



Fish Passage Center

Weekly Report #19-02

March 15, 2019

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 28% and 50% of average at individual sub-basins over March. Precipitation above The Dalles has been 34% of average over March. Over the 2019 water year, precipitation has ranged between 72% and 95% 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 2019 March 1-14, 2019		Water Year 2019 October 1, 2018 to March 14, 2019	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	0.49	32	16.4
Snake River Above Ice Harbor	0.39	37	11.8	94
Columbia Above The Dalles	0.41	34	13.2	84
Kootenai	0.41	28	14.8	72
Clark Fork	0.32	28	12.8	92
Flathead	0.43	29	14.4	77
Pend Oreille River Basin above Waneta Dam	0.42	31	14.2	81
Salmon River Basin	0.46	34	14.8	95
Upper Snake Tributaries	0.60	50	12.6	90
Clearwater	0.52	28	19.8	84
Willamette River above Portland	0.21	36	36.3	80

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 94% of average, for Snake River Basins the average snowpack is 123% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 125% of average.

Table 2 displays the March 14th ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 14th ESP forecast at The Dalles between April and August is 75,011 Kaf (86% of average).

Table 2. March 14 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	March 14, 2019 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	86	75,011
Grand Coulee (Apr-Aug)	86	48,751
Libby Res. Inflow, MT (Apr-Aug)	76 93**	4,487 5478**
Hungry Horse Res. Inflow, MT (Apr-Aug)	84	1,621
Lower Granite Res. Inflow (Apr- July)	92	18,301
Brownlee Res. Inflow (Apr-July)	92	5,058
Dworshak Res. Inflow (Apr-July)	91 88**	2,198 2,142**

**COE March Final Forecast

Grand Coulee Reservoir is at 1261.6 feet (3-14-19) and has drafted 3.1 feet over the last week. Outflows at Grand Coulee have ranged between 59.0 Kcfs and 106.6

Kcfs over the last week. The April 10th Flood Control Elevation at Grand Coulee is 1283.3 feet (based on March Final Forecast).

The Libby Reservoir is currently at elevation 2406.4 feet (3-14-19) and has drafted 2.0 feet over the past week. Daily average outflows at Libby Dam have ranged between 6.4 Kcfs to 10 Kcfs over the last week. The April 10th Flood Control Elevation at Libby is 2441.3 feet (based on March Final Forecast).

Hungry Horse is currently at an elevation of 3522.5 feet (3-14-19) and has drafted 1.4 feet last week. Outflows at Hungry Horse have been 3.1 Kcfs over the last week. The April 10th Flood Control Elevation at Hungry Horse is 3544.6 feet (based on March Final Forecast).

Dworshak is currently at an elevation of 1524.1 feet (3-14-19) and has held steady over last week. Dworshak outflows have been 1.7 Kcfs. The April 10th System Flood Control Elevation at Dworshak is 1559.5 feet, the April 10th Local FC Elevation is 1570.5 feet (based on March Final Forecast).

The Brownlee Reservoir was at an elevation of 2040.0 feet on March 14, 2019 and has drafted 1.4 feet in the last week. Outflows at Hells Canyon have ranged between 16.6 and 30.2 Kcfs over the last four days. The April 10th Flood Control Elevation at Brownlee is 2053.5 feet (based on March Final Forecast).

Spill

Flows in the Snake River have been relatively low this week, with daily average flows ranging from 31.5 to 40.0 Kcfs at Lower Granite Dam. Flows in the Upper Columbia (at Rock Island Dam) started in the 105-110 Kcfs range on March 8th and 9th but have decreased to 65-75 Kcfs by March 13th and 14th. Likewise, flows in the Mid-Columbia have decreased this week. Daily average flows at McNary Dam were in the 140-150 Kcfs range on March 8th and 9th but decreased to the 100-110 Kcfs range by March 13th and 14th.

There has been no involuntary spill at FCRPS projects this week. Voluntary spill for fish passage at FCRPS projects is expected to begin on April 3rd in the Snake River and April 10th in the Mid-Columbia.

Smolt Monitoring

The Smolt Monitoring Program (SMP) is currently collecting data from three bypass facilities: Bonneville Dam, John Day Dam, and Lower Monumental Dam. In addition, the SMP is currently receiving data from three of our mainstem traps: the Salmon River Trap, the Snake River Trap, and the Imnaha River Trap. Due to inclement weather and unsafe road conditions, SMP sampling at the Grande Ronde River Trap has been delayed until conditions improve. SMP sampling at the other bypass facilities is expected to begin in late March (at Lower Granite Dam) or early April (at Little Goose, McNary, and Rock Island dams).

Subyearling Chinook continued to dominate the samples at Bonneville Dam (BON) this week. As with the previous week, all of the subyearling Chinook sampled at BON this week were fry. The daily average passage index for subyearling Chinook fry this week was about 260 per day, which is similar to last week's daily average of 240 per day. A relatively small number of yearling Chinook and coho were also collected this week. Approximately 80% of the coho that were collected this week were fry. Steelhead were encountered in one of this week's samples (March 9th). Pacific lamprey macrophthalmia were encountered in all seven samples this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 45 per day. Pacific lamprey ammocoetes were encountered in three of this week's samples.

