

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#02-2017**

**Project: McNary**

Biologists: Bobby Johnson and Denise Griffith

Dates: March 3 - 9, 2017

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**Turbine Operation**

General Comments: None.

Yes   No   Turbine Unit Status

- All 14 turbine units available for service throughout the week (see Table 1 for outage details below).  
      All turbine units operated within 1% peak efficiency constraint. Constraint in effect:  Hard  Soft.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
13	Oct 3 to Mar 30	6 month	Thrust bearing issue.

**Adult Fish Passage Facilities**

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on March 6, 8 and 9. Video review fish counts continue. The fisheries staff performed scheduled maintenance on PIT (passive integrated transponder) tag station heat pumps in both ladders.

Fish Ladder Exits:

Yes   No   Location, Criteria and Measurements

- Oregon Exit (Criteria – Head over weir 1.0’ to 1.3’)  
      Oregon Count Station Differential (Criteria – Differential 0.0’ to 0.5’)  
      Washington Exit (Criteria – Head over weir 1.0’ to 1.3’): 1.4’ on March 1.  
      Washington Count Station Differential (Criteria – Differential 0.0’ to 0.5’)

Comments: Debris loads were light at both exits. At the Oregon exit, regulating and tilting weir set points were adjusted on March 6. At the Washington exit, the trash rack was cleaned multiple times during the week. The regulating weir set point was adjusted on March 6. In addition, the picket lead hoist bridge motor, which failed on March 5, was repaired on March 6.

Fishway Entrances and Collection Channel:

Criteria Met?

<u>Yes</u>	<u>No</u>	<u>Location, Criteria and Measurements</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	North Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NFEW2 Weir Depth (Criteria – $\geq 8.0'$ ): 7.7’ to 7.9’ all week.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NFEW3 Weir Depth (Criteria – $\geq 8.0'$ ): 7.8’ all week.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	South Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	SFEW1 Weir Depth (Criteria – $\geq 8.0'$ ): 7.8’ on March 8.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	SFEW2 Weir Depth (Criteria – $\geq 8.0'$ ): 7.8’ on March 8.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 2.1 fps.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington Entrance Head Differential (Criteria – 1.0’ to 2.0’)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WFE2 Weir Depth (Criteria – $\geq 8.0'$ )
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WFE3 Weir Depth (Criteria – $\geq 8.0'$ )

Comments: The Oregon ladder out of criteria points could possibly be explained by the lack of supplementation water at the North Powerhouse Entrance (NFEW 2 & 3) from the JBS (juvenile bypass system). The JBS is not yet in service.

Auxiliary Water Supply System:

<u>Yes</u>	<u>No</u>	<u>In Service?</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Washington shore Wasco County PUD Turbine Unit: Return to service date is March 10.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington shore Wasco PUD Bypass: Operated satisfactorily.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 1: Blade angle was 23 to 24 degrees.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Oregon Ladder Fish Pump 2: Return to service date is June 15.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 3: Blade angle was 24 degrees.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Oregon North Powerhouse Pool supply from juvenile fishway: Return to service date is March 28.

Comments: The Oregon ladder fish pumps had five interruptions in service this week (see Table 2 for outage details below). Pool differentials dropped below 1.0 feet during these outages.

Table 2. Fish Pump Outages

Pump	Date	Length	Time	Reason
1	Mar 6	9 minutes	1615 to 1624	Tripped during electrical bus test.
3	Mar 6	12 minutes	1615 to 1627	Tripped during electrical bus test.
1	Mar 7	10 minutes	1421 to 1431	Tripped during fish pump 2 electrical testing, this circuit ties into all three pumps.
1	Mar 8	1.5 hours	0800 to 0927	Tripped during electrical bus switching.
3	Mar 8	24 minutes	0903 to 0927	Tripped during electrical bus switching.

**Juvenile Fish Passage Facility**

General Comments: The winter maintenance season continues.

Forebay Debris/Gatewell Debris/Oil:

Yes   No   Item

- Forebay debris load acceptable? Although the debris load is currently acceptable, removal is prudent.
- Trash rack differentials measured? If so, were differentials acceptable?  Yes for now.    No    N/A.
- Any debris seen in gatewells?
- Any oil seen in gatewells?

