



Fish Passage Center

Weekly Report #19-03

March 22, 2019

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 18% and 25% of average at individual sub-basins over March. Precipitation above The Dalles has been 23% of average over March. Over the 2019 water year, precipitation has ranged between 69% and 91% 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 1-21, 2019		October 1, 2018 to March 21, 2019	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.49	21	16.4	75
Snake River Above Ice Harbor	0.39	25	11.8	90
Columbia Above The Dalles	0.41	23	13.2	81
Kootenai	0.41	19	14.8	69
Clark Fork	0.32	18	12.8	89
Flathead	0.43	19	14.4	74
Pend Oreille River Basin above Waneta Dam	0.42	20	14.2	78
Salmon River Basin	0.46	22	14.8	91
Upper Snake Tributaries	0.61	33	12.6	86
Clearwater	0.52	18	19.8	81
Willamette River above Portland	1.23	24	36.3	77

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 90% of average, for Snake River Basins the average snowpack is 120% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 122% of average.

Table 2 displays the March 21st ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 21st ESP forecast at The Dalles between April and August is 73,524 Kaf (84% of average).

Table 2. March 21 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	March 21, 2019 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	84	73,524
Grand Coulee (Apr-Aug)	83	47,075
Libby Res. Inflow, MT (Apr-Aug)	75 93**	4,390 5478**
Hungry Horse Res. Inflow, MT (Apr-Aug)	82	1,588
Lower Granite Res. Inflow (Apr- July)	89	17,688
Brownlee Res. Inflow (Apr-July)	91	4,994
Dworshak Res. Inflow (Apr-July)	87 88**	2,105 2,142**

**COE March Final Forecast

Grand Coulee Reservoir is at 1258.3 feet (3-21-19) and has drafted 2.8 feet over the last week. Outflows at Grand Coulee have ranged between 61.0 Kcfs and 83.0 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 2405.9 feet (3-21-19) and has drafted 0.5 feet over the past week. Daily average outflows at Libby Dam have been 4.0 Kcfs all 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 3520.8 feet (3-21-19) and has drafted 1.4 feet last week. Outflows at Hungry Horse have been 3.0-3.1 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 1525.1 feet (3-21-19) and has refilled 0.76 feet over the 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 2032.2 feet on March 21, 2019 and has drafted 8.2 feet in the last week. Outflows at Hells Canyon have ranged between 25.3 and 29.9 Kcfs over the last week. The April 10th Flood Control Elevation at Brownlee is 2053.5 feet (based on March Final Forecast).

Spill

Flows in the Snake River have increased this week, when compared to the previous week. Daily average flows at Lower Granite Dam ranged from 37.5 to 52.0 Kcfs at Lower Granite Dam. Daily average flows in the Upper Columbia (at Rock Island Dam) ranged from 59.5 to 86.5 Kcfs this week. Finally, daily average flows in the Mid-Columbia (at McNary Dam) ranged from 99.9 to 125.5 Kcfs this week.

Involuntary spill has been provided at two projects this week, Ice Harbor and The Dalles. The involuntary spill at Ice Harbor has occurred from March 19th through March 21st, and has mostly occurred during night-time hours, and has equated to as much as 30 Kcfs spill for some hours. The involuntary spill at The Dalles began on March 15th. Since March 15th, The Dalles has spilled approximately 15 Kcfs from 0700 to 1800 each day, in order to provide attraction flow to the North adult fish ladder. This spill is expected to continue until repairs

to the East Ladder water supply system are finishes. 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 all four of our mainstem traps: the Salmon River Trap, the Snake River Trap, the Grande Ronde River Trap, and the Imnaha River Trap. 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 two weeks, 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 300 per day, which is a slight increase over last week's daily average of 260 per day. A small number of yearling Chinook and coho were also collected this week. Approximately 90% of the coho that were collected this week were fry. Pacific lamprey macrophthalmia were encountered in all seven samples this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 60 per day. Pacific lamprey ammocoetes were encountered in three of this week's samples.

Similar to the last few years, sampling at John Day Dam (JDA) is every-other-day. Yearling Chinook dominated the samples at JDA this week. This week's daily average passage index for yearling Chinook was about 130 per day. Of the yearling Chinook collected this week, approximately 47% were yearling fall Chinook holdovers. The only other species of salmonid that was encountered in this week's samples was steelhead, which were encountered in relatively low numbers. Finally, Pacific lamprey macrophthalmia were encountered in all three of this week's samples, with a daily average collection of about 120 per day.

