U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#12-2015

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: May 15 - 21, 2015

Turbine Operation

McNary had 13 of 14 units available for power generation. The hard 1 percent constraint continued. No turbine units ran outside the constraint. Turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
12	Feb 8 – Aug 1	About 6 months.	Rewind contract.
8, 9 & 10	May 19	62 minutes total.	Extended-length submersible bar screen (ESBS) camera inspections.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on May 16, 18 and 20. The National Oceanic and Atmospheric Administration (NOAA) Fisheries biologist conducted their monthly inspection on May 20. Visual adult fish counts continued. This week, ladder entrances visual checks were added to the fisheries technicians duties.

Fish Ladder Exits: Both ladder exits met all Fish Passage Plan (FPP) criteria. Debris loads in the area of the exits were generally minimal. Brief light debris influxes occurred along the Oregon shore when northeast winds occur.

At the Washington ladder exit, the operators adjusted the regulating weir set point on May 16.

At the Oregon ladder exit, the operators adjusted the regulating weir set point on May 18 and 20. The biologist found the north traveling screen in bypass mode on May 16. The operators immediately returned the screen to automatic operation. The screen had been in bypass since May 13 when mechanical maintenance occurred. On May 16, the north screen differential readings were the same as the south screen readings, which were minimal.

Fishway Entrances and Collection Channel: All entrance inspection points met criteria. The electrical staff had the Oregon ladder north powerhouse entrance weirs, NFEW2 and NFEW3, in manual mode from 0645 to 1559 hours on May 20 while replacing transducers.

Collection channel surface velocities averaged 2.1 feet per second.

Auxiliary Water Supply System: The Wasco County Public Utility District (PUD) turbine unit in the Washington ladder had one interruption in service. The turbine unit was out of service from 1206 to 1247 hours on May 21 during a fire alarm test. The bypass system functioned properly.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 30 degrees. Pump 2 is currently under contract for major overhaul. The repairs should be completed by September, 2015.

The juvenile facility continued to supply 450 cubic feet per second to the north powerhouse pool.

Juvenile Fish Passage Facility

The fish passage season consists of alternating days of primary and secondary bypass modes. The switch occurs every morning at 0700 hours. There were no deviations in the schedule. Secondary bypass occurred on May 16, 18 and 20. This week, 800 juvenile lamprey and 204,103 smolts were bypassed.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load remained light and generally centered on the powerhouse except when northeast winds would temporarily move it toward the Oregon shore. Incoming debris was very light. No high trash rack differentials were recorded and no trash racks were cleaned. No problems were observed in the gatewell slots.

ESBSs/VBSs: All operational turbine units have ESBSs installed. Screens were not installed at unit 12 as this unit is out of service. ESBS camera inspections at units 8 through 10 revealed no problems on May 19.

Rehabilitation of vertical barrier screens (VBSs) continued. No high VBS differentials were recorded. The VBSs in slots 1A, 1B, 5B, 6B, 7A and 7B were cleaned on May 20 and 21. The fisheries staff observed two smolt mortalities. The general maintenance staff inspected the screens in units 10, 11, 13 and 14 along with the screen in slot 9C on May 18 and 19. The fisheries technician observed one smolt mortality.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS cleaning and inspection, orifices in the affected slots were closed with makeup water coming from orifices in adjacent slots. All systems functioned satisfactorily in automatic mode.

Bypass Facility: During the bypass season, primary and secondary bypass modes return all fish are to the river. Passive integrated transponder (PIT) tag detection occurs in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring occurs only on secondary bypass days.

The sample gates are turned on and off every other day so that they are in service only during secondary bypass. The gates and all operational systems functioned well. The PIT tag sample gates remained turned off. The facility bypass lines provide a superior route for the fish over the PIT tag sample release lines downstream of the PIT tag sample gates. Pacific State Marine Fish Commission (PSMFC) maintenance staff continued their weekly checks of the PIT tag detection system. The A and B side flume bypass gates remain off and open for secondary bypass.

