Out of Criteria – NWW Weekly Report #20 – July 12-18, 2024

## 1. McNary

The head over weir being out of criteria at both exits occurred on July 17. The roving operator resolved both issues with set point adjustments. At the Oregon exit, multiple high picketed lead differential alarms came in on July 17. The issue was resolved when the general maintenance staff cleaned the leads early that morning. At the Washington exit, multiple regulating weir alarms came in and were reset on July 14 and 17. Exit weirs 338 and 339 tripped alarms and were reset on July 17.

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | X | | NFEW2 Weir Depth | ≥ 8.0’ | 7.7’ to 8.4’ |
| | X | | NFEW3 Weir Depth | ≥ 8.0’ | 7.6’ to 8.5’ |
| | X | | SFEW1 Weir Depth | ≥ 8.0’ | 7.9’ to 8.2’ |
| | X | | SFEW2 Weir Depth | ≥ 8.0’ | 7.9’ to 8.2’ |
| | X | | WFE3 Weir Depth | ≥ 8.0’ | 7.9’ to 9.5’ |

NFEW2 was out of criterion on July 12 and 14. NFEW3, SFEW1 and SFEW2 were out of criteria on July 12. These out of criteria points may be due to low tailwater elevations and calibration drifts. WFE3 was out of criterion on July 12. This could possibly be calibration issues related to the spill season. However, that day, the operators noted the pool differential was getting high. To lower the differential near the 1.3 feet value, the operators lowered WFE3, which appears to have returned it to criterion.

Fish pump 1 remained out of service for a scheduled 5-year overhaul. Return to service dates are subject to change. Fish pumps 2 and 3 were out of service for control wiring upgrades from 1219 to 1240 hours and from 1243 to 1312 hours on July 16, respectively.

Generally, the juvenile system alternates between primary and secondary bypass every 24 hours at 0700 hours. However, the schedule was interrupted as described below. With the sawtooth pattern in effect, sample mortality was 2.9 percent (one fish), and 20.0 percent (13 fish) on July 12 and 14, respectively along with GBT mortality at 10.0 percent (six fish) on July 15. With continued heat stress, GBT fish were collected in secondary bypass from 0700 to 1103 hours on July 15 with sample gates off. Due to the sample tank mortality, 8-hour samples per the FPP were begun on July 15 at 2300 hours. The sampling concluded at 0700 hours on July 16. The alternating pattern between primary and secondary bypass at these hours will continue until air temperatures and water temperature gradients decrease, which will hopefully dissipate heat stress and mortality. At a 25 percent sample rate, the sample tank mortality was 2.8 percent (one fish) and 1.5 percent (two fish), on July 16 and 18, respectively.

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| | X | | Dewaterer and cleaning systems operating satisfactory? | |

## 2. Ice Harbor

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | x | | North fish entrance (NFE-1) weir depth | ≥ 8.0’ or on sill | 6.4, 6.4, 6.6 |
| | x | | North fish entrance channel/tailwater differential | 1.0’ – 2.0’ | |

The north fish entrance (NFE-1) weir depth was below criteria on July 15, 16, and 18. The channel and tailwater elevation readings on the PLC have been significantly higher than the physical readings obtained on the inspections. The discrepancies were partly due to turbulent water from spill making accurate measurement of the tailwater difficult. The channel and tailwater elevation transducers appear to have drifted out of calibration. A request was made for electricians to recalibrate the transducers.

South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox is being replaced with a refurbished one.

### 3. Lower Monumental

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| | X | | Dewaterer and cleaning systems operating satisfactory? | |

The facility has been running in primary bypass for one day and secondary bypass for condition sampling the next day for the entire reporting period except for July 15. A wildfire coming up the river canyon toward Lower Monumental dam was spotted in the afternoon. An evacuation of the site was called slightly before 1600. The ongoing sample collection was ended, and the fish facility was placed into primary bypass at 1600. A total of 1,601 fish were collected with 1,599 being bypassed. Normal operations were resumed on July 16 at 0630 hours.

### 4. Little Goose

### 5. Lower Granite Dam

| Yes | No | Sill | Location | Criteria | Comments |
|---|---|---|---|---|---|
| | X | | South Shore Entrance (SSE-1) Weir Depth | $\geq$ 8.0’ | 7.9’ |
| | X | | North Powerhouse Entrance Channel/Tailwater Differential | 1.0’–2.0’ | 0.9’, 0.8’, 0.8 |
| | X | | North Shore Entrance (NSE-1) Weir Depth | $\geq$ 7.0’ or on sill | 6.9’ |
| | X | | North Shore Entrance (NSE-2) Weir Depth | $\geq$ 7.0’ or on sill | 6.9’ |
| | X | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | 0.8’ |
| | X | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | 1.1, 1.3, 0.9, 0.9 |

Efforts of the electrical crew continue to bring the ladder back into criteria however the control system drifts out of calibration shortly after. There is a swell at the north powerhouse where the back eddy collides with powerhouse and spillway flow that may be impacting channel/tailwater differentials. North shore tailrace elevations ranged from 631.5’ to 632.3’. The fish ladder was designed to operate at the minimum operating elevation of 633.0’.

AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while operating at MOP elevation. AWS pump 2 remains out of service for maintenance.

**U.S. ARMY CORPS OF ENGINEERS**
**WALLA WALLA DISTRICT**
**FISH FACILITIES WEEKLY REPORT**
**#20-2024**

**Project: McNary**
Biologist: Bobby Johnson and Paul Bertschinger
Dates: July 12-18, 2024

## Turbine Operation

| Yes | No | Turbine Unit Status | | |
|---|---|---|---|---|
| | X | All 14 turbine units available for service. (see table & comments below for details). | **Hard** | **Soft** |
| X | | Available turbines operated within 1% peak efficiency? Constraint in effect. | X | |

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS)

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| **Unit** | **Date** | **Time** | **Date** | **Time** | **Outage Description** |
| 14 | 5/13 | 1232 | 11/18 | NA | Isophase replacement and headgate work |
| 13 | 5/21 | 0955 | 11/18 | NA | Isophase replacement and headgate work |
| 3 & 4 | 5/29 | 0634 | 11/15 | NA | Control system upgrades |
| 11 & 12 | 7/8 | 0630 | 8/25 | NA | Transformer 6 re-gasketing |
| 2, 5 & 6 | 7/16 | 1000 | 7/16 | 1055 | ESBS camera inspections, rotated through units |

Comments: RTS dates are subject to change. The hard one percent criteria remained in place. The sawtooth unit priority pattern for temperature abatement continued.

## Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on July 12, 14 and 17. Adult fish counting, and video review of nighttime lamprey passage continued.

Fish Ladder Exits:

| Yes | No | Location | Criteria | Measurements |
|---|---|---|---|---|
| X | | Oregon Exit | Head over weir 1.0’ to 1.3’ | 0.9’ to 1.1’ |
| X | | Oregon Count Station Differential | 0.0’ to 0.5’ | 0.2’ to 0.3’ |
| X | | Washington Exit | Head over weir 1.0’ to 1.3’ | 0.9’ to 1.1’ |
| X | | Washington Count Station Differential | 0.0’ to 0.5’ | 0.1’ to 0.2’ |

Comments: Debris loads were very light to light (mostly woody material and aquatic vegetation) near the Oregon exit and very light (mostly aquatic vegetation) near the Washington exit. The head over weir being out of criteria at both exits occurred on July 17. The roving operator resolved both issues with set point adjustments. Due to increased aquatic vegetation, the general maintenance staff will be coming in on Saturdays to clean picketed leads.

At the Oregon exit, multiple high picketed lead differential alarms came in on July 17. The issue was resolved when the general maintenance staff cleaned the leads early that morning. The traveling screens received scheduled maintenance on July 17.

At the Washington exit, multiple regulating weir alarms came in and were reset on July 14 and 17. Exit weirs 338 and 339 tripped alarms and were reset on July 17. Visitor center window brush #3 had an air leak, which was repaired July 17. There was no ill effect on fish passage.

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | | North Oregon Entrance Head Differential | 1.0' – 2.0' | 1.3' |
| | X | | NFEW2 Weir Depth | ≥ 8.0' | 7.7' to 8.4' |
| | X | | NFEW3 Weir Depth | ≥ 8.0' | 7.6' to 8.5' |
| X | | | South Oregon Entrance Head Differential | 1.0' – 2.0' | 1.3' to 1.4' |
| | X | | SFEW1 Weir Depth | ≥ 8.0' | 7.9' to 8.2' |
| | X | | SFEW2 Weir Depth | ≥ 8.0' | 7.9' to 8.2' |
| X | | | Oregon Collection Channel Velocities | 1.5 to 4.0 fps | 1.9 fps |
| X | | | Washington Entrance Head Differential | 1.0' – 2.0' | 1.2' to 1.4' |
| X | | | WFE2 Weir Depth | ≥ 8.0' | 8.0' to 9.1' |
| | X | | WFE3 Weir Depth | ≥ 8.0' | 7.9' to 9.5' |

Comments: NFEW2 was out of criterion on July 12 and 14. NFEW3, SFEW1 and SFEW2 were out of criteria on July 12. These out of criteria points may be due to low tailwater elevations and calibration drifts. WFE3 was out of criterion on July 12. This could possibly be calibration issues related to the spill season. However, that day, the operators noted the pool differential was getting high. To lower the differential near the 1.3 feet value, the operators lowered WFE3, which appears to have returned it to criterion. Scheduled maintenance occurred at all entrance weirs this week.

Auxiliary Water Supply System:

| Operating Satisfactory | Standby | Out of Service | Blade angle | Auxiliary Water Supply System (AWS) |
|---|---|---|---|---|
| X | | | | WA shore Wasco County PUD Turbine Unit |
| | X | | | WA shore Wasco PUD Bypass |
| | | X | NA | Oregon Ladder Fish Pump 1, return to service August 8 |
| X* | | | 22° to 23° | Oregon Ladder Fish Pump 2 |
| X* | | | 24° | Oregon Ladder Fish Pump 3 |
| X | | | | OR North Powerhouse Pool from juvenile fishway |

*Comments: Fish pump 1 remained out of service for a scheduled 5-year overhaul. Return to service dates are subject to change. Fish pumps 2 and 3 were out of service for control wiring upgrades from 1219 to 1240 hours and from 1243 to 1312 hours on July 16, respectively.

## Juvenile Fish Passage Facility

Generally, the juvenile system alternates between primary and secondary bypass every 24 hours at 0700 hours. However, the schedule was interrupted as described below. With the sawtooth pattern in effect, sample mortality was 2.9 percent (one fish), and 20.0 percent (13 fish) on July 12 and 14, respectively along with GBT mortality at 10.0 percent (six fish) on July 15.

With continued heat stress, GBT fish were collected in secondary bypass from 0700 to 1103 hours on July 15 with sample gates off.

Due to the sample tank mortality, 8-hour samples per the FPP were begun on July 15 at 2300 hours. The sampling concluded at 0700 hours on July 16. The alternating pattern between primary and secondary bypass at these hours will continue until air temperatures and water temperature gradients decrease, which will hopefully dissipate heat stress and mortality.

At a 25 percent sample rate, the sample tank mortality was 2.8 percent (one fish) and 1.5 percent (two fish), on July 16 and 18, respectively.

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | Minimal to light near the powerhouse |
| X | | | Gatewell drawdown measured this week? | Daily |
| X | | | Gatewell drawdown acceptable | |
| | X | | Any debris seen in gatewells (% coverage) | |
| | X | | Any oil seen in gatewells? | |

Comments: The powerhouse debris was minimal to light. Debris (woody material and aquatic vegetation) did move from the Oregon shore and back. Spillway debris remained minimal due to much of it being spilled. New debris loads (mostly aquatic vegetation) were minimal.

No trash rack cleaning is scheduled.

There are no problems to report. The emergency bulkhead remained in 14A slot. In order to improve deck access for contractors and project staff, the slots in unit 7, 11C slot, 12A and 12B slots remained covered. Algae blooms were noted in the gatewell slots in unit 4 on July 17, joining units 3 and 13 along with slot 14C slot having blooms.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | ESBSs deployed in all slots and in service? |
| X | | | ESBSs inspected this week? |
| X | | | ESBSs inspection results acceptable? |
| X | | | VBSs differentials checked this week? |
| X | | | VBSs differentials acceptable? |

Comments: ESBS's are installed in all units except 14A slot. With the emergency bulkhead in 14A slot, the ESBS remained uninstalled. The control program for the fish screens in unit 10 is not currently communicating with the panel view on the 8th floor. When the unit is in service, the brush cycle sequences will be monitored in the control room until repairs can occur in the future. With units 3, 13, and 14 being out of service, the ESBS's remained in manual mode so the brush cycle sequence would not occur. Camera inspections in units 2, 5, and 6 revealed no issues on July 16. Examination of ESBS screen brush programming continued with the screens in unit 4.