After a delay of about two weeks due to inclement weather and unsafe conditions, sampling at John Day Dam (JDA) began on March 13th, with the first sample being tallied and reported on March 14th. This first sample from JDA contained yearling Chinook, steelhead, and Pacific lamprey macrophthalmia, with the lamprey juveniles making up the majority of the sample. Of the yearling Chinook sampled in yesterday's sample, half were fall Chinook holdovers.

After a delay of about a week due to inclement weather and unsafe conditions, sampling at Lower Monumental (LMN) began on March 8th, with the first sample being tallied and reported on March 9th. Sampling at LMN will occur every-other-day until the start of transportation, at which time daily sampling will begin. Zero fish were encountered in the first sample from LMN (March 9th). Since then, samples at LMN have consisted of mostly yearling Chinook. Of the

yearling Chinook encountered at LMN this week, the majority (84%) were fall Chinook holdovers. A small proportion (4%) were yearling fall Chinook from Lyons Ferry Hatchery that were released early due to disease and issues with water supply. Collections of these yearling fall Chinook from Lyons Ferry Hatchery are expected to increase in the coming days. The only other species that were encountered at LMN this week were sockeye and steelhead, both of which were encountered in the sample from March 13th.

The Snake River Trap at Lewiston, ID (LEW) is located at river kilometer 225 of the Snake River and is operated by Idaho Department of Fish and Game. Similar to last week, the only salmonids that were collected at the Snake River Trap this week were subyearling Chinook fry. However, collection for subyearling Chinook fry have been relatively low

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 of the Salmon River and is operated by Idaho Department of Fish and Game. Similar to recent years, sampling at WTB in 2019 will only occur on weekdays. Although sampling at this trap began on March 4th, no fish had been collected until the March 13th sample. Collections of yearling Chinook increased dramatically on March 13th and March 14th, with collections of approximately 940 and 450, respectively. The vast majority (98%) of these yearling Chinook were clipped and likely from the recent releases at Rapid River Hatchery.

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 2019, the FPC currently has data from IMN for the period of February 15th through March 13th. Over the last week of available data (March 7-13), the only salmonids encountered were yearling Chinook, with 15 total collected over this period.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 3/15/19, 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, 84% 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 (427,000). Those released from Rapid River Hatchery 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 15th, and another 625,000 summer Chinook from Clearwater Hatchery were scheduled for release into the Lochsa River between March 11th and 14th. Additionally, 170,000 yearling fall Chinook were released at Lyons Ferry Hatchery on March 11th. This was an emergency release of fish that were originally scheduled to be released from Pittsburg Landing in April.

In the next two weeks, almost 6 million spring Chinook will be released into this zone. Of these, approximately 83% will be released to the Clearwater River or one of its tributaries (Clear Creek, or Red River). Additionally, 127,000 summer Chinook are also scheduled for released into Johnson Creek, a tributary of the Salmon River. Another 560,000 summer Steelhead are scheduled to be released during the same period, all 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 only one release of 300 coho into the Wenatchee River is planned during the next two weeks.

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). Over the past week approximately 712,000 spring Chinook were scheduled to be released into tributaries of the Yakima River. Over the next two weeks 659,000 spring Chinook are scheduled for release into the Deschutes River (25,000), and the Klickitat River

(634,000) on March 26th.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Over the past week approximately 1.46 million spring Chinook were scheduled to be released into tributaries of the Willamette River. Of these, roughly 90% were released into the Willamette River and its tributaries: 70,000 into the Clackamas, 240,000 at Eagle Creek, 704,000 into the Santiam River, 100,000 into the Mollalla River, and 202,000 into the McKenzie. An additional 150,000 were also released into Blind Slough. There were also 250,000 coho released into Tanner Creek below Bonneville Dam, and 25,000 summer steelhead released into the Clackamas River.

Over the next two weeks 484,000 spring Chinook are scheduled to be released in this zone, 250,000 at Tongue Point in the lower Columbia, and 234,000 into the middle fork of the Willamette River on March 22nd. There are also 290,000 chum planned for release at Big Creek Hatchery on the 29th, and 90,000 summer steelhead planned for release into the Santiam River on the same date

Adult Passage

Bonneville Dam uses video counts from January 1st through March 31st and direct counting after this period. Bonneville Dam counts adult salmon and steelhead year round. Lower Granite Dam uses video counts from March 1st through March 31st and direct counting after this period. Lower Granite Dam counts adult salmon and steelhead through December 30th 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 1/1/2019 through 3/12/2019), 1 adult Chinook and 290 adult steelhead were counted. In 2018 for the same time frame, 4 adult Chinook and 896 adult steelhead were counted. The 2019 Bonneville Dam winter season count of adult steelhead had 606 fewer fish than the 2018 count.

The Willamette Falls cumulative steelhead count from January 1st through March 13th is 806. The 2019

Willamette Falls winter steelhead count has 5 more fish than the 2018 count of 801 while being about 36% of the 10-year average count of 2,239. This year's Lower Granite steelhead count of 107 has 468 fewer fish than the 2018 count of 575 and is about 9% of the 10-year average count of 1,187.