Sampling at Lower Monumental Dam (LMN) will occur every-other-day until the start of transportation, at which time daily sampling will begin. Yearling Chinook dominated this week's samples at LMN. This week's daily average passage index for yearling

Chinook at LMN was nearly 3,000 per day. This is a substantial increase from last week's daily average passage index. This large increase is largely due to an emergency release of approximately 150,000 yearling fall Chinook from Lyons Ferry Hatchery on March 11th. Lyons Ferry Hatchery is located approximately 30 kilometers above LMN. Approximately 92% of the yearling Chinook encountered in this week's samples at LMN were yearling fall Chinook from Lyons Ferry Hatchery. Steelhead passage also increased this week. This week's daily average passage index for steelhead at LMN was about 1,200 per day. The increase in steelhead passage is also due to an emergency release from Lyons Ferry Hatchery. Approximately 60,000 steelhead were released from the hatchery on March 14th and 15th. The only other salmonids that were encountered in this week's samples at LMN were sockeye, which were encountered in one of this week's samples (March 15th). Finally, Pacific lamprey macrophthalmia were encountered in two of this week's four samples (March 15th and 17th).

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. This week's samples at LEW consisted of subyearling Chinook fry (10 total), yearling Chinook (35 total), and steelhead (1 total). Of the yearling Chinook collected this week, only one was a yearling fall Chinook holdover. The remaining 34 were likely yearling spring/summer Chinook.

The Grande Ronde Trap (GRN) is located at river kilometer 002 of the Grande Ronde River and is operated by the Oregon Department of Fish and Wildlife. Sampling at the Grande Ronde Trap began on March 15th, with the first sample tallied and reported to the FPC on March 16th. To date, only three yearling Chinook and one steelhead have been collected at GRN this year.

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. Yearling Chinook continued to dominate the collections at WTB this week. This week's daily average collection for yearling Chinook was nearly 600 per day. The vast majority (99%) of these yearling Chinook were clipped and likely from the recent releases of yearling spring Chinook from 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 3/22/19, 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. During the past week, nearly 1.1 million spring Chinook were scheduled for release into this zone. 691,000 into Clear Creek at Kooskia Hatchery, and another 400,000 into the Selway River. There was also a scheduled release of 559,000 summer Steelhead at Hells Canyon Dam on the Snake River.

Over the next two weeks approximately 6.2 million spring Chinook are scheduled to be released into this zone. Of these, nearly 73% are being released into the Clearwater River and its tributaries; 1.2 million at Red River, 2.4 million at Dworshak Hatchery, and another 938,000 will be released into the north fork of the Clearwater, and at Clear Creek. Additionally, another 530,000 juvenile spring Chinook will be released into the Grand Ronde and Imnaha Rivers, 150,000 into the Tucannon River, and 1.0 million are scheduled for release at the Sawtooth Hatchery on the Salmon River. Additionally, 288,000 summer Chinook are planned for release into the Salmon River at Johnson Creek (127,000), and the South Fork Salmon (160,000). During this same period, almost 7.5 million summer Steelhead are planned for release within this zone. Of these, 41% are planned for release into the Clearwater River and its tributaries. Of the rest, nearly 762,000 are planned for release into the Grande Ronde, Wallowa, and Imnaha Rivers, 104,000 into the Tucannon River,

802,000 into the Pahsimeroi, 560,000 in the Snake at Hells Canyon Dam, and an additional 2.2 million into Salmon River and its tributary the Yankee Fork.

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. However, approximately 438,000 spring Chinook are planned to be released into the Methow and Wenatchee Rivers or their tributaries on April 1st; into the Chewuch River (60,000), Nason Creek (230,000), and Chiwawa Hatchery (148,000). Additionally, 1.25 million summer Chinook are scheduled for release on April 1st as well; 240,000 into the Similkameen River, at Chelan Falls (530,000), and into the Wenatchee River (486,000). Finally, 267,000 summer Steelhead are planned for release into the Chiwawa River, a tributary of the Wenatchee on April 1st.

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). There were no scheduled releases into this zone over the past week.

Over the next two weeks approximately 1.93 million spring Chinook are scheduled to be released into this zone. 25,000 into tributaries of the Deschutes River on March 26th; 7500 in the Metolius River, 7500 in Wychus Creek, and 10,000 into the Crooked River. There is also a spring Chinook release of 634,000 scheduled for March 26th in the Klickitat River. Finally, approximately 1.27 million are scheduled to be released into the Umatilla River on April 2nd-5th.

On March 29th, approximately 500,000 juvenile coho are scheduled for release into the Umatilla River, and nearly 2.5 million are scheduled to be released into the Klickitat River on April 1st. There is also approximately 574,000 summer steelhead scheduled for release into this zone over the next two weeks. 162,000 into the Deschutes River, 90,000 in the Klickitat, 180,000 into the McNary pool at Ringold Springs Hatchery, and another 140,000 into the Touchet River.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville

Dam. Over the past week, there was only one planned release into this zone. 234,000 spring Chinook were scheduled for release into the middle fork of the Willamette River on March 22nd.