Daily VBS monitoring continued, and no high differentials were recorded with no screens being cleaned.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| X | | | Orifices operating satisfactory? | 42 |
| | X | | Dewaterer and cleaning systems operating satisfactory? | |

Comments: Orifices were adjusted for VBS cleaning and inspections as required. With 14A slot dewatered, the north orifice in 14B slot remained open.

While being monitored on July 17 at approximately 1640 hours, the transition screen cleaning brush was noted raising and lowering multiple times on each beam before the brush would lower and clean the zone it was in. When the brush completed cleaning the D zone, it raised and stalled out on the D beam. The technician on duty parked the brush on the A beam using the individual position switches. The brush was left off overnight. At approximately, 2230 hours, a second technician confirmed the other two screen cleaning brushes were operating in automatic mode.

The electrical staff turned the transition screen brush back to automatic mode and operated it several times with no issues found on July 18, by 0829 hours. They continued to examine the brush up to 1025 hours. To get the system going and tested, the fisheries staff set the brush cycle sequence for hourly at 1035 hours. After five cycles, the issue was not reproduced, and the sequence was reset to every six hours.

This issue and the channel elevation will be monitored.

Bypass Facility:

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | Sample gates on? |
| | | X | PIT-tag sampling system on? |

Comments: The sample system is being used when in secondary bypass for sample collection. The PIT tag system will not be in use again this season, which is similar to past years.

There were 196 juvenile lamprey and 2,713 subyearling Chinook smolts bypassed this week. Juvenile shad were first noted on July 16.

TSW Operations: The TSW's in bays 19 and 20 remained open. Both TSW's are attached to a hoist. New this year, both TSW's will remain open through the spill season. No switch to standard gates will occur.

## River Conditions

Table 2. River Conditions at McNary 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 |
| 173.4 | 138.9 | 95.1 | 81.0 | 69.8 | 67.9 | 6.0 | 6.0 |

Comments: The above data is from the smolt monitoring staff, with the data day starting at 0700 hours. Water clarity comes from the control room.

The smolt monitoring staff continues to monitor water temperature throughout the juvenile system. Their results are stated daily and weekly in separate reports. Adult ladder water temperatures are reported by an automated system year-round.

The summer spill season continued, with 57 percent of flow being spilled. Adjustments are made once a day just after midnight. Spill will be reduced to 20 kcfs on August 1, with only the two TSW's open.

Bays 6 was adjusted on July 15. If adjustments are required in bays 6 and 9, they will occur on Monday and Thursday mornings unless it is a holiday then another day will be chosen.

The downstream wall dogs from bay 22 will be reinstalled at a later date. Rehabilitation continued on the downstream dogs from bay 21.

## Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on August 6.

Avian Activity: Bird counting continued, and the results are reflected in Table 3 below.

In the spill zone, pelicans in decreasing numbers along with a few gulls, cormorants and terns were noted. Most birds were feeding. One roosting osprey was observed.

In the powerhouse zone, decreasing numbers of pelicans were noted roosting on the water or feeding at the Oregon ladder floating orifice gates.

In the outfall zone, gulls, cormorants, and terns in fluctuating numbers were noted roosting on the pipe. No feeding was observed. An osprey pair has nested on the outfall pipe where the walkway ends. This and the boat hazing has resulted few birds being noted.

For the forebay zone, grebes were observed in fluctuating numbers along with a few pelicans and juvenile gulls. A group of fly-by cormorants was also noted. Birds were roosting and feeding with the gulls scavenging. More grebes and gulls maybe outside the zone along with a few pelicans, cormorants, and ospreys.

The LRAD remains out of service until the osprey are done nesting.

The laser on the navigation lock wing wall opposite the outfall is in storage waiting shipment to the manufacture for a repair evaluation.

The two distress calls on the navigation lock wing wall remained in service and have been functioning well.

USDA Wildlife Services concluded hazing from a boat on July 12. Shore hazing will conclude on July 27.

PSMFC concluded stomach content examinations of the birds that were lethally taken from the boat on July 12.

A tori line remains installed outside the Oregon ladder south entrance. This line so far appears to be effective.

Table 3. McNary Project's Daily Avian Count.

| Date | Zone | Gull | Cormorant | Tern | Pelican | Grebe |
|---|---|---|---|---|---|---|
| July 12 | Spill | 0 | 0 | 0 | 27 | 0 |
| | Powerhouse | 0 | 0 | 0 | 11 | 0 |
| | Outfall | 0 | 0 | 0 | 0 | 0 |
| | Forebay | 3 | 0 | 0 | 1 | 24 |
| July 13 | Spill | 0 | 0 | 0 | 12 | 0 |
| | Powerhouse | 0 | 0 | 0 | 8 | 0 |
| | Outfall | 1 | 1 | 0 | 0 | 0 |
| | Forebay | 2 | 0 | 0 | 0 | 20 |
| July 14 | Spill | 5 | 0 | 1 | 20 | 0 |
| | Powerhouse | 0 | 0 | 0 | 12 | 0 |
| | Outfall | 24 | 0 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 15 |
| July 15 | Spill | 5 | 1 | 1 | 25 | 0 |
| | Powerhouse | 0 | 0 | 0 | 6 | 0 |
| | Outfall | 21 | 5 | 0 | 0 | 0 |
| | Forebay | 17 | 8 | 0 | 3 | 18 |
| July 16 | Spill | 0 | 0 | 0 | 18 | 0 |
| | Powerhouse | 0 | 0 | 0 | 8 | 0 |
| | Outfall | 4 | 1 | 1 | 0 | 0 |
| | Forebay | 1 | 0 | 0 | 1 | 19 |
| July 17 | Spill | 2 | 0 | 4 | 3 | 0 |
| | Powerhouse | 0 | 0 | 0 | 4 | 0 |
| | Outfall | 18 | 2 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 2 | 0 |
| July 18 | Spill | 0 | 0 | 1 | 7 | 0 |
| | Powerhouse | 0 | 0 | 0 | 6 | 0 |
| | Outfall | 11 | 3 | 1 | 0 | 0 |
| | Forebay | 3 | 0 | 0 | 0 | 22 |

Invasive Species: The next mussel station examinations will occur on July 24.

Siberian Prawn: No prawns were observed in the sample this week. No have been observed this season.

Fish Rescue/Salvage**:** None occurred this week.

Research: PNNL should begin removal of study equipment after the spill season concludes.