This winter, based on estimates made by the Technical Advisory Committee (TAC) for U.S. v. Oregon, the spring Chinook run for 2019 is expected to be 157,500. The TAC reported that 177,043 spring Chinook had returned to the river in 2018 (see U.S. v. Oregon, Technical Advisory Committee's February 22, 2019, document *Columbia River Mouth Fish Returns* which displays 2018 actual and 2019 forecasts of spring Chinook, summer Chinook, sockeye, and steelhead counts from the Oregon and Washington Departments of Fish and Wildlife). This report is available at: https://www.dfw.state.or.us/fish/OSCRP/CRM/returns_and_expectations/docs/2018_returns_19forecasts.pdf

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: **3/2/2019** to **03/15/19**

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2019	624,865	03-11-19	03-14-19	Powell Acclim Pond	Lochsa River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2019	200,000	03-15-19	03-15-19	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2019	427,000	03-11-19	03-14-19	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2019	2,500,000	03-11-19	04-26-19	Rapid River	Little Salmon River	SNAK
Idaho Dept. of Fish and Game Total					3,751,865					
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2019	150,000	03-11-19	03-11-19	Lyons Ferry Hatchery	Snake River	SNAK
Nez Perce Tribe Total					150,000					
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CO	UN	2019	250,000	03-15-19	03-15-19	Tanner Creek	Tanner Creek	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	SU	2019	25,000	03-15-19	03-15-19	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2019	70,000	03-11-19	03-11-19	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2019	240,000	03-15-19	03-15-19	Eagle Creek Hatchery	Eagle Creek	LCOL
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	CH1	SP	2019	150,000	03-15-19	03-15-19	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2019	210,000	03-15-19	03-15-19	Imnaha River	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2019	100,000	03-15-19	03-15-19	Mollala River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2019	704,000	03-15-19	03-15-19	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	McKenzie Hatchery	CH1	SP	2019	202,000	03-15-19	03-15-19	McKenzie River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	CH1	SP	2019	66,000	03-07-19	03-07-19	Bull Run Acclimation	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	CH1	SP	2019	421,000	03-08-19	03-08-19	S Fk Santiam River	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife Total					2,438,000					
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	120,000	03-15-19	03-15-19	Umatilla River	Umatilla River	MCOL
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	187,700	03-04-19	03-04-19	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	210,000	03-08-19	03-08-19	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	220,000	03-08-19	03-08-19	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					737,700					
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2019	233,671	03-15-19	05-15-19	Easton Pond	Yakima River	MCOL
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2019	233,701	03-15-19	05-15-19	Jack Creek Acclim Pond	Yakima River	MCOL
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2019	244,540	03-15-19	05-15-19	Clark Flat Acclim Pond	Yakima River	MCOL
Yakama Tribe Total					711,912					
Grand Total					7,789,477					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From:		3/16/2019			to			3/29/2019		
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2019	402,627	03-21-19	03-22-19	Selway River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2019	691,278	03-18-19	04-03-19	Kooskia Hatchery	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2019	702,893	03-27-19	03-28-19	Clearwater River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2019	1,181,465	03-25-19	03-29-19	Red River	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2019	127,763	03-29-19	04-01-19	Johnson Cr Idaho	South Fork Salmon River	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2019	559,600	03-18-19	03-29-19	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2019	86,918	03-26-19	03-27-19	Salmon River (ID)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2019	919,502	03-26-19	03-27-19	Salmon River (ID)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					4,672,046					
Nez Perce Tribe	Dworshak NFH	CH1	SP	2019	247,263	03-27-19	03-27-19	Kooskia Hatchery	Clearwater River M F	SNAK
Nez Perce Tribe Total					247,263					
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	CM	UN	2019	290,000	03-29-19	03-29-19	Big Creek Hatchery	Big Creek	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2019	250,000	03-29-19	03-29-19	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	ST	SU	2019	90,000	03-29-19	03-29-19	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2019	234,000	03-22-19	03-22-19	M Fk Willamette River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2019	7,500	03-26-19	03-26-19	Metolius River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2019	7,500	03-26-19	03-26-19	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2019	10,000	03-26-19	03-26-19	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					889,000					
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2019	1,724,382	03-27-19	03-28-19	Dworshak Hatchery	Clearwater River M F	SNAK
U.S. Fish and Wildlife Service Total					1,724,382					
Umatilla Tribe	Cascade Hatchery	CO	UN	2019	500,000	03-29-19	03-29-19	Umatilla River	Umatilla River	MCOL
Umatilla Tribe Total					500,000					
Yakama Tribe	Cascade Hatchery	CO	UN	2019	310	03-29-19	03-29-19	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Klickitat Hatchery	CH1	SP	2019	634,000	03-26-19	03-26-19	Klickitat Hatchery	Klickitat River	MCOL
Yakama Tribe Total					634,310					
Grand Total					8,667,001					

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

Daily Average Flow and Spill (in Kcfs)

