



Fish Passage Center

Weekly Report #18-03

March 23, 2018

This Week's Highlights

Dworshak Operations

Similar to 2017, Unit #3 at Dworshak Dam is out of service for rehabilitation through at least the early summer period. Unit #3 is the largest of the three units at Dworshak Dam, in terms of outflow capacity. Therefore, flows through the powerhouse are limited to 4.5-4.8 Kcfs during this rehabilitation work. Any outflow beyond the constrained powerhouse capacity at Dworshak must be spilled; creating concerns over Total Dissolved Gas supersaturation (TDG) in the river environment below Dworshak Dam and, subsequently, at Dworshak Hatchery as the water supply to the hatchery comes from downstream of Dworshak Dam. Although Dworshak Hatchery has been outfitted with TDG degassing columns (i.e., degassers) which significantly reduce TDG in hatchery supply water, there is still much concern over very high discharges and spill levels at Dworshak that will create elevated levels of TDG below the Dam and, subsequently, elevated TDG levels at the hatchery. At the recent 9.5-10.6 Kcfs spill levels over the last week, TDG directly below has ranged from 122-124%, with the water supply to the hatcheries at approximately 104.5-105.3%.

Over the last month, the Official Water Supply (calculated by USACE) at Dworshak has increased from 2.85 Maf in February to 3.1 Maf in March. At the March 7 TMT call, USACE stated their March Final forecast of 3.1 Maf, would necessitate an April 15th draft to the bottom of the active storage at Dworshak (1,445') and require outflows to remain near 16 Kcfs with the potential to go higher in April. At the March 14 TMT call, the fisheries managers requested a reduction in outflows to 14-15 Kcfs for the remainder of March, in order to reduce TDG below the project and at Dworshak NFH. Following a discussion at a special TMT call on March 16th, a decision was made to reduce outflows at Dworshak to 14 Kcfs and continue these outflows through March 28th when outflows would be further reduced to 12 Kcfs for up to three days to facilitate releases from Dworshak NFH and Clearwater Hatchery.

At the TMT Meeting on March 21st, it was agreed to maintain the operation agreed to last week.

Water Supply

Precipitation throughout the Columbia Basin has varied between 59% and 125% of average at individual sub-basins over March (Table 1). Precipitation above The Dalles has been 88% of average over March. Over the 2018 water year, precipitation has ranged between 90% and 119% 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	March 1-21, 2018		Water Year 2018 October 1, 2017 to March 21, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.57	68	22.9	105
Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 125% of average, for Snake River Basins the average snowpack is 92% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 70%	1.79	114	12.3	93
Columbia Above The Dalles	1.59	88	16.0	99
Kootenai	1.54	69	22.6	105
Clark Fork	1.55	89	16.6	115
Flathead	1.36	61	23.2	119
Pend Oreille River Basin above Waneta Dam	1.48	72	20.5	112
Salmon River Basin	2.59	125	16.1	99
Upper Snake Tributaries	1.99	110	13.5	92
Clearwater	2.55	91	28.6	117
Willamette River above Portland	2.99	59	42.7	90

of average.

Table 2 displays the March 22nd ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 22nd ESP forecast at The Dalles between April and August is 96,032 Kaf (112% of average).

Table 2. March 22 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	March 22, 2018 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	112	98,032
Grand Coulee (Apr-Aug)	115	65,354
Libby Res. Inflow, MT (Apr-Aug)	114 122**	6,735 7,205**
Hungry Horse Res. Inflow, MT (Apr-Aug)	144	2,782
Lower Granite Res. Inflow (Apr- July)	108	21,483
Brownlee Res. Inflow (Apr-July)	106	5,794
Dworshak Res. Inflow (Apr-July)	117 127**	2,840 3,093**

** Denotes COE March Forecast

Grand Coulee Reservoir is at 1250.7 feet (3-22-18) and has drafted 0.7 feet over the last week. Outflows at Grand Coulee have ranged between 75.4 Kcfs and 126.3 Kcfs over the last week. The end of March FC Elevation at Grand Coulee is 1256.9 ft. (based on March Forecast).

The Libby Reservoir is currently at elevation 2364.4 feet (3-22-18) and has drafted 5.8 feet over the past week. Daily average outflows at Libby Dam have ranged between 14.0 and 18.8 to over the last week. The end of March FC at Libby is 2358.3 ft. (based on March Forecast).

Hungry Horse is currently at an elevation of 3504.4 feet (3-22-18) and has drafted 6.6 feet last week. Outflows at Hungry Horse have been 11.5 Kcfs over the last week. The end of March FC at Hungry Horse is 3496.2 ft. (based on March Forecast).

