730 hours on March 24. Units 5 and 6 were rotated out of service for approximately four hours each on March 23 for ESBS deployments.

Adult Fish Passage Facility

The fish ladder was inspected by Corps biologists on March 20, 22 and 23.

Fish Ladder: Fish ladder exit head differentials and depths over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. The 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 on all inspections (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 depth criteria on the March 20 inspection and in sill criteria during the March 22 and 23 inspections (criteria ≥8' or on sill). While on sill the weir gate depths were 7.7 and 7.6 feet. North powerhouse channel/tailwater head differentials were out of criteria (criteria 1'-2') with readings of 0.9 feet on all inspections.

NSE1and NSE2 were out of criteria (criteria ≥7' or on sill) on all inspections. NSE1 had gate depth readings of 4.6, 4.1 and 3.8 feet. NSE2 had gate depth readings of 6.2, 5.7 and 5.5 feet. North shore channel/tailwater head differential was out of criteria (criteria 1'-2') on all inspections with differential readings of 0.7, 0.6 and 0.5 feet. NSE2 has been out of service since the 2011 passage season and is suspended with a non-adjusting hoist system at an elevation of 630.0 feet. The 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 1.0 - 1.2 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 the AWS pump 1 motor in "fast speed" mode trips the overload on the safety relay during low tailwater conditions. The power house 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 varied due to wind strength and direction. Gatewell surfaces are being checked on a daily basis and floating debris is being removed with a hand basket in order to circumvent orifice blockages. No oil was reported in the gatewell slots.

ESBSs/VBSs: ESBSs were deployed in units 1, 2, 3, and 4 on March 18 and 19. Deployment of ESBSs in units 5 and 6 occurred on March 23.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock. Debris levels were fairly light with varying sized material moving through the system.

Collection Facility: The juvenile collection facility was watered up in secondary bypass mode at 1300 hours on March 17. Collection for condition sampling began at 0700 hours on March 25 - the initial sample rate was 10%. These fish were "worked up" the morning of March 26. The sample rate was lowered to 5% at 0700 hours on March 26.

Transport Summary: No transport is occurring at this time. The first research barge departure is scheduled for April 9.

River Conditions

No spill is occurring at this time. River conditions during the week are outlined in Table 1 below.

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
63.8	47.1	0.0	0.0	48.0	47.8	4.0	2.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected on March 26. No live lamprey were recovered. Ten juvenile lamprey mortalities were observed. The next inspections are scheduled for late April.

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

Avian Activity: Formal bird counts began on March 26. Daily piscivorous bird counts are taken from the juvenile fish separator platform one hour after sunrise and one hour before sunset. Maximum piscivorous bird counts are summarized in Table 2.

Table 2. Daily maximum tailrace piscivorous bird counts at Lower Granite Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
N/A				
N/A				
N/A				
N/A				
N/A				
N/A				
March 26	0750 and 1810	3	0	0

Adult Fish Trap Operations: The adult fish trap was watered up March 11 and trapping activities began March 14.

Fish Rescue Operation: No fish rescues occurred this week.

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 Lower Granite, monitor abundance, productivity and distribution of naturally produced adult and juvenile steelhead and salmon; research and monitor stock-specific life history characteristics. At Lower Granite the goal of the study will be to enumerate and characterize the natural production of spring/summer Chinook salmon and steelhead above Lower Granite with regards to age composition and genetic stock profiles. Beginning on March 26, IDFG will sample Monday through Friday until mid June with the goal to collect between 2,000-5,000 genetic samples each from yearling spring/summer Chinook and steelhead.