Over the next two weeks 720,000 spring Chinook smolts are being released into this zone. 250,000 of which will be released into the Columbia River below Bonneville Dam at Tongue Point (250,000), 154,000 into the Cowlitz River, 66,000 into the Sandy River, and an additional 250,000 are scheduled for release into Grays River at the deep river net pens. Additionally, approximately 4.65 million juvenile Coho will be released into this zone during this period; 2.35 million into the Cowlitz River, 306,000 in the Kalama River, and 2 million into the Lewis River starting on April 1st and running through the end of the month. Furthermore, approximately 1.57 million summer Steelhead are planned for release in this zone as well. 42% of these will be released into the Willamette River and its tributaries, 40% are planned for release into the Cowlitz River. The rest of the planned releases are scheduled for release at Beaver Creek (30,000), the Kalama River (92,000), the Lewis River (59,000), the Toutle River (20,000), and the Washougal (161,500). Finally, almost 950,000 winter Steelhead are planned for release into the Lower Columbia zone. 126,000 at Beaver Creek, 60,000 at Big Creek Hatchery, 40,000 at Gnat Creek, 161,000 into the Cowlitz River, 5,000 in Grays River, 40,000 at Klaskanine Hatchery, 175,000 into the Lewis, 100,000 at the Eagle Creek Hatchery on the Clackamas River, 105,000 into the Washougal River, 98,000 in the Kalama, and another 40,000 into Salmon Creek.

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 3/20/2019), 5 adult Chinook and 443 adult steelhead were counted. In 2018 for the same time frame, 8 adult Chinook and 1,294 adult steelhead were counted. The 2019 Bonneville Dam winter season count of adult steelhead had 851 fewer fish than the 2018 count.

The Willamette Falls cumulative steelhead count from January 1st through March 20th is 1,602. The 2019 Willamette Falls winter steelhead count has 744 more fish than the 2018 count of 858 while being about 60.5% of the 10-year average count of 2,646. This year's Lower Granite steelhead count of 256 has 1,031 fewer fish than the 2018 count of 1,287 and is about 9.6% of the 10-year average count of 2,675.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/9/2019 to 03/22/19

