Out of Criteria – NWW Weekly Report #27 – August 30 – September 5, 2024

**1. McNary**

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | X | | NFEW2 Weir Depth | ≥ 8.0’ | 7.9’ to 8.1’ |
| | X | | NFEW3 Weir Depth | ≥ 8.0’ | Raised, 8.0’ to 8.2’ |
| | X | | SFEW1 Weir Depth | ≥ 8.0’ | 5.3’ to 8.3’ |
| | X | | SFEW2 Weir Depth | ≥ 8.0’ | 5.4’ to 8.3’ |

SFEW1, SFEW2, NFEW2 and NFEW3 were out of criteria due to one operation fish pump on September 1. NFEW3 was raised above water per FPP. The other three weirs were raised enough to maintain pool differentials.

Fish pump 1 remained out of service for a scheduled 5-year overhaul. Return to service dates are subject to change.

After the last week’s black out, fish pump 3 had some minor issues but remained functional. However, the pump finally failed with a governor issue on August 31, at 1135 hours (24MCN10). Fish pump 2’s blade angle was increased to 26 degrees. Per FPP, the Oregon ladder entrances were adjusted for one functional fish pump by 1148 hours. The governor was repaired and fish pump 3 returned to service on September 3, at 1043 hours. Fish pump 3 was also out of service on September 5, from 1222 to 1250 hours, for trouble shooting.

| Yes | No | NA | Item |
|---|---|---|---|
| | X | | VBSs differentials acceptable? |

Daily VBS monitoring continued, no high differentials were recorded until units went outside the soft one percent criteria on September 1. Two screens measured 1.5 feet differential and were cleaned that day. A total of three more screens were cleaned on September 2 and 3. No fish were observed.

Due to water elevation fluctuations, orifice cycling remained reduced to once a day. .

*Table 2. Channel Water Elevation Alarms

| Date | Time | Alarm Type | Comments |
|---|---|---|---|
| 8/30 | 1128 | High | |
| 8/31 | 0344 | High | |
| | 0933 | High | |
| | 1543 | High | |
| | 2309 | High | |
| 9/1 | 0012 | High | |
| | 0314 | High | |
| | 0825 | High | |
| 9/2 | 1735 | High | |
| | 2255 | High | |
| 9/3 | 0113 | High | |
| | 0432 | High | |
| | 0519 | High | |
| | 0900 | High | |
| | 1315 to 1410 | High | 3 alarms together |
| 9/4 | 0626 | High | |
| | 0641 | High | |
| | 0809 to 0857 | High | 4 alarms while cycling orifices |
| | 1020 | High | 3 alarms together |
| 9/5 | 1211 | High | |

The electrical staff has been examining this issue and did so again on September 5. We had this same issue last fall, but it began in October, which was outside the sample season. The channel elevation and issue will continue to be monitored and examined.

**2. Ice Harbor**

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | x | | South fish entrance channel/tailwater differential | 1.0' – 2.0' | 2.2', 2.3' |
| | x | | North fish entrance channel/tailwater differential | 1.0' – 2.0' | 2.4' |

South fish entrance channel/tailwater differential was above criteria on September 4 and 5. This was caused by low tailwater level. The weir gate is already on its sill, and shutting off a south shore auxiliary water supply pump will likely cause flow to be too low to meet other criteria.

North fish entrance channel/tailwater differential was above criteria on September 5, because of low tailwater level. Also, turbulent tailwater from spill made accurate physical measurement difficult.

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.

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

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.

