



Fish Passage Center

Weekly Report #19-01

March 8, 2019

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 12% and 79% of average at individual sub-basins over March. Precipitation above The Dalles has been 39% of average over March. Over the 2019 water year, precipitation has ranged between 73% and 97% 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		Water Year 2019	
	March 1-7, 2019		October 1, 2018 to March 7, 2019	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.16	20	16.1	79
Snake River Above Ice Harbor	0.30	58	11.7	97
Columbia Above The Dalles	0.24	39	13.0	87
Kootenai	0.09	12	14.5	73
Clark Fork	0.22	39	12.7	96
Flathead	0.22	29	14.2	79
Pend Oreille River Basin above Waneta Dam	0.21	30	14.0	83
Salmon River Basin	0.40	58	14.7	99
Upper Snake Tributaries	0.48	79	12.5	93
Clearwater	0.37	39	19.6	87
Willamette River above Portland	0.48	29	35.5	81

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 125% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 119% of average.

Table 2 displays the March 7th ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 7th ESP forecast at The Dalles between April and August is 76,632 Kaf (88% of average).

Table 2. March 7 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	March 7 th , 2019	
	5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	88	76,632
Grand Coulee (Apr-Aug)	86	49,006
Libby Res. Inflow, MT (Apr-Aug)	77 *93	4,545 *5,478
Hungry Horse Res. Inflow, MT (Apr-Aug)	84	1,632
Lower Granite Res. Inflow (Apr- July)	96	19,120
Brownlee Res. Inflow (Apr-July)	103	5,658
Dworshak Res. Inflow (Apr-July)	94 88*	2,275 2,142*

* Denotes COE March Forecast

Grand Coulee Reservoir is at 1265.8 feet (3-7-19) and has drafted 3.2 feet over the last week. Outflows at Grand Coulee have ranged between 81.4 Kcfs and 108.5 Kcfs over the last week. The end of March FC Elevation at Grand Coulee is 1283.3 ft. (based on March Forecast).

The Libby Reservoir is currently at elevation 2408.8 feet (3-7-19) and has drafted 1.8 feet over the past week. Daily average outflows at Libby Dam have ranged between 4.0 and 10.0 to over the last week. The end of March FC at Libby is 2441.3 ft. (based on March Forecast).

Hungry Horse is currently at an elevation of 3524.2 feet (3-7-19) and has drafted 1.5 feet last week. Outflows at Hungry Horse have been increased from 3.0 Kcfs to 3.4 Kcfs over the last week. The end of March FC at Hungry Horse is 3545.1 ft. (based on March Forecast).

Dworshak is currently at an elevation of 1524.1 feet (3-7-19) and has drafted 1.5 feet over last week. Dworshak outflows have been 1.7 Kcfs last week. The end of March System FC at Dworshak at the end of March is 1559.0 ft.

The Brownlee Reservoir was at an elevation of 2042.0 feet on March 7, 2019. Outflows at Hells Canyon have ranged between 24.8 and 27.5 Kcfs over the last four days. The end of March FC (based on March forecast) at Brownlee is 2049.3 ft.

Spill

Flows in the Snake River have been relatively low this week, with daily average flows ranging from 32.4 to 42.9 Kcfs at Lower Granite Dam. Daily average flows in the Upper Columbia ranged from approximately 77.1 to 112.9 Kcfs (at Rock Island Dam) while flows in the Mid-Columbia were in the 108.6 to 153.3 Kcfs range (at McNary Dam).