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					
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	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					
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2019	60,000	03-14-19	03-15-19	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife Total					60,000					
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					8,512,282					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From:		3/23/2019		to		4/5/2019					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone	
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	Clearwater Hatchery	ST	SU	2019	189,915	04-03-19	04-03-19	S Fk Clearwater River	Clearwater River M F	SNAK	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2019	473,417	04-03-19	04-09-19	S Fk Clearwater River	Clearwater River M F	SNAK	
Idaho Dept. of Fish and Game	Hagerman NFH	ST	SU	2019	1,581,507	04-02-19	04-30-19	Salmon River (ID)	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2019	616,000	04-01-19	04-09-19	Yankee Fk (Salmon R)	Salmon River (ID)	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	McCall Hatchery	CH1	SU	2019	160,956	04-01-19	04-05-19	S Fk Salmon River	Salmon River (ID)	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	Niagara Springs	ST	SU	2019	802,000	04-01-19	04-15-19	Pahsimeroi River	Pahsimeroi 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					8,093,214						
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	Lyons Ferry Hatchery	CH1	FA	2019	160,000	04-02-19	04-02-19	Cpt John Acclim Pond	Snake River	SNAK	
Nez Perce Tribe Total					407,263						
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	Big Creek Hatchery	ST	WI	2019	40,000	04-05-19	04-05-19	Gnat Creek	Col R Bel. Bon Dam	LCOL	
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	ST	WI	2019	40,000	04-05-19	04-05-19	Klaskanine Hatchery	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	ST	WI	2019	60,000	04-05-19	04-05-19	Big Creek Hatchery	Big Creek	LCOL	
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	SU	2019	150,000	04-05-19	04-05-19	Clackamas River	Clackamas River	LCOL	
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2019	100,000	03-31-19	03-31-19	Eagle Creek Hatchery	Eagle Creek	LCOL	
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2019	215,000	04-02-19	04-02-19	Little Sheep Creek	Innaha River	SNAK	
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2019	320,000	04-02-19	04-02-19	Wallowa Acclim Pond	Wallowa River	SNAK	
Oregon Dept. of Fish and Wildlife	Leaburg Hatchery	ST	SU	2019	108,000	04-05-19	04-05-19	McKenzie River	Willamette River	LCOL	
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2019	250,000	04-02-19	04-02-19	Lookingglass Creek	Grande Ronde River	SNAK	
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2019	280,000	04-02-19	04-02-19	Innaha Acclim Pond	Innaha River	SNAK	
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	Roaring River Hatchery	ST	SU	2019	96,000	04-02-19	04-02-19	Willamette River	Willamette River	LCOL	
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2019	162,000	04-05-19	04-05-19	Deschutes River	Deschutes River	MCOL	
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	CH1	SP	2019	66,000	04-05-19	04-05-19	Bull Run Acclimation	Sandy River	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	South Santiam Hatchery	ST	SU	2019	161,500	04-03-19	04-03-19	Santiam River	Willamette River	LCOL	
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	ST	SU	2019	61,000	04-05-19	04-05-19	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					2,764,500						
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	Dworshak NFH	ST	SU	2019	247,263	04-02-19	04-05-19	Lolo Creek	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2019	392,045	04-02-19	04-05-19	S Fk Clearwater River	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2019	421,976	04-02-19	04-05-19	Clear Creek	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2019	1,338,720	04-02-19	04-05-19	Dworshak Hatchery	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service Total					4,124,386						
Umatilla Tribe	Cascade Hatchery	CO	UN	2019	500,000	03-29-19	03-29-19	Umatilla River	Umatilla River	MCOL	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2019	150,000	04-02-19	04-02-19	Umatilla River	Umatilla River	MCOL	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2019	220,000	04-02-19	04-02-19	Thornhollow Acclim Pond	Umatilla River	MCOL	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2019	440,000	04-02-19	04-02-19	Imeques Acclim Pond	Umatilla River	MCOL	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2019	230,000	04-04-19	04-04-19	Thornhollow Acclim Pond	Umatilla River	MCOL	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2019	231,000	04-05-19	04-05-19	Imeques Acclim Pond	Umatilla River	MCOL	
Umatilla Tribe Total					1,771,000						
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	SU	2019	30,000	04-01-19	05-01-19	Beaver Creek	Elochoman River	LCOL	
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	WI	2019	126,000	04-01-19	05-01-19	Beaver Creek	Elochoman River	LCOL	
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2019	530,000	04-01-19	04-01-19	Chelan Falls	Rocky Reach Pool	UCOL	
Washington Dept. of Fish and Wildlife	Chewuch Acclim. Pond	CH1	SP	2019	60,000	04-01-19	04-01-19	Chewuch River	Methow River	UCOL	
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2019	148,000	04-01-19	04-01-19	Chiwawa River	Wenatchee River	UCOL	
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2019	230,000	04-01-19	04-01-19	Nason Creek	Wenatchee River	UCOL	
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2019	125,000	04-01-19	04-01-19	Chiwawa River	Wenatchee River	UCOL	
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2019	142,000	04-01-19	04-01-19	Chiwawa River	Wenatchee River	UCOL	
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	COOP	CO	NO	2019	225	04-01-19	04-01-19	Cowlitz River	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	COOP	ST	WI	2019	5,000	04-01-19	05-01-19	Grays River	Grays 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	CO	NO	2019	2,348,000	04-01-19	06-01-19	Cowlitz River	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	SU	2019	640,000	04-01-19	05-01-19	Cowlitz River	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2019	48,000	04-01-19	05-01-19	Cowlitz River	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2019	113,000	04-01-19	05-01-19	Cowlitz River	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2019	486,000	04-01-19	04-01-19	Wenatchee River	Wenatchee River	UCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	ST	SU	2019	91,800	04-01-19	04-01-19	Kalama River	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	ST	WI	2019	45,900	04-01-19	04-01-19	Kalama River	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	CO	NO	2019	306,000	04-01-19	05-01-19	Kalama River	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2019	40,000	04-01-19	05-01-19	Salmon Creek (WA)	Col R Bel. Bon Dam	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2019	52,000	04-01-19	05-01-19	Kalama River	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	NO	2019	900,000	04-01-19	05-01-19	Lewis River	Lewis River	LCOL	
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	SO	2019	1,100,000	04-01-19	05-01-19	Lewis River	Lewis River	LCOL	

Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2019	449,000	04-01-19	04-01-19	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2019	39,400	04-01-19	04-01-19	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2019	102,700	04-01-19	04-01-19	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2019	104,400	04-01-19	04-01-19	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2019	227,200	04-01-19	04-01-19	Grande Ronde River	Grande Ronde River	SNAK
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	SU	2019	59,000	04-01-19	05-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	WI	2019	175,000	04-01-19	05-01-19	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2019	180,000	04-01-19	05-01-19	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Similkameen Hatchery	CH1	SU	2019	240,000	04-01-19	04-01-19		Okanogan River	UCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2019	20,000	04-01-19	04-01-19	Toutle River	Toutle River	LCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2019	70,000	04-01-19	05-01-19	Washougal River	Washougal River	LCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2019	90,000	04-01-19	05-01-19	Klickitat River	Klickitat River	MCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2019	105,000	04-01-19	04-01-19	Washougal River	Washougal River	LCOL
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2019	150,500	04-01-19	04-01-19	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CH1	SP	2019	250,000	04-01-19	05-01-19	Deep River Net Pens	Grays River	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2019	2,500,000	04-01-19	04-01-19	Klickitat River	Klickitat River	MCOL
Washington Dept. of Fish and Wildlife Total					12,483,125					
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					30,277,798					

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

Daily Average Flow and Spill (in Kcfs)