**3. Lower Monumental**

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| | X | | North Shore Entrance (NSE-1) Weir Depth | $\geq$ 8.0' or on sill | |
| | X | | North Shore Entrance (NSE-2) Weir Depth | $\geq$ 8.0' or on sill | |
| | X | X | South Shore Entrance (SSE-1) Weir Depth | $\geq$ 8.0' | |
| | | X | South Shore Entrance (SSE-2) Weir Depth | $\geq$ 6.0' | |

North Shore Entrance NSE-1 weir was out of criteria on the August 30 inspection with a reading of 6.3 feet. North Shore Entrance NSE-2 weir was out of criteria on the August 30 inspection with a reading of 6.8 feet. North Shore Entrance (NSE) weirs were found in manual mode. System may have defaulted to manual mode during powerhouse power swapping done on August 29. The NSE weirs were placed in automatic mode and went back into criteria. South Shore Entrance SSE-1 weir was out of criteria during the August 30 inspection with a reading of 6.4 feet. SSE-1 was placed at sill (431 feet) and left there. This issue may have also been caused by the power swap. South Shore Entrance SSE-1 weir was at sill during the August 31 and September 1 inspections with readings of 7.0 and 7.3 feet respectively.

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

The cleaning system for the primary dewatering structure's incline screen was found inoperable at 0950 on August 30. Neither mechanical screen cleaning brush nor the air bubbler systems would work. A breaker was found tripped and reset, however that did not fix the issue. Powerhouse electrical staff found a bad motherboard in the PLC system, and the system is awaiting a new one. The mechanical brush will only operate using the manual control buttons by hand and the air bubbler system will not function without the PLC functioning. The PDS is currently operated using just the mechanical screen cleaning brush four times per shift. JFF personnel are currently manually operating the incline screen brush twice a shift to mitigate debris build-up.

**4. Little Goose** – N/A

**5. Lower Granite Dam**

| Yes | No | Sill | Location | Criteria | Comments |
|---|---|---|---|---|---|
| | X | | North Shore Channel/Tailwater Differential | 1.0'–2.0' | 0.7' |
| | X | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | 1.4, 1.4, 1.4 |

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 on 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. The fish ladder was designed to operate between 633' and 638' MSL with a minimum operating elevation of 633.0'.

**U.S. ARMY CORPS OF ENGINEERS**
**WALLA WALLA DISTRICT**
**FISH FACILITIES WEEKLY REPORT**
**#27-2024**

**Project: McNary**
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 30-September 5, 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 | X | Available turbines operated within 1% peak efficiency? Constraint in effect. | X | 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 |
| 5 | 8/21 | 1057 | 9/30 | NA | Turbine noise |

Comments: RTS dates are subject to change. For unit 5, access to the area needed to dewater the unit is still being cleaned of contamination from sand blasting of station service unit 2's the draft tube. The hard one percent criteria concluded, and the soft one percent criteria began on September 1. After September 1, units did run outside the soft constraint when requested to do so by BPA. The sawtooth unit priority pattern for temperature abatement has not yet concluded.

## Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on August 30, September 1 and 4. The inspection on September 1 reflects one fish pump operation, which will be discussed below. 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' | 1.0' to 1.1' |
| X | | Oregon Count Station Differential | 0.0' to 0.5' | 0.2' to 0.5' |
| X | | Washington Exit | Head over weir 1.0' to 1.3' | 1.0' |
| X | | Washington Count Station Differential | 0.0' to 0.5' | 0.1' to 0.3' |

Comments: Debris loads were light near the Oregon exit and minimal near the Washington exits. However, large clumps of aquatic vegetation were near both exits. The general maintenance staff came in on Saturday. They were called in on Sunday and came in again on Monday, the holiday, to clean the picketed leads at both exits.

At the Washington shore exit, weir 339 remains in bypass mode. The control system continued to regulate the exit without this weir moving.

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | | North Oregon Entrance Head Differential | 1.0' – 2.0' | 1.3' to 1.7' |
| | X | | NFEW2 Weir Depth | ≥ 8.0' | 7.9' to 8.1' |
| | X | | NFEW3 Weir Depth | ≥ 8.0' | Raised, 8.0' to 8.2' |
| X | | | South Oregon Entrance Head Differential | 1.0' – 2.0' | 1.2' to 1.6' |
| | X | | SFEW1 Weir Depth | ≥ 8.0' | 5.3' to 8.3' |
| | X | | SFEW2 Weir Depth | ≥ 8.0' | 5.4' to 8.3' |
| X | | | Oregon Collection Channel Velocities | 1.5 to 4.0 fps | 2.0 fps |
| X | | | Washington Entrance Head Differential | 1.0' – 2.0' | 1.4' to 1.5' |
| X | | | WFE2 Weir Depth | ≥ 8.0' | 9.7' to 10.3' |
| X | | | WFE3 Weir Depth | ≥ 8.0' | 8.5' to 8.9' |

Comments: SFEW1, SFEW2, NFEW2 and NFEW3 were out of criteria due to one operation fish pump on September 1. NFEW3 was raised above water per FPP. The other three weirs were raised enough to maintain pool differentials.

