



## Fish Passage Center

# Weekly Report #18-02

March 16, 2018

### This Week's Highlights

#### **Dworshak Operations**

Over the last month, numerous FPAC (Fish Passage Advisory Committee) and TMT (Technical Management Team) meetings have taken place concerning project operations at Dworshak Dam. This year at Dworshak, Unit #3 is out of service for rehabilitation through at least the early summer period. Unit #3 is the largest of the three units at Dworshak Dam, in terms of outflow capacity. Therefore, flows through the powerhouse are limited to 4.5-4.8 Kcfs during this rehabilitation work. Any outflow beyond the constrained powerhouse capacity at Dworshak must be spilled; creating concerns over Total Dissolved Gas supersaturation (TDG) in the river environment below Dworshak Dam and, subsequently, at Dworshak Hatchery as the water supply to the hatchery comes from downstream of Dworshak Dam. Although Dworshak Hatchery has been outfitted with TDG degassing columns (i.e., degassers) which significantly reduce TDG in hatchery supply water, there is still much concern over very high discharges and spill levels at Dworshak that will create elevated levels of TDG below the Dam and, subsequently, elevated TDG levels at the hatchery. At the recent 11.7-12.0 Kcfs spill levels, TDG directly below the dam was approximately 122%, with the water supply to the hatcheries at approximately 104-105%. However, spill at Dworshak was reduced to 10.5-10.7 Kcfs on March 15<sup>th</sup>. Total dissolved gas below the project has remained at approximately 122% and TDG at the hatchery has remained at approximately 104-105% since this reduction in spill began.

Over the last month, the Official Water Supply (calculated by USACE) at Dworshak has increased from 2.85 Maf in February to 3.1 Maf in March. At the March 7 TMT call, USACE stated their March Final forecast of 3.1 Maf, would necessitate an April 15<sup>th</sup> draft to the bottom of the active storage at Dworshak (1,445') and require outflows to remain near 16 Kcfs with the potential to go higher in April. At the March 14 TMT meeting, USACE presented several scenarios

of Dworshak operations that modeled outflows through the end of July, while targeting the April 15<sup>th</sup> flood control elevation of 1,445' and refill by June 30<sup>th</sup>, under different analog water years. Because of the powerhouse constraints at Dworshak, a delay in refill into July or failing to refill could impact summer (July, August, and early September) release volumes which are needed for temperature control in the lower Snake River. These scenarios indicated that outflows of 14-16 Kcfs could be maintained through late March but, depending on the shape of the run-off, outflow may need to be increased to as high as 20 Kcfs for as long as two weeks in order to meet the April 15<sup>th</sup> flood control elevation of 1,445'. In addition, the scenarios had variable outflows after April 15<sup>th</sup>, with outflows ranging from as high as 7 Kcfs to as low as 4 Kcfs through the end of May. The fisheries managers requested a reduction in outflows to 14-15 Kcfs for the remainder of March, in order to reduce TDG below the project and at Dworshak NFH. Based on the discussions at the TMT meeting, a decision was made to decrease outflows at Dworshak to approximately 15 Kcfs on March 15<sup>th</sup> and revisit the issue at a special TMT call on March 16<sup>th</sup>. Following the discussion at the March 16<sup>th</sup> TMT meeting, a decision was made to reduce outflows at Dworshak to 14 Kcfs and continue these outflows through March 28<sup>th</sup>. On March 28<sup>th</sup>, outflows will be further reduced to 12 Kcfs for up to three days. Operations after April 1<sup>st</sup> will be revisited in future TMT discussions. Outflows after April 1<sup>st</sup> may range from 14 Kcfs to 17 Kcfs, depending on inflows and future forecasts

#### **Water Supply**

Precipitation throughout the Columbia Basin has varied between 56% and 124% of average at individual sub-basins over March. Precipitation above The Dalles has been 92% of average over March. Over the 2018 water year, precipitation has ranged between 91% and 121% of average.

**Table 1. Summary of March precipitation and cumulative October through March precipitation with respect to average (1981-2010), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2018 March 1-14, 2018		Water Year 2018 October 1, 2017 to March 14, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.17	76	22.5
Snake River Above Ice Harbor	1.18	112	11.6	92
Columbia Above The Dalles	1.11	92	15.5	99
Kootenai	1.20	81	22.3	108
Clark Fork	0.85	74	15.9	115
Flathead	0.83	56	22.7	121
Pend Oreille River Basin above Waneta Dam	0.94	68	20.0	114
Salmon River Basin	1.70	124	15.2	98
Upper Snake Tributaries	1.49	123	13.0	92
Clearwater	1.50	80	27.6	117
Willamette River above Portland	1.88	56	41.6	91

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 125% of average, for Snake River Basins the average snowpack is 88% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 69% of average.

Table 2 displays the March 15<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 15<sup>th</sup> ESP forecast at The Dalles between April and August is 96,883 Kaf (111% of average).

**Table 2. March 8 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	March 15, 2018 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	111	96,883
Grand Coulee (Apr-Aug)	116	65,831
Libby Res. Inflow, MT (Apr-Aug)	114 122**	6,722 7,205**
Hungry Horse Res. Inflow, MT (Apr-Aug)	145	2,804
Lower Granite Res. Inflow (Apr- July)	106	20,976
Brownlee Res. Inflow (Apr-July)	99	5,413
Dworshak Res. Inflow (Apr-July)	115 127**	2,782 3,093**

\* Denotes COE April Forecast

Grand Coulee Reservoir is at 1252.4 feet (3-15-18) and has drafted 2.5 feet over the last week. Outflows at Grand Coulee have ranged between 94.0 Kcfs and 131.2 Kcfs over the last week. The end of March FC Elevation at Grand Coulee is 1256.9 ft. (based on March Forecast).

The Libby Reservoir is currently at elevation 2371.3 feet (3-15-18) and has drafted 6.1 feet over the past week. Daily average outflows at Libby Dam have ranged between 14.0 and 19.0 to over the last week. The end of March FC at Libby is 2358.3 ft. (based on March Forecast).

Hungry Horse is currently at an elevation of 3512.1 feet (3-15-18) and has drafted 6.6 feet last week. Outflows at Hungry Horse have been increased from 10.0 Kcfs to 11.7 Kcfs over the last week. The end of March FC at Hungry Horse is 3496.2 ft. (based on March Forecast).

Dworshak is currently at an elevation of 1473.5 feet (3-15-18) and has drafted 12.4 feet over last week. Dworshak outflows have been reduced from 16.5 Kcfs to 15 Kcfs and will decrease further to 14 Kcfs through the last several days of the month when outflows will be reduced to 12 Kcfs to facilitate hatchery releases. The end of March System FC at Dworshak at the end of March is 1461.6 ft.

The Brownlee Reservoir was at an elevation of 2033.8 feet on March 15, 2018. Outflows at Hells Canyon have ranged between 16.8 and 26.6 Kcfs over the last four days. The end of March FC (based on March forecast) is 2037.2 ft.