Comments: Heavy forebay debris loads remain. The debris will be removed from March 21 to March 23. The highest trash rack differential was 1.9 feet in slots 3A and 3B on March 9 with the unit operating at 80 megawatts. Trash racks will be cleaned from March 27 to March 29.

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

Yes   No   Item

- ESBSs deployed in all slots and in service?
- ESBSs inspected this week? If so, were results acceptable?    Yes    No    N/A
- VBSs differentials checked this week? If so, were results acceptable?    Yes    No    N/A

Comments: ESBS maintenance continues. ESBS deployments are scheduled to begin April 5. VBS differential monitoring will begin at that time.

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

Yes   No   Item

- Orifices operating satisfactory? How many are in service? Closed for maintenance.
- Dewaterer and cleaning systems operating satisfactory? Out of service for maintenance.

Comments: Collection channel remains out of service for winter maintenance.

**Bypass Facility:** The facility remains out of service for winter maintenance. The section of the B side secondary bypass line which had blockage issues last year, was not replaced. The B side direct barge loading gate section was replaced during the winter of 2014 to 2015. The polyvinyl chloride (PVC) pipe upstream of this section is schedule 40 and the PVC pipe downstream of the loading gate section is schedule 80. The best way to resolve the debris blockage issue was to remove the pipe section(s) and refinish the joints, which was done. The separator observation building doors were also rehabilitated this week.

**River Conditions**

General Comments: River conditions were provided by the McNary control room and are outlined in Table 3 below. The data period runs from 0000 to 2400 hours each day. Flows and spill are recorded in one-thousand cubic feet per second. Temperatures are recorded in degrees Fahrenheit.

Table 3. 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
252.9	223.4	49.7	12.3	39.0	38.0	3.3	2.5

Comments: Spill in excess of powerhouse capacity occurred all week.

### **Other**

Inline Cooling Water Strainers: Fish recovered from the inspections on March 7 included 12 live juvenile lamprey and 282 juvenile lamprey mortalities.

Invasive Species: Mussel stations will be examined in late March.

Avian Activity: Blue herons, gulls and cormorants were noted this week. Avian counts will resume in early April.

Fish Salvage/Rescue: No fish rescues occurred this week.

### **Research**

Item: No onsite research is occurring at this time.

**Project: Ice Harbor**  
Biologists: Ken Fone  
Dates: March 3 - 9, 2017

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### **Turbine Operation**

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).  
  Available turbine units operated within 1% peak efficiency constraint. Constraint in effect:  Hard  Soft.

Comments: Unit 5 was taken out of service on March 14, 2016, at 1117 hours, due to an oil leak from the blade packing. The packing was replaced and the blades were welded in place to fix the leak. The unit was returned to service at 1711 hours on March 2, 2017. Unit 2 was taken out of service on April 25, 2016, at 0606 hours for the runner replacement. Unit 3 was routinely operated slightly below the 1% peak operating efficiency range during the reporting period, due to the GDACS (Generic Data Acquisition Control System) program needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

### **Adult Fish Passage Facilities**

Fish facility personnel inspected the adult fishways on March 2.

Fish Ladders:

Yes No Location, Criteria and Measurements

- North Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  North Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.3')  
  North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')  
  South Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  South Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.3')  
  South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')

Comments: The water surface above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily. The picketed leads will remain raised out of the water until the start of fish counting.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SFE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
  South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
  South Shore Channel Velocity (Criteria: 1.5 – 4.0 fps)  
   North Powerhouse Entrance (NFE-2) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
  North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   North Shore Entrance (NSE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
  North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

Comments: The south shore entrance weir depth was out of criteria with a reading of 6.8', due to the weir being in manual control. The weir was switched to automatic control to fix the problem.

Auxiliary Water Supply (AWS) System:

Yes   No   In Service and Operating Satisfactory?

- South Shore AWS Pumps. Six of the eight south shore AWS pumps are in service.  
      North Shore AWS Pumps. Two of the three north shore AWS pumps are in service.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes   No   Item

- Forebay debris load acceptable? Approximately 100 square yards of debris was observed.  
      Trash rack differentials measured this week? If so, were differentials acceptable?  Yes  No  N/A.  
      Any debris seen in gatewells (i.e: over 10% coverage)?  
      Any oil seen in gatewells?