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 Sept 30 |
| X | | | 23° to 26° | Oregon Ladder Fish Pump 2 |
| X* | | X* | 24° to 25° | 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.

* After the last week's black out, fish pump 3 had some minor issues but remained functional. However, the pump finally failed with a governor issue on August 31, at 1135 hours (24MCN10). Fish pump 2's blade angle was increased to 26 degrees. Per FPP, the Oregon ladder entrances were adjusted for one functional fish pump by 1148 hours. With the outage lasting three days, no other adjustments were made. The governor was repaired and fish pump 3 returned to service on September 3, at 1043 hours. Fish pump 3 was also out of service on September 5, from 1222 to 1250 hours, for trouble shooting.

## Juvenile Fish Passage Facility

The juvenile system alternates between primary and secondary bypass every 24 hours at 0700 hours. There will be one long interruption in this schedule starting September 5, when secondary bypass was halted due to channel water elevation fluctuations, which will be described below. This decision was made September 4. The sawtooth unit pattern remained in effect. Sample tank mortality was 16.7 percent (one smolt) on September 4.

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | Minimal to very 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 debris load near the powerhouse and the new incoming debris was minimal to very light. At the spill the debris loads were minimal. Most of the debris was aquatic vegetation that moved from the Oregon shore and back.

No trash rack cleaning is scheduled.

The emergency bulkhead remained in 14A slot. The slots in units 7, 13, at 14A and 14B slots remained covered. This improved contractor access by units 13 and 14.

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. Testing of ESBS screen brush programming continued with the screens in unit 4. Camera inspections did not occur this week due to channel water elevation fluctuations that can occur during orifice adjustments for the inspections.

The ESBS in 1A slot was found short cycling, not completing a full brush cycle, on August 31. The chief operator was able to resolve the issue.

Daily VBS monitoring continued, no high differentials were recorded until units went outside the soft one percent criteria on September 1. Two screens measured 1.5 feet differential and were cleaned that day. A total of three more screens were cleaned on September 2 and 3. No fish were observed.

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: With headgate testing in 14A slot, the orifices in units 13 and 14 remained closed. Make-up north orifices are opened in units 3 and 4. Due to water elevation fluctuations, orifice cycling remained reduced to once a day. Finally, ESBS camera will occur on primary bypass days only. Orifices were adjusted for VBS cleaning as required.

*Table 2. Channel Water Elevation Alarms

| Date | Time | Alarm Type | Comments |
|---|---|---|---|
| 8/30 | 1128 | High | |
| 8/31 | 0344 | High | |
| | 0933 | High | |
| | 1543 | High | |
| | 2309 | High | |
| 9/1 | 0012 | High | |
| | 0314 | High | |
| | 0825 | High | |
| 9/2 | 1735 | High | |
| | 2255 | High | |

| | | | |
|---|---|---|---|
| 9/3 | 0113 | High | |
| | 0432 | High | |
| | 0519 | High | |
| | 0900 | High | |
| | 1315 to 1410 | High | 3 alarms together |
| 9/4 | 0626 | High | |
| | 0641 | High | |
| | 0809 to 0857 | High | 4 alarms while cycling orifices |
| | 1020 | High | 3 alarms together |
| 9/5 | 1211 | High | |

The electrical staff has been examining this issue and did so again on September 5. We had this same issue last fall, but it began in October, which was outside the sample season. The channel elevation and issue will continue to be monitored and examined.