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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
03/08/2019	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
03/15/2019	76.3	0.0	74.9	0.0	77.4	1.5	75.0	0.0	77.0	0.0	79.6	1.2	70.2	2.8
03/16/2019	83.0	0.0	80.6	0.0	81.4	0.5	81.8	0.0	86.5	0.0	70.6	0.0	72.9	0.0
03/17/2019	61.4	0.0	65.6	0.0	68.8	0.0	65.0	0.0	69.2	0.0	70.3	0.0	70.5	0.0
03/18/2019	75.1	0.0	70.0	0.0	75.1	0.0	76.3	0.0	80.7	0.0	83.8	0.0	79.3	0.0
03/19/2019	75.4	0.0	78.5	0.0	80.3	0.0	73.2	0.0	77.9	0.0	74.2	0.0	75.6	0.0
03/20/2019	61.0	0.0	59.9	0.0	64.1	0.0	61.4	0.0	64.1	0.0	72.3	0.0	76.1	0.0
03/21/2019	61.7	0.0	62.8	0.0	58.7	0.0	57.4	0.0	59.5	0.0	65.4	0.0	70.7	0.0

- 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
03/08/2019	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		
03/15/2019	1.7	0.0			40.0	0.0	41.3	0.0	43.0	0.0	40.6	0.0		
03/16/2019	1.7	0.0			37.5	0.0	34.3	0.0	33.6	0.0	32.4	0.0		
03/17/2019	1.7	0.0			43.2	0.0	41.3	0.0	45.0	0.0	46.5	0.0		
03/18/2019	1.7	0.0			42.8	0.0	40.8	0.0	39.0	0.0	42.2	0.0		
03/19/2019	1.7	0.0			46.1	0.0	41.9	0.0	43.7	0.0	48.1	7.5		
03/20/2019	1.7	0.0			46.9	0.0	43.6	0.0	42.3	0.0	49.3	14.5		
03/21/2019	1.7	0.0			52.0	0.0	50.9	0.0	48.7	0.0	43.4	7.8		

- Data not available or incorrect

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Daily Average Flow and Spill (in Kcfs)

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Mid - Columbia Projects

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/08/2019	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
03/15/2019	125.5	0.0	125.4	0.0	128.3	7.4	130.0	1.2	7.9	113.6
03/16/2019	99.9	0.0	108.6	0.0	108.2	7.7	130.6	1.3	8.0	113.8
03/17/2019	122.9	0.0	133.0	0.0	131.7	7.5	130.7	1.2	8.4	111.2
03/18/2019	117.1	0.0	127.7	0.0	122.8	7.5	129.7	1.0	17.0	101.8
03/19/2019	118.9	0.0	117.2	0.0	120.4	7.5	130.3	1.2	26.6	92.6
03/20/2019	123.7	0.0	124.6	0.0	126.5	11.2	131.1	1.2	26.1	94.3
03/21/2019	119.5	0.0	115.6	0.0	114.6	7.2	139.5	1.3	38.4	91.2

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FISH PASSAGE CENTER

**Total Dissolved Gas Saturation(%) - Average of
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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				
03/08									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									98.0	98.2	98.4	24	98.5	98.9	99.5	24	98.3	98.8	99.1	24	98.5	99.0	99.4	24					03/14
03/15									98.2	98.5	98.6	24	98.6	99.0	99.5	24	98.7	98.7	99.1	12	99.0	99.3	99.8	24					03/15
03/16									98.5	98.8	98.9	24	98.6	99.1	99.6	24	98.8	98.8	99.0	10	99.6	100.2	101.1	24					03/16
03/17									98.5	98.7	98.8	24	99.5	99.8	100.5	24	100.4	100.4	100.5	6	100.0	100.3	101.0	24					03/17
03/18									98.8	99.1	99.3	24	99.1	99.5	99.9	24	100.3	100.3	101.8	10	100.1	100.7	101.7	24					03/18
03/19									99.3	99.7	99.9	24	99.5	99.8	100.1	24	100.4	100.4	101.5	10	100.3	100.7	101.1	24					03/19
03/20									99.9	100.3	100.4	24	100.1	100.6	101.0	24	101.9	102.0	102.3	8	101.1	101.7	102.9	24					03/20
03/21									100.4	100.8	101.0	22	100.8	101.2	101.6	22	103.2	103.2	104.1	9	102.2	102.5	103.0	22					03/21

