

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#03-2017**

**Project: McNary**

Biologists: Bobby Johnson and Denise Griffith

Dates: March 10 - 16, 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 12, 14 and 16. Video fish counts continue.

During the last winter outage, diffusers 11 and 12 were the only Washington ladder diffuser gratings examined. On March 14, the fisheries staff used a 50 pound weight to test the outside edges of diffusers 1, 2 and 6 to 10. No problems were found.

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. However, larger debris quantities were evident along the shorelines. At the Oregon exit, the regulating weir and tilting weirs set points were adjusted three times this week. The count station back board opening was adjusted from approximately 18 inches to 13 inches on March 14 due to high water turbidity. At this time, the limit switch failed and the back board drive system was damaged. The back board will be moved manually as needed until repairs can be completed during the next winter outage. The count station window brush was repaired on March 15.

At the Washington ladder exit, the trash rack was cleaned multiple times during the week.

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 – $\geq 8.0'$ ): 7.8' to 7.9' all week.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NFEW3 Weir Depth (Criteria – $\geq 8.0'$ ): 7.9' on March 12 and 14.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	South Oregon Entrance Head Differential (Criteria – 1.0' to 2.0'): 0.9' on March 16.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SFEW1 Weir Depth (Criteria – $\geq 8.0'$ )
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SFEW2 Weir Depth (Criteria – $\geq 8.0'$ )
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 2.2 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 (NFEW1 and NFEW2) from the JBS (Juvenile bypass system). The JBS is not yet in service. NFEW2 and NFEW3 set points were lowered 0.1 feet on March 12 in an attempt to increase weir depths and meet criteria more consistently.

Auxiliary Water Supply System:

<u>Yes</u>	<u>No</u>	<u>In Service?</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington shore Wasco County PUD Turbine Unit: Returned to service on March 10 at 0752 hours.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington shore Wasco PUD Bypass: Operated satisfactorily on March 13.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 1: Blade angle was 24 to 25 degrees.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Oregon Ladder Fish Pump 2: The 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: The return to service date is March 28.

Comments: The Wasco PUD turbine unit tripped breakers and went off line on March 13 from 1652 to 1742 hours.

**Juvenile Fish Passage Facility**

General Comments: The winter maintenance season continues.

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? Although the debris load is acceptable, removal is prudent.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trash rack differentials measured? If so, were differentials acceptable? <input checked="" type="checkbox"/> Yes (for now). <input type="checkbox"/> No <input type="checkbox"/> N/A.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any debris seen in gatewells?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any oil seen in gatewells?

Comments: Heavy forebay debris loads near the powerhouse remain and are increasing. Debris has also begun to accumulate on the spillway. The debris will be removed from March 21 to March 23. The highest trash rack differential was 2.0 feet in slots 3A and 3B on March 16 with the unit operating at 79 megawatts. Trash racks are scheduled to 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? All are closed for maintenance.
- Dewaterer and cleaning systems operating satisfactory? Out of service for maintenance.

Comments: The collection channel remains out of service for winter maintenance.

Bypass Facility: The facility remains out of service for winter maintenance. The separator observation building wall near the heat pump was repaired this week. Crowder drives in both sample tanks were rehabilitated.

**River Conditions**

General Comments: River conditions were provided by the McNary control room and are outlined in Table 2 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 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
338.7	271.2	132.0	63.3	41.0	38.0	4.2	1.5

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

**Other**

Inline Cooling Water Strainers: The next inspections are scheduled for April 4.

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

Avian Activity: Blue herons, gulls, cormorants, a grebe, loon and bald eagle were noted this week. Avian counts will resume in early April. Avian deterrent bird distress calls were deployed around the tailwater zone this week.

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 10 - 16, 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 2 was taken out of service on April 25, 2016, at 0606 hours for runner replacement. Unit 4 was removed from service at 1218 hours on March 6, when it tripped a breaker due to a problem in the 115 kv section 2 bus. Personnel will also investigate the source of a possible oil leak from unit 4. Units were operated above the 1% peak efficiency range during the week when requested by BPA.

**Adult Fish Passage Facilities**

Fish facility personnel inspected the adult fishways on March 13, 14, and 15.

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 counts.

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 SSE-1 weir gate depth was out of criteria during the March 13 and 14 inspections, with readings of 6.7' and 7.6', respectively. North shore channel/tailwater differential was out of criteria on March 13, with a reading of 0.6'. The operating weir gates are in manual control to reduce the wear and tear on gate machinery trying to auto-adjust to the widely fluctuating tailwater levels from spill, and to prevent the gates from raising too far and becoming stuck due to water pressure against the gates. With the gates in manual control, the operator must monitor the electronic outputs to detect any out of criteria readings and adjust gates to maintain criteria. The electronic

readings may differ from the staff gauge readings due to the difficulty in obtaining accurate readings as water levels widely fluctuate.

Auxiliary Water Supply (AWS) System:

Yes   No   In Service and Operating Satisfactory?

- South Shore AWS Pumps. Beginning March 10, seven of the eight south shore AWS pumps were in service, except during the incident described in the comments below.
- North Shore AWS Pumps. Two of the three north shore AWS pumps were in service.