Bypass Facility:

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

Comments: The sample system was 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 28 juvenile lamprey and 76 smolts bypassed with subyearling Chinook being the dominate race/species this week. Juvenile shad were the predominate species seen overall.

TSW Operations: The TSW's in bays 19 and 20 will be discussed below. Both TSW's are attached to a hoist. The TSW in bay 19 remained closed to the end of the spill season. Bay 19 was replaced with bay 4. This bay along with the TSW in bay 20 finished out the spill season on September 1 at 0001 hours.

The TSW in bay 20 was opened every morning for four hours for adult fallback passage starting on September 1. The hours were 0600 to 1000 hours to start but was switched to 0500 to 0900 hours on September 4, which always better management of project work such as VBS cleaning.

## River Conditions

Table 3. 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 |
| 123.0 | 88.0 | 38.6 | 1.6 | 69.2 | 68.4 | 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 concluded water temperature monitoring throughout the juvenile system on August 31. Their results will be published in a separate yearend report. Adult ladder water temperatures are reported by an automated system year-round.

The summer spill season concluded with 20 kcfs (TSW in bay 19 or split leaf in bay 4 and the TSW in bay 20) on September 1 at 0001 hours. When there was spill in excess of available powerhouse capacity, the spill volume was above that value.

Rehabilitated of downstream wall dogs continued. The dogs from bays 14 and 17 are being rehabilitated currently.

**Other**

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 3.

Avian Activity: Bird counting continued, and the results are reflected in Table 4 below.

Table 4. McNary Project's Daily Avian Count.

| Date | Zone | Gull | Cormorant | Tern | Pelican | Grebe |
|---|---|---|---|---|---|---|
| August 30 | Spill | 114 | 0 | 0 | 0 | 0 |
| | Powerhouse | 24 | 0 | 0 | 0 | 0 |
| | Outfall | 6 | 1 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| August 31 | Spill | 144 | 1 | 0 | 0 | 0 |
| | Powerhouse | 7 | 0 | 0 | 0 | 0 |
| | Outfall | 20 | 1 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| September 1 | Spill | 60 | 0 | 0 | 0 | 0 |
| | Powerhouse | 140 | 0 | 0 | 0 | 0 |
| | Outfall | 20 | 1 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| September 2 | Spill | 50 | 0 | 0 | 0 | 0 |
| | Powerhouse | 49 | 0 | 0 | 0 | 0 |
| | Outfall | 60 | 12 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| September 3 | Spill | 275 | 0 | 0 | 0 | 0 |
| | Powerhouse | 118 | 0 | 0 | 0 | 0 |
| | Outfall | 55 | 12 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| September 4 | Spill | 37 | 2 | 0 | 0 | 0 |
| | Powerhouse | 25 | 0 | 0 | 0 | 0 |
| | Outfall | 54 | 8 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |
| September 5 | Spill | 51 | 0 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 13 | 9 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |

In the spill zone, gulls in high fluctuating numbers were noted feeding and roosting along with a few roosting cormorants.

In the powerhouse zone, gulls in higher fluctuating numbers were observed feeding and roosting, with the birds moving here when the TSW closes, at times.

In the outfall zone, gulls in fluctuating numbers long with some cormorants were noted roosting. No feeding was observed. One osprey was noted roosting twice.

For the forebay zone, an occasional osprey was noted flying by. A few gulls, cormorants, and ospreys along with one pelican were noted outside the zone.

The LRAD remained redeployed and was somewhat effective.

The laser on the navigation lock wing wall opposite the outfall was shipped 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.

There is no other hazing.

Invasive Species: The next mussel station examinations revealed will occur in late September.

Siberian Prawn: No prawns were observed in the sample this week. The season total remained at 18.

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

Research: PNNL removed their tagging trailers and transformers on September 3 and 5, respectively. The spillway equipment will be removed at a later date.

For a CRITFC study, there were tissue samples removed from seven juvenile lamprey collected at the facility this week. The yearly total is 514 fish, which were returned to the river unharmed.

**Project: Ice Harbor**
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: August 30- September 5, 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 | 0708 | --- | --- | Turbine runner replacement and stator rewind |

Comments: None.

## Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on September 3, 4, 5.

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’ | 2.2’, 2.3’ |
| 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 | |
| | x | | North fish entrance channel/tailwater differential | 1.0’ – 2.0’ | 2.4’ |

Comments: South fish entrance channel/tailwater differential was above criteria on September 4 and 5. This was caused by low tailwater level. The weir gate is already on its sill, and shutting off a south shore auxiliary water supply pump will likely cause flow to be too low to meet other criteria.

North fish entrance channel/tailwater differential was above criteria on September 5, because of low tailwater level. Also, turbulent tailwater from spill made accurate physical measurement difficult.

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 9 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: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

| Yes | No | NA | Item | Number open and in service |
|---|---|---|---|---|
| x | | | Orifices operating satisfactory? | 20 |
| | 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.

The pump for the bird-abatement hydrocannon tripped off on August 29 due to a grounding issue. Water was found to have gotten inside of the power receptacle. The receptacle was dried out and resealed, and the pump was re-energized on September 5. There were no piscivorous birds noted at the bypass pipe outfall during this period.

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

Fish Sampling: Juvenile fish sampling has ended for the season.

Removable Spillway Weir (RSW): Summer spill for fish passage ended at 2358 hours on August 31. Beginning on September 1, the RSW is opened daily from approximately 0600 hours to 1000 hours to facilitate downstream passage back to the Columbia River for steelhead that strayed into the Snake River.

## 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 |
| 25.8 | 14.8 | 8.9 | 1.4 | 70 | 70 | 8.0 | 7.0 |

*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: Cooling water strainer differential pressure is routinely monitored. The strainers will be cleaned if there is indication of clogging caused by debris or juvenile shad, and inspection results will be reported.

Avian Activity: There were variable numbers of piscivorous birds observed around the dam. The birds were roosting on Eagle Island and opportunistically foraging downstream of the spillway and at the discharge of the navigation lock while it was being drained.

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

Siberian Prawn: Siberian prawns that were collected in the sample at the Juvenile Fish Facility were humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill. 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: August 30 – September 5, 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 1 | 9/04/24 | 0715 | 9/04/24 | 1115 | STS Inspection |
| Unit 2 | 9/05/24 | 1120 | 9/05/24 | 1335 | STS Inspection |
| Unit 3 | 9/04/24 | 1120 | 9/04/24 | 1420 | STS Inspection |
| Unit 4 | 9/03/24 | 1040 | 9/03/24 | 1250 | STS Inspection |
| Unit 5 | 9/03/24 | 1300 | 9/03/24 | 1520 | STS Inspection |
| Unit 6 | 7/08/24 | 0850 | 9/19/24 | ERTS | DC low voltage upgrade/STS inspection |

Comments: None.

## Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on August 30, 31 and September 1.

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 | | North Shore Entrance (NSE-1) Weir Depth | ≥ 8.0’ or on sill | |
| | 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 | 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 out of criteria on the August 30 inspection with a reading of 6.3 feet. North Shore Entrance NSE-2 weir was out of criteria on the August 30 inspection with a reading of 6.8 feet.

North Shore Entrance (NSE) weirs were found in manual mode. System may have defaulted to manual mode during powerhouse power swapping done on August 29. The NSE weirs were placed in automatic mode and went back into criteria. South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 6.0, 6.2 and 6.0 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with of 6.0, 6.2 and 6.0 feet respectively. South Shore Entrance SSE-1 weir was out of criteria during the August 30 inspection with a reading of 6.4 feet. SSE-1 was placed at sill (431 feet) and left there. This issue may have also been caused by the power swap. South Shore Entrance SSE-1 weir was at sill during the August 31 and September 1 inspections with readings of 7.0 and 7.3 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) | 85 yrd² |
| X | | | Gatewell drawdown measured this week? | |
| X | | | Gatewell drawdown acceptable | |
| X | | | Any debris seen in gatewells (% coverage) | 0 – 2% |
| | | X | Any oil seen in gatewells? | |