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				
03/08	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	24	97.7	98.0	98.4	24	98.4	98.6	98.8	24	101.5	103.8	115.3	23	98.8	99.7	102.0	24	98.8	99.4	102.0	23					03/14
03/15	98.1	98.5	98.7	24	99.2	100.0	101.9	24	98.9	99.3	99.5	24	100.1	100.4	100.8	23	98.8	99.0	99.7	22	99.1	99.4	100.5	19					03/15
03/16	98.9	99.4	99.6	24	99.4	100.1	100.8	24	99.4	99.5	99.7	24	100.4	100.8	101.1	24	99.3	99.5	99.6	24	99.4	99.6	99.6	23					03/16
03/17	99.4	99.6	99.9	24	99.8	100.2	100.9	24	100.0	100.5	100.9	23	100.6	101.0	102.3	19	99.4	99.6	99.9	21	99.5	99.7	100.0	18					03/17
03/18	100.1	100.7	100.9	24	100.5	101.1	101.6	24	100.9	101.1	101.5	22	101.4	101.7	102.4	20	100.5	101.1	101.5	22	100.6	101.1	101.6	20					03/18
03/19	100.9	101.3	101.6	24	101.3	101.8	102.4	24	101.6	101.9	102.3	23	102.3	102.6	103.1	21	100.9	101.7	102.1	23	101.4	101.6	101.9	20					03/19
03/20	101.6	102.0	102.2	24	102.0	102.6	103.1	24	102.4	102.7	103.0	23	102.8	103.1	103.5	22	102.1	102.4	102.8	23	102.3	102.5	102.7	23					03/20
03/21	102.3	102.8	103.7	22	102.6	103.4	105.0	22	103.2	103.6	103.9	21	103.5	103.7	103.9	21	102.6	102.9	103.2	21	102.7	103.0	103.4	21					03/21

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**Total Dissolved Gas Saturation(%) - Average of
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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
03/08	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
03/15	98.9	99.1	99.2	24				0	100.3	100.6	100.7	24	101.6	102.9	106.3	24					03/15
03/16	99.3	99.5	99.6	24				0	100.0	100.2	100.3	24	100.2	100.8	101.1	24					03/16
03/17	99.6	99.8	100.1	24				0	100.1	100.2	100.3	24	100.2	100.6	100.8	24					03/17
03/18	100.7	101.3	101.5	24				0	100.4	100.7	100.8	24	100.7	101.3	101.6	24					03/18
03/19	101.2	101.5	101.7	24	102.5	102.6	103.5	15	101.0	101.3	101.5	24	101.7	102.5	102.9	24					03/19
03/20	102.4	102.9	103.2	24	103.1	103.5	103.8	24	101.9	102.4	102.8	24	102.8	103.3	103.7	24					03/20
03/21	103.2	103.6	103.9	24	103.6	104.0	104.3	24	103.1	103.6	103.8	24	103.5	104.4	104.7	24					03/21

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
03/08	101.3	102.2	103.4	24				0				0				0	101.6	101.8	101.9	24					03/08
03/09	101.0	102.0	103.3	24				0				0				0	101.3	101.5	101.7	24					03/09
03/10	100.4	101.4	103.0	23				0				0				0	100.6	100.8	100.9	23					03/10
03/11	100.4	101.6	103.1	24				0				0				0	101.1	101.7	102.2	24					03/11
03/12	101.5	102.2	102.8	24				0				0				0	102.2	102.5	102.7	24					03/12
03/13	100.5	101.3	102.3	24				0				0				0	100.6	100.9	101.4	24					03/13
03/14	100.0	101.2	102.8	24				0				0				0	100.0	100.3	100.6	24					03/14
03/15	100.7	101.9	103.1	24				0				0				0	100.6	100.9	101.1	24					03/15
03/16	100.8	101.9	103.4	24				0				0				0	101.3	101.7	102.0	24					03/16
03/17	101.0	102.3	103.9	24				0				0				0	101.5	101.7	101.9	24					03/17
03/18	101.0	102.4	104.1	24				0				0				0	101.8	102.3	102.5	24					03/18
03/19	101.5	102.8	104.4	24				0	103.7	103.7	105.2	9				0	104.5	104.6	105.0	14	103.4	104.1	104.6	24	03/19
03/20	102.2	103.7	105.1	24	102.6	102.8	104.3	13	102.9	103.6	104.7	24				0	105.5	105.6	106.1	24	104.8	105.0	105.3	24	03/20
03/21	103.0	104.3	105.9	23	100.4	101.5	102.9	23	102.6	103.3	104.1	23				0	105.6	105.7	105.9	23	105.0	105.2	106.1	23	03/21

FISH PASSAGE CENTER

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

Date 3/22/2019 7:15:09 AM

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Total Dissolved Gas Data at Lower Snake Sites

Little Goose				L. Goose Tlwr				Lower Mon.				Lwr. Mon. Tlwr				Ice Harbor				Tlwtr Ice Harbor				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/08				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	101.4	101.7	24	100.8	101.1	101.4	24	100.4	100.6	101.0	24	100.8	101.1	102.1	24				0	101.1	101.4	101.7	24	03/14
03/15	101.6	101.9	102.5	24	101.1	101.4	101.9	24	101.1	101.5	101.8	24	101.4	101.7	101.9	24				0	101.6	102.0	102.3	24	03/15
03/16	101.9	102.2	102.7	24	101.4	101.8	102.1	24	101.6	101.9	102.2	24	101.9	102.2	102.4	24				0	102.4	102.9	103.3	24	03/16
03/17	102.2	102.4	102.9	24	101.7	102.0	102.3	24	101.9	102.1	102.2	24	102.1	102.3	102.7	24				0	102.9	103.3	103.8	24	03/17
03/18	102.7	103.3	104.9	24	102.0	102.6	103.2	24	102.2	102.4	102.7	24	102.7	103.0	103.2	24				0	103.7	104.2	104.6	24	03/18
03/19	103.1	103.6	104.4	24	102.6	103.1	103.6	24	102.8	103.1	103.7	24	103.3	103.6	104.1	24				0	106.4	108.7	113.9	24	03/19
03/20	103.9	104.5	106.5	24	103.3	103.8	104.0	24	103.4	103.6	104.0	18	103.9	104.3	104.8	18				0	109.4	112.5	114.3	24	03/20
03/21	104.8	106.0	108.4	23	103.9	104.3	104.6	23	103.9	104.2	104.6	18	104.5	104.8	105.2	18				0	108.2	110.3	114.4	23	03/21