Date 3/15/2019 7:15:22 AM

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Upper 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
03/01/2019	81.8	0.0	82.4	0.0	77.3	0.0	73.7	0.0	77.1	0.0	74.9	0.0	74.7	0.0
03/02/2019	81.4	0.0	86.4	0.0	85.1	0.0	86.2	0.0	91.6	0.0	85.3	0.0	82.0	0.0
03/03/2019	83.6	0.0	77.5	0.0	79.8	0.0	78.1	0.2	81.3	0.0	79.6	14.5	79.6	2.4
03/04/2019	97.6	0.0	97.5	0.0	101.0	0.0	97.3	0.0	105.2	0.0	108.7	0.0	109.3	0.0
03/05/2019	108.6	0.0	105.2	0.0	107.6	1.4	102.2	0.0	108.6	0.0	117.6	0.0	113.3	0.0
03/06/2019	106.7	0.0	109.1	0.0	110.2	1.5	106.3	0.0	112.9	0.0	112.2	0.0	110.6	0.0
03/07/2019	97.1	0.0	96.0	0.0	101.8	0.0	100.7	0.0	107.2	0.0	115.0	0.0	111.6	0.0
03/08/2019	106.5	0.0	106.4	0.0	102.3	0.0	96.7	0.0	103.6	0.0	105.7	0.0	103.5	0.0
03/09/2019	90.5	0.0	95.5	0.0	97.6	0.0	97.3	0.0	104.7	0.0	112.1	0.0	107.9	0.0
03/10/2019	66.4	0.0	60.4	0.0	71.1	0.5	69.4	0.0	73.7	0.0	77.4	0.0	81.5	0.0
03/11/2019	71.4	0.0	68.4	0.0	77.6	0.0	78.6	0.0	83.0	0.0	83.7	0.0	84.6	0.0
03/12/2019	59.0	0.0	64.8	0.0	65.1	0.0	59.4	0.0	62.1	0.0	72.7	0.0	74.7	0.0
03/13/2019	62.1	0.0	66.6	0.0	57.6	0.0	50.0	0.0	51.2	0.0	65.1	5.6	70.4	0.0
03/14/2019	68.1	0.0	67.7	0.0	69.3	0.0	72.0	3.8	75.4	0.0	75.4	3.4	70.4	4.2

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

Daily Average Flow and Spill (in Kcfs)

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Snake Basin Projects

Date	Dworshak		Brownlee		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Inflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/01/2019	1.7	0.0			35.3	0.0	33.5	0.0	34.5	0.0	34.3	0.0		
03/02/2019	1.7	0.0			33.9	0.0	33.2	0.0	33.9	0.0	34.0	0.0		
03/03/2019	1.7	0.0			35.3	0.0	33.1	0.0	33.8	0.0	35.3	0.0		
03/04/2019	1.7	0.0			35.1	0.0	35.2	0.0	36.3	0.0	38.1	0.0		
03/05/2019	1.7	0.0			38.3	0.0	37.7	0.0	38.9	0.0	37.7	0.0		
03/06/2019	1.7	0.0			42.9	0.0	38.8	0.0	37.9	0.0	35.5	0.0		
03/07/2019	1.7	0.0			32.4	0.0	34.3	0.0	36.9	0.0	38.8	0.0		
03/08/2019	1.7	0.0			33.1	0.0	32.8	0.0	33.7	0.0	34.2	0.0		
03/09/2019	1.7	0.0			37.8	0.0	38.7	0.0	39.8	0.0	39.2	0.0		
03/10/2019	1.7	0.0			31.5	0.0	26.1	0.0	26.7	0.0	28.8	0.0		
03/11/2019	1.7	0.0			40.0	0.0	39.5	0.0	40.6	0.0	39.7	0.0		
03/12/2019	1.7	0.0			34.9	0.0	33.1	0.0	34.0	0.0	31.2	0.0		
03/13/2019	1.7	0.0			33.4	0.0	33.4	0.0	33.6	0.0	35.6	0.0		
03/14/2019	1.7	0.0			36.7	0.0	37.6	0.0	39.5	0.0	42.0	0.0		

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

Daily Average Flow and Spill (in Kcfs)

Date 3/15/2019 7:15:22 AM

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Mid - Columbia Projects

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/01/2019	108.6	0.0	111.0	0.0	112.7	0.0	131.0	1.1	8.0	114.2
03/02/2019	110.0	0.0	113.1	0.0	112.9	0.3	134.1	1.2	17.7	107.6
03/03/2019	109.9	0.0	115.2	0.0	117.5	0.0	132.7	1.3	15.5	108.6
03/04/2019	137.6	0.0	133.3	0.0	132.3	0.3	136.6	1.2	43.7	84.1
03/05/2019	147.0	0.0	140.8	0.0	142.9	0.0	143.8	1.2	44.5	90.5
03/06/2019	153.3	0.0	154.6	0.0	152.0	0.5	151.9	1.3	49.1	94.0
03/07/2019	152.0	0.0	163.7	0.0	160.4	0.0	175.6	1.3	60.6	106.2
03/08/2019	138.5	0.0	142.9	0.0	149.4	0.3	167.6	1.3	62.9	95.9
03/09/2019	152.4	0.0	156.8	0.0	155.2	0.0	178.6	1.2	74.8	95.0
03/10/2019	137.2	0.0	143.3	0.0	142.6	0.3	153.9	1.2	52.2	92.9
03/11/2019	119.3	0.0	128.0	0.0	125.5	0.0	125.6	1.2	18.1	99.0
03/12/2019	110.8	0.0	121.6	0.0	115.1	0.3	123.0	1.2	8.2	106.1
03/13/2019	102.9	0.0	116.5	0.0	115.9	0.0	125.0	1.2	0.0	116.2
03/14/2019	113.0	0.0	108.6	0.0	111.3	0.4	128.2	1.2	0.8	118.6