Comments: None

STSs/VBSs:

| Yes | No | NA | Item |
|---|---|---|---|
| X | | | STSs deployed in all slots and 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 | VBS screens checked this week? |
| | | X | VBS screens acceptable? |

Comments: STSs were running on cycle-run mode due to the average sub-yearling Chinook and sockeye lengths being greater than 120 mm. All STSs were inspected between September 3 and 5. All were found in good working 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 cleaning system for the primary dewatering structure's incline screen was found inoperable at 0950 on August 30. Neither mechanical screen cleaning brush nor the air bubbler systems would work. A breaker was found tripped and reset, however that did not fix the issue. Powerhouse electrical staff found a bad motherboard in the PLC system, and the system is awaiting a new one. The mechanical brush will only operate using the manual control buttons by hand and the air bubbler system will not function without the PLC functioning. The PDS is

currently operated using just the mechanical screen cleaning brush four times per shift. JFF personnel are currently manually operating the incline screen brush twice a shift to mitigate debris build-up.

Collection Facility: The facility ran in primary bypass for two days and secondary bypass for condition sampling the third day, every-third day, this entire reporting period. A total of 10 fish were collected with 10 being bypassed this reporting period.

On September 4, the primary bypass/collection gate would not switch to primary bypass mode from secondary bypass position at 0700 hours. There was not enough air pressure to move the gate. In addition, the sampling gates also had no air pressure in order to close. The fish biologist manually closed A and B side sampling gates to prevent more fish from being collected into the sample. Powerhouse electrical staff was called to the Juvenile Fish Facility, and they found a tripped circuit breaker for compressor 1. The electrical staff was able to use all the air from compressor 2 in order to move the primary bypass/collection gate into primary bypass mode until the circuit breaker could be replaced. The facility was in secondary bypass mode for an extra 23 minutes for the 24-hour sample. Any adult fallbacks collected in the separator during this time, were returned to river safely. The circuit breaker was replaced in the afternoon and operations returned to normal. Juvenile Fish Facility maintenance personnel have been manually swapping between the two compressors due to timer issues with the compressors for years. Powerhouse electrical personnel suggested replacing the timer system. The timer system has been ordered and will be replaced when parts arrive.

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. It will be replaced during the winter.

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. It is not deemed as a critical issue and will not impede fish passage. Plans for the repair will occur over the winter maintenance period.

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

Spillway Weir: Late Summer 8 kcfs spill ended at 23:59:59 on August 31. Surface spill for fall steelhead began at that time: RSW spill (~7.5kcfs) for 4 hours in the morning, 7 days a week.

## 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 |
| 25.6 | 14.6 | 8.0 | 1.3 | 68.1 | 68.0 | 6.3 | 5.3 |

*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 |
|---|---|---|---|---|---|---|
| 8/30/2024 | 1100 | 105 | 4 | 0 | 0 | 0 |
| 8/31/2024 | 1300 | 30 | 22 | 0 | 0 | 0 |
| 9/1/2024 | 900 | 6 | 4 | 0 | 0 | 2 |
| 9/2/2024 | 928 | 109 | 62 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9/3/2024 | 1325 | 126 | 41 | 0 | 0 | 0 |
| 9/4/2024 | 1210 | 97 | 29 | 0 | 0 | 0 |
| 9/5/2024 | 1211 | 79 | 22 | 0 | 0 | 0 |

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

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

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* |
|---|---|---|
| 8/30/2024 | --- | --- |
| 8/31/2024 | --- | --- |
| 9/1/2024 | 71 | 71 |
| 9/2/2024 | --- | --- |
| 9/3/2024 | --- | --- |
| 9/4/2024 | 93 | 93 |
| 9/5/2024 | --- | --- |
| Total | 164 | 164 |

*Collection refers to extrapolated values based on sampling percent.