### Spill

Due to relatively high flows for this time of year and multiple unit outages, involuntary spill continues to occur at John Day Dam. Over the last week, daily average spill volumes at John Day Dam have ranged from 33.7 Kcfs to 64.9 Kcfs. In addition, due to the rehab of unit #3 at Dworshak Dam, hydraulic capacity at this project has been limited to approximately 5 Kcfs. Therefore, Dworshak Dam has been spilling since late January for flood control operations. Over the last week, daily average spill volumes at Dworshak Dam have been approximately 11.7 Kcfs. Waivers in total dissolved gas levels for the implementation of the voluntary fish spill programs don't begin until April. Therefore, the 110% standard for total dissolved gas is currently in place. However, since the spill is considered involuntary, any exceedences of the 110% standards are not interpreted as violations by the US Army Corps of Engineers.

### Smolt Monitoring

Smolt Monitoring Program (SMP) activities at bypass facilities continued at Bonneville, John Day, and Little Goose dams this week. Sampling at the Snake, Grande Ronde, Salmon, and Imnaha river traps also continued this week. SMP sampling at the other bypass facilities is expected to begin in late March (at Lower Granite Dam) or early April (at Lower Monumental, McNary, and Rock Island dams).

Subyearling Chinook continued to dominate the samples at Bonneville Dam (BON) this week. Like last week, nearly all of the subyearling Chinook sampled at BON this week were fry. This week's daily average passage index for subyearling Chinook at BON was about 1,100 per day, which is an increase over last week's daily average of 755 per day. A relatively small number of coho fry and yearling Chinook were also collected this week. Pacific lamprey macrophthalmia were encountered every day this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 70 per day. Pacific lamprey ammocoetes were encountered in one of this week's samples (March 13<sup>th</sup>).

Similar to the last two years, sampling at John Day Dam (JDA) is every-other-day. Yearling Chinook continued to dominate the samples at JDA this week. This week's daily average passage index for yearling Chinook was approximately 625 per day, which is an increase over last week's daily average of about 40 per day. Steelhead, coho, and subyearling Chinook were also encountered in this week's samples. All of the subyearling Chinook and coho collected at JDA so far this year have been fry. Pacific lamprey macrophthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific lamprey macrophthalmia was about 300, which is a decrease from last week's daily average collection of nearly 1,100 per day. No Pacific lamprey ammocoetes were encountered in this week's samples.

Similar to recent years, sampling at Little Goose Dam (LGS) will be every-other-day until the start of transportation, at which time sampling will change to every day. To date, the only salmonids that have been encountered at LGS this season have been yearling Chinook, sockeye, and steelhead. Passage for these three species remained low this week, with daily passage indices of less than 20 fish per day, per species. It is worth noting that the sockeye collected so far at LGS are likely kokanee from Dworshak reservoir, as Dworshak Dam has been spilling since January. Pacific lamprey macrophthalmia were encountered in all three of this week's samples, although in relatively low numbers. No Pacific lamprey ammocoetes were encountered in this week's samples.

The Snake River Trap at Lewiston, ID (LEW) is located at river kilometer 225 of the Snake River and is operated by the Idaho Department of Fish and Game. Sampling at the Snake River Trap began on March 4<sup>th</sup>, with the first sample tallied and reported to the FPC on March 5<sup>th</sup>. To date, only two subyearling Chinook fry, three yearling Chinook, and five steelhead have been collected at this trap this year.

The Grande Ronde Trap (GRN) is located at river kilometer 002 of the Grande Ronde River and is operated by the Oregon Department of Fish and Wildlife. Sampling at the Grande Ronde Trap began on March 7<sup>th</sup>, with the first sample tallied and reported to the FPC on March 8<sup>th</sup>. Due to an equipment malfunction, the crew was unable to process the March 9<sup>th</sup> sample. Therefore, the sample data reported for March 10<sup>th</sup> includes fish collected over a two-day

period (March 8-10). To date, the Grande Ronde Trap has collected 181 yearling Chinook, 14 coho, and only two steelhead smolts. Of the yearling Chinook sampled so far this season, approximately 98% have been unmarked. The coho collections are likely part of releases of approximately 500,000 hatchery coho juveniles into the Lostine River that were scheduled to begin on March 5<sup>th</sup>.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 of the Salmon River and is operated by the Idaho Department of Fish and Game. Similar to recent years, sampling at WTB in 2018 will only occur during the weekdays. Sampling at WTB began on March 4<sup>th</sup>, with the first sample tallied and reported to the FPC on March 5<sup>th</sup>. To date, only yearling Chinook have been collected at this trap. Collections of yearling Chinook increased substantially on March 14<sup>th</sup>. The total collection for this sample date was 1,745 yearling Chinook, of which 1,693 (97%) were of hatchery origin. The total collection decreased to 549 in the March 15<sup>th</sup> sample, of which 476 (87%) were of hatchery origin. These hatchery Chinook are likely from Rapid River Hatchery, as this hatchery was scheduled to begin a volitional release of 2.5 million fish on March 12<sup>th</sup>.

The Imnaha River Trap (IMN) is located at river kilometer 007 of the Imnaha River and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. For 2018, the FPC currently has data from IMN for the period of February 15<sup>th</sup> through March 14<sup>th</sup>. Over the last week (March 8-14), a total of 42 yearling Chinook and six steelhead were collected at the trap. All of these yearling Chinook and steelhead were unmarked.

### **Hatchery Releases**

FPC has not received preliminary data from some hatcheries as of 3/16/18, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a finalized record of scheduled hatchery releases.

### **Snake River Zone:**

The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. Approximately 4 million spring and summer Chinook were scheduled

to be released into this zone over the last week. Of these, 78% are spring Chinook from Rapid River Hatchery being released into Rapid River (2,500,000), the Little Salmon River (200,000), and the Snake River at Hells Canyon Dam (458,442). Those released into Rapid River are volitional and expected to run through the end of April. Additionally, 210,000 spring Chinook were also released into the Imnaha River on March 15<sup>th</sup>, and another 675,000 summer Chinook from Clearwater Hatchery were scheduled for release into the Lochsa River on March 12<sup>th</sup>.

In the next two weeks, approximately 6.9 million spring Chinook will be released into this zone. Of these, approximately 70% will be released to the Clearwater River or one of its tributaries (Clear Creek, or Red River). Another 1.4 million summer Steelhead are scheduled to be released during the same period, 808,000 into the Pahsimeroi River, and 558,000 into the Snake River at Hells Canyon Dam.

### **Upper Columbia Zone:**

The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. No releases were planned during the past week, and none are scheduled to begin over the next two weeks for this zone.

### **Middle Columbia Zone:**

The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). No releases were planned during the past week in this zone. However, over the next two weeks 125,000 fall Chinook are scheduled for release into the Umatilla River, and 272,000 spring Chinook are scheduled for release into the Deschutes River (25,000), and the Wind River (247,338) on March 25<sup>th</sup>.