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

FISH PASSAGE CENTER

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

Date 3/15/2019 7:15:08 AM

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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									97.9	98.1	98.5	24	97.8	98.0	98.1	24	97.8	98.0	98.2	24	97.2	97.4	97.7	24					03/01
03/02									97.7	97.8	98.0	24	97.5	97.8	98.2	24	97.9	98.1	98.4	24	97.3	97.6	98.0	24					03/02
03/03									97.3	97.4	97.7	24	97.2	97.4	97.9	24	97.4	97.6	97.9	24	96.7	97.0	97.3	24					03/03
03/04									97.5	97.7	97.8	24	97.0	97.2	97.4	24	97.6	97.7	98.0	18	96.8	97.1	97.4	24					03/04
03/05									98.5	99.0	99.3	24	97.8	98.4	98.6	24	98.3	98.7	99.1	24	97.5	98.0	98.5	24					03/05
03/06									99.9	100.2	100.4	24	99.3	99.6	99.9	24	99.5	99.7	99.9	22	98.8	99.0	99.1	24					03/06
03/07									99.4	99.5	99.7	24	99.4	99.7	100.4	24	98.9	99.1	99.4	22	98.2	98.6	99.1	24					03/07
03/08									99.2	99.3	99.6	24	98.7	98.9	99.0	24	98.6	98.7	98.9	24	97.9	98.1	98.3	24					03/08
03/09									98.8	99.0	99.2	24	98.6	99.0	99.3	24	98.3	98.4	98.6	24	97.8	98.0	98.1	24					03/09
03/10									98.3	98.5	98.5	23	98.7	99.2	100.0	23	98.5	98.8	99.1	23	98.2	98.4	99.2	18					03/10
03/11									98.8	99.3	99.7	24	99.1	99.9	100.5	24	98.4	98.8	99.2	24				0					03/11
03/12									100.0	100.2	100.4	24	100.5	100.8	101.8	24	99.6	99.8	100.3	23				0					03/12
03/13									98.7	99.0	99.4	24	99.5	99.8	100.4	24	98.7	99.0	99.6	24	99.0	99.0	101.0	11					03/13
03/14									97.9	98.1	98.4	20	98.3	98.7	99.5	20	98.3	98.7	99.0	22	98.5	98.9	99.4	22					03/14

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	97.2	97.6	98.0	24	97.5	97.9	98.4	24	97.9	98.0	98.3	23	99.2	99.4	99.7	20	97.6	97.7	97.9	21	97.7	97.8	97.9	20					03/01
03/02	97.3	97.4	97.9	24	97.7	98.0	98.9	24	97.7	97.8	97.9	21	99.0	99.2	99.5	19	97.3	97.4	97.6	21	97.4	97.5	97.7	19					03/02
03/03	96.8	97.0	97.3	24	97.3	97.5	98.0	24	97.3	97.5	97.7	23	98.8	99.2	100.1	23	97.1	97.2	97.4	24	97.2	97.3	97.4	23					03/03
03/04	97.0	97.3	97.6	23	97.4	97.7	98.3	23	97.7	98.0	98.3	23	99.1	99.5	99.9	23	97.3	97.6	98.0	23	97.4	97.6	98.0	22					03/04
03/05	97.6	98.2	98.3	24	98.5	99.2	101.2	24	98.7	99.2	99.6	23	100.1	100.5	101.2	22	98.3	98.8	99.2	24	98.5	98.8	99.3	21					03/05
03/06	98.7	98.9	99.2	23	99.3	99.9	101.9	23	100.0	100.2	100.4	24	101.1	101.3	101.6	22	99.6	99.9	100.0	23	99.7	99.9	100.1	21					03/06
03/07	98.1	98.5	98.6	24	98.6	98.9	99.3	24	99.7	99.9	100.3	24	100.4	100.7	101.5	22	99.2	99.5	99.6	24	99.3	99.5	99.7	21					03/07
03/08	98.2	98.6	99.1	24	98.6	99.1	99.7	24	99.3	99.5	99.6	22	100.1	100.3	100.7	21	98.9	99.2	99.3	22	99.0	99.2	99.5	19					03/08
03/09	97.5	97.8	98.3	24	97.9	98.3	98.8	24	98.7	98.8	99.1	24	100.0	100.4	100.7	23	98.4	98.6	99.2	24	98.5	98.8	99.3	22					03/09
03/10	97.0	97.3	97.6	22	97.6	98.0	98.3	22	98.3	98.4	98.5	23	99.0	99.3	100.3	20	97.8	97.9	98.3	22	97.9	98.0	98.4	18					03/10
03/11	97.8	98.4	98.8	24	98.0	98.6	99.1	24	98.6	98.9	99.5	24	99.9	100.3	101.5	21	98.2	98.4	98.9	22	98.3	98.5	99.1	20					03/11
03/12	99.3	99.6	99.7	24	99.7	100.0	100.4	24	99.9	100.0	100.1	22	101.0	101.4	101.8	21	99.2	99.7	100.0	24	99.7	99.8	100.1	21					03/12
03/13	97.9	98.2	98.5	24	98.4	98.8	99.2	24	98.9	99.1	99.6	24	99.4	100.2	101.2	22	98.1	98.9	99.1	22	98.7	98.9	99.2	20					03/13
03/14	97.3	97.6	97.9	23	97.7	98.0	98.4	23	98.3	98.6	98.8	23	101.5	103.7	115.3	22	98.7	99.5	102.0	23	98.7	99.1	102.0	22					03/14

