U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2015

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 27 – April 2, 2015

Turbine Operation

McNary had 13 units available for power generation this week. On April 1, the hard constraint one percent criteria began. Starting that day, no units ran outside the constraint. Unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
12	Feb 8 – Oct 9	About 8 months.	Rewind contract.
1	Mar 31	41 minutes.	Trash rack at 1C slot cleaned.
6 to 14	Apr 1	6.7 hours total.	Trash rack cleaning.
1 to 6	Apr 2	5.0 hours total.	Trash rack cleaning.

Adult Fish Passage Facilities

On March 29, 31 and April 2, the McNary fisheries staff performed measured inspections of the adult fishways. On March 31, project staff lowered the picketed leads. Visual adult fish counts resumed April 1.

Fish Ladder Exits: Both ladders exits met all all Fish Passage Plan criteria.

At the Washington exit, a light amount of debris remains in the area of the exit. On March 29, the exit set points were adjusted. On April 1, the electrical staff repaired the picketed lead and trash rack hoists. Last week, lighting in the exit area underwent scheduled maintenance.

At the Oregon exit, light debris remains in the exit area. Traveling screen differentials were satisfactory. Ladder exit set points were adjusted on March 29 and April 2. The fisheries staff cleaned the incinerator toilet near the exit on April 1 as it had been used without liners.

Fishway Entrances and Collection Channel: All inspection points in both ladder entrances met criteria this week. Electrical upgrades completed over the winter appear to have improved weir operation.

Collection channel surface velocities averaged 1.3 feet per second. Increased tailrace elevations likely lowered the hydraulic gradient, resulting in lower channel velocities this week.

Auxiliary Water Supply System: The Washington ladder Wasco county PUD turbine unit had no interruptions in service this week.

Two of the three Oregon ladder fish pumps operated satisfactory with blade angles of 30 degrees. Pump 2 is currently out of service for major overhaul under contract. This work is should be completed by September 2015. On March 30, at 1200 hours, the juvenile facility returned to service, thus supplying the usual 450 cfs to the north powerhouse pool.

Juvenile Fish Passage Facility

On March 30, from approximately 0930 to 1200 hours, the juvenile collection channel entered service in primary bypass mode. The first day of secondary bypass was scheduled for April 6. The first day of secondary bypass was moved to April 8, following the discovery of a faulty perforated plate drain valve on April 5.

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

This week, the highest trash rack differential measured was 1.9 feet at slot 5A, with the unit operating at 79 megawatts. The project staff completed a full powerhouse cleaning as required in the Fish Passage Plan (FPP). On March 31, April 1 and 2, 18 ten-yard truck loads of debris were removed from operational units. Unit 12 trash racks were not cleaned as this turbine unit is out of service. We only noted one live juvenile lamprey, which we immediately returned to the river. Most of the debris came from the southern half of the powerhouse.

No problems were observed no problems in the gatewell slots.

ESBSs/VBSs: All ESBSs remain raised and the project staff has concluded maintenance. On March 31, the electrical staff installed a new PLC (Programmable Logic Circuit) for unit 3's screens. Screen installations are slated to take place from April 6 to 15 in similar fashion as the last six seasons in support of juvenile lamprey passage.

VBS rehabilitation continues. Differential monitoring will resume when ESBS installations begin.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: On March 30, after preparations from 0930 to 1200 hours, the channel was re-watered. All systems were set to automatic operation. Forty two orifices were in use this week, with no issues to report. During trash rack cleanings, we closed the orifice in the affected slots and opened a spare orifice at an adjacent slot. During this process, one water alarm occurred and orifice operations were reviewed with the staff. We continue to replace orifice attraction light bulbs as needed.

The rectangular screen cleaner was tested the morning of March 30 without incident. However, after watering up the channel, the cleaner mechanism required adjustment of two limit switches

before it would cycle properly. Due to past issues and consistent with past practices, the transition screen cleaner will only be operated only during day shifts Monday to Thursday, when powerhouse crews are available to respond to issues quickly. Since this mechanism's path overlaps with the rectangular screen cleaner's path, these precautions are prudent.

On March 31, the rectangular screen's air burst system was inspected to insure each zone was functioning properly in automatic mode, which they were.

After "water up", no leakage was noted at the new dressing coupler at the junction of the full flow pipe and the primary bypass gate structure.

On April 1, facility staff noted that the forebay elevation indicator dial was still not responding properly to elevation changes. The stilling well likely needs further examination or modification.

Bypass Facility: The facility was re-watered on March 30 and will remain in primary bypass until April 8 as mentioned above. This week, the fisheries staff concluded general facility preparations, replaced the west raceway manifold valve's oil reservoir, freed raceway 2's back flush valve and sealed a leak in the A-side flume just downstream of the separator.