### **Lower Columbia Zone:**

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Over the past week approximately 2 million spring Chinook were scheduled to be released into tributaries of the Willamette River. Of these, 55,000 were released into the Clackamas River, 240,000 into Eagle Creek at the Eagle Creek Hatchery, and 150,000 into Blind Slough, 400,000 into Gnat Creek, and

1,206,000 into the Santiam River. Additionally, 1.2 million fall Chinook fry were scheduled for release into the Klaskanine River, and 25,000 winter Steelhead juveniles into the Clackamas River on March 15<sup>th</sup>.

Over the next two weeks 736,000 spring Chinook are scheduled to be released in this zone, 202,000 at the McKenzie Hatchery on March 21<sup>st</sup>, another 300,000 into Youngs Bay on March 22<sup>nd</sup>, and 234,000 into Dexter pond on the Willamette river on March 24<sup>th</sup>.

### **Adult Passage**

Bonneville Dam uses video counts from January 1<sup>st</sup> through March 31<sup>st</sup> and direct counting after this period. Bonneville Dam counts adult salmon and steelhead year round. Lower Granite Dam uses video counts from March 1<sup>st</sup> through March 31<sup>st</sup> and direct counting after this period. Lower Granite Dam counts adult salmon and steelhead through December 30<sup>th</sup> each year. Willamette Falls Dam also uses video counts and reports adult counts year round. Video counts can cause a delay in posting the count data to the web, because the counting staff at the projects have to review the tapes. The FPC collects the adult count data from projects several times a day and updates Adult Dam Count report linked on our homepage (<http://www.fpc.org/>). During the winter season at Bonneville Dam (from 1/1/2018 through 3/14/2018), 4 adult Chinook and 968 adult steelhead were counted. In 2017 for the same time frame, 8 adult Chinook and 945 adult steelhead were counted. The 2018 Bonneville Dam winter season count of adult steelhead had 23 more fish than the 2017 count.

The Willamette Falls cumulative steelhead count from January 1<sup>st</sup> through March 14<sup>th</sup> is 813. The 2018 Willamette Falls winter steelhead count is about 1.9 times greater than the 2017 count of 432, while being and 33.5% of the 10-year average count of 2,430. This year's Lower Granite steelhead count of 759 is 49.6% of the 2017 count of 1,530 and 48.2% of the 10-year average count of 1,574. The 2018 Willamette Falls adult Chinook count as of March 14<sup>th</sup> was 6 adults.

This winter, based on estimates made by the Technical Advisory Committee (TAC) for U.S. v. Oregon, the spring Chinook run for 2018 is expected to be 248,520. The TAC reported that 208,805 spring Chinook had returned to the river in 2017 (see U.S. v. Oregon, Technical Advisory Committee's February 15, 2018, document *Columbia River Mouth Fish Returns* which displays 2017 actual and 2018 forecasts of spring

Chinook, summer Chinook, sockeye, and steelhead counts from the Oregon and Washington Departments of Fish and Wildlife). This is available at: [http://www.dfw.state.or.us/fish/OSCRP/CRM/returns\\_and\\_expectations/docs/2017\\_returns\\_18forecasts.pdf](http://www.dfw.state.or.us/fish/OSCRP/CRM/returns_and_expectations/docs/2017_returns_18forecasts.pdf)

The Bonneville Dam corner collector was opened on March 1<sup>st</sup> for kelt passage. Between March 1<sup>st</sup> and March 14<sup>th</sup>, a no salmon were observed over the separator at the Bonneville Juvenile Monitoring Facility (JMF). Kelt passage at the Bonneville JMF can be found at: <http://www.fpc.org/adultsalmon/bonkeltcounts.htm>.

## Hatchery Releases Last Two Weeks

Hatchery Release Summary										
	From:	3/3/2018		to	03/16/18					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2018	674,919	03-12-18	03-14-18	Powell Acclim Pond	Lochsa River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	200,000	03-16-18	03-16-18	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	458,442	03-12-18	03-12-18	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	2,500,000	03-12-18	04-27-18	Rapid River	Little Salmon River	SNAK
<b>Idaho Dept. of Fish and Game Total</b>					<b>3,833,361</b>					
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CH1	FA	2018	200,000	03-03-18	03-03-18	Tanner Creek	Tanner Creek	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	WI	2018	25,000	03-15-18	03-15-18	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2018	66,000	03-07-18	03-07-18	Bull Run Acclimation	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2018	240,000	03-15-18	03-15-18	Eagle Creek Hatchery	Eagle Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	150,000	03-15-18	03-15-18	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH1	SP	2018	55,000	03-15-18	03-15-18	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	CH1	SP	2018	400,000	03-15-18	03-15-18	Gnat Creek	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CH0	FA	2018	1,200,000	03-15-18	03-15-18	Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Leaburg Hatchery	CO	UN	2018	504,000	03-05-18	03-07-18	Lostine River	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2018	210,000	03-15-18	03-15-18	Imnaha River	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	50,000	03-15-18	03-15-18	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	100,000	03-15-18	03-15-18	Mollala River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	635,000	03-15-18	03-15-18	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	CH1	SP	2018	421,000	03-10-18	03-10-18	South Santiam Hatchery	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2018	234,000	03-03-18	03-03-18	Dexter Pond	Willamette River	LCOL
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>4,490,000</b>					
<b>Grand Total</b>					<b>8,323,361</b>					

CH = Chinook, ST = Steelhead, CO = Coho, SO = Sockeye, CT = Cutthroat Trout, CM = Chum

## Hatchery Releases Next Two Weeks

Hatchery Release Summary										
	From:	3/17/2018		to	3/30/2018					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	544,340	03-26-18	03-27-18	N Fk Clearwater River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	818,207	03-19-18	04-04-18	Clear Creek	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	1,277,096	03-26-18	03-30-18	Red River	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	558,000	03-19-18	03-30-18	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	808,000	03-29-18	04-13-18	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2018	169,395	03-30-18	03-30-18	Sawtooth Hatchery	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2018	1,938,255	03-28-18	03-28-18	Sawtooth Hatchery	Salmon River (ID)	SNAK
<b>Idaho Dept. of Fish and Game Total</b>					<b>6,113,293</b>					
Nez Perce Tribe	Kooskia NFH	CH1	SP	2018	513,409	03-19-18	03-19-18	Kooskia Hatchery	Clearwater River M F	SNAK
<b>Nez Perce Tribe Total</b>					<b>513,409</b>					
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	300,000	03-22-18	03-22-18	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	McKenzie Hatchery	CH1	SP	2018	202,000	03-21-18	03-21-18	McKenzie Hatchery	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2018	234,000	03-24-18	03-24-18	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	03-25-18	03-25-18	Metolius River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	03-25-18	03-25-18	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	10,000	03-25-18	03-25-18	Crooked River (OR)	Deschutes River	MCOL
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>761,000</b>					
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2018	1,648,668	03-28-18	03-28-18	Dworshak Hatchery	Clearwater River M F	SNAK
<b>U.S. Fish and Wildlife Service Total</b>					<b>1,648,668</b>					
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2018	125,000	03-22-18	03-22-18	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Carson NFH	CH1	SP	2018	247,338	03-28-18	03-28-18	Wind River	Wind River	MCOL
<b>Umatilla Tribe Total</b>					<b>372,338</b>					
<b>Grand Total</b>					<b>9,408,708</b>					