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

Smolt Monitoring Program (SMP) activities began at Bonneville Dam (BON) on March 2nd, with the first sample tallied and reported on March 3rd. In addition to regular sampling at BON, sampling activities at John Day and Lower Monumental dams were scheduled to begin on March 1st, approximately one month earlier than usual. However, due to extreme cold temperatures and snow and ice buildup, the start of sampling at these two sites has been delayed. Sampling at SMP traps on the Salmon and Snake rivers began on March 3rd, with the first samples tallied and reported on March 4th. Data for the SMP trap on the Imnaha River are available back to February 15th. Due to inclement weather and unsafe road conditions, installation of the Grande Ronde River Trap has been delayed. Therefore, sampling at this trap is delayed. Currently, the trap is scheduled for installation on

March 14th or 15th. 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 have made up the majority of the salmonids sampled at Bonneville Dam (BON) so far this year. All of the subyearling Chinook sampled at BON so far this year have been fry. Over the five days, the daily average passage index for subyearling Chinook fry was about 240 per day. A small number of yearling Chinook and coho have also been collected this week. Approximately 40% of the coho that were collected this week were fry. Pacific lamprey macrophthalmia were encountered in all five samples this week. This week's daily average collection for Pacific lamprey macrophthalmia was 80 per day. Pacific lamprey ammocoetes were encountered in two of this week's samples (March 3rd and March 5th).

As mentioned above, sampling at John Day Dam (JDA) was scheduled to begin on March 1st, about one month earlier than usual. However, due to extreme cold temperatures and snow and ice buildup, sampling at JDA has been delayed. Currently, the juvenile bypass system is running in bypass operation with water and fish going down the ogee and out the outfall. There is no PIT-tag detection system with this route of passage. Sampling will begin when conditions are deemed safe.

Sampling at Lower Monumental Dam (LMN) was also scheduled to begin on March 1st, one month earlier than usual. However, due to extreme cold temperatures, sampling at LMN has been delayed. Currently, the juvenile bypass system at LMN is operating in the primary bypass position with full flow PIT-tag detection. To date, PIT-tag detections at LMN have consisted of wild and hatchery fall Chinook holdovers from the Clearwater River. Sampling will begin when conditions are deemed safe.

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. The only salmonids that have been collected at the trap so far are subyearling Chinook fry.

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 during the weekdays. To date, no salmonids

or lamprey juveniles have been collected at this trap.

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 4th. In that period, a total of 12 yearling Chinook, three steelhead, and one subyearling Chinook fry have been sampled at the trap.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 3/8/19, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a complete 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. No releases were scheduled for this zone this week. However, approximately 4.4 million yearling spring Chinook juveniles are scheduled to be released in this zone over the next two weeks. Of these, 61% are expected to be released into the Little Salmon River at Rapid River hatchery, 25% are scheduled to be released into the Clearwater River, 10% are scheduled to be released into the Snake River at Hells Canyon Dam, and about 5% are expected to be released into the Imnaha River. The releases from Rapid River Hatchery into the Little Salmon River are volitional, and they are expected to run through early April. Additionally, approximately 625,000 yearling summer Chinook are scheduled to be released into the Lochsa River, a tributary of the Clearwater River, on March 11th. Finally, 560,000 summer steelhead are expected to be released into the Snake River at Hells Canyon Dam beginning on March 18th and running through the end of the month.

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 scheduled for this zone during this week. No releases 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). Approximately 617,000 yearling spring Chinook were scheduled to be released into the Umatilla River this week. In the next two weeks, another 710,000 spring Chinook are scheduled to be released into the Yakima River, beginning March 15th, and running through mid-May. Further, 120,000 yearling fall Chinook are scheduled to be released in the Umatilla River on March 15th.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Approximately 487,000 yearling spring Chinook were scheduled to be released into this zone over the past week. These releases were scheduled to occur in the Sandy River (66,000), and the South fork of the Santiam River (421,000).

Over the next two weeks nearly 1.7 million spring Chinook are scheduled to be released in this zone. Of these, approximately 91% are scheduled to be released into the Santiam, McKenzie, Clackamas, and Mollala rivers, all tributaries of the Willamette River. The remaining were released into Blind Slough, a tributary of the Columbia River below Bonneville Dam. Additionally, 250,000 juvenile coho are planned for release into Tanner Creek, and 25,000 summer steelhead are planned to be released into the Clackamas River on March 15th.