For a CRITFC study, there were tissue samples removed from 20 juvenile lamprey collected at the facility this week. The yearly total is 466 fish, which were returned to the river unharmed.

Due to previous high mortality, gas bubble trauma examinations occurred once this week, with fish examinations on July 15. The data was reported the next day. No smolts showed signs of trauma. There were six mortalities (a rate of 10 percent) removed from the recovery raceway. Heat stress is the likely cause of this high mortality.

**Project: Ice Harbor**
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: July 12– July 18, 2024

## Turbine Operation

| Yes | No | Turbine Unit Status |
|---|---|---|
| | x | All 6 turbine units available for service (see table & comments below for details). |
| x | | All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan |

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| **Unit** | **Date** | **Time** | **Date** | **Time** | **Outage Description** |
| 1 | 6/27/23 | 07:08 | --- | --- | Turbine runner replacement and stator rewind |
| 6 | 7/15/24 | 07:00 | | | STS Inspection/HUB |
| 5 | 7/15/24 | 07:00 | | | Annual inspection and STS Inspection |

Comments: Units 6 and 5 were taken out of service and line 3 was disconnected at 07:00 on 15 July. STS inspections of units 6 and 5 occurred on 15 and 16 Jul, respectively. Line 3 was returned to service at 14:57 on 18 July, with units 5 and 6 remaining under clearance.

## Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 15, 16, 18

Fish Ladders:

| Yes | No | Location | Criteria | Measurements |
|---|---|---|---|---|
| x | | North ladder exit differential | Head ≤ 0.3’ | |
| x | | North ladder picketed lead differential | Head ≤ 0.3’ | |
| x | | North ladder depth over weirs | Head over weir 1.0’ to 1.3’ | |
| x | | South ladder exit differential | Head ≤ 0.3’ | |
| x | | South ladder picketed lead differential | Head ≤ 0.3’ | |
| x | | South ladder depth over weirs | Head over weir 1.0’ to 1.3’ | |

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | | x | South fish entrance (SFE-1) weir depth | ≥ 8.0’ or on sill | |
| x | | | South fish entrance channel/tailwater differential | 1.0’ – 2.0’ | |
| x | | | South shore channel velocity | 1.5 – 4.0 fps | |
| x | | | Central fish entrance (CFE-2) weir depth | ≥ 8.0’ or on sill | |
| x | | | Central fish entrance channel/tailwater differential | 1.0’ – 2.0’ | |
| | x | | North fish entrance (NFE-1) weir depth | ≥ 8.0’ or on sill | 6.4, 6.4, 6.6 |
| | x | | North fish entrance channel/tailwater differential | 1.0’ – 2.0’ | |

Comments: The south fish ladder picketed leads are being cleaned of filamentous algae daily to keep the differential in criteria. Starting 18 July the picked leads are being checked 2 times per day for filamentous algae buildup.

The north fish entrance (NFE-1) weir depth was below criteria on July 15, 16, and 18. The channel and tailwater elevation readings on the PLC have been significantly higher than the physical readings obtained on the inspections.

The discrepancies were partly due to turbulent water from spill making accurate measurement of the tailwater difficult. The channel and tailwater elevation transducers appear to have drifted out of calibration. A request was made for electricians to recalibrate the transducers.

Auxiliary Water Supply (AWS) System:

| Operating Satisfactory | Standby | Out of Service | Auxiliary Water Supply System |
|---|---|---|---|
| 6 pumps | 1 pump | 1 pump | Status of the 8 south shore AWS pumps |
| 2 pumps | 0-1 pump | 0-1 pump | Status of the 3 north shore AWS pumps |

Comments: South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox is being replaced with a refurbished one.

## Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| x | | | Forebay debris load acceptable? (amount) | Average of 0 square yards |
| x | | | Gatewell drawdown measured this week? | |
| x | | | Gatewell drawdown acceptable | |
| x | | | Any debris seen in gatewells (% coverage) | 0-3% coverage |
| | x | | Any oil seen in gatewells? | |

Comments: None.

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (VBSs):

| Yes | No | NA | Item |
|---|---|---|---|
| x | | | STSs deployed in all slots that are in service? |
| | x | | STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)? |
| x | | | STSs inspected this week? |
| | x | | STSs inspection results acceptable? |
| | | x | VBSs differentials checked this week? |
| | | x | VBSs differentials acceptable? |

Comments: The STS in gatewell 6B was found to have a tear in it on 15 July, it was removed and replaced with a spare unit. Repairs to the torn sections were completed on 16 July.

Orifices, Collection Channel, Dewatering Structure, and Flume:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| x | | | Orifices operating satisfactory? | 20-21 |
| | x | | Dewaterer and cleaning systems operating satisfactory? | |

Comments: The replacement actuator for the water regulating weirs in the collection channel is in local control due to a problem with the actuator being undersized for this application. The actuator will be rebuilt to enable it to work in automatic mode. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.
An additional orifice was opened for a short time during STS inspections. Water levels in the collection channel were maintained within criteria during this time.

At approximately 13:30 all automatically controlled orifices (all orifices in service on units 2-6) and TG-1 were inadvertently closed for a brief period of time as a result of maintenance on the unit 2AS solenoid. While returning the system to service after completing the maintenance, the system low level alarm came in while switching the system to automatic mode. Personnel at the location quickly set the system to manual control, returned the system to

criteria and then restored automatic function once the channel level was restored to normal operating level. TG-1 was opened once the water level was returned to the normal level as well.

Juvenile Fish Facility: The fish facility is in primary bypass mode.

Fish Sampling: Juvenile fish sampling is scheduled to occur on Mondays and Thursdays each week. Sampling has ended early due to water temperatures being above the temperature cutoff. No furthers sampling will occur this season. The July 11 was the last sample for the season.

Removable Spillway Weir (RSW): Summer spill for fish passage is occurring.