CH = Chinook, ST = Steelhead, CO = Coho, SO = Sockeye, CT = Cutthroat Trout, CM = Chum

**Daily Average Flow and Spill (in Kcfs) at Mid-Columbia Projects**

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/02/2018	136.6	0.0	137.3	0.0	136.5	12.0	141.9	0.0	142.0	4.7	147.7	0.0	144.3	0.0
03/03/2018	112.6	0.0	121.5	0.0	124.3	1.9	131.1	0.0	137.7	3.1	155.2	0.0	150.8	2.1
03/04/2018	98.1	0.0	91.4	0.0	112.2	0.0	113.7	0.0	120.3	0.0	143.0	0.0	145.5	1.6
03/05/2018	118.2	0.0	117.9	0.0	104.1	0.0	106.6	0.0	109.4	3.1	140.4	0.0	136.9	0.0
03/06/2018	115.2	0.0	115.7	0.0	125.5	1.7	119.5	0.0	120.6	1.2	140.3	0.0	137.7	0.0
03/07/2018	123.1	0.0	125.7	0.0	125.0	0.0	128.7	0.0	132.4	0.8	133.0	0.0	127.7	0.0
03/08/2018	131.2	0.0	127.7	0.0	126.7	9.4	123.7	0.0	125.8	3.2	111.2	0.0	104.1	0.0
03/09/2018	129.8	0.0	129.4	0.0	127.6	5.2	122.6	0.0	126.9	1.7	130.3	0.0	127.6	0.0
03/10/2018	131.2	0.0	136.1	0.0	138.6	13.6	140.3	0.0	145.8	8.0	146.5	0.0	136.0	4.8
03/11/2018	99.4	0.0	102.9	0.0	109.4	1.2	114.0	0.0	119.1	0.5	134.0	0.0	136.3	2.8
03/12/2018	101.3	0.0	98.1	0.0	110.4	0.0	104.7	0.0	109.3	1.0	131.5	0.0	131.9	2.5
03/13/2018	94.0	0.0	92.4	0.0	92.8	0.0	89.9	0.0	93.8	0.0	119.4	0.0	119.7	0.0
03/14/2018	100.1	0.0	107.2	0.0	103.7	0.0	96.7	0.0	103.2	0.0	99.7	0.0	98.6	0.0
03/15/2018	126.3	0.0	126.2	0.0	125.8	10.5	120.4	0.0	125.0	1.6	123.5	0.0	116.3	0.0

**Daily Average Flow and Spill (in Kcfs) at Snake Basin Projects**

Date	Dworshak		Brownlee Inflow	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/02/2018	16.0	11.5	---	---	51.5	0.0	51.0	0.0	53.1	1.0	51.4	0.0
03/03/2018	16.0	11.4	---	---	43.4	0.0	44.6	0.0	49.0	0.0	51.0	0.0
03/04/2018	16.0	11.4	---	---	46.5	0.0	43.8	0.0	49.8	0.0	53.9	0.0
03/05/2018	16.1	11.5	---	---	45.3	0.0	46.7	0.0	47.2	0.1	47.1	0.0
03/06/2018	16.0	11.3	---	---	48.7	0.0	46.6	0.0	48.0	0.0	48.9	0.0
03/07/2018	16.0	11.3	---	---	49.0	0.0	47.1	0.0	48.5	0.0	44.9	0.0
03/08/2018	16.6	11.9	---	---	47.9	0.0	49.1	0.0	50.9	0.0	52.5	0.0
03/09/2018	16.5	11.7	---	---	51.0	0.0	55.2	0.0	56.4	0.0	55.2	0.0
03/10/2018	16.6	12.0	---	---	54.5	0.0	56.1	0.0	63.5	0.0	58.7	3.2
03/11/2018	16.5	12.0	---	---	59.6	0.0	58.4	0.0	65.0	0.0	68.3	12.6
03/12/2018	16.5	11.9	---	---	58.9	0.0	58.9	0.0	62.3	0.0	62.7	6.8
03/13/2018	16.5	11.9	---	---	53.9	0.0	55.1	0.0	63.5	0.4	64.2	8.5
03/14/2018	16.5	11.9	---	---	62.7	0.0	62.2	0.0	67.4	2.3	68.5	12.4
03/15/2018	15.1	10.6	---	---	65.7	0.0	64.5	0.0	70.9	1.0	76.8	20.5

**Daily Average Flow and Spill (in Kcfs) at Lower Columbia Projects**

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/02/2018	209.0	0.0	213.3	67.7	206.8	0.0	225.4	1.2	123.4	93.3
03/03/2018	201.3	0.0	208.3	59.9	199.4	7.3	221.7	1.2	125.5	87.6
03/04/2018	193.7	0.0	192.1	44.6	182.0	0.0	197.2	1.2	105.9	82.6
03/05/2018	204.3	0.0	212.7	63.7	205.1	7.7	221.5	1.2	116.4	96.5
03/06/2018	185.5	0.0	199.7	49.3	195.3	0.0	214.6	1.2	102.7	103.2
03/07/2018	181.2	0.0	179.8	29.6	173.3	7.5	188.5	1.2	90.1	89.9
03/08/2018	180.7	0.0	180.0	29.8	174.4	0.0	191.4	1.2	91.3	91.8
03/09/2018	171.8	0.0	184.3	33.7	182.6	0.0	195.7	1.2	93.3	94.2
03/10/2018	195.2	0.0	202.6	53.0	194.0	0.0	212.6	1.3	107.2	97.2
03/11/2018	207.4	0.0	200.9	51.2	191.8	0.0	208.1	1.3	104.2	95.5
03/12/2018	196.1	0.0	203.5	54.7	194.6	0.0	214.6	1.3	107.8	98.5
03/13/2018	189.3	0.0	203.6	53.0	193.7	0.0	203.6	1.2	100.7	94.7
03/14/2018	183.7	0.0	189.0	47.7	186.1	0.0	199.9	1.2	99.4	92.3
03/15/2018	186.0	0.0	194.3	64.9	188.6	0.0	205.2	1.2	102.9	94.0