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 3/5/2019), 0 adult Chinook and 267 adult steelhead were counted. In 2018 for the same time frame, 2 adult Chinook and 731 adult steelhead were counted. The 2019 Bonneville Dam winter season count of adult steelhead had 464 fewer fish than the 2018 count.

The Willamette Falls cumulative steelhead count from January 1st through March 6th is 541. The 2019 Willamette Falls winter steelhead count is about 86.4% of the 2018 count of 626 and about 28.5% of the 10-year average count of 1,901. This year's Lower Granite steelhead count of 39 has 36 more fish than the 2018 count of 3 and is about 11.5% of the 10-year average count of 340.

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: **2/23/2019** to **03/08/19**

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	CH1	SP	2019	250,000	03-01-19	03-01-19	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2019	500,000	03-01-19	03-01-19	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	CH1	SP	2019	400,000	03-01-19	03-01-19	Youngs Bay	Youngs 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	Willamette Hatchery	CH1	SP	2019	234,000	03-01-19	03-01-19	M Fk Willamette River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife Total					1,871,000					
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	129,000	02-27-19	02-27-19	Pendelton Acclim Pond	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	211,300	02-27-19	02-27-19	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	220,000	03-08-19	03-08-19	Pond	Umatilla River	MCOL
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	780,000	03-01-19	03-01-19	Umatilla River	Umatilla River	MCOL
Umatilla Tribe Total					1,738,000					
Washington Dept. of Fish and Wildlife	COOP	CH1	SP	2019	55,000	03-01-19	04-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH0	FA	2019	1,800,000	03-01-19	06-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2019	99,000	03-01-19	03-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2019	99,000	03-01-19	04-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2019	370,000	03-01-19	03-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2019	729,000	03-01-19	06-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2019	374,000	03-01-19	06-01-19	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	CH1	SP	2019	510,000	03-01-19	03-01-19	Kalama River	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2019	37,500	02-01-19	03-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2019	75,000	02-01-19	03-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2019	100,000	02-01-19	03-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2019	112,500	02-01-19	03-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife Total					4,361,000					
Grand Total					7,970,000					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: **3/9/2019** to **3/22/2019**

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	SU	2019	624,865	03-11-19	03-14-19	Powell Acclim Pond	Lochsa 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	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					5,405,370					
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	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 Total					2,185,000					
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2019	120,000	03-15-19	03-15-19	Umatilla River	Umatilla River	MCOL
Umatilla Tribe Total					120,000					
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					8,422,282					

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
02/22/2019	118.4	0.0	122.7	0.0	128.1	0.3	123.5	0.0	132.1	0.0	115.9	0.0	116.2	5.7
02/23/2019	97.0	0.0	96.8	0.0	105.1	0.0	109.0	0.1	119.4	0.0	131.2	1.9	129.3	4.4
02/24/2019	68.2	0.0	67.8	0.0	70.3	0.0	66.2	0.0	70.1	0.0	90.7	0.0	95.9	0.0
02/25/2019	82.3	0.0	77.7	0.0	84.6	0.0	86.1	0.0	93.1	0.0	103.0	0.0	97.3	0.0
02/26/2019	75.5	0.0	76.6	0.0	69.9	0.0	64.6	0.0	68.2	0.0	79.4	0.0	80.8	0.0
02/27/2019	81.2	0.0	83.1	0.0	81.8	0.0	78.4	0.0	82.0	0.0	89.3	0.0	86.9	0.0
02/28/2019	73.1	0.0	71.0	0.0	81.6	0.0	78.3	0.0	82.0	0.0	80.3	0.0	79.4	0.0
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