Comments: All of the south shore AWS pumps were turned off when tailwater elevation exceeded 353', from 1415 hours on March 16 to 1314 hours on March 17, to prevent flooding of the warehouse inside the dam, per Section IHR 2.4.2 of the Fish Passage Plan.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes   No   Item

- Forebay debris load acceptable? Approximately 35 square yards of debris were 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 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): Involuntary spill continued, including spill through the RSW this week, due to high river flows. Routine 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
201.8	131.7	143.2	75.6	42.0	40.0	3.0	2.0

\*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on March 16. Mortality recoveries included 1 Chinook fry and 80 juvenile lamprey. Four live juvenile lamprey were recovered and released to the river.

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 10 - 16, 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. The estimated return to service date is July 30, 2017.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on March 13, 14, and 15.

Fish Ladders: None.

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:

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: North shore channel/tailwater differentials were out of criteria on all three inspections this week due to the high level of the tailwater caused by elevated river flows. The differentials for March 13, 14 and 15 were 0.6, 0.9, and 0.8, respectively.

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 be 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? Forebay debris loads averaged of 1800 square yards this week.  |
| <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? (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 checked="" type="checkbox"/> | <input type="checkbox"/>            | STSs inspected this week? If so, were results acceptable? <input checked="" 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 remained raised and stored in their gatewells during this report period. They were inspected on the deck on March 16 and are scheduled to be 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. The facility is scheduled to be watered up the week of March 20.

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



## River Conditions

General Comments.

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
200.2	128.3	118.0	43.7	43.0	40.0	2.5	1.0

\*Scrollcase temperatures.

### Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 7. Live fish 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 10 - 16, 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 1% peak efficiency constraint criteria are in effect.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on March 13, 14 and 15.

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: None.

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: On March 13, SSE-2 the channel to tailwater differential measured 0.8 feet. Also on March 13, NSE-2 the channel to tailwater differential measured 0.9 feet.

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: None.

**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: ESBSs are currently raised and one cannot see into the gatewells at this time. There is an estimated 6,400 to 10,800 square feet of floating woody debris 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: None.

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: The facility is currently dewatered for winter maintenance.

Transport Summary: The 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
178.5	127.3	49.2	10.1	42.8	42.1	0.8	0.6

\*Ladder temperature.

## Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on January 4, February 7 and March 3. Strainer mortalities included 14 juvenile lamprey; no smolts were seen.

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

Avian Activity: N/A.

Gas Bubble Trauma: N/A.

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

**Project: Lower Granite**

Biologist: Elizabeth Holdren and Suzette Frazier

Dates: March 10 - 16, 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 postponed until July 14. Unit 2 is of service for blade seal repair with an expected return to service date of April 7.

**Adult Fish Passage Facility**

General comments: On March 14 at 0822 hours, the upper section of the ladder was taken out of service and dewatered to remove a turnpool gate obstruction. A baseball size rock became impinged under the gate. Normal ladder operation resumed at 1215 hours on March 14. River flows and wave crests caused by spill and wind have increased tailwater elevation resulting in submerged and unreadable staff gauges.

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: None.

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 differentials. High tailwater elevations are causing control system software faults at the NPEs. Tailwater elevations are currently outside the range of control system parameters.

Collection Channel Velocity: No comments.

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 (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: AWS pumps 2 and 3 were removed from service from 1634 hours on March 13 to 1215 hours on March 14 to reduce attraction to fish ladder entrances during the above mentioned dewatering to remove a turnpool gate obstruction.

Fish Ladder Temperature Control System: See above.

### **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? Debris was observed in the forebay this week.
<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: An average of 67.5 square yards of debris was observed in the powerhouse forebay this week.

ESBSs/VBSs:

<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: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

<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? <u>N/A.</u>

Comments: The collection channel is currently dewatered for winter maintenance.

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
191.6	133.9	100.7	45.5	41.0	41.0	2.2	1.0

\*Cooling water intake temperature.

## Other

Inline Cooling Water Strainers: No comments.

Invasive Species: No comments.

Avian Activity: No comments.

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 comments.

Adult Fish Trap Operations: False weir flow veins were welded to the correct angle and installed at about 1400 hours on March 9. Following these repairs, trap operators decided to begin trapping operations on Sunday March 12. The turnpool gate failed to open March 12 due to an obstruction. At about 1030 hours, the trap was set to “trapping and sort by code mode” with the gate partially open. On March 13, just before 0700 hours, NOAA personnel reported the turnpool gate was stuck. Lower Granite maintenance staff began working on the gate at about 0730 hours. Multiple attempts with the tool used to dislodge debris from under the gate and a “come-along” winch were unsuccessful. Turbidity prevented a visual underwater camera inspection of the bottom of the gate. A baseball sized rock obstructing the gate was removed and the ladder was returned to normal operation at 1215 hours on March 14.

Fish Rescue Operation: An upper ladder fish rescue was performed at about 0810 hours on March 14. Ten clipped adult steelhead and 2 unclipped adult steelhead were recovered and released at Offfield Landing, upstream of the dam.

## Research

General Comments: No onsite research is in progress at this time.