## River Conditions

River conditions at Ice Harbor 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 |
| 37.5 | 31.6 | 11.3 | 9.3 | 71 | 67 | 7.8 | 6.0 |

*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: no comments

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Most of the terns and pelicans were roosting on the upstream tip of Eagle Island. Roosting birds were not usually hazed off the island, as they were prone to forage closer to the dam if disturbed. Land-based hazing of piscivorous birds has ended for the season. Bird observation counts did not occur on days when fish facility staff were not on project. The weekly trigger number for Piscivorous birds was exceeded on 18 July. This is due to a large group of gulls arriving in the area and there being no hazing to deter them.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

| Date | Gulls | Cormorants | Caspian Terns | Grebes | Pelicans |
|---|---|---|---|---|---|
| July 12 | NA | NA | NA | NA | NA |
| July 13 | NA | NA | NA | NA | NA |
| July 14 | NA | NA | NA | NA | NA |
| July 15 | 6 | 6 | 41 | 0 | 13 |
| July 16 | 0 | 4 | 30 | 0 | 8 |
| July 17 | 11 | 0 | 43 | 0 | 6 |
| July 18 | 55 | 2 | 40 | 0 | 3 |

Invasive Species: No exotic species that are new to the area have been found.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below. Fish sampling has ended for the season

Fish Rescue/Salvage: None.

Research: No on-site research is occurring.

**Project: Lower Monumental**
Biologists: Denise Griffith and Raymond Addis
Dates: July 12 - 18, 2024

## Turbine Operation

| Yes | No | Turbine Unit Status |
|---|---|---|
| | X | All 6 turbine units available for service (see table & comments below for details). |
| X | | Available turbines operated within 1% peak efficiency? Constraint in effect. |

Comments: See Unit Outages and Return to Service comments below.

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| Unit | Date | Time | Date | Time | Outage Description |
| Unit 5 | 5/01/24 | 0624 | 8/31/24 | ERTS | T2/Rooftop bus out of service due to BPA Line outage |
| Unit 6 | 5/01/24 | 0624 | 8/31/24 | ERTS | T2/Rooftop bus out of service due to BPA Line outage |

Comments: BPA line tripped at 0624 hours on May 1. Units 5 and 6 remain out of service until T2 line is repaired. Estimated return to service date is August 31.

## Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on July 12, 13, 14, 16, and 18.

Fish Ladder Exit:

| Yes | No | Location | Criteria | Measurements |
|---|---|---|---|---|
| X | | North Ladder Exit Differential | Head ≤ 0.5’ | |
| X | | North Ladder Picketed Lead Differential | Head ≤ 0.4’ | |
| X | | North Ladder Depth over Weirs | Head over weir 1.0’ to 1.3’ | |
| X | | South Ladder Exit Differential | Head ≤ 0.5’ | |
| X | | South Ladder Picketed Lead Differential | Head ≤ 0.3’ | |
| X | | South Ladder Depth over Weirs | Head over weir 1.0’ to 1.3’ | |

Comments: None.

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | X | North Shore Entrance (NSE-1) Weir Depth | ≥ 8.0’ or on sill | |
| X | | X | North Shore Entrance (NSE-2) Weir Depth | ≥ 8.0’ or on sill | |
| X | | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | |
| | | X | South Powerhouse Entrance (SPE-1) Weir Depth | ≥ 8.0’ or on sill | |
| | | X | South Powerhouse Entrance (SPE-2) Weir Depth | ≥ 8.0’ or on sill | |
| X | | | South Powerhouse Entrance Channel/Tailwater Differential | 1.0’–2.0’ | |
| | | X | South Shore Entrance (SSE-1) Weir Depth | ≥ 8.0’ | |
| | | X | South Shore Entrance (SSE-2) Weir Depth | ≥ 6.0’ | |
| X | | | South Shore Channel/Tailwater Differential | 1.0’ – 2.0’ | |

Comments: North Shore Entrance NSE-1 weir was at sill during the July 13 and 16 inspections with readings of 7.9 and 8.2 feet respectively. North Shore Entrance NSE-2 weir was at sill during the July 13, 14 and 16 inspections with readings of 7.9, 8.2 and 8.2 feet respectively. South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 5.5, 4.9, 5.2, 5.5 and 5.1 feet respectively. South Powerhouse Entrance SPE-2 weir was

at sill during all inspections with 5.5, 4.9, 5.2, 5.5 and 5.1 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.1, 6.4, 5.7, 6.0 and 6.7 feet respectively.

Auxiliary Water Supply System:

| Operating Satisfactory | Standby | Out of Service | Auxiliary Water Supply System (AWS) |
|---|---|---|---|
| X | | | AWS Fish Pump 1 |
| X | | | AWS Fish Pump 2 |
| X | | | AWS Fish Pump 3 |

Comments: None

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | 9 yrd² |
| X | | | Gatewell drawdown measured this week? | |
| X | | | Gatewell drawdown acceptable | |
| X | | | Any debris seen in gatewells (% coverage) | 1 – 10% |
| | | X | Any oil seen in gatewells? | |

Comments: None

STSs/VBSs:

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | STSs deployed in all slots and in service? |
| X | X | | STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)? |
| X | | | STSs inspected this week? |
| X | | | STSs inspection results acceptable? |
| | | X | VBS screens checked this week? |
| | | X | VBS screens acceptable? |

Comments: STSs were switched from continuous-run mode to cycle-run mode at 1300 on July 13 due to the average sub-yearling Chinook and sockeye lengths being greater than 120 mm. The STSs for Unit 5 were examined on July 17. All were in acceptable condition.

Orifices, Collection Channel, Dewatering Structure, and Flume:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| X | | | Orifices operating satisfactory? | 18 |
| | X | | Dewaterer and cleaning systems operating satisfactory? | |

Comments: The mechanics adjusted the limit switches for the dewatering screen cleaner on June 28.

Collection Facility: The facility has been running in primary bypass for one day and secondary bypass for condition sampling the next day for the entire reporting period except for July 15. A wildfire coming up the river canyon toward Lower Monumental dam was spotted in the afternoon. An evacuation of the site was called slightly before 1600. The ongoing sample collection was ended, and the fish facility was placed into primary bypass at 1600. A total of 1,601 fish were collected with 1,599 being bypassed. Normal operations were resumed on July 16 at 0630 hours.

The flush water pipe for the truck transport recovery tank was removed during a repair and the truck tank cannot be used until this is addressed.

Due to the issues with the lamprey overshoot system, raceways 2 through 4 were drained to take the pressure off the system. An engineer from the powerhouse said the lamprey overshoot pipe adds so much water to the main flume piping that it creates a pressurized system. This issue will move forward with plans to work on funding and plans to repair in the future. It is not deemed as a critical issue and will not impede fish passage.

The HVAC system for the second floor of the JFF building is no longer functioning and parts have been ordered. Two swamp cooler type devices were placed in the wet lab to lower the temperature on the second floor until the system can be repaired.

Transport Summary: Transport at Lower Monumental has ended for the season.

Spillway Weir: Summer (17kcfs) spill continues.