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	
02/22/2019	1.7	0.0	---	---	30.6	0.0	30.7	0.0	29.8	0.0	31.1	0.0	
02/23/2019	1.7	0.0	---	---	25.8	0.0	23.6	0.0	24.5	0.0	24.1	0.0	
02/24/2019	1.7	0.0	---	---	27.3	0.0	26.1	0.0	28.1	0.0	25.1	0.0	
02/25/2019	1.7	0.0	---	---	31.1	0.0	28.1	0.0	26.7	0.0	28.0	0.0	
02/26/2019	1.7	0.0	---	---	29.0	0.0	26.8	0.0	28.5	0.0	29.4	0.0	
02/27/2019	1.7	0.0	---	---	29.9	0.0	30.6	0.0	30.6	0.0	29.6	0.0	
02/28/2019	1.7	0.0	---	---	32.4	0.0	32.7	0.0	33.9	0.0	36.0	0.0	
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	

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
02/22/2019	140.7	0.0	136.1	0.0	130.7	0.0	137.3	1.1	87.2	42.4
02/23/2019	144.4	0.0	138.6	0.0	139.5	0.0	142.4	1.1	85.4	49.3
02/24/2019	142.9	0.0	142.1	0.0	139.3	0.0	154.3	1.1	85.3	61.3
02/25/2019	121.3	0.0	127.2	0.0	126.5	0.0	131.6	1.2	78.9	44.9
02/26/2019	125.2	0.0	134.1	0.0	137.1	0.0	146.0	1.2	89.2	49.0
02/27/2019	115.4	0.0	135.7	0.0	137.4	0.0	145.5	1.2	85.3	52.5
02/28/2019	122.9	0.0	123.5	0.0	122.2	0.0	130.4	1.2	49.8	72.4
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

FISH PASSAGE CENTER

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

Date 3/8/2019 7:15:08 AM

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Total Dissolved Gas Data at Upper Columbia Sites

Date	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph				Chief J. Dnst				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									
02/22									98.3	98.6	98.8	24	97.5	97.8	98.1	24													02/22				
02/23									97.9	98.0	98.3	24	97.3	97.4	97.7	24													0	0	0	0	02/23
02/24									98.4	98.7	98.9	24	98.2	98.8	99.2	24													0	0	0	0	02/24
02/25									98.8	99.1	99.6	22	98.5	98.9	99.5	20													0	0	0	0	02/25
02/26									97.8	98.0	98.3	24	97.7	97.9	98.2	24													0	0	0	0	02/26
02/27									98.2	98.3	98.5	24	98.4	98.9	99.6	24	98.4	98.5	103.7	13	97.6	97.6	98.3	11									02/27
02/28									98.0	98.1	98.2	24	98.0	98.4	98.9	24	98.0	98.0	98.1	24	97.5	97.7	98.0	24									02/28
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	20	99.4	99.7	100.4	20	98.9	99.1	99.4	21	98.3	98.6	99.1	22									03/07

Total Dissolved Gas Data at Upper Columbia Sites

Date	Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr				Rock Island				Rock I. Tlwr				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					
02/22	97.6	97.8	98.1	24	98.0	98.5	99.6	24	99.4	100.3	100.5	24	100.7	101.5	101.6	24	98.0	98.8	100.1	24	98.0	98.6	100.0	22					02/22
02/23	96.5	96.7	96.9	24	96.9	97.2	97.6	24	98.5	98.9	99.9	22	100.0	100.5	101.6	21	98.6	99.0	99.7	23	98.7	99.1	99.9	22					02/23
02/24	97.1	97.5	98.0	24	97.5	98.0	98.5	24	98.6	98.7	98.8	23	99.9	100.2	100.5	20	97.9	98.1	98.3	20	98.2	98.4	98.5	20					02/24
02/25	97.8	98.2	98.5	24	98.1	98.5	99.0	24	98.6	98.8	98.9	24	100.0	100.2	100.4	22	98.5	98.8	100.4	24	98.6	98.8	98.9	22					02/25
02/26	96.8	97.0	97.4	24	97.2	97.4	97.7	24	97.5	97.7	98.2	22	99.0	99.5	100.3	20	97.2	97.4	97.9	23	97.5	97.7	98.0	20					02/26
02/27	97.2	97.3	97.4	24	97.5	97.7	98.0	24	98.0	98.0	98.1	21	99.5	99.7	99.9	20	97.6	97.7	97.9	24	97.8	97.9	98.0	21					02/27
02/28	97.0	97.1	97.2	24	97.4	97.6	97.9	24	97.9	98.0	98.1	23	99.2	99.5	99.7	19	97.4	97.6	97.7	23	97.7	97.7	97.9	18					02/28
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	21	98.7	98.9	99.3	21	99.7	99.9	100.3	22	100.4	100.7	101.5	20	99.2	99.5	99.6	22	99.3	99.5	99.7	19					03/07