The smolt monitoring staffs continued preparations for the upcoming sample season.

River Conditions

River conditions during the week are outlined in Table 2 below as provided by the control room. The data period runs from 0000 to 2400 hours each day. Water temperature is taken from the unit 1 scroll case.

Table 2. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
242.6	193.7	85.8	0.0	47	45	6.0	6.0

This week, spill occurred due to river flow in excess of powerhouse capacity. On April 2, the project staff completed installation of TSW1 in bay 19. TSW1 is attached to a spillway crane. TSW2 is already in place in bay 20 and is attached to a spillway hoist. On March 25, the spill gate in bay 18 was returned to normal configuration, so it is no longer in split leaf mode. However, this week, we did note that the seal between the two leaf sections needs replacement. Routine spring spill in support of fish passage will begin April 10.

Other

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

Invasive Species: The next the zebra mussel station examinations will occur in late April.

Avian Activity: Bird counts resumed on April 1, when the technicians returned to shifts. The results of these counts are recorded in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Apr 1	Forebay	0	0	0	0	13
	Spill	0	5	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
Apr 2	Forebay	0	0	0	0	6
	Spill	0	3	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	1	0	0

Gulls, cormorants, grebes, terns and ospreys appear to be in the general area in low numbers. A pair of snowy egrets was also noted. Gulls and cormorants are roosting on the rocks by the Washington shore boat dock, which is outside our forebay zone. Grebes are feeding in the forebay. Cormorants are roosting on the navigation lock wing wall with no other birds noted in the tailwater area. When the bypass system became functional, we noted one tern near the bypass outfall.

Bird hazing distress calls remain deployed around the project and the bird hazing water cannon continues to function without incident. The water cannon pump system underwent improvement this winter, including the installation of new components. Should the sprinkler pump trip off line, restarts will now take place at the pump and not at the fish facility. On April 1, APHIS personnel began bird hazing at the project, with one shift per day on duty. A second shift and boat hazing will be added April 19.

Research: On March 31, Pacific Northwest National Laboratory (PNNL) researchers removed their sonar camera from the spillway pier nose by the TSW in bay 20. The remainder of their equipment will be removed later in the year when flows are reduced.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 27 – April 2, 2015

Turbine Operation

Unit 3 has been out of service since July 7, 2014, at 1346 hours for a generator electrical grounding problem, annual maintenance, conversion into a fixed-blade unit to remedy an oil leak from the hub, digital governor upgrades, and replacement of brake seals.

All available units were operated within the 1% peak efficiency range (hard constraint) beginning April 1.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on March 30 and 31, and April 1 and 2.

Fish Ladders: The north fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. Criteria for head differentials at ladder exits and picketed leads, and depth over the weirs are 0.5 feet or less, 0.3 feet or less, and 1.0-1.3 feet, respectively. The water surfaces above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily. The north and south shore picketed leads were installed on March 31, and adult fish counts began for the season on April 1.

Fishway Entrances and Collection Channel: The south shore entrance (SFE) depth and channel/tailwater differential were in criteria, except for a depth of 7.4 feet on March 30. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria, except for a depth of 7.4 feet on March 31. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria on all inspections. Electricians calibrated the reported out-of-criteria locations on April 2. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

South shore channel velocities were in criteria, except for a reading of 0.9 feet/second on March 31. The channel velocity criterion is 1.5-4.0 feet/second.

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 42 square yards of debris observed in the forebay. Surface debris coverage in the gatewells ranged from 0% to 3%.

STSs/VBSs: The STSs for units 6 and 5, units 4 and 2, unit 1, and unit 3 were installed on March 23, 24, 26, and 31, respectively.

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

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

Fish Sampling: Sampling operations may begin the week of April 6, depending on when the required Washington Department of Fish and Wildlife permit is received.

Removable Spillway Weir: The modification of spill bay 2 ogee and flow deflector is complete. Spill gate 2 operation was tested and flow over spill bay 2 occurred on March 30. River flow in excess of power generation was spilled on April 1 and 2. Mandated spill for fish passage will begin at 0001 hours on April 3.

River Conditions

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

Table 1. River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
89.6	57.6	15.0	0	49	45	7.1	5.3

*Unit 1 scrollcase temperature.

Other

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

Invasive Species: No new exotic species have been found.

Avian Activity: The piscivorous bird count program at the project began on April 1. Relatively low numbers of piscivorous birds were seen around the project during the week (Table 1). Contracted hazing of piscivorous birds for 8 hours per day began on April 1.