FISH PASSAGE CENTER

**Total Dissolved Gas Saturation(%) - Average of  
12 Highest Hours, 24 Hours Average and 24 Hours High**

Date 3/16/2018 7:15:08 AM

Page 1 of 4

**Total Dissolved Gas Data at Upper Columbia Sites**

Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph				Chief J. Dnst				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01									102.0	102.2	102.2	24	101.4	101.6	102.1	24	101.2	101.3	101.4	24	100.6	100.7	100.8	24	03/01
03/02									101.8	102.2	102.4	24	101.2	101.8	102.8	24	101.1	101.4	101.5	24	100.5	100.8	100.9	24	03/02
03/03									100.9	101.1	101.2	24	100.6	101.0	101.4	24	100.3	100.5	100.9	23	99.6	99.9	100.3	24	03/03
03/04									100.1	100.2	100.4	24	99.9	100.1	100.4	24	99.6	99.8	100.0	18	99.2	99.5	100.2	24	03/04
03/05									99.6	99.7	99.9	24	99.3	99.6	99.9	24	99.3	99.4	99.6	15	98.7	99.0	99.7	24	03/05
03/06									99.5	99.8	99.9	24	99.0	99.3	100.0	24	99.7	99.7	100.0	11	99.0	99.3	100.0	24	03/06
03/07									100.3	100.8	100.8	24	99.5	99.9	100.4	24	100.4	100.5	100.7	15	99.6	99.9	100.4	24	03/07
03/08									101.4	101.7	101.8	24	100.4	100.7	101.2	24	101.0	101.3	101.4	24	100.3	100.7	101.0	24	03/08
03/09									101.0	101.4	101.8	24	100.3	100.8	101.0	24	100.7	101.2	101.3	24	100.0	100.5	100.8	24	03/09
03/10									100.1	100.3	100.5	24	99.1	99.5	100.0	24	99.5	99.7	100.4	20	98.7	98.9	99.3	24	03/10
03/11									99.8	100.0	100.3	23	99.2	99.7	100.1	23	99.6	99.6	100.4	15	98.8	99.1	99.7	23	03/11
03/12									100.2	100.7	100.8	24	99.7	100.3	101.1	24	100.0	100.3	101.7	17	99.0	99.6	99.9	24	03/12
03/13									101.4	101.9	102.2	24	101.0	101.6	102.2	24	100.8	101.3	101.4	24	100.4	100.8	101.1	24	03/13
03/14									101.8	101.9	101.9	24	101.3	101.6	101.9	24	101.7	101.9	102.4	24	101.2	101.5	101.8	23	03/14
03/15									101.6	101.8	101.9	23	101.0	101.3	101.8	23	101.8	102.0	102.3	23	101.1	101.3	101.5	23	03/15

**Total Dissolved Gas Data at Upper Columbia Sites**

Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr				Rock Island				Rock I. Tlwr				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01	100.4	100.4	100.5	24	106.2	109.6	111.2	24	106.2	106.5	106.9	24	106.4	106.7	106.8	22	105.6	105.9	106.2	23	107.0	107.7	108.6	21	03/01
03/02	99.9	100.2	100.4	24	103.0	105.7	107.2	24	104.7	105.3	106.2	24	105.2	105.7	106.1	24	104.3	105.1	105.9	24	105.5	106.7	108.2	23	03/02
03/03	99.2	99.4	99.7	24	100.3	101.3	106.1	24	104.5	106.3	106.9	24	105.1	106.0	106.6	20	104.9	106.0	106.6	22	105.7	106.2	106.6	20	03/03
03/04	98.7	98.9	99.2	24	98.9	99.3	100.3	24	103.2	103.9	104.3	24	103.8	104.1	104.3	21	101.8	102.8	103.7	22	101.9	102.8	103.9	19	03/04
03/05	98.3	98.6	98.8	24	98.4	98.7	99.1	24	100.0	100.4	101.1	24	101.2	101.6	103.1	21	100.6	101.5	103.6	23	101.6	102.4	103.9	21	03/05
03/06	98.4	98.7	98.9	24	99.0	99.8	102.4	24	99.1	99.2	99.3	22	99.8	100.2	100.7	22	98.8	99.0	99.1	22	99.5	99.8	101.9	21	03/06
03/07	99.4	99.8	99.9	24	99.6	100.1	100.3	24	99.8	100.3	101.1	23	100.6	100.9	102.0	21	99.1	99.5	100.0	20	99.5	99.9	100.1	20	03/07
03/08	100.5	100.8	101.0	24	102.8	105.0	106.3	24	101.3	101.5	101.8	24	102.0	102.3	102.6	21	100.5	101.2	101.5	24	101.6	102.4	104.2	20	03/08
03/09	99.9	100.2	100.4	23	101.3	102.5	104.6	23	101.0	101.3	101.8	24	101.5	101.9	102.6	22	100.3	100.5	100.8	24	100.9	101.4	103.4	21	03/09
03/10	99.0	99.2	99.3	24	102.6	105.3	109.2	24	101.7	102.0	102.4	24	102.2	102.4	102.7	23	101.0	102.1	102.9	23	102.7	103.5	105.1	22	03/10
03/11	98.7	99.0	99.5	23	99.8	100.7	104.7	23	101.9	102.9	104.3	23	102.4	102.9	104.5	21	100.6	101.0	102.1	21	100.9	101.3	102.0	21	03/11
03/12	99.2	99.9	100.1	24	99.4	100.2	100.7	24	103.3	104.0	104.7	24	103.9	104.6	105.7	23	103.5	104.5	105.2	23	103.9	105.0	106.2	22	03/12
03/13	100.5	101.0	101.2	24	100.7	101.2	101.4	24	102.2	102.4	102.6	24	102.4	102.6	103.0	24	102.0	102.5	102.6	24	102.7	102.8	103.2	20	03/13
03/14	100.9	101.1	101.4	24	101.1	101.4	101.8	24	101.7	101.8	101.9	24	102.1	102.2	102.2	23	101.4	101.6	102.0	24	101.6	101.8	102.3	22	03/14
03/15	101.1	101.6	102.0	23	103.4	105.7	111.6	23	101.7	102.0	102.2	23	102.4	102.5	103.0	19	101.2	101.7	101.9	20	101.8	102.0	103.1	16	03/15



FISH PASSAGE CENTER

**Total Dissolved Gas Saturation(%) - Average of  
12 Highest Hours, 24 Hours Average and 24 Hours High**

Date 3/16/2018 7:15:08 AM

Page 2 of 4

**Total Dissolved Gas Data at Upper and Mid-Columbia Sites**

Wanapum				Wanapum Tlwr				Priest Rapids				Priest R. Dnstr				Pasco				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01	103.8	104.1	104.5	24	103.8	104.6	105.0	24	103.8	104.3	104.5	24	104.0	104.7	105.3	24					03/01
03/02	104.3	104.5	104.6	24	104.5	104.7	104.9	24	103.1	103.3	103.4	24	103.2	103.4	103.6	24					03/02
03/03	104.0	104.1	104.2	24	104.5	104.8	104.9	24	102.9	103.1	103.2	23	103.3	103.6	103.9	24					03/03
03/04	103.5	103.8	104.1	24	103.6	103.9	104.5	24	103.2	103.3	103.4	24	103.6	103.9	104.9	24					03/04
03/05	103.2	103.3	103.4	24	103.4	103.5	103.6	24	102.6	102.7	102.8	24	102.6	102.7	102.8	24					03/05
03/06	102.7	102.9	103.3	24	102.4	102.9	103.4	24	102.6	102.9	103.1	24	102.9	103.2	103.4	22					03/06
03/07	102.8	102.9	103.0	24	102.6	102.7	102.9	24	102.9	103.1	103.3	24				0					03/07
03/08	103.0	103.5	106.4	24	102.4	102.8	103.1	24	103.7	103.9	104.3	24				0					03/08
03/09	101.3	101.8	102.4	24	101.2	101.6	102.1	24	102.1	102.8	103.5	24				0					03/09
03/10	100.5	100.8	101.0	24	100.3	100.6	100.8	24	100.4	100.6	101.0	24				0					03/10
03/11	100.6	100.8	100.9	24	100.4	100.5	100.7	24	100.5	100.7	101.1	24				0					03/11
03/12	102.5	103.5	103.7	24	101.8	102.8	103.1	24	101.2	101.6	101.9	24				0					03/12
03/13	103.6	103.8	103.9	24	103.4	103.6	103.9	24	103.4	103.9	104.1	24				0					03/13
03/14	104.1	104.6	104.9	24	104.2	105.1	107.4	24	103.6	103.8	104.1	24				0					03/14
03/15	104.8	105.0	105.2	24	104.5	104.7	104.8	24	103.6	104.4	104.9	24				0					03/15