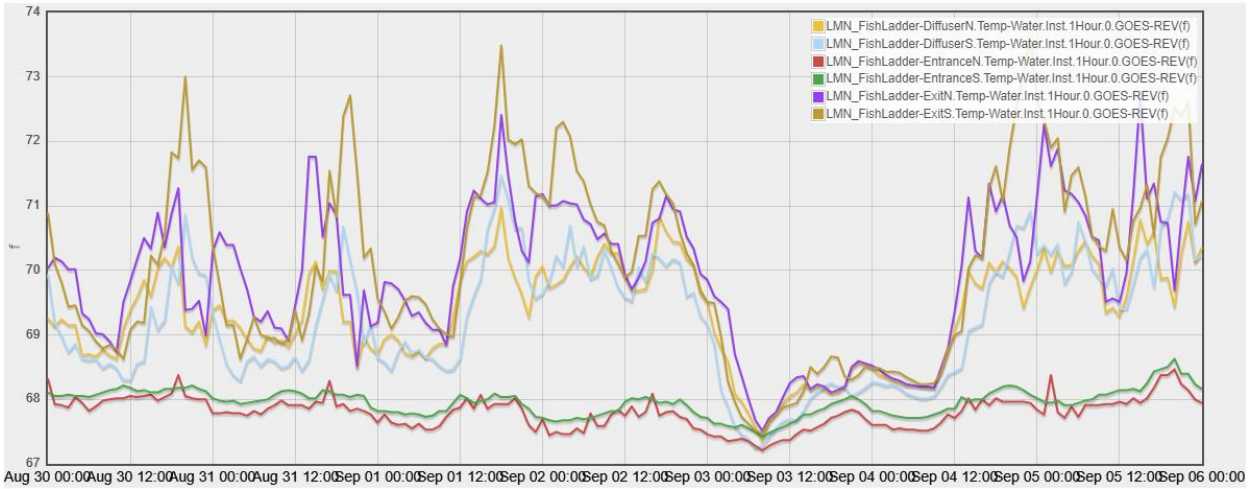
Fish Rescue/Salvage: No fish rescues were performed during this reporting period.

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

GBT sampling has ended for the 2024 season.

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

Temperature Probes: The adult passage temperature probes operated correctly during this reporting period. The graph below shows the temperatures per recording point for the reporting period. On August 29, hydrology noticed an issue with the ladder entrance battery; the battery was replaced on September 3.



**Project: Little Goose Dam**
Biologist: Deb Snyder, Brooke Gerard
Dates: August 30 – September 5, 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 |
| 3 | 8/19/2024 | 07:00 | 9/27/2024 | 17:00 | Annual 6-year overhaul. |
| 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 September 1, 2, and 5.

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. Criteria evaluations default to physical staff gauge measurements in this area. All other 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 80 ft² - Low 0 ft² |
| | X | | Gatewell drawdown measured this week? | |
| | | X | Gatewell drawdown acceptable | |
| X | X | | Any debris seen in gatewells (% coverage) | 8/30- 2C:2% 8/31- 4C:1% 9/1- 4B:1% 9/3- 2C:2%, 4B:2%, 4C:1% |
| | X | | Any oil seen in gatewells? | |

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on September 1 and 2 at 10 ft². The overall total forebay debris high occurred on August 30 at 80 $ft^2$.

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. Unit 2 annual camera inspections were completed July 31.

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: The juvenile bypass system was watered up on March 7 without incident.

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. Every day

collection resumed at 0700 on August 1st corresponding with the start of every other day trucking operations as per the FPP. During this reporting period a total of 255 fish were collected, 201 were trucked, 0 were bypassed, and there were 4 sample or facility mortalities. The descaling and mortality rates were 2.7% and 1.6%, respectively. The collection and transport facility operated within criteria; 6 adult lampreys were removed from the collection facility 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. Collection for truck transport operations began August 1 with the first truck departure on August 3.

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 16th 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. On August 1 at 00:15 hours the ASW was closed per FPP Chapter 8 section 2.3.2.7.e.i, diminished outflows below the 35 kcfs threshold. The ASW was opened on September 1 for 4 daily hours of steelhead overshoot spill operations from 0600 to 1000 hours.