River Conditions

River conditions during the week are outlined in Table 2 below as provided by the smolt monitoring staff. The data period runs from 0700 to 0700 hours each day. Flows and spill are recorded in one-thousand cubic feet per second. Temperature is recorded in degrees Fahrenheit. Routine spring spill in support of fish passage continued with both top spillway weirs (TSWs) opened. Forty percent of river flow is spilled in the spring season. The spill pattern was altered for navigation as required.

Table 2. River conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
207.2	171.0	83.7	68.2	58.3	55.7	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next in line cooling water strainer examinations will occur on June 2.

Invasive Species: The next zebra mussel station examinations will occur on May 22.

Avian Activity: Grebes were observed in the forebay along with an occasional gull, gull flock, cormorant or an osprey. Gulls, pelicans and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay zone. No grebes were observed in the gatewell slots or in the juvenile bypass system. Forebay area hazing does not occur during tailwater area boat hazing. The lack of consistent hazing has allowed the grebes to establish themselves closer to the intake deck. United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) has been asked to increase grebe hazing.

Gulls were observed in the tailwater area feeding at the southern edge of the spillway flow along with an occasional cormorant or pelican. Gulls and an occasional cormorant or pelican were noted feeding at the juvenile bypass outfall. This week, we noted gulls roosting on the outfall pipe walkway handrail. The fisheries staff will install bird wire on the handrail next week.

Bird hazing distress calls remain deployed around the project and the bird hazing water cannon continued to function satisfactorily. The fisheries mechanics continued to monitor the water cannon supply pump and found no new issues.

USDA–APHIS–WS personnel continued bird hazing at the project. A second shift and boat hazing continued. The boat will be used on Monday, Wednesday and Friday each week. Limited lethal take of gulls and cormorants continued. Avian counts are recorded in Table 4 below.

Table 4. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
May 15	Forebay	0	0	0	1	0
	Spill	32	4	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	2	0	0	0	0
May 16	Forebay	5	0	0	0	8
	Spill	95	3	0	4	0
	Powerhouse	0	0	0	0	0
	Outfall	11	0	0	2	0
May 17	Forebay	1	0	0	1	13
	Spill	92	3	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	8	1	0	1	0
May 18	Forebay	1	0	0	0	24
	Spill	101	1	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
May 19	Forebay	0	0	0	0	14
	Spill	90	0	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	23	3	0	0	0
May 20	Forebay	3	0	0	0	27
	Spill	65	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	4	0	0	0	0
May 21	Forebay	0	0	0	0	25
	Spill	66	0	0	4	0
	Powerhouse	0	0	0	0	0
	Outfall	6	0	0	0	0

Research: Gas bubble trauma (GBT) examinations continued. Preparations for the adult lamprey passage study continued.

Project: Ice Harbor
Biologist: Ken Fone
Dates: May 15 - 21, 2015

Turbine Operation

Units were taken out of service one at a time for STS inspections on May 19 and 21. Units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on May 18, 20, and 21.

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.

Fishway Entrances and Collection Channel: The south shore entrance (SFE) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

The south shore channel velocity was in criteria on all inspections. 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. North shore pump 3 was taken out of service at 0846 hours on April 22 to replace the pre-lubrication pump. Six of the eight south shore AWS pumps were operated.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was no surface debris observed in the forebay. There was little to no surface debris coverage in the gatewells.

STSs/VBSs: Inspection of each unit's STSs occurred on May 19 and 21. Inspection of unit 3 VBSs and slot 1A VBS also occurred. No screen problems were observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The bypass is operating with 20 orifices open. Orifices were routinely cycled and back-flushed three times per day.

Juvenile Fish Facility: Fish are being routed through the bypass, except when sampling operations are occurring.

Fish Sampling: Sampling days continue to alternate from Mondays and Wednesdays, to Tuesdays and Thursdays, each week. Sampling occurred on May 18 and 20. Sampling results are outlined in Table 1 below. The descaling rate was 7% and 5% on May 18 and May 20, respectively, which was a slight decrease from last week. Fish facility personnel will continue to inspect fish passage routes for possible causes of descaling.

Removable Spillway Weir (RSW): Mandated spill for fish passage began on April 3. The RSW is in operation.

Table 1. Fish condition sampling results at Ice Harbor Dam.