**Total Dissolved Gas Data at Snake and Clearwater Sites**

Dworshak				Clrwr Peck				Anatone				Clrwr-Lewiston				Lower Granite				Lower G. Tlwr				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01	123.5	123.8	123.9	24	116.2	116.5	116.8	24					108.8	109.5	110.4	24					104.1	104.4	104.9	24	03/01
03/02	121.9	122.1	122.4	24	113.5	114.0	116.0	24					106.8	107.4	108.0	24					104.2	104.4	104.6	24	03/02
03/03	121.6	121.7	121.9	24	113.4	113.9	114.4	24					106.4	107.5	108.5	24					103.6	103.8	103.9	24	03/03
03/04	121.3	121.4	121.6	24	113.5	113.7	114.1	24					106.3	107.3	108.0	24					103.2	103.4	103.7	24	03/04
03/05	121.1	121.2	121.3	24	113.3	113.5	113.8	24					106.2	106.8	107.5	24					102.4	102.6	102.8	24	03/05
03/06	121.1	121.3	121.5	24	113.7	114.2	114.7	24					107.0	108.2	109.5	24					101.9	102.0	102.4	24	03/06
03/07	121.5	121.7	121.9	24	114.2	114.8	115.3	24					107.3	108.6	109.6	24					102.6	103.3	103.6	24	03/07
03/08	122.1	122.2	122.5	24	114.7	115.0	115.6	24					107.6	108.6	109.8	24					104.2	104.6	105.6	24	03/08
03/09	122.0	122.2	122.3	24	113.2	113.8	114.2	24					105.9	106.4	106.7	24					104.2	104.4	104.7	24	03/09
03/10	121.9	122.2	122.4	24	112.2	112.8	113.4	24					105.8	107.1	108.2	24					104.1	104.5	105.7	24	03/10
03/11	122.0	122.1	122.3	23	112.8	113.2	113.7	23					106.3	107.5	108.6	23					103.3	103.5	103.8	23	03/11
03/12	122.0	122.2	122.4	24	113.2	113.9	114.5	24					106.8	108.3	109.6	24					102.9	103.2	103.4	24	03/12
03/13	122.5	122.8	123.0	24	113.6	114.3	114.8	24					107.0	108.3	109.3	24					103.9	104.4	104.7	24	03/13
03/14	122.5	122.6	122.8	24	112.6	112.9	113.5	24					105.6	105.8	106.1	24					104.4	104.6	104.8	24	03/14
03/15	122.4	122.6	122.9	23	111.2	111.4	112.0	23					105.3	105.6	106.1	23					104.7	104.9	105.2	23	03/15

FISH PASSAGE CENTER

**Total Dissolved Gas Saturation(%) - Average of  
12 Highest Hours, 24 Hours Average and 24 Hours High**

Date 3/16/2018 7:15:08 AM

Page 3 of 4

**Total Dissolved Gas Data at Lower Snake Sites**

Little Goose				L. Goose Tlwr				Lower Mon.				Lwr. Mon. Tlwr				Ice Harbor				Tlwr Ice Harbor				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01					103.1	103.8	105.1	24					106.1	106.2	106.4	24					102.4	102.8	102.9	24	03/01
03/02					102.8	103.0	103.3	24					102.4	103.6	106.0	24					102.6	102.8	102.9	24	03/02
03/03					102.5	102.8	103.0	24					101.1	101.4	104.0	24					101.5	101.7	102.1	24	03/03
03/04					102.1	102.3	102.5	24					100.6	100.8	100.9	24					100.6	100.9	101.1	24	03/04
03/05					101.6	101.7	101.8	24					100.6	100.9	101.9	24					100.0	100.2	100.3	24	03/05
03/06					101.7	102.0	102.2	24					101.3	101.8	102.2	24					100.2	100.6	100.9	24	03/06
03/07					102.9	103.6	103.8	24					102.3	102.9	103.0	24					101.5	102.1	102.2	24	03/07
03/08					104.3	104.7	105.1	24					103.5	103.8	104.1	24					103.1	103.5	103.7	24	03/08
03/09					103.9	104.3	104.6	24					103.1	103.4	103.6	24					103.2	103.5	103.8	24	03/09
03/10					102.9	103.2	103.4	24					102.6	102.9	103.1	24					103.2	104.0	104.4	24	03/10
03/11					102.4	102.5	102.7	23					102.6	102.7	102.9	23					105.1	106.0	106.3	23	03/11
03/12					103.0	103.6	103.8	24					103.2	103.7	103.9	24					104.6	105.1	105.6	24	03/12
03/13					104.9	105.5	105.9	24					104.7	105.5	112.3	24					105.8	106.3	106.9	24	03/13
03/14					105.2	105.3	105.5	24					105.3	106.6	110.3	24					106.5	107.0	108.8	24	03/14
03/15					104.7	104.8	105.0	23					105.2	105.9	110.4	23					109.1	109.3	109.6	23	03/15