Total Dissolved Gas Data at Mid-Columbia Sites

McNary-Wash.				Tlwtr McNary				John Day				Tlwtr John Day				The Dalles				Dnstr T. Dalles				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/08					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					99.9	100.3	100.5	24	101.0	101.2	101.3	24	100.6	100.9	101.0	24	101.7	101.7	102.3	12	101.1	101.6	102.0	24	03/14
03/15					100.7	101.0	101.2	24	101.6	101.9	102.1	24	101.6	102.1	102.3	24	102.4	102.5	103.0	14	102.9	104.0	105.1	24	03/15
03/16					100.9	101.3	101.4	24	102.1	102.3	102.5	24	102.3	102.6	102.9	24	103.0	103.3	103.7	15	103.5	104.6	105.1	24	03/16
03/17					101.6	102.1	102.5	24	102.5	102.8	103.0	24	102.7	103.0	103.1	24	103.4	103.6	103.9	16	103.8	104.7	105.3	24	03/17
03/18					102.8	103.3	103.4	24	103.3	103.7	103.9	24	103.5	103.9	104.7	24	104.1	104.4	104.7	16	104.3	105.4	106.2	24	03/18
03/19					104.0	104.7	105.0	24	104.3	104.8	105.0	23	104.4	104.9	105.8	24	104.4	105.1	105.5	24	105.0	106.2	106.9	24	03/19
03/20					105.6	106.1	106.4	24	105.5	106.0	106.2	24	105.7	106.0	106.2	24	105.4	106.1	106.5	24	105.8	106.9	107.5	24	03/20
03/21					105.7	106.0	106.3	23	106.2	106.5	106.8	23	106.3	106.9	107.3	23	105.8	106.2	106.5	23	106.3	106.9	107.5	23	03/21

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 Isld.				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
03/08				0	101.6	102.0	103.0	23				0				0	03/08
03/09				0	101.8	102.3	103.1	24				0				0	03/09
03/10				0	101.5	102.0	103.0	23				0				0	03/10
03/11				0	102.3	103.7	105.1	24				0				0	03/11
03/12				0	103.5	104.2	105.6	24				0				0	03/12
03/13				0	103.0	104.0	105.7	24				0				0	03/13
03/14				0	103.6	104.8	106.1	24				0	106.2	106.2	111.5	9	03/14
03/15	103.5	103.6	103.9	13	104.0	105.2	106.5	24				0	110.4	111.5	112.1	24	03/15
03/16	103.3	103.7	103.8	24	104.3	105.3	106.5	24				0	110.4	111.9	112.7	24	03/16
03/17	103.8	104.3	104.7	24	105.3	106.9	107.7	24				0	111.1	112.3	112.8	24	03/17
03/18	104.8	105.1	105.5	24	106.3	107.9	109.2	24	105.0	105.1	105.8	13	111.9	113.2	113.9	24	03/18
03/19	105.4	105.7	105.8	24	107.3	108.6	109.7	24	104.4	105.1	105.7	24	112.3	113.7	114.8	24	03/19
03/20	105.9	106.1	106.3	24	107.6	108.9	109.9	24	105.0	105.8	106.2	24	111.7	113.1	114.2	24	03/20
03/21	106.5	106.8	107.2	23	107.2	107.9	108.7	23	106.6	107.9	108.7	23	110.0	111.1	112.2	23	03/21

Hours used in calculating values:

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

Smolt Monitoring Program Two Week Passage Index Report

Date 3/21/2019 2:16:19 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)
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	813			1			1,490				0
03/16/2019		0		8						150	11
03/17/2019		0		6			3,300				0
03/18/2019	566	0		0						130	0
03/19/2019	597	0		8			1,760				6
03/20/2019	385	3		8						100	0
03/21/2019		0		4			5,320				0
Total:	3,758	15	3	35	0	0	11,920	0	0	460	111
# Days:	10	7	6	15	0	0	7	0	0	4	15
Average:	376	2	1	2	0	0	1,703	0	0	115	7
YTD:	3,758	32	3	35	0	0	11,920	0	0	460	138