May 18:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	11	1	0	0
UC-CH	3	2	0	0
C-CH-O	0	---	---	---
UC-CH-O	11	1	0	0
C-SH	67	3	0	5
UC-SH	20	2	0	2
C-COHO	0	---	---	---
UC-COHO	7	0	0	0
C-SOCK	2	0	0	0
UC-SOCK	1	0	0	0
TOTAL	122	9	0	7

May 20:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	10	1	0	0
UC-CH	8	0	0	0
C-CH-O	0	---	---	---
UC-CH-O	24	0	0	0
C-SH	51	2	0	6
UC-SH	29	4	1	0
C-COHO	0	---	---	---
UC-COHO	8	0	0	0
C-SOCK	2	0	0	0
UC-SOCK	0	---	---	---
TOTAL	132	7	1	6

River Conditions

River conditions during the week are outlined in Table 2 below.

Table 2. 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
73.5	55.5	53.9	16.7	57	55	6.4	5.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on May 19 and 21. The fish (all mortalities) found were 7 juvenile steelhead, 2 juvenile lamprey, approximately 74 Siberian prawns, and 1 juvenile walleye.

Invasive Species: No new exotic species have been found.

Avian Activity: Daily total bird numbers observed this week (Table 3) fluctuated up and down, but overall were similar to what was observed last week. Contracted land-based hazing of piscivorous birds occurred for 16 hours per day. Additionally, concurrent boat-based hazing took place for 8 hours per day, 5 days per week. The hazing program has been effective at pushing birds away from the dam.

Table 3. Daily maximum piscivorous bird counts at Ice Harbor Dam

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 15	7	23	0	0	8
May 16	34	23	0	0	24
May 17	30	32	0	0	31
May 18	18	38	2	0	1
May 19	11	54	0	0	10
May 20	9	19	0	0	8
May 21	3	44	0	0	42

Research: Hydroaccoustic transducers mounted on the STS frame in gatewell slot 1B, and on 1B trash rack, are collecting data for the turbine intake fish distribution study.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: May 15 - 21, 2015

Turbine Operation

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

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on May 15, 16, 17 and 20.

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

Fishway Entrances and Collection Channel: NSE1 and NSE2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections. North shore channel/tailwater head was in criteria (1'-2') on all inspections.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, both gate depth readings ranged from 5.8 to 6.8 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, gate depth readings ranged from 6.1 to 7.3 feet. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections.

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 27.25 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-15% surface coverage. No problems observed in gatewells.

STSs/VBSs: STSs are operating in continuous-run mode due to average sub-yearling Chinook and sockeye length being less than 120 mm. STS inspections were conducted May 5 and 6 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was operated with 18 orifices open.

Collection Facility: Collection for transport began at 0700 hours on May 1. No problems occurred with the facility this week.

Transport Summary: Every-day barging began on May 2.

River Conditions

Spring spill operation was initiated at 0001 hours on April 3. Spill was either halted or limited during barge docking and loading operations. 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
72.2	56.4	26.6	24.3	59.0	56.0	4.8	3.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 6. There were no live fish recovered. Mortalities included 12 salmon smolts and 1 Siberian prawn.

Invasive Species: No zebra mussels were observed at the monitoring stations on May 3.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2 below. Gulls were the dominant species observed during inspections this week. Hazing met the standard from the avian action plan through this time period.

Table 2. Lower Monumental Dam Tailrace Counts of Foraging Piscivorous Birds.

Date	Time (hours)	Gulls	Cormorants	Terns	Pelicans
May 15	1100	0	0	0	0
May 16	1100	14	0	0	0
May 17	1100	0	0	0	0
May 18	1100	0	0	0	0
May 19	1100	2	0	0	0
May 20	1100	2	0	0	0
May 21	1110	0	0	0	0

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

Project: Little Goose
Biologist: Richard Weis
Dates: May 15 - 21, 2015

Turbine Operation

All turbine units were available for service throughout this report period. Hard 1% peak efficiency constraint criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on May 15, 18 and 21.