FISH PASSAGE CENTER

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

Date 3/15/2019 7:15:08 AM

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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	98.0	98.1	98.2	24	98.2	98.5	99.5	24	97.9	98.1	98.1	24				0					03/01
03/02	97.7	97.8	97.9	24	97.6	97.6	97.7	6	97.8	97.9	98.1	24				0					03/02
03/03	97.0	97.3	97.5	24				0	97.0	97.2	97.3	24				0					03/03
03/04	97.6	97.8	98.0	24				0	100.1	102.3	104.2	24				0					03/04
03/05	98.6	99.1	99.4	24				0	99.8	99.9	100.1	24				0					03/05
03/06	99.9	100.2	100.3	24				0	99.7	99.9	100.0	24				0					03/06
03/07	99.3	99.4	99.9	24				0	98.7	98.8	99.3	24				0					03/07
03/08	99.3	99.4	99.5	24				0	98.7	98.9	99.0	24				0					03/08
03/09	99.1	99.1	99.3	24				0	98.6	98.7	98.7	24				0					03/09
03/10	98.5	98.7	98.9	24				0	98.0	98.2	98.4	24				0					03/10
03/11	98.8	99.2	99.7	24				0	98.5	99.0	99.5	24				0					03/11
03/12	99.6	99.7	99.9	24				0	99.9	100.0	100.1	24				0					03/12
03/13	99.0	99.3	99.6	24				0	98.6	98.8	99.6	24				0					03/13
03/14	98.5	98.7	98.8	24				0	98.1	99.7	101.4	24	101.6	102.3	104.8	16					03/14

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	100.5	101.2	102.4	24													99.9	100.0	100.1	24					03/01
03/02	100.4	101.2	102.3	24													99.8	100.0	100.2	24					03/02
03/03	100.1	100.9	101.9	24													99.1	99.2	99.5	24					03/03
03/04	100.0	100.9	102.2	24													99.2	99.5	99.6	24					03/04
03/05	100.7	101.8	103.1	24													100.5	101.2	101.7	24					03/05
03/06	102.1	103.3	103.9	24													102.3	102.6	102.9	24					03/06
03/07	101.8	103.3	105.5	24													101.7	101.8	102.0	24					03/07
03/08	101.3	102.2	103.4	24													101.6	101.8	101.9	24					03/08
03/09	101.0	102.0	103.3	24													101.3	101.5	101.7	24					03/09
03/10	100.4	101.4	103.0	23													100.6	100.8	100.9	23					03/10
03/11	100.4	101.6	103.1	24													101.1	101.7	102.2	24					03/11
03/12	101.5	102.2	102.8	24													102.2	102.5	102.7	24					03/12
03/13	100.5	101.3	102.3	24													100.6	100.9	101.4	24					03/13
03/14	100.1	101.2	102.8	23													100.0	100.3	100.6	23					03/14

FISH PASSAGE CENTER

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

Date 3/15/2019 7:15:08 AM

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Total Dissolved Gas Data at Lower Snake Sites

Date	Little Goose				L. Goose Tlwr				Lower Mon.				Lwr. Mon. Tlwr				Ice Harbor				Tlwr Ice Harbor				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	
03/01				0	99.1	99.3	99.6	24				0	97.9	98.2	98.6	24				0	97.5	97.7	98.1	24	03/01
03/02				0	98.8	99.1	99.3	24				0	98.2	98.4	98.6	24				0	97.2	97.5	97.9	24	03/02
03/03				0	98.4	98.7	99.0	24				0	98.3	98.5	98.6	24				0	96.8	97.0	97.8	24	03/03
03/04				0	98.7	99.0	99.4	24				0	98.6	98.8	98.9	24				0	96.8	97.0	97.3	24	03/04
03/05				0	99.6	100.3	100.4	24				0	99.5	100.0	100.2	24				0	97.7	98.3	98.4	24	03/05
03/06				0	101.2	101.7	102.0	24				0	101.0	101.4	101.8	24				0	99.4	99.8	100.1	24	03/06
03/07				0	100.8	101.0	101.2	24				0	100.3	100.5	100.6	24				0	99.4	99.7	100.0	24	03/07
03/08				0	100.9	101.2	101.5	24				0	100.4	100.7	101.3	24				0	100.3	100.8	101.3	24	03/08
03/09				0	100.7	101.0	101.3	24				0	100.5	100.7	101.0	24				0	100.7	100.9	101.2	24	03/09
03/10				0	99.8	99.9	100.1	23				0	100.0	100.1	100.3	23				0	100.5	100.7	101.1	23	03/10
03/11	103.2	103.2	110.1	11	100.6	101.4	101.7	24				0	100.6	101.3	101.8	24				0	101.0	101.7	102.1	24	03/11
03/12	102.8	102.9	103.1	24	102.3	102.5	102.7	24				0	102.2	102.5	103.1	24				0	103.1	104.0	110.0	24	03/12
03/13	101.7	101.9	102.4	24	101.3	101.6	101.8	24	101.1	101.2	103.8	14	101.3	101.7	103.7	24				0	101.5	101.8	102.0	24	03/13
03/14	101.1	101.3	101.7	23	100.7	101.1	101.4	23	100.4	100.6	100.9	23	100.8	101.1	102.1	23				0	101.1	101.4	101.7	23	03/14