Comments: The STSs stored in the gatewell slots obscure the view and prevent accurate estimations of gatewell debris coverage.

STSs/VBSs:

Yes   No   Item

- STSs deployed in all slots and in service?  
      STSs in continuous-run mode (If not, then STSs are in cycle-run mode)? N/A  
      STSs inspected this week? If so, were results acceptable?  Yes  No  N/A  
      VBSs differentials checked this week? If so, were results acceptable?  Yes  No  N/A

Comments: The STSs are raised out of the water and stored in their gatewell slots for annual maintenance.

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

Yes   No   Item

- Orifices operating satisfactory? How many are open and in service? 0.  
      Dewaterer and cleaning systems operating satisfactory? N/A

Comments: The juvenile fish bypass is unwatered for annual maintenance.

Juvenile Fish Facility: The fish facility is unwatered for annual maintenance.

Fish Sampling: Sampling operations are scheduled to begin the week of April 2.

Removable Spillway Weir (RSW): Spill for fish passage is scheduled to begin 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* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
75.7	72.1	16.6	8.6	39	39	1.7	1.7

\*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections will take place later in March.

Invasive Species: No new exotic species have been found.

Avian Activity: There were very few piscivorous birds seen around the project.

Research: No on-site research is occurring at this time.

**Project: Lower Monumental**

Biologists: Chuck Barnes and Raymond Addis

Dates: March 3 - 9, 2017

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**Turbine Operation**

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).  
  Available turbine units operated within 1% peak efficiency constraint. Constraint in effect:  Hard  Soft.

Comments: Unit 1 was removed from service on December 10, 2014 for unit rehabilitation with an estimated return to service date of September 1, 2017. Unit 5 was removed from service on January 17, 2017 due to a turbine oil leak with an estimated return to service of July 30, 2017.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on March 06 and 08.

Fish Ladders:

Yes No Location, Criteria and Measurements

- North Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  North Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.4')  
  North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')  
  South Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  South Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.3')  
  South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')

Comments: None.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- North Shore Entrance (NSE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   North Shore Entrance (NSE-2) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   South Powerhouse Entrance (SPE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   South Powerhouse Entrance (SPE-2) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   South Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   South Shore Entrance (SSE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   South Shore Entrance (SSE-2) Weir Depth (Criteria:  $\geq$  6.0' or on sill)  
   South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

Comments: SPE1 and SPE2 had readings of 7.4 feet and SSE1 had a reading of 7.5 feet on March 8. This was caused by wrong settings of the automated system and this was fixed the same day. SSE2 had readings of 5.8' on March 6. SSE2 had drifted off the 437.0' elevation setting and was returned to 437.0' elevation the same day.



Auxiliary Water Supply System:

<u>Yes</u>	<u>No</u>	<u>In Service and Operating Satisfactory?</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS Fish Pump 1.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS Fish Pump 2.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS Fish Pump 3.

Comments: Pump 1 will remain out of service throughout this season unless an emergency occurs.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forebay debris load acceptable? No debris observed.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Trash rack differentials measured this week? If so, were differentials acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any debris seen in gatewells? (STS's hanging over gatewells)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any oil seen in gatewells? (STS's hanging over gatewells)

STSs/VBSs:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	STSs deployed in all slots and in service?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	STSs inspected this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	VBSs differentials checked this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Comments: STSs were still in their storage positions on top of the gatewells during these report period, making visual gatewell observations unfeasible. STSs are scheduled to be inspected on the deck during the week of March 13 and deployed during the week of March 20.

Orifices, Collection Channel, Dewatering Structure, and Flume:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input type="checkbox"/>	<input type="checkbox"/>	Orifices operating satisfactory? How many are open and in service? 0.
<input type="checkbox"/>	<input type="checkbox"/>	Dewaterer and cleaning systems operating satisfactory? N/A.

Comments: The collection channel is scheduled to be watered up the week of March 20.

Collection Facility: The facility is in winter maintenance mode.