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

Fishway Entrances and Collection Channel: The Adult Fishway system is in manual mode. RJS (vendor) was here on May 20 to update hardware and software. We are getting incorrect gate elevation readings when the gate is in the lower quarter of the fish channel. Channel to tailwater head differentials ranged between 1.1 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 7.8 and 8.4 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 5.8 and 6.1 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 5.2 and 6.7 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 2.0 and 2.5 fps (criteria 1.5 to 4.0 fps). The monthly April 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. The fish pump 1 gear box was rebuilt and is waiting on parts necessary to place the rebuilt gear box into position.

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 accumulations in the immediate forebay remained steady at 0 square feet.

Spillway Weir: The spillway weir is operating in the High Crest position.

ESBS/VBS: ESBSs are all deployed and gatewells are clean. Drawdowns were performed on units 1, 2 and 3 on May 21. All measurements met criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system is running with 21 open orifices.

Transportation Facility: The JFF is currently sampling every day. GBT (Gas Bubble Trauma) sampling was performed on May 18. No signs of GBT were seen.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 287,903 fish were collected for transport. The descaling and mortality rates were 1.7% and 0.02% respectively. This weekly report period saw 3 adult lamprey removed from sample and released upstream at Little Goose Landing.

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
69.6	54.7	21.2	16.7	60.6	55.6	5.5	4.2

*Ladder temperature.

Other

Invasive Species: The zebra mussel substrate monitor was inspected on May 08. No zebra mussels were detected.

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

Avian Activity: Bird counting and hazing resumed on April 01. See chart below for details.

Table 2. Little Goose Dam Tailrace Counts of Foraging Piscivorous Birds.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
May 15	0830	90	0	0	5
May 16	0800	110	5	0	0
May 17	0800	115	6	0	2
May 18	1300	311	17	0	1
May 19	1330	148	2	0	3
May 20	1330	216	0	0	4
May 21	1315	189	2	0	1

*Bird counts are taken from a single observation, Forebay and Tailrace.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: May 15 - 21, 2015

Turbine Operation

Units are operating within the hard 1% constraint criteria. Unit 3 returned to service at 1014 hours May 19 following the resolution of upper guide bearing temperature relay issues. Unit 5 was out of service from 0730 until 1127 hours May 20 for slip ring cleaning.

Adult Fish Passage Facility

The adult fishway was inspected by Corps or Blue Leaf Environmental biologists on May 15, 16, 17, 19, and 20.

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

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

NPE1 and NPE2 weir gates were in sill criteria (criteria ≥8' or on sill) on all inspections. While on sill the weir gate depth readings were 5.3', 5.8', 5.8', 5.4', and 5.8 feet. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NSE1 remains in the closed position. NSE2 is set with a chain fall hoist at 626.0 feet. NSE2 was in depth criteria (criteria ≥7' or on sill) on all inspections. North shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

The collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 1.0 - 1.2 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. Pump 2 is out of service following lower guide bearing repairs and is scheduled for testing May 27.

Juvenile Fish Passage Facility

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

ESBSs/VBSs: Video inspections are scheduled for late May.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours.

Collection Facility: Collection for transport continues.

Transport Summary: Every day barge transport is occurring. The final everyday transport barge is scheduled to depart Lower Granite May 22.

River Conditions

Routine Spring spill in support of fish passage is in progress.

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
71.5	56.3	20.5	20.2	56.0	55.0	5.0+	4.4

*Cooling water intake temperature.

Other

GBT: PSMFC personnel conducted gas bubble trauma (GBT) examinations on May 21.

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

Invasive Species: No evidence of zebra/quagga mussel was observed May 3.

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 below.

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

Date	Time (hours)	Gulls	Cormorants	Terns
May 15	0630	0	0	0
May 16	0630	2	0	0
May 17	0615	2	0	0
May 18	0615	1	0	0
May 19	0615	0	0	0
May 20	0615	4	0	0
May 21	0615	3	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 rescues 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.

National Marine Fisheries Service (NMFS) In-River Survival: NMFS staff has begun PIT-tagging Chinook and steelhead smolts for their Survival Study to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LGR tailrace.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The specific goals are to characterize the migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2014 in natal streams and are diverted to the Sort-By-Code tanks at LGR.