Table 1. Daily maximum piscivorous bird counts at Ice Harbor Dam

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 1	1	19	1	0	1
April 2	1	10	1	0	0

Research: Installation of the fish release pipe, for the spillbay 2 direct fish injury and survival study, occurred on March 19 and 20, with final adjustment occurring on March 30. Transducers were mounted on the STS frame in gatewell slot 1 B on March 26 for the turbine intake fish distribution study

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: March 27 – April 2, 2015

Turbine Operation

The units are being operated in soft constraint of the 1% operation criteria. Unit 1 was removed from service on December 10, 2014 for unit rehabilitation with an estimated return to service date of January 12, 2017. Unit 4 was out of service from 1751 on March 31 until 1235 on April 1 to replace defective STS in gatewell 4A.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on March 27, 28, 30 and April 1.

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

Fishway Entrances and Collection Channel: NSE1 and NSE2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections with the exception of NSE2 on April 1 with a reading of 7.7 feet. The electronic control's setpoints were changed to resolve the issue. North shore channel/tailwater head was in criteria (1'-2') on all inspections.

SPE1 and SPE2 weir gates were in depth or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, both gate depth readings were 7.4 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

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

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 93 square yards of forebay debris observed during this period. Gatewell debris in gatewells 2C, 3A, 3B, 3C and 4C was above the 50% trigger point for removal on April 1. Gatewells were dipped on April 2.
No oil was observed in gatewells.

STSs/VBSs: The STSs were inspected via rotation on deck on March 18. Unit 1 STSs were deployed on March 23. Units 5 and 6 STSs were deployed on March 30. Units 2, 3 and 4 STSs were deployed on March 31. An STS deployed in gatewell 4A failed start up at 1751 hours on March 31 and was replaced with another STS at 1235 hours on April 1. All STSs are operating in cycle run mode.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was watered up on March 24 using the 6 orifices in unit 1. On March 31 at 1645 hours, the remaining gatewell orifice requirements were met. Presently, 18 orifices are open. Debris blockages were observed at orifices 15, 17 and 25 on April 1. Operators promptly back flushed them to clear obstructions.

Collection Facility: The facility was watered up for testing on March 25. Collection for fish condition sampling will begin on April 3.

Transport Summary: Transport is not occurring at this time.

River Conditions

Routine spill in support of fish passage is scheduled to begin April 3. River conditions during the week are outlined in Table 1 below.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (^{o}F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
67.6	53.6	0.0	0.0	49	48	3.4	2.1

*Scrollcase temperatures.

Other

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

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

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

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

Project: Little Goose
Biologist: Richard Weis
Dates: March 27 – April 2, 2015

Turbine Operation

All turbine units were available for service throughout this report period. Units 1 and 2 were out of service from 0700 to 1700 hours in support of dive operations and debris removal in front of the trash racks. Hard constraint 1% peak efficiency criteria went into effect on April 1. No violations were seen on April 1 or 2.

Adult Fish Passage Facility

Adult fishway inspections were performed on March 30 and April 01.

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

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.0 and 1.5 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 9.0 feet (criteria ≥ 8.0 ft). NPE weir depths ranged between 7.4 and 7.6 feet (criteria ≥7.0 ft. or on sill). NSE weir depths ranged between 6.8 and 7.0 feet (criteria ≥ 6.0 ft.). Collection channel surface water velocities measured at the North powerhouse ranged between 1.9 and 2.1 fps (criteria 1.5 to 4.0 fps). The monthly water velocity measured at the north powerhouse using the Rickly velocity equipment measured 1 foot from bottom, mid depth and surface averaged 2.6fps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. Fish pump 1 is waiting on parts. Fish Pump 3 is having problems with overheating and oil leaks.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: The trash/shear boom is currently still on shore. Efforts are underway to have it repaired. Woody debris in the immediate forebay was estimated between 1,200 to 3,000 square feet. All ESBSs are deployed and gatewells are clean and free of oil.

Spillway Weir: The spillway weir was placed back in service April 2 at 1530 hours in the High Crest position.

ESBS/VBS: All ESBSs are deployed and the gatewells are clean. Drawdown measurements are scheduled for this week.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system was placed back into service March 24. There are 21 open orifices.

Transportation Facility: The transportation facility was watered up on March 31.

Transport Summary: Collection for fish transport will begin May 1.

River Conditions

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

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
67.2	56.2	0	2.7	48.8	48.2	3.4	2.2

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not checked this week.

Invasive Species: The zebra mussel substrate monitor was inspected on April 2. No zebra mussels were detected.

Avian Activity: Bird counts and hazing resumed on April 01. See below Table 2 below for a summary of bird counts.

Table 2. Daily maximum tailrace piscivorous bird counts at Little Goose Dam.