**Total Dissolved Gas Data at Mid-Columbia Sites**

McNary-Wash.				Tlwr McNary				John Day				Tlwr John Day				The Dalles				Dnstr T. Dalles				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/01					104.7	105.6	105.9	24					118.6	119.1	119.2	24					111.2	111.4	111.6	24	03/01
03/02					105.6	106.0	106.1	24					117.1	117.6	118.4	24					108.9	109.8	110.4	24	03/02
03/03					105.1	105.3	105.5	24					115.6	116.8	117.0	24					107.4	107.7	107.9	24	03/03
03/04					102.5	103.2	104.0	24					112.6	114.1	118.1	24					105.7	106.2	106.4	24	03/04
03/05					101.2	101.5	102.1	24					115.9	117.1	117.3	24					105.1	106.2	108.0	24	03/05
03/06					101.4	101.6	102.4	24	103.1	103.1	103.3	12	113.4	114.8	115.1	24	106.1	106.4	107.3	15	106.1	106.8	107.2	24	03/06
03/07					102.5	102.8	103.8	24	103.8	104.3	104.6	24	112.0	112.4	112.8	24	106.4	106.8	107.1	24	106.6	107.7	108.0	24	03/07
03/08					104.1	104.3	104.8	24	105.2	105.5	105.7	24	112.6	112.8	112.9	24	106.0	106.3	106.7	24	105.8	106.0	106.4	24	03/08
03/09					104.4	104.8	105.2	24	104.2	104.5	105.1	24	112.6	113.5	113.9	24	105.4	105.8	106.1	24	105.0	105.3	105.4	24	03/09
03/10					103.6	104.0	104.4	24	103.1	103.4	103.6	24	114.8	115.8	117.5	24	104.9	105.3	105.5	24	104.4	104.8	105.0	24	03/10
03/11					103.0	103.4	103.9	23	103.1	103.3	103.4	23	114.3	114.7	115.1	23	106.1	106.4	106.6	23	106.0	106.4	106.8	23	03/11
03/12					102.8	102.9	103.2	24	103.9	104.5	104.9	24	115.1	115.3	115.4	24	106.7	107.3	107.8	24	106.3	107.0	107.4	24	03/12
03/13					103.7	103.8	104.1	24	105.2	105.3	105.6	24	114.8	115.2	115.4	24	107.8	108.1	108.2	24	107.5	107.9	108.1	24	03/13
03/14					103.8	104.1	104.5	24	104.8	104.8	104.9	24	114.2	114.4	114.5	24	106.7	106.8	107.0	24	106.3	106.5	106.7	24	03/14
03/15					104.0	104.3	104.8	23	105.1	105.5	105.9	23	116.9	118.2	118.4	23	107.0	107.6	108.0	23	106.5	107.1	107.3	23	03/15

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**Total Dissolved Gas Saturation(%) - Average of  
12 Highest Hours, 24 Hours Average and 24 Hours High**

Date 3/16/2018 7:15:08 AM

Page 4 of 4

**Total Dissolved Gas Data at Mid-Columbia Sites**

Date	Bonneville				Warrendale				CamasWashug.				Cascade Isld.				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
03/01				0	111.8	112.5	113.2	24				0				0	03/01
03/02				0	111.6	112.0	113.2	24				0				0	03/02
03/03				0	110.1	110.4	110.8	24				0				0	03/03
03/04				0	107.8	108.3	109.0	24				0				0	03/04
03/05	107.2	107.2	107.3	12	106.7	106.9	107.3	24				0	108.7	108.8	110.5	14	03/05
03/06	108.0	109.3	111.9	24	106.3	106.6	106.9	24	106.6	106.6	107.9	8	108.7	108.9	109.1	24	03/06
03/07	116.3	118.2	119.2	24	107.0	107.3	107.4	24	104.3	104.6	105.5	24	109.5	110.1	110.6	24	03/07
03/08	120.6	121.1	121.7	24	107.6	108.0	108.2	24	104.3	105.0	105.6	24	110.4	110.9	111.2	24	03/08
03/09	115.3	122.5	123.7	23	106.9	107.4	107.7	24	105.7	105.7	105.9	8	109.3	109.7	109.9	24	03/09
03/10	105.2	105.4	105.5	24	105.4	105.6	106.0	24				0	107.6	108.1	108.3	24	03/10
03/11	105.1	105.4	105.5	23	105.4	105.6	105.8	23				0	107.5	108.0	108.4	23	03/11
03/12	106.0	106.9	108.1	24	106.0	106.7	107.5	24				0	108.0	108.7	109.1	24	03/12
03/13	107.6	108.0	108.4	24	107.6	107.8	108.1	24	105.9	106.6	107.4	18	109.7	109.9	110.1	24	03/13
03/14	107.6	107.8	107.9	24	107.8	108.0	108.2	24	107.0	107.6	108.3	24	110.1	110.3	110.6	23	03/14
03/15	107.7	107.8	107.8	23	108.0	108.2	108.6	23	107.1	107.8	108.4	23	109.9	110.2	110.5	23	03/15

Hours used in calculating values:

24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 1 of 7

### COMBINED YEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/02/2018		0				6					
03/03/2018		2								37	12
03/04/2018		1				0					12
03/05/2018	0	0		0						27	35
03/06/2018	1	0		0		9					0
03/07/2018	0	1		0						60	0
03/08/2018	0	2	0	0		8					0
03/09/2018	1	1		0						223	0
03/10/2018		3	23	0		15					0
03/11/2018		1	12	0						701	11
03/12/2018	6	4	45	0		18					0
03/13/2018	27	4	39	0						788	10
03/14/2018	1,745	27	26	1		9					21
03/15/2018	549		36	2						782	11
03/16/2018											
<b>Total:</b>	<b>2,329</b>	<b>46</b>	<b>181</b>	<b>3</b>	<b>0</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,618</b>	<b>112</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>7</b>	<b>11</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>13</b>
<b>Average:</b>	<b>259</b>	<b>4</b>	<b>26</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>374</b>	<b>9</b>
<b>YTD:</b>	<b>2,878</b>	<b>55</b>	<b>181</b>	<b>3</b>	<b>0</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,747</b>	<b>112</b>

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 2 of 7

### COMBINED SUBYEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/02/2018		0				0					
03/03/2018		0								0	561
03/04/2018		0				0					718
03/05/2018	0	0		0						7	530
03/06/2018	0	0		0		0					620
03/07/2018	0	0		0						0	885
03/08/2018	0	0	0	0		0					1,216
03/09/2018	0	0		0						0	766
03/10/2018		0	0	0		0					1,110
03/11/2018		0	0	0						0	1,232
03/12/2018	0	0	0	0		0					921
03/13/2018	0	0	0	0						0	1,491
03/14/2018	0	0	0	0		0					1,332
03/15/2018	0		0	2						0	963
03/16/2018											
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>12,345</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>7</b>	<b>11</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>13</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>950</b>
<b>YTD:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>12,345</b>

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 3 of 7

### COMBINED COHO

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/02/2018		0				0					
03/03/2018		0								0	0
03/04/2018		0				0					12
03/05/2018	0	0		0						0	23
03/06/2018	0	0		0		0					21
03/07/2018	0	0		0						0	81
03/08/2018	0	0	0	0		0					98
03/09/2018	0	0		0						0	40
03/10/2018		0	0	0		0					62
03/11/2018		0	3	0						0	53
03/12/2018	0	0	2	0		0					42
03/13/2018	0	0	4	0						0	31
03/14/2018	0	0	5	0		0					31
03/15/2018	0		0	0						7	32
03/16/2018											
Total:	0	0	14	0	0	0	0	0	0	7	526
# Days:	9	13	7	11	0	7	0	0	0	7	13
Average:	0	0	2	0	0	0	0	0	0	1	40
YTD:	0	0	14	0	0	0	0	0	0	14	526