Transport Summary: Fish transport is not occurring at this time.

## River Conditions

General Comments: None.

Table 1. 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
100.0	67.1	15.8	0.0	40.0	40.0	3.8	2.8

\*Scrollcase temperatures.

### Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 7. Live fish recoveries included 10 juvenile lamprey. Mortalities included approximately 1100 juvenile lamprey and 1 banded killifish .

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 1.

Avian Activity: No piscivorous bird species were observed during fish ladder inspections this week.

Table 2. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans

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

**Project: Little Goose**

Biologists: Scott St. John and Richard Weis

Dates: March 3 - 9, 2017

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**Turbine Operation**

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).  
  Available turbine units operated within 1% peak efficiency constraint. Constraint in effect:  Hard  Soft.

Comments: All turbine units were available for service throughout this report period. Soft constraints of 1% peak efficiency criteria are in effect.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on March 07, 08 and 09.

Fish Ladder: No comments.

Yes No Location, Criteria and Measurements

- Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.3')  
  Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')  
  Emergency Ladder Exit Cooling Water Pumps in Service  
  Emergency Ladder Exit Cooling Water Pumps Operating Satisfactorily.

Comments: No comments.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SSE-1) Weir Depth (Criteria:  $\geq$  8.0')  
   South Shore Entrance (SSE-2) Weir Depth (Criteria:  $\geq$  8.0')  
   South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   North Powerhouse Entrance (NPE-1) Weir Depth (Criteria:  $\geq$  7.0' or on sill)  
   North Powerhouse Entrance (NPE-2) Weir Depth (Criteria:  $\geq$  7.0' or on sill)  
   North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   North Shore Entrance (NSE-1) Weir Depth (Criteria:  $\geq$  6.0' or on sill)  
   North Shore Entrance (NSE-2) Weir Depth (Criteria:  $\geq$  6.0' or on sill)  
   North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   Collection Channel Surface Velocity (Criteria: 1.5 – 4.0 fps)

Comments: No comments.

Auxiliary Water Supply System:

- | <u>Yes</u>                          | <u>No</u>                | <u>In Service and Operating Satisfactory?</u> |
|-------------------------------------|--------------------------|-----------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 1 (operating).                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 2 (operating).                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 3 (operating).                  |

Comments: No comments.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

- | <u>Yes</u>                          | <u>No</u>                           | <u>Item</u>                                                                                                                                                                          |
|-------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Forebay debris load acceptable? Lots of floating woody debris in forebay.                                                                                                            |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Trash rack differentials measured this week? If so, were differentials acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A. |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Any debris seen in gatewells (i.e: over 10% coverage)?                                                                                                                               |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Any oil seen in gatewells?                                                                                                                                                           |

Comments: ESBS screens are raised and one cannot see into gatewells at this time. There is an estimated 8,000 to 15,000 square feet of floating woody debris is currently in the forebay. Trash raking was last completed on February 13 and is scheduled to take place again on May 8 and 9.

Spillway Weir: N/A

ESBS/VBS:

- | <u>Yes</u>               | <u>No</u>                           | <u>Item</u>                                                                                                                                                            |
|--------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | ESBSs deployed in all slots and in service?                                                                                                                            |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | ESBSs inspected this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A            |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | VBSs differentials checked this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |

Comments: No comments.

Orifices, Collection Channel, Dewatering Structure, and Flume:

- | <u>Yes</u>               | <u>No</u>                           | <u>Item</u>                                                                     |
|--------------------------|-------------------------------------|---------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Orifices operating satisfactory? How many are open and in service? <u>N/A</u> . |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Dewaterer and cleaning systems operating satisfactory? N/A                      |

Comment: No comments.

Collection Facility: Dewatered for winter maintenance.

Transport Summary: Facility is dewatered and no fish collection is currently taking place.

## 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* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
93.1	65.2	0.0	0.0	41.0	39.3	3.1	2.9

\*Ladder temperature.

## Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on January 4, February 7 and March 3. Total strainer mortality include 14 juvenile lamprey, no smolts were seen.

Invasive Species: No invasive species have been observed on the mussel station or during winter maintenance.