FISH PASSAGE CENTER

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

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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
02/22	98.1	98.4	98.5	24	98.4	98.8	99.5	24	97.8	98.0	98.2	24									02/22
02/23	98.0	98.4	98.8	24	98.7	99.2	101.2	24	97.5	97.6	97.8	24									02/23
02/24	99.1	99.2	99.3	24	99.1	99.4	99.7	24	98.6	98.8	98.8	24									02/24
02/25	99.2	99.4	99.5	24	99.2	99.5	99.8	24	99.1	99.3	99.4	24									02/25
02/26	98.4	98.7	99.0	24	99.0	99.3	99.7	24	97.9	98.2	98.7	24									02/26
02/27	98.8	98.9	98.9	24	99.0	99.2	99.3	24	98.2	98.3	98.4	24									02/27
02/28	98.2	98.3	98.6	24	98.5	98.8	99.3	24	98.2	98.3	98.3	24									02/28
03/01	98.0	98.1	98.2	24	98.2	98.5	99.5	24	97.9	98.1	98.1	24									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									03/02
03/03	97.0	97.3	97.5	24				0	97.0	97.2	97.3	24									03/03
03/04	97.6	97.8	98.0	24				0	100.1	102.3	104.2	24									03/04
03/05	98.6	99.1	99.4	24				0	99.8	99.9	100.1	24									03/05
03/06	99.9	100.2	100.3	24				0	99.7	99.9	100.0	24									03/06
03/07	99.3	99.4	99.9	24				0	98.7	98.8	99.3	24									03/07

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
02/22	100.7	101.4	102.3	24																	99.1	99.4	99.6	24	02/22
02/23	100.6	101.3	102.2	24																	99.2	99.4	99.6	24	02/23
02/24	101.0	101.7	102.6	24																	99.8	100.1	100.6	24	02/24
02/25	101.2	101.9	102.6	24																	100.6	101.0	101.2	24	02/25
02/26	100.4	101.0	101.8	24																	99.8	99.9	100.2	24	02/26
02/27	100.7	101.2	102.4	24																	101.0	101.8	103.7	24	02/27
02/28	100.7	101.7	102.8	24																	100.0	100.1	100.2	24	02/28
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	101.9	103.3	105.5	23																	101.7	101.8	102.0	23	03/07