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 4 of 7

### COMBINED STEELHEAD

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/02/2018		1				6					
03/03/2018		0								7	0
03/04/2018		0				3					0
03/05/2018	0	0		0						13	0
03/06/2018	0	0		0		18					0
03/07/2018	0	0		0						0	0
03/08/2018	0	0	0	0		7					0
03/09/2018	0	0		0						6	0
03/10/2018		1	1	0		7					0
03/11/2018		0	0	0						7	0
03/12/2018	0	2	0	0		11					0
03/13/2018	0	0	0	1						0	0
03/14/2018	0	3	0	4		6					0
03/15/2018	0		1	0						7	0
03/16/2018											
<b>Total:</b>	0	7	2	5	0	58	0	0	0	40	0
<b># Days:</b>	9	13	7	11	0	7	0	0	0	7	13
<b>Average:</b>	0	1	0	0	0	8	0	0	0	6	0
<b>YTD:</b>	0	7	2	5	0	64	0	0	0	48	0

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 5 of 7

### COMBINED SOCKEYE

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/02/2018		0				14					
03/03/2018		0								0	0
03/04/2018		0				1					0
03/05/2018	0	0		0						0	0
03/06/2018	0	0		0		10					0
03/07/2018	0	0		0						0	0
03/08/2018	0	0	0	0		6					0
03/09/2018	0	0		0						0	0
03/10/2018		0	0	0		8					0
03/11/2018		0	0	0						0	0
03/12/2018	0	0	0	0		10					0
03/13/2018	0	0	0	0						0	0
03/14/2018	0	0	0	0		7					0
03/15/2018	0		0	0						0	0
03/16/2018											
<b>Total:</b>	0	0	0	0	0	56	0	0	0	0	0
<b># Days:</b>	0	0	0	0	0	8	0	0	0	0	0
<b>Average:</b>	0	0	0	0	0	8	0	0	0	0	0
<b>YTD:</b>	0	0	0	0	0	63	0	0	0	0	0

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 6 of 7

### COMBINED LAMPREY JUVENILES

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR* (Sample)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
03/02/2018		0				2					
03/03/2018		0								1,360	135
03/04/2018		0				3					130
03/05/2018	0	0		0						1,265	90
03/06/2018	0	0		0		0					50
03/07/2018	0	0		0						620	30
03/08/2018	0	0	0	0		2					80
03/09/2018	0	0		0						420	95
03/10/2018		0	0	0		5					70
03/11/2018		0	0	0						380	55
03/12/2018	0	0	0	0		2					70
03/13/2018	0	0	0	0						120	80
03/14/2018	0	0	0	0		2					90
03/15/2018	0		0	0						260	40
03/16/2018											
<b>Total:</b>	0	0	0	0	0	16	0	0	0	4,425	1,015
<b># Days:</b>	9	13	7	11	0	8	0	0	0	8	15
<b>Average:</b>	0	0	0	0	0	2	0	0	0	553	68
<b>YTD:</b>						16				6,470	1,015

- No data available or no sample conducted

- Juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection. Therefore, only sample counts are provided in this report.

Number of hours sampled:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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# Smolt Monitoring Program Two Week Passage Index Report

Date 3/16/2018 9:16:17 AM

Page 7 of 7

### Smolt Monitoring Program Sites and Agency Collaborations:

- WTB (Collection) - Salmon River Trap at Whitebird : Collection Counts
- IMN (Collection) - Imnaha River Trap : Collection Counts
- GRN (Collection) - Grande Ronde River Trap : Collection Counts
- LEW (Collection) = Snake River Trap at Lewiston : Collection Counts
- LGR (Index) - Lower Granite Dam Bypass Collection System : Passage Index Counts
- LGS (Index) - Little Goose Bypass Collection System : Passage Index Counts
- LMN (Index) - Lower Monumental Dam Bypass Collection System : Passage Index Counts
- RIS (Index) - Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts
- MCN (Index) - McNary Dam Bypass Collection System : Passage Index Counts
- JDA (Index) - John Day Dam Bypass Collection System : Passage Index Counts
- BO2 (Index) - Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

- No data available or no sample conducted

### Number of hours sampled:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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### Important Information About this Report:

- For clip information see: <http://www.fpc.org/currentdaily/smpcomments.htm>
- Three classes of fish counts are shown in these tables:
  - Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details.
  - Collection counts (Coll), which account for sample rates but are not adjusted for flow;
  - Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.
- Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations. Equations for passage index are provided below for each site.
  - LGR, LGS, LMN, MCN, JDA (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts Passage Index = Collection Counts / (Powerhouse Flow / (Powerhouse Flow + Spill))
  - RIS, BO2 (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts Passage Index = Collection Counts / (Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill))
- Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, pacific lamprey macrophthalmia, and unidentified lamprey species.
- Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

FISH PASSAGE CENTER

## Two Week Transportation Summary Report 3/2/2018 12:00:00 AM TO 3/16/2018 12:00:00 AM

Date 3/16/2018 9:17:50 AM

Page 1 of 2

### Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	0	0	0	0	0
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	0	0	0	0	0

### Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	65	0	56	58	237
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	64	0	56	58	236
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	1	0	0	0	1
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	1	0	0	0	1

FISH PASSAGE CENTER

## Two Week Transportation Summary Report 3/2/2018 12:00:00 AM TO 3/16/2018 12:00:00 AM

Date 3/16/2018 9:17:50 AM

Page 2 of 2

### Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	0	0	0	0	0
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	0	0	0	0	0

### Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	65	0	56	58	237
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	64	0	56	58	236
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	1	0	0	0	1
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	1	0	0	0	1

## YTD Transportation Summary Report

Date 3/16/2018 9:17:28 AM

Page 1 of 2

### Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	0	0	0	0	0
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	0	0	0	0	0

### Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	65	0	56	58	237
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	64	0	56	58	236
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	1	0	0	0	1
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	1	0	0	0	1

FISH PASSAGE CENTER

## YTD Transportation Summary Report

Date 3/16/2018 9:17:28 AM

Page 2 of 2

### Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	0	0	0	0	0
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	0	0	0	0	0

### Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	65	0	56	58	237
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	64	0	56	58	236
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	0	0	0
Sum of Facility Morts	0	1	0	0	0	1
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	1	0	0	0	1

Cumulative Adult Passage at Mainstem Dams Through: 03/15

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2018		2017		10-Yr Avg.		2018		2017		10-Yr Avg.		2018		2017		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	03/14	4	0	8	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0
TDA	02/28	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	02/27	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	03/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	03/14	6	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2018		2017		10-Yr Avg.		2018	2017	10-Yr Avg.	10-Yr		Unclipped	Unclipped	10-Yr	10-Yr			
		Adult	Jack	Adult	Jack	Adult	Jack	2018	2017	Avg.	2018	2017	Avg.	2018	2017	Avg.	2018	2017	Avg.
BON	03/14	1	-1	0	0	0	0	0	0	0	968	945	1307	394	385	490	0	0	0
TDA	02/28	4	0	0	0	0	0	0	0	0	43	0	79	15	0	38	0	0	0
JDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	02/27	0	0	0	0	1	0	0	0	0	184	0	214	79	0	82	0	0	0
IHR		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	03/14	0	0	0	0	0	0	0	0	0	759	1530	1574	160	551	492	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	03/14	0	2	117	117	0	0	0	0	0	813	432	2430	782	429	0	0	0	0

PRD does not post wild steelhead numbers.  
 These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.  
 Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.  
 Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.  
 Historic counts 1997 to present were obtained from the Corps of Engineers.