Date	Time (hours)	Gulls	Cormorants	Terns	Pelicans
March 27	---	---	---	---	---
March 28	---	---	---	---	---
March 29	---	---	---	---	---
March 30	---	---	---	---	---
March 31	---	---	---	---	---
April 1	1130	9	20	0	0
April 2	1248	4	9	0	0

Bird counts are taken from a single observation, forebay and tailrace.

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: March 27 – April 2, 2015

Turbine Operation

Units began operating under the hard constraint 1% criteria on April 1. Unit 3 was forced out of service from 1022 hours April 1 through 1235 hours April 2 due excessive amperage overloading the ESBS cleaner in slot 3C.

Adult Fish Passage Facility

The fish ladder was inspected by Corps biologists on March 27, 28, 29 and 30.

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

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria on all inspections (criteria ≥8' or on sill) with the exception of the March 30 inspection when both gates had a depth of 7.9 feet. South shore channel/tailwater head was in criteria (criteria 1'-2') on all inspections.

NPE1 and NPE2 weir gates were in depth or sill criteria (criteria ≥8' or on sill) on all inspections. While on sill, the weir gate depths were 7.6 and 7.5 feet. The North powerhouse channel/tailwater head differential was out of criteria (criteria 1'-2') on all inspections with readings of 0.8', 0.8', 0.9', and 0.8 feet.

NSE1and NSE2 were out of criteria (criteria ≥7' or on sill) on all inspections. NSE1 had gate depth readings of 4.3', 4.5', 4.1', and 4.1 feet. On April 2 facility staff determined that the NSE1 elevation would not lower past 631.2 feet. The problem is likely due to an obstruction in the entrance gate guides. An ROV observation was attempted but was unsuccessful due to flow at the entrance. Raising the gate to flush the obstruction was also unsuccessful. NSE2 gate depth readings were 6.0', 6.0', 5.6', and 5.6 feet. The North shore channel/tailwater head differential was also out of criteria (criteria 1'-2') on all inspections with differential readings of 0.4', 0.6', 0.6', and 0.3 feet. NSE2 has been out of service since the 2011 passage season and is suspended with a non-adjusting hoist system at an elevation of 630.0 feet. This gate requires a complete rehabilitation and will remain out of service until funding is available. Entrance weir depths are being sacrificed in an attempt to maintain channel/tailwater head differential.

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

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris quantities varied due to wind strength and direction. Daily gatewell surfaces inspections continue with floating debris being removed with a hand basket to prevent orifice blockages. No oil was reported in gatewell slots.

ESBSs/VBSs: ESBSs cleaning brushes are set to cycle every two hours. The John Day ESBS in slot 3C was replaced with the Lower Granite spare ESBS April 2 due to an amperage overload tripping the screen cleaner breaker. The John Day ESBS is undergoing repair. Video inspections are scheduled for April 24 - 25.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock. Debris levels were light.

Collection Facility: The juvenile collection facility is collecting for fish condition sampling in secondary bypass mode.

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

River Conditions

Per the 2015 Fish Operations Plan (FOP); normal spring spill of 20 KCFS began April 3 at 0001 hours. River conditions during the week are outlined in Table 1 below.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (F^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
69.3	59.5	0.0	0.0	48.0	47.0	3.8	1.7

*Cooling water intake temperature.

Other

Daytime visual counts in the adult fish ladder counting room from 0400 to 2000 hours began April 1.

Inline Cooling Water Strainers: Unit cooling water strainers were last inspected on March 26. The next inspections are scheduled for late April.

Invasive Species: The first inspection of the zebra/quagga mussel observation station will occur April 4.

Avian Activity: Hazing activities began April 1. Piscivorous bird counts began March 26 with observations being taken from the juvenile fish separator platform one hour after sunrise and one hour before sunset. Maximum piscivorous bird counts are summarized in Table 2.

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

Date	Time (hours)	Gulls	Cormorants	Terns
March 27	1810	5	0	0
March 28	1810	5	0	0
March 29	1800	13	0	0
March 30	1820	15	0	0
March 31	0730	20	0	0
April 1	0730	15	0	0
April 2	0730	20	0	0

Adult Fish Trap Operations: The adult fish trap is operating at a sample rate of 11% Monday through Friday with an average weekly sample rate of 8%.

Fish Rescue Operation: No fish rescue occurred this week.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: This study aims to enumerate and characterize natural production of yearling Chinook and juvenile steelhead above LGR with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday through mid June with a goal of collecting 2,000-5,000 genetic samples from yearling Chinook and juvenile steelhead.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study: NPT began steelhead kelt collection March 29. This research project investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. NPT will transport up to 150 kelts to Dworshak National Fish Hatchery as part of this study.