FISH PASSAGE CENTER

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

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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
02/22					98.1	98.8	101.3	24					98.1	98.4	98.6	24					97.9	98.4	98.6	24	02/22
02/23					98.3	98.5	98.7	24					97.8	98.1	98.9	24					98.0	98.3	99.1	24	02/23
02/24					99.1	99.4	99.6	24					97.9	98.1	98.2	24					98.3	98.5	98.7	24	02/24
02/25					99.5	99.9	100.3	24					98.1	98.5	99.9	24					98.7	99.1	99.3	24	02/25
02/26					99.1	99.7	101.2	24					97.0	97.2	97.4	24					97.9	98.1	98.3	24	02/26
02/27					99.6	99.9	100.7	24					97.7	98.0	99.2	24					98.3	98.5	98.8	24	02/27
02/28					99.2	99.4	99.6	24					97.6	97.8	98.0	24					97.9	98.3	98.8	24	02/28
03/01					99.1	99.3	99.6	24					97.9	98.2	98.6	24					97.5	97.7	98.1	24	03/01
03/02					98.8	99.1	99.3	24					98.2	98.4	98.6	24					97.2	97.5	97.9	24	03/02
03/03					98.4	98.7	99.0	24					98.3	98.5	98.6	24					96.8	97.0	97.8	24	03/03
03/04					98.7	99.0	99.4	24					98.6	98.8	98.9	24					96.8	97.0	97.3	24	03/04
03/05					99.6	100.3	100.4	24					99.5	100.0	100.2	24					97.7	98.3	98.4	24	03/05
03/06					101.2	101.7	102.0	24					101.0	101.4	101.8	24					99.4	99.8	100.1	24	03/06
03/07					100.8	101.0	101.2	23					100.3	100.5	100.6	23					99.4	99.7	100.0	23	03/07

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
02/22					99.1	99.5	99.6	24					99.2	99.4	99.9	24					98.5	99.0	99.3	24	02/22
02/23					99.0	99.1	99.2	24					99.2	99.3	99.5	24					98.6	98.8	99.0	24	02/23
02/24					99.2	99.3	99.5	24					99.4	99.6	99.7	24					98.8	99.0	99.3	24	02/24
02/25					99.5	99.7	99.8	24					100.0	100.3	100.5	24					98.8	99.1	99.3	24	02/25
02/26					98.7	98.9	99.1	24					99.3	99.6	99.7	24					98.1	98.4	98.5	24	02/26
02/27					99.2	99.3	99.4	24					99.7	99.8	100.0	24					98.7	98.9	99.1	24	02/27
02/28					98.7	98.9	99.0	24					99.4	99.5	99.7	24					98.4	98.7	98.9	24	02/28
03/01					98.2	98.3	98.4	24					99.3	99.5	99.7	24					99.2	99.8	100.0	24	03/01
03/02					98.3	98.4	98.6	24					99.5	99.6	99.7	24					99.5	99.7	99.8	24	03/02
03/03					98.2	98.4	98.6	24					98.9	99.1	99.2	24					99.0	99.2	99.4	24	03/03
03/04					98.5	98.7	98.8	24					98.5	98.8	99.1	24					99.1	99.4	99.7	24	03/04
03/05					99.2	99.7	99.9	24					99.1	99.5	99.7	24					99.5	99.9	100.2	24	03/05
03/06					100.4	100.7	101.1	24					100.3	100.5	100.8	24					100.2	100.5	100.7	24	03/06
03/07					99.8	99.9	100.1	21					99.9	100.0	100.1	21					99.6	99.7	99.9	21	03/07

FISH PASSAGE CENTER

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

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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	
02/22					100.6	101.2	102.1	24									02/22
02/23					100.7	101.2	101.7	24									02/23
02/24					101.1	101.6	102.2	24									02/24
02/25					101.3	101.8	102.4	24									02/25
02/26					100.2	100.5	100.9	24									02/26
02/27					100.1	100.5	101.2	24									02/27
02/28					100.4	101.5	102.7	24									02/28
03/01					101.3	102.5	104.0	24									03/01
03/02					101.1	101.8	102.9	24									03/02
03/03					100.5	101.1	102.1	24									03/03
03/04					100.8	101.6	102.6	24									03/04
03/05					101.5	102.4	103.3	24									03/05
03/06					102.1	102.6	103.8	24									03/06
03/07					101.7	102.2	102.9	23									03/07

Hours used in calculating values:



FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/7/2019 1:16:16 PM

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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)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		0									
02/25/2019		0									
02/26/2019		1									
02/27/2019		3									
02/28/2019		1									
03/01/2019		4									
03/02/2019		0									
03/03/2019		1									6
03/04/2019	0	1		0							6
03/05/2019	0			0							7
03/06/2019	0			0							8
03/07/2019	0			0							16
Total:	0	11	0	0	0	0	0	0	0	0	43
# Days:	4	12	0	4	0	0	0	0	0	0	5
Average:	0	1	0	0	0	0	0	0	0	0	9
YTD:	0	12	0	0	0	0	0	0	0	0	43

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 3/7/2019 1:16:16 PM

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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)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		0									
02/25/2019		0									
02/26/2019		0									
02/27/2019		0									
02/28/2019		0									
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							328
03/06/2019	0			2							305
03/07/2019	0			1							163
Total:	0	1	0	4	0	0	0	0	0	0	1,212
# Days:	4	12	0	4	0	0	0	0	0	0	5
Average:	0	0	0	1	0	0	0	0	0	0	242
YTD:	0	1	0	4	0	0	0	0	0	0	1,212

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 3/7/2019 1:16:16 PM

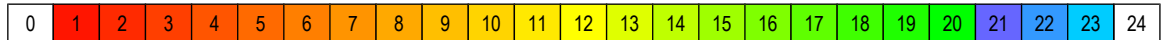
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COMBINED COHO

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		0									
02/25/2019		0									
02/26/2019		0									
02/27/2019		0									
02/28/2019		0									
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							22
03/06/2019	0			0							23
03/07/2019	0			0							8
Total:	0	0	0	0	0	0	0	0	0	0	71
# Days:	4	12	0	4	0	0	0	0	0	0	5
Average:	0	0	0	0	0	0	0	0	0	0	14
YTD:	0	0	0	0	0	0	0	0	0	0	71

Number of hours sampled:

- No data available or no sample conducted



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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)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		1									
02/25/2019		1									
02/26/2019		0									
02/27/2019		0									
02/28/2019		1									
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
03/06/2019	0			0							0
03/07/2019	0			0							0
Total:	0	3	0	0	0	0	0	0	0	0	0
# Days:	4	12	0	4	0	0	0	0	0	0	5
Average:	0	0	0	0	0	0	0	0	0	0	0
YTD:	0	3	0	0	0	0	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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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)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		0									
02/25/2019		0									
02/26/2019		0									
02/27/2019		0									
02/28/2019		0									
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
03/06/2019	0			0							0
03/07/2019	0			0							0
Total:	0	0	0	0	0	0	0	0	0	0	0
# Days:	0	0	0	0	0	0	0	0	0	0	0
Average:	0	0	0	0	0	0	0	0	0	0	0
YTD:	0	0	0	0	0	0	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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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)
02/21/2019		0									
02/22/2019		0									
02/23/2019		0									
02/24/2019		0									
02/25/2019		0									
02/26/2019		0									
02/27/2019		0									
02/28/2019		0									
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							70
03/06/2019	0			0							100
03/07/2019	0			0							45
Total:	0	0	0	0	0	0	0	0	0	0	410
# Days:	4	12	0	4	0	0	0	0	0	0	7
Average:	0	0	0	0	0	0	0	0	0	0	59
YTD:											410

- 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

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 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.

Cumulative Adult Passage at Mainstem Dams Through: 03/07

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	03/05	0	0	2	0	7	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	03/05	0	1	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	03/06	1	0	0	0	0	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		Unclipped	10-Yr	2019		2018	10-Yr
		Adult	Jack	Adult	Jack	Adult	Jack	2019	2018	Avg.	2019	2018	Avg.	2018	2017	Avg.	2019	2018	Avg.
BON	03/05	4	1	1	-1	0	0	0	0	0	267	731	970	139	313	364	-37	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	03/05	0	0	0	0	0	0	0	0	0	39	3	340	8	-1	107	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	03/06	0	0	0	2	5	5	0	0	0	541	626	1901	541	615	65	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.