## 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 |
| 24.1 | 16.0 | 6.4 | 1.1 | 67.7 | 67.2 | 6.0 | 6.0 |

*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 |
|---|---|---|---|---|---|
| 8-30 | 1300 | 0 | 0 | 0 | 0 |
| 8-31 | 1030 | 0 | 0 | 0 | 0 |
| 9-1 | 1030 | 0 | 0 | 0 | 0 |
| 9-2 | 1145 | 3 | 0 | 0 | 0 |
| 9-3 | 1115 | 3 | 0 | 0 | 0 |
| 9-4 | 1030 | 0 | 0 | 0 | 0 |
| 9-5 | 1100 | 0 | 0 | 0 | 0 |

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* |
|---|---|---|
| 8-30 | 254 | 254 |
| 8-31 | 238 | 238 |
| 9-1 | 141 | 141 |
| 9-2 | 157 | 157 |
| 9-3 | 214 | 214 |
| 9-4 | 140 | 140 |
| 9-5 | 116 | 116 |
| Totals | 1,260 | 1,260 |

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring on April 4 and completed final monitoring activities on July 23.

Fish Rescue/Salvage: No fish rescue activities took place during the report 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: August 30 – September 5, 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 |
| 5 | 08/26 | 0717 | | | ANNUAL PM |

Comments:

## Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway August 30, 31, September 1, 4.

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’ | |
| 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’ | |
| X | | | North Shore Entrance (NSE-1) Weir Depth | ≥ 7.0’ or on sill | |
| X | | | North Shore Entrance (NSE-2) Weir Depth | ≥ 7.0’ or on sill | |
| | X | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | 0.7’ |
| | X | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | 1.4, 1.4, 1.4 |

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 on 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. The fish ladder was designed to operate between 633’ and 638’ MSL with a minimum operating elevation of 633.0’.

Auxiliary Water Supply System:

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

Comments:

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | 31 $yd^2$ |
| 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 | | ESBS/VBSs inspected this week? |
| | | X | ESBS/VBSs inspection results acceptable? |
| X | | | VBSs differentials checked this week? |
| X | | | VBSs differentials acceptable? |

Comments: ESBS/VBS's were inspected August 25 and 26. A section of the VBS bar was observed going through a small section of the VBS. Though the bar is not an immediate concern, LWG has scheduled to remove unit 1 from service to make repairs September 9-11.

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: Collection for truck transport began at 0700 on Aug 1.

Transport Summary: Truck transport continues with LWG supporting transport from LGO as necessary.

Spillway Weir: RSW Spill; 4 hr./day began 0001 September 1.

PIT tag interrogations: RSW detections included 64,389 juvenile and 112 adult Chinook salmon, 48,212 juvenile and 643 adult steelhead, 8,864 juvenile and 3 adult sockeye, and 2,592 juvenile coho salmon. Juvenile bypass system detections included 10,171 juvenile and 16 adult Chinook salmon, 14,579 juvenile and 72 adult steelhead, 220 juvenile and 4 adult sockeye, and 240 juvenile coho salmon through August 29 (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 |
| 23.8 | 17.5 | 6.1 | 1.1 | 64.0 | 62.0 | 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 45,531 live and 5,050 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 |
|---|---|---|---|---|---|
| August 30 | 1325 | 9 | 9 | 0 | 0 |
| August 31 | 1205 | 4 | 2 | 0 | 0 |
| September 1 | 1108 | 8 | 10 | 0 | 0 |
| September 2 | 0810 | 13 | 2 | 0 | 0 |
| September 3 | 0712 | 0 | 0 | 0 | 0 |
| September 4 | 1157 | 13 | 2 | 0 | 0 |
| September 5 | 1235 | 2 | 5 | 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. The trap sample rate was reduced from 70% to 40% on August 27. Broodstock collection and transport continues. NPT has met their broodstock collection goal with their last load September 1. WDFW continues broodstock transport having met about 75% of their goal. Fish are being transported to Lyons Ferry Hatchery 7 days per week until collection goals are met.

Fish Rescue/Salvage: NA.

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 1000 juvenile and 500 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 912 juvenile and 500 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.