Total Dissolved Gas Data at Mid-Columbia Sites

Date	McNary-Wash.				Tlwr McNary				John Day				Tlwr John Day				The Dalles				Dnstr T. Dalles				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	
03/01					98.2	98.3	98.4	24				0	99.3	99.5	99.7	24				0	99.2	99.8	100.0	24	03/01
03/02					98.3	98.4	98.6	24				0	99.5	99.6	99.7	24				0	99.5	99.7	99.8	24	03/02
03/03					98.2	98.4	98.6	24				0	98.9	99.1	99.2	24				0	99.0	99.2	99.4	24	03/03
03/04					98.5	98.7	98.8	24				0	98.5	98.8	99.1	24				0	99.1	99.4	99.7	24	03/04
03/05					99.2	99.7	99.9	24				0	99.1	99.5	99.7	24				0	99.5	99.9	100.2	24	03/05
03/06					100.4	100.7	101.1	24				0	100.3	100.5	100.8	24				0	100.2	100.5	100.7	24	03/06
03/07					99.8	100.0	100.1	24				0	99.9	100.0	100.1	24				0	99.6	99.7	99.9	24	03/07
03/08					100.8	101.5	106.0	23				0	100.2	100.4	100.5	24				0	100.1	100.4	100.7	24	03/08
03/09					99.7	100.1	100.6	24				0	99.9	100.0	100.1	24				0	99.9	100.2	100.4	24	03/09
03/10					98.9	98.9	99.1	23				0	99.6	99.8	100.3	23				0	99.4	99.5	99.8	23	03/10
03/11					99.6	100.3	100.6	24				0	100.2	100.6	100.8	24				0	100.3	101.3	101.7	24	03/11
03/12					101.1	101.4	101.7	24	102.1	102.1	102.8	13	101.5	101.8	102.8	24				0	101.7	101.8	102.0	24	03/12
03/13					100.2	100.4	100.5	24	101.1	101.3	101.6	24	100.9	101.0	101.2	24	101.6	101.6	102.0	11	101.3	101.7	102.0	24	03/13
03/14					99.8	100.1	100.5	20	100.9	101.0	101.3	20	100.6	100.7	101.0	20	101.6	101.6	102.3	10	101.0	101.3	102.0	20	03/14

FISH PASSAGE CENTER

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

Date 3/15/2019 7:15:08 AM

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Total Dissolved Gas Data at Mid-Columbia Sites

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Isl.				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					101.3	102.5	104.0	24								0	03/01
03/02					101.1	101.8	102.9	24								0	03/02
03/03					100.5	101.1	102.1	24								0	03/03
03/04					100.8	101.6	102.6	24								0	03/04
03/05					101.5	102.4	103.3	24								0	03/05
03/06					102.1	102.6	103.8	24								0	03/06
03/07					101.7	102.2	102.9	24								0	03/07
03/08					101.6	102.0	103.0	23								0	03/08
03/09					101.8	102.3	103.1	24								0	03/09
03/10					101.5	102.0	103.0	23								0	03/10
03/11					102.3	103.7	105.1	24								0	03/11
03/12					103.5	104.2	105.6	24								0	03/12
03/13					103.0	104.0	105.7	24								0	03/13
03/14					103.6	104.8	106.1	23					105.5	105.5	111.4	8	03/14

Hours used in calculating values:



FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/15/2019 9:16:16 AM

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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)
03/01/2019		4									
03/02/2019		0									
03/03/2019		1									6
03/04/2019	0	1		0							6
03/05/2019	0	2		0							7
03/06/2019	0	3		0							8
03/07/2019	0	0		0							16
03/08/2019	0	4		0							32
03/09/2019		1		0		0					9
03/10/2019		4		0							0
03/11/2019	0	4		0		30					0
03/12/2019	0	2		0							6
03/13/2019	937	0		0		20					26
03/14/2019	460			0						80	5
03/15/2019											
Total:	1,397	26	0	0	0	0	50	0	0	80	121
# Days:	9	13	0	11	0	0	3	0	0	1	12
Average:	155	2	0	0	0	0	17	0	0	80	10
YTD:	1,397	32	0	0	0	0	50	0	0	80	121

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 3/15/2019 9:16:16 AM

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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)
03/01/2019		0									
03/02/2019		1									
03/03/2019		0									153
03/04/2019	0	0		1							263
03/05/2019	0	0		0							328
03/06/2019	0	0		2							305
03/07/2019	0	0		1							163
03/08/2019	0	0		3							142
03/09/2019		0		0			0				233
03/10/2019		0		5							364
03/11/2019	0	0		1			0				444
03/12/2019	0	0		1							249
03/13/2019	1	0		4			0				213
03/14/2019	0			0						0	192
03/15/2019											
Total:	1	1	0	18	0	0	0	0	0	0	3,049
# Days:	9	13	0	11	0	0	3	0	0	1	12
Average:	0	0	0	2	0	0	0	0	0	0	254
YTD:	1	1	0	18	0	0	0	0	0	0	3,049