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 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)
03/07/2019	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	0			0			0				124
03/16/2019			0	0						0	312
03/17/2019			0	0			0				304
03/18/2019	0		0	0						0	223
03/19/2019	0		0	1			0				248
03/20/2019	0		0	8						0	530
03/21/2019			0	1			0				375
Total:	1	0	0	25	0	0	0	0	0	0	4,116
# Days:	10	7	6	15	0	0	7	0	0	4	15
Average:	0	0	0	2	0	0	0	0	0	0	274
YTD:	1	1	0	28	0	0	0	0	0	0	5,165

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 COHO

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/07/2019	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	0			0			0				10
03/16/2019			0	0					0		5
03/17/2019			0	0			0				0
03/18/2019	0		0	0					0		5
03/19/2019	0		0	0			0				25
03/20/2019	0		0	0					0		0
03/21/2019			0	0			0				7
Total:	0	0	0	0	0	0	0	0	0	0	137
# Days:	10	7	6	15	0	0	7	0	0	4	15
Average:	0	0	0	0	0	0	0	0	0	0	9
YTD:	0	0	0	0	0	0	0	0	0	0	200

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 STEELHEAD

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/07/2019	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	0			0			6				0
03/16/2019			0	0						0	0
03/17/2019			0	0			100				0
03/18/2019	0		0	0						5	0
03/19/2019	0		0	0			2,600				0
03/20/2019	0		0	0						10	0
03/21/2019			2	1			1,980				0
Total:	0	0	2	1	0	0	4,696	0	0	25	9
# Days:	10	7	6	15	0	0	7	0	0	4	15
Average:	0	0	0	0	0	0	671	0	0	6	1
YTD:	0	3	2	1	0	0	4,696	0	0	25	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)
03/07/2019	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	0			0			4				0
03/16/2019			0	0						0	0
03/17/2019			0	0			0				0
03/18/2019	0		0	0						0	0
03/19/2019	0		0	0			0				0
03/20/2019	0		0	0						0	0
03/21/2019			0	0			0				0
Total:	0	0	0	0	0	0	8	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	8	0	0	0	0

Number of hours sampled:

- No data available or no sample conducted

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

Smolt Monitoring Program Two Week Passage Index Report

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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)
03/07/2019	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	0			0			4				20
03/16/2019			0	0						130	60
03/17/2019			0	0			200				80
03/18/2019	0		0	0						160	55
03/19/2019	0		0	0			0				80
03/20/2019	0		0	0						75	85
03/21/2019			0	0			0				70
Total:	0	0	0	0	0	0	204	0	0	545	840
# Days:	10	7	6	15	0	0	7	0	0	4	22
Average:	0	0	0	0	0	0	29	0	0	136	38
YTD:							204			545	1,205

- No data available or no sample conducted

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

Number of hours sampled:

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

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Smolt Monitoring Program Two Week Passage Index Report

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

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 $\text{Passage Index} = \text{Collection Counts} / (\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}))$
 RIS, BO2 (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts $\text{Passage Index} = \text{Collection Counts} / (\text{Powerhouse 2 Flow} / (\text{Powerhouse 1 \& 2 Flow} + \text{Spill}))$
- 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

3/7/2019 12:00:00 AM TO 3/21/2019 12:00:00 AM

Date 3/21/2019 2:18:03 PM

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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

3/7/2019 12:00:00 AM TO 3/21/2019 12:00:00 AM

Date 3/21/2019 2:18:03 PM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	11,920	0	8	4,696	21,320
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	11,916	0	8	4,696	21,316
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	4	0	0	0	4
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	4	0	0	0	4

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	11,920	0	8	4,696	21,320
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	11,916	0	8	4,696	21,316
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	4	0	0	0	4
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	4	0	0	0	4

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YTD Transportation Summary Report

Date 3/21/2019 2:17:39 PM

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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 3/21/2019 2:17:39 PM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	11920	0	8	4696	21320
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	11916	0	8	4696	21316
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	4	0	0	0	4
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	4	0	0	0	4

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	11920	0	8	4696	21320
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	11916	0	8	4696	21316
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	4	0	0	0	4
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	4	0	0	0	4

Cumulative Adult Passage at Mainstem Dams Through: 03/21

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	03/20	5	0	8	0	76	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	03/20	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	03/20	6	0	8	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2019		2018		10-Yr Avg.		10-Yr			10-Yr			Unclipped		Unclipped	10-Yr	10-Yr	
		Adult	Jack	Adult	Jack	Adult	Jack	2019	2018	Avg.	2019	2018	Avg.	2018	2017	Avg.	2019	2018	Avg.
BON	03/20	4	1	1	-1	0	0	0	0	0	443	1294	1699	221	519	627	-39	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	03/20	0	0	0	0	0	0	0	0	0	256	1287	2675	77	265	897	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	03/20	0	0	0	2	7	7	0	0	0	1602	858	2646	1495	817	91	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.