## River Conditions

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 |
| 36.6 | 29.6 | 17.0 | 15.3 | 70.0 | 68.9 | 7.1 | 5.7 |

*Scrollcase temperatures.

## Other

Inline Cooling Water Strainers: Cooling water strainers inspections are done until December.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam began on April 1.

| Date | Time | Gulls | Cormorants | Terns | Grebes | Pelicans |
|---|---|---|---|---|---|---|
| 7/12/2024 | 1000 | 26 | 5 | 0 | 0 | 0 |
| 7/13/2024 | 1200 | 21 | 4 | 0 | 0 | 4 |
| 7/14/2024 | 1345 | 26 | 4 | 0 | 0 | 5 |
| 7/15/2024 | 1408 | 20 | 2 | 0 | 0 | 3 |
| 7/16/2024 | 1140 | 5 | 4 | 0 | 0 | 0 |
| 7/17/2024 | 748 | 2 | 5 | 0 | 0 | 1 |
| 7/18/2024 | 926 | 17 | 2 | 0 | 0 | 3 |

Comments: Bird hazing by USDA personnel ended on June 30.

Invasive Species: Zebra or quagga mussel traps will be examined in August.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS personnel, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

| Date | Sample (euthanized) | Collection* |
|---|---|---|
| 7/12/2024 | 1 | 20 |
| 7/13/2024 | --- | --- |
| 7/14/2024 | 11 | 55 |
| 7/15/2024 | --- | --- |
| 7/16/2024 | 16 | 64 |
| 7/17/2024 | --- | --- |

| | | |
|---|---|---|
| 7/18/2024 | 0 | 0 |
| Total | 28 | 139 |

*Collection refers to extrapolated values based on sampling percent.

Fish Rescue/Salvage: No fish rescues were performed during this reporting period.

Research: The collection of lamprey for the PNNL study of the behavior and survival of Pacific lamprey has ended.

GBT examinations occurred on July 17. A total of 9 clipped subyearling Chinook, 41 unclipped subyearling Chinook and 1 clipped steelhead smolts were examined. No gas bubble trauma was.

The Nez Perce steelhead kelt study and rehabilitation collection ended on for the season.

Temperature Probes: All temperature probes functioned properly during the reporting period.

**Project: Little Goose Dam**
Biologist: Deb Snyder, Brooke Gerard
Dates: July 12 – July 18, 2024

## Turbine Operation

| Yes | No | Turbine Unit Status |
|---|---|---|
| | X | All 6 turbine units available for service? (See table and comments below for details) |

*All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan

Little Goose Unit Outages (OOS) and Return to Service (RTS)

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| Unit | Date | Time | Date | Time | Outage Description |
| 4 | 7/8/2024 | 0800 | 7/26/2024 | 1700 | Unit annual maintenance |
| 5 | 4/14/2017 | 14:11 | 11/30/2024 | ERTS | Spider and upper guide bearing repair. |

Comments: Contractual obligations, performance issues, and projected flow data once again realigned the Unit 5 ERTS date into late fall 2024.

## Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on July 13, 15, 17.

Fish Ladder:

| Yes | No | NA | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | | Fish Ladder Exit Differential | Head ≤ 0.5’ | |
| X | | | Fish Ladder Picketed Lead Differential | Head ≤ 0.3’ | |
| X | | | Fish Ladder Depth over Weirs | Head over weir 1.0’ to 1.3’ | |
| X | | | Fish Ladder Cooling Water Pumps in Service | | |
| X | | | Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily | | |

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | | South Shore Entrance (SSE-1) Weir Depth | ≥ 8.0’ | |
| X | | | South Shore Entrance (SSE-2) Weir Depth | ≥ 8.0’ | |
| X | | | South Shore Channel/Tailwater Differential | 1.0’ – 2.0’ | |
| | | X | North Powerhouse Entrance (NPE-1) Weir Depth | ≥ 7.0’ or on sill | |
| | | X | North Powerhouse Entrance (NPE-2) Weir Depth | ≥ 7.0’ or on sill | |
| X | | | North Powerhouse Entrance Channel/Tailwater Differential | 1.0’–2.0’ | |
| X | | | North Shore Entrance (NSE-1) Weir Depth | ≥ 6.0’ or on sill | |
| X | | | North Shore Entrance (NSE-2) Weir Depth | ≥ 6.0’ or on sill | |
| X | | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | |
| X | | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | |

Comments: The adult fishway was returned to service on February 15. The AWS pumps returned to service on February 22. The Collection Channel Surface Velocity is measured at NPE. The fish system control program is proving unreliable and inadequate to balance the adult fishway in “automated” mode. Biologist personnel are manually adjusting and balancing the adult fishway with increasing frequency. EAS Bio personnel report the FSC board reflects weir and channel height readings with notable discrepancies compared to actual physical hand measurements taken during inspection periods. FSC board readings of SSE Channel elevation continue to report discrepancies an average of 8.2 feet below physical staff gauge measurements documenting the same channel

elevation. All channel staff gauge and NPE and NSE FSC board channel heights reflect similar and corresponding readings. On May 29, the new fish ladder cooling pump installation was completed. The newly installed pump unit was commissioned for seasonal use June 9 at 1420 hours upon reaching criteria per FPP 2.4.2.14.i the prior evening of June 8 at 1900 hours.

Auxiliary Water Supply System:

| Operating Satisfactory | Standby | Out of Service | Auxiliary Water Supply System (AWS) |
|---|---|---|---|
| X | | | AWS Fish Pump 1 |
| X | | | AWS Fish Pump 2 |
| X | | | AWS Fish Pump 3 |

Comments: Fish pumps 1 and 3 were returned to service February 22. Fish pump 2 was returned to service on February 28.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comment |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | High 15 ft² - Low 10 ft² |
| X | | | Gatewell drawdown measured this week? | |
| X | | | Gatewell drawdown acceptable | |
| X | X | | Any debris seen in gatewells (% coverage) | 7/16-5B:2%; 7/18-3B:1% 5B:2% |
| | X | | Any oil seen in gatewells? | |

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on multiple days July 12, 14, 15, 16, 17 at 15 ft². The overall total forebay debris high also occurred multiple days July 12, 14, 15, 16, 17 at 15 ft$^2$. Drawdowns were completed on July 18.

ESBS/VBS:

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | ESBSs deployed in all slots and in service? |
| | X | | ESBSs inspected this week? |
| | | X | ESBSs inspection results acceptable? |
| X | | | VBSs differentials checked this week? |
| X | | | VBSs differentials acceptable? |
| | X | | VBSs inspected this week? |

Comments: Installation of ESBS's were fully functional and deployed the week of March 18. The third round of gatewell camera inspections was completed July 8-11.