Avian Activity: N/A

Gas Bubble Trauma: N/A

Research: No onsite research is currently being conducted at this time.

**Project: Lower Granite**

Biologist: Elizabeth Holdren and Suzette Frazier

Dates: March 3 - 9, 2017

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**Turbine Operation**

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).  
  Available turbine units operated within 1% peak efficiency constraint. Constraint in effect:  Hard  Soft.

Comments:

Unit 1 remains out of service for blade/runner repair with an expected return to service date of May 5. Unit 2 is out of service for blade seal repair with an expected return to service date of April 7.

**Adult Fish Passage Facility**

General comments: None.

Fish Ladder:

Yes No Location, Criteria and Measurements

- Fish Ladder Exit Differential (Criteria – Head  $\leq$  0.5')  
  Fish Ladder Picketed Lead Differential (Criteria – Head  $\leq$  0.3')  
  Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')  
  Emergency Ladder Exit Cooling Water Pumps in Service  
  Emergency Ladder Exit Cooling Water Pumps Operating Satisfactorily.

Comments:

Fish Ladder Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SSE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   South Shore Entrance (SSE-2) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   North Powerhouse Entrance (NPE-1) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   North Powerhouse Entrance (NPE-2) Weir Depth (Criteria:  $\geq$  8.0' or on sill)  
   North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   North Shore Entrance (NSE-1) Weir Depth (Criteria:  $\geq$  7.0' or on sill)  
   North Shore Entrance (NSE-2) Weir Depth (Criteria:  $\geq$  7.0' or on sill)  
   North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')  
   Collection Channel Velocity (Criteria: 1.5 – 4.0 fps)

Comments: NSE2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position to improve channel/tailwater head differential. The fishway control system gate depth reading is 628.6 feet. Electricians are investigating the problem.

Collection Channel Velocity:

Comments: None

Auxiliary Water Supply System:

Yes   No   In Service and Operating Satisfactory?

- AWS Fish Pump 1 (operating).
- AWS Fish Pump 2 (operating)
- AWS Fish Pump 3 (operating).

Fish Ladder Temperature Control System: See above.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes   No   Item

- Forebay debris load acceptable? No debris was observed in the forebay this week.
- Trash rack differentials measured this week? If so, were differentials acceptable?  Yes  No  N/A.
- Any debris seen in gatewells (i.e: over 10% coverage)?
- Any oil seen in gatewells?

Comments: Trashracks were raked March 1 with about 33 cubic yards of debris removed.

ESBSs/VBSs:

Yes   No   Item

- ESBSs deployed in all slots and in service?
- ESBSs inspected this week? If so, were results acceptable?  Yes  No  N/A
- VBSs differentials checked this week? If so, were results acceptable?  Yes  No  N/A

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes   No   Item

- Orifices operating satisfactory? How many are open and in service? None.
- Dewaterer and cleaning systems operating satisfactory?

Comments: Dewatered.

Collection Facility:

Comments: Dewatered.

Transport Summary:

Comments: Dewatered.

## River Conditions

General Comments: None.

Table 1: 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
101.7	67.0	14.0	0.0	40.8	38.0	3.5	2.1

\*Cooling water intake temperature.

## Other

Inline Cooling Water Strainers: Comments. N/A

Invasive Species: Comments. N/A

Avian Activity: Comments. N/A

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					

GBT: No GBT examinations are taking place at this time.

Adult Fish Trap Operations: The adult trap was “watered up” March 7 at about 0900 hours. Flow fins that provide attraction for adult fish from the attraction pool to the PIT tag detection and the adult trap failed late last season and were repaired during the winter maintenance period. When the trap was watered up trap operators determined that the fins were welded at an angle that resulted to much flow through the downstream weir. At 1400 hours, the Lower Granite mechanical supervisor removed the false weir to correct the angle of the fins. Operation with only the upstream false weir providing attraction flow (and no attraction to the downstream weir) was attempted but unsuccessful. Welding of the false weir fin section at the correct angle was completed and installed at approximately 1400 hours on March 9. At that time, the decision was made to begin trapping operations on Sunday, March 12.

Fish Rescue Operation: Comments. N/A.

## Research

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

Comments: None.