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 3/15/2019 9:16:16 AM

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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)
03/01/2019		0									
03/02/2019		0									
03/03/2019		0									18
03/04/2019	0	0		0							0
03/05/2019	0	0		0							22
03/06/2019	0	0		0							23
03/07/2019	0	0		0							8
03/08/2019	0	0		0							0
03/09/2019		0		0			0				9
03/10/2019		0		0							17
03/11/2019	0	0		0			0				7
03/12/2019	0	0		0							24
03/13/2019	0	0		0			0				10
03/14/2019	0			0						0	10
03/15/2019											
Total:	0	0	0	0	0	0	0	0	0	0	148
# Days:	9	13	0	11	0	0	3	0	0	1	12
Average:	0	0	0	0	0	0	0	0	0	0	12
YTD:	0	0	0	0	0	0	0	0	0	0	148

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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Smolt Monitoring Program Two Week Passage Index Report

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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)
03/01/2019		0									
03/02/2019		0									
03/03/2019		0									0
03/04/2019	0	0		0							0
03/05/2019	0	0		0							0
03/06/2019	0	0		0							0
03/07/2019	0	0		0							0
03/08/2019	0	0		0							0
03/09/2019		0		0			0				9
03/10/2019		0		0							0
03/11/2019	0	0		0			0				0
03/12/2019	0	0		0							0
03/13/2019	0	0		0			10				0
03/14/2019	0			0						10	0
03/15/2019											
Total:	0	0	0	0	0	0	10	0	0	10	9
# Days:	9	13	0	11	0	0	3	0	0	1	12
Average:	0	0	0	0	0	0	3	0	0	10	1
YTD:	0	3	0	0	0	0	10	0	0	10	9

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

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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)
03/01/2019		0									
03/02/2019		0									
03/03/2019		0									0
03/04/2019	0	0		0							0
03/05/2019	0	0		0							0
03/06/2019	0	0		0							0
03/07/2019	0	0		0							0
03/08/2019	0	0		0							0
03/09/2019		0		0			0				0
03/10/2019		0		0							0
03/11/2019	0	0		0			0				0
03/12/2019	0	0		0							0
03/13/2019	0	0		0			4				0
03/14/2019	0			0						0	0
03/15/2019											
Total:	0	0	0	0	0	0	4	0	0	0	0
# Days:	0	0	0	0	0	0	1	0	0	0	0
Average:	0	0	0	0	0	0	1	0	0	0	0
YTD:	0	0	0	0	0	0	4	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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Smolt Monitoring Program Two Week Passage Index Report

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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)
03/01/2019		0									
03/02/2019		0									
03/03/2019		0									85
03/04/2019	0	0		0							110
03/05/2019	0	0		0							70
03/06/2019	0	0		0							100
03/07/2019	0	0		0							45
03/08/2019	0	0		0							30
03/09/2019		0		0			0				40
03/10/2019		0		0							75
03/11/2019	0	0		0			0				30
03/12/2019	0	0		0							55
03/13/2019	0	0		0			0				45
03/14/2019	0			0						180	70
03/15/2019											
Total:	0	0	0	0	0	0	0	0	0	180	755
# Days:	9	13	0	11	0	0	3	0	0	1	17
Average:	0	0	0	0	0	0	0	0	0	180	44
YTD:										180	755

- 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
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Smolt Monitoring Program Two Week Passage Index Report

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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:



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

3/1/2019 12:00:00 AM TO 3/15/2019 12:00:00 AM

Date 3/15/2019 9:17:51 AM

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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	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

FISH PASSAGE CENTER

Two Week Transportation Summary Report

3/1/2019 12:00:00 AM TO 3/15/2019 12:00:00 AM

Date 3/15/2019 9:17:51 AM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	50	0	4	10	74
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	50	0	4	10	74
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	50	0	4	10	74
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	50	0	4	10	74
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

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YTD Transportation Summary Report

Date 3/15/2019 9:17:28 AM

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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	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

FISH PASSAGE CENTER

YTD Transportation Summary Report

Date 3/15/2019 9:17:28 AM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	50	0	4	10	74
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	50	0	4	10	74
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	50	0	4	10	74
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	50	0	4	10	74
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

Cumulative Adult Passage at Mainstem Dams Through: 03/14

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2019		2018		10-Yr Avg.		2019		2018		10-Yr Avg.		2019		2018		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	03/12	1	0	4	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0
TDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	02/28	7	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0
MCN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	02/28	-2	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	03/12	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	03/13	1	0	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2019		2018		10-Yr Avg.		2019	2018	10-Yr Avg.	10-Yr Unclipped		10-Yr Unclipped	10-Yr Avg.	2019	2018	10-Yr Avg.		
		Adult	Jack	Adult	Jack	Adult	Jack				2018	2017							
BON	03/12	4	1	1	-1	0	0	0	0	0	290	896	1244	150	371	462	-38	0	0
TDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	02/28	18	-12	0	0	0	1	0	0	0	132	0	877	54	0	315	3	0	-1
MCN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	02/28	1	0	0	0	0	0	0	0	0	182	0	498	58	0	164	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	03/12	0	0	0	0	0	0	0	0	0	107	575	1187	26	131	380	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	03/13	0	0	0	2	7	7	0	0	0	806	801	2239	793	772	85	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.