Orifices, Collection Channel, Dewatering Structure, and Flume:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| X | | | Orifices operating satisfactory? | 19 |
| X | | | Dewaterer and cleaning systems operating satisfactory? | |

Comments:

Collection Facility: The juvenile collection facility was successfully watered up on March 20. Every other day collection for condition monitoring in conjunction with secondary bypass commenced March 25 with the first sample being conducted on March 26. Every day collection began April 23 coinciding with barge transportation operations. Every-other day collection was initiated on July 8 due to water temperatures above 68°F. During this reporting period a total of 10,907 fish were collected, 0 were barged, 10,882 were bypassed, and there were 25 sample or facility mortalities. The descaling and mortality rates were 1.0% and 0.23%, respectively. The collection

and transport facility operated within criteria; 1 adult lamprey was removed from the separator during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every day barging continued through May 16 upon transition to every other day barge operations. The last barge for the season departed on June 19.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of adult steelhead overshoots. On March 21, the ASW transitioned to 625 ft. crest height spilling 24 hours 7 days per week per CBR LGS R 022724 1735. Spring spill operations began on April 3 spilling 24/7 up to the 125% gas cap. On April 16, we hit the 50 adult Chinook threshold at Ice Harbor and began spilling at performance spill (30% of outflow) from 0400 to 1200 to facilitate adult fish passage. On May 14, the ASW was positioned to Low Crest. On June 13, the ASW position changed to High Crest. Summer spill operations began as scheduled on June 21.

## River Conditions

River conditions at Little Goose 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 |
| 37.2 | 30.6 | 11.1 | 9.1 | 69.7 | 67.8 | 6.0 | 4.0 |

*Ladder temperature.

## Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2023. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam are scheduled to begin April 1, while USDA-APHIS bird abatement contract services are in place.

| Date | Time | Gulls | Cormorants | Caspian Terns | Pelicans |
|---|---|---|---|---|---|
| 7-12 | 0900 | 3 | 0 | 0 | 1 |
| 7-13 | 0810 | 1 | 0 | 0 | 4 |
| 7-14 | 1200 | 0 | 0 | 0 | 0 |
| 7-15 | 1000 | 0 | 0 | 0 | 0 |
| 7-16 | 0830 | 2 | 0 | 0 | 7 |
| 7-17 | 0830 | 0 | 0 | 0 | 6 |
| 7-18 | 0800 | 3 | 1 | 0 | 7 |

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Juvenile fish collection will begin March 25. Siberian prawns collected in the sample at the Juvenile Fish Facility will be humanely euthanized by Oregon Department of Fish and Wildlife and EAS Bio personnel, frozen and properly disposed of in a landfill.

| Date | Sample | Collection* |
|---|---|---|
| 7-12 | 8 | 40 |
| 7-13 | 0 | 0 |
| 7-14 | 10 | 50 |

| | | |
|---|---|---|
| 7-15 | 0 | 0 |
| 7-16 | 5 | 50 |
| 7-17 | 0 | 0 |
| 7-18 | 11 | 90 |
| Totals | 34 | 230 |

*Collection and sample numbers are equal when sample rates change to 100%

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife performed GBT monitoring on July 17. Of the 101 fish examined, 0 fish exhibited gas bubble trauma symptoms.

Fish Rescue/Salvage: No Fish Rescue activities took place during the reporting period.

Research: The Nez Perce Tribe (NPT) commenced adult steelhead kelt collection efforts on March 27 and concluded July 1.

**Project: Lower Granite**
Biologists: Elizabeth Holdren and Steve Lee
Dates: July 12-18, 2024

## Turbine Operation

| Yes | No | Turbine Unit Status | | |
|---|---|---|---|---|
| X | | All 6 turbine units available for service (see table & comments below for details). | **Hard** | **Soft** |
| X | | Available turbines operated within 1% peak efficiency? Constraint in effect. | X | |

Lower Granite Unit Outages (OOS) and Return to Service (RTS)

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| **Unit** | **Date** | **Time** | **Date** | **Time** | **Outage Description** |
| 6 | 07/08 | 0700 | | | Annual maintenance |
| | | | | | |

Comments:

## Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway July 12, 13,15 and 17.

Fish Ladder:

| Yes | No | NA | Location | Criteria | Comments |
|---|---|---|---|---|---|
| X | | | Fish Ladder Exit Differential | Head ≤ 0.5’ | |
| X | | | Fish Ladder Picketed Lead Differential | Head ≤ 0.3’ | |
| X | | | Fish Ladder Depth over Weirs | Head over weir 1.0’ to 1.3’ | |
| X | | | Fish Ladder Cooling Water Pumps in Service | | |
| X | | | Fish Ladder Cooling Water Pumps Operating Satisfactorily | | |

Comments:

Fish Ladder Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Comments |
|---|---|---|---|---|---|
| | X | | South Shore Entrance (SSE-1) Weir Depth | ≥ 8.0’ | 7.9’ |
| X | | | South Shore Entrance (SSE-2) Weir Depth | ≥ 8.0’ | |
| X | | | South Shore Channel/Tailwater Differential | 1.0’ – 2.0’ | |
| | | X | North Powerhouse Entrance (NPE-1) Weir Depth | ≥ 8.0’ or on sill | |
| | | X | North Powerhouse Entrance (NPE-2) Weir Depth | ≥ 8.0’ or on sill | |
| | X | | North Powerhouse Entrance Channel/Tailwater Differential | 1.0’–2.0’ | 0.9’, 0.8’, 0.8 |
| | X | | North Shore Entrance (NSE-1) Weir Depth | ≥ 7.0’ or on sill | 6.9’ |
| | X | | North Shore Entrance (NSE-2) Weir Depth | ≥ 7.0’ or on sill | 6.9’ |
| | X | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | 0.8’ |
| | X | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | 1.1, 1.3, 0.9, 0.9 |

Comments: Fish ladder control system operation and configuration is an ongoing issue that began when the system was installed in 2016. LWG is moving forward with inhouse design and install of fish ladder control system based of the system used at LMN. Efforts of the electrical crew continue to bring the ladder back into criteria however the control system drifts out of calibration shortly after. There is a swell at the north powerhouse where the back eddy collides with powerhouse and spillway flow that may be impacting channel/tailwater differentials. North shore

tailrace elevations ranged from 631.5’ to 632.3’. the fish ladder was designed to operate at the minimum operating elevation of 633.0’.

Auxiliary Water Supply System:

| Operating Satisfactorily | Standby | Out of Service | Auxiliary Water Supply (AWS) |
|---|---|---|---|
| Yes | | | AWS Fish Pump 1 |
| No | | Yes | AWS Fish Pump 2 |
| Yes | | | AWS Fish Pump 3 |

Comments: AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while operating at MOP elevation. AWS pump 2 remains out of service for maintenance.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | 34 $yd^2$ |
| X | | | Trash rack differentials measured this week? | |
| X | | | Trash rack differentials acceptable | |
| | X | | Any debris seen in gatewells (% coverage) | |
| | X | | Any oil seen in gatewells? | |

Comments:

ESBSs/VBSs:

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | ESBSs deployed in all slots and in service? |
| | X | | ESBSs inspected this week? |
| | | X | ESBSs inspection results acceptable? |
| X | | | VBSs differentials checked this week? |
| X | | | VBSs differentials acceptable? |

Comments:

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| X | | | Orifices operating satisfactory? | 18 minimum |
| X | | | Dewaterer and cleaning systems operating satisfactory? | |

Comments:

Collection Facility: The juvenile facility is operating in secondary bypass for condition sampling.

Transport Summary: Every-other-day barging ended June 19.

Spillway Weir: Summer spill began at 0001 hours June 21.

PIT tag interrogations: RSW detections included 64,234 juvenile and 94 adult Chinook salmon, 48,186 juvenile and 584 adult steelhead, 8,864 juvenile and 3 adult sockeye, and 2,592 juvenile coho salmon. Juvenile bypass system detections included 10,044 juvenile and 5 adult Chinook salmon, 14,574 juvenile and 43 adult steelhead, 220 juvenile and 1 adult sockeye, and 240 juvenile coho salmon through July 18 (DART).

## River Conditions

River conditions at Lower Granite 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 |
| 36.5 | 34.2 | 18.2 | 18.0 | 67.0 | 64.0 | 5.0 | 5.0 |

*Cooling water intake temperature.

## Other

Inline Cooling Water Strainers: N/A

Introduced Species: No zebra/quagga muscles were detected on the trap substrate. Siberian prawns collected in the sample included 1130 live and 101 mortalities this report week. All live Siberian prawns are euthanized.

Avian Activity: Biologist daily piscivorous bird counts began April 1. Bird hazing concluded June 30.

| Date | Time | Gulls | Cormorants | Caspian Terns | Pelicans |
|---|---|---|---|---|---|
| July 12 | 0845 | 0 | 2 | 0 | 0 |
| July 13 | 1045 | 0 | 0 | 0 | 0 |
| July 14 | 1120 | 1 | 3 | 0 | 0 |
| July 15 | 0930 | 1 | 3 | 0 | 0 |
| July 16 | 1208 | 0 | 0 | 0 | 0 |
| July 17 | 1208 | 1 | 5 | 0 | 0 |
| July 18 | 1540 | 0 | 0 | 0 | 0 |

Gas Bubble Trauma (GBT) Monitoring: N/A

Idaho Department of Fish and Game (IDFG) Adult Fish Trap Operations: Collection for sampling continues with fish being collected 24-hours per day Sunday-Thursday and sampled Monday- Friday at a 25% (18% /week) sample rate. Collection for sampling will be conducted Monday through Friday until broodstock collection starts August 18.

IDFG began collection and transport of adult sockeye salmon due to high river temperature concerns in the Salmon River basin July 9. This effort is being conducted in cooperation with USACE Lower Granite Fisheries and NOAA Fisheries. Fish are being collected Monday through Thursdays and transported Tuesdays and Thursdays. Fish collected on Mondays and Wednesdays are being held overnight in an adult holding tank until transport the next day. There were 96 (45 clipped and 51 unclipped) sockeye salmon collected and transported to Eagle Fish Hatchery this report period. To date, 142 (81 clipped and 61 unclipped) have been collected and transported.

Fish Rescue/Salvage: The adult trap was flushed July 12 and July 14 to remove accumulated American shad and debris that collect on screens and reduce trap operational flows.

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

Sampling of Steelhead, Chinook salmon, and Sockeye salmon by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries for Biological data collection.

Upriver migrating steelhead, spring/summer Chinook salmon, and sockeye salmon are collected from the adult trap beginning March 1 through November 30. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder March 1-November 30. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. All natural origin adult steelhead and spring/summer Chinook salmon trapped will be PIT tagged to estimate headwater tributary escapement. Sockeye salmon may be PIT tagged in the future to estimate metrics regarding conversion rates. Some steelhead and spring/summer Chinook salmon may be radio-tagged or spaghetti-tagged. This information on adult fish forms the basis for status information used in several forums including BiOp-RPA identified needs.

Sampling and PIT tagging of Walleye by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries.

Walleye collected in the adult fish trap will be PIT tagged to investigate movement and ascension rate of walleye that successfully exit the fish ladder into the upstream reservoir. PIT tag data collected will be used to gain an understanding of the potential expansion and threat of walleye upstream of LWG to ESA-listed salmonids and guide future management actions of walleye in the Snake River Basin.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.

United States Geological Survey (USGS) Wild Juvenile Fall Chinook Salmon Genetics Sampling:

The goal of this study is to determine the origin of unmarked subyearling Chinook salmon in LWG sample. The USGS has developed an approach to estimate the daily abundance of natural origin subyearling Chinook salmon passing LWG each year. The goal is to collect fin clips from 15 unmarked subyearling on Monday's, Wednesday's, and Friday's May 15 to August 31. Genetic samples will be used to determine origin of unclipped subyearling Chinook salmon thus validating estimates of origin and model abundance.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival study:
Juvenile lamprey (macropthalmia) were collected from LWG sample, as needed, to meet PNNL downriver study objectives. LWG collected a total of 1502 juvenile lamprey this season to support this study.

Columbia River Inter-Tribal Fisheries Commission (CRITFC) Pacific Lamprey Genetic Study:

CRITFC has requested that the SMP collect non-lethal tissue samples from up to 2000 juvenile and 1250 larval Pacific lamprey, not to exceed 10 juvenile and 5 larvae daily during the routine smolt monitor condition sampling from March through September. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey program's efficacy and assist with guiding future management. LWG SMP have collected genetic samples from 744 juvenile and 459 larval lamprey this season.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program.