Dworshak is currently at an elevation of 1462.7 feet (3-22-18) and has drafted 9.3 feet over last week. Dworshak outflows have been 14 Kcfs and will decrease further to 12 Kcfs over the last several days of the month when outflows will be reduced to facilitate hatchery releases. The end of March System FC elevation at Dworshak is 1461.6 ft.

The Brownlee Reservoir was at an elevation of 2033.0 feet on March 22, 2018. Outflows at Hells Canyon have ranged between 20.1 and 27.9 Kcfs over the last four days. The end of March FC (based on March forecast) is 2037.2 ft.

Spill

Due to relatively high flows for this time of year and multiple unit outages, involuntary spill continues to occur at John Day Dam. Over the last week, daily average spill volumes at John Day Dam have ranged from 38.6 Kcfs to 63.0 Kcfs. Involuntary spill has also occurred at Ice Harbor Dam through most of the last week. Spill at this project is due to multiple unit outages and, when spill has occurred, daily average spill volumes have ranged from 8.1 Kcfs to 25.4 Kcfs. Finally, due to the continued rehab of unit #3 at Dworshak Dam, hydraulic capacity at this project has been limited to approximately 5 Kcfs. Therefore, Dworshak Dam has been spilling since late January for flood control operations. Over the last week, daily average spill volumes at Dworshak Dam have been approximately 9.5 Kcfs. Waivers in total dissolved gas levels for the implementation of the voluntary fish spill programs don't begin until April. Therefore, the 110% standard for total dissolved gas is currently in place. However, since the spill at these projects is considered involuntary, any exceedences of the 110% standards are not interpreted as violations by the US Army Corps of Engineers.

Smolt Monitoring

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

Subyearling Chinook continued to dominate the samples at Bonneville Dam (BON) this week. Similar

to past weeks, nearly all of the subyearling Chinook sampled at BON this week were fry. This week's daily average passage index for subyearling Chinook at BON was nearly 1,500 per day, which is an increase over last week's daily average of 1,100 per day. A relatively small number of coho fry, yearling Chinook, steelhead, and sockeye were also collected this week. Pacific lamprey macrophthalmia were encountered every day this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 75 per day, which is similar to last week's daily average collection. No Pacific lamprey ammocoetes were encountered in this week's samples.

Similar to the last two years, sampling at John Day Dam (JDA) is every-other-day. Yearling Chinook continued to dominate the samples at JDA this week. This week's daily average passage index for yearling Chinook was approximately 3,725 per day, which is a large increase over last week's daily average of about 625 per day. Steelhead, coho, and subyearling Chinook were also encountered in this week's samples. All of the subyearling Chinook collected at JDA so far this year have been fry. Pacific lamprey macrophthalmia were encountered in all three of this week's samples. This week's daily average collection for Pacific lamprey macrophthalmia was about 7,800, which is a large increase over last week's daily average collection of about 300 per day. Pacific lamprey ammocoetes were encountered in two of this week's samples (March 19th and 21st).

Similar to recent years, sampling at Little Goose Dam (LGS) will be every-other-day until the start of transportation, at which time sampling will change to every day. Yearling Chinook, sockeye, coho, and steelhead were all encountered in this week's samples, but in relatively low numbers. The daily passage indices for this week were less than 50 fish per day, per species. It is worth noting that the sockeye collected so far at LGS are likely kokanee from Dworshak reservoir, as Dworshak Dam has been spilling since January. Pacific lamprey macrophthalmia and ammocoetes were encountered in all four of this week's samples, although in relatively low numbers.

The Snake River Trap at Lewiston, ID (LEW) is located at river kilometer 225 of the Snake River and is operated by the Idaho Department of Fish and Game. Sampling at the Snake River Trap began on March 4th, with the first sample tallied and reported to the FPC on

March 5th. Subyearling Chinook fry, yearling Chinook, coho, and steelhead were all encountered in this week's samples, but in relatively low numbers. Of the 39 yearling Chinook that were collected this week, 37 (90%) were of hatchery origin.

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 7th, with the first sample tallied and reported to the FPC on March 8th. Yearling Chinook dominated the samples at GRN this week. This week's daily average collection for yearling Chinook was nearly 60 fish per day, which is an increase from last week's daily average collection of 30 per day. Of the yearling Chinook sampled so far this season, approximately 96% were unmarked. Subyearling Chinook, coho, and steelhead were also encountered in this week's samples, but in very low numbers. The coho collections are likely part of releases of approximately 500,000 hatchery coho juveniles into the Lostine River that began earlier this month. Finally, three Pacific lamprey ammocoetes were collected in one of this week's samples (March 16th). This is the sixth instance of Pacific lamprey ammocoetes being collected at GRN since lamprey juveniles were included as target species for the SMP in 2011.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 of the Salmon River and is operated by the Idaho Department of Fish and Game. Similar to recent years, sampling at WTB in 2018 will only occur during the weekdays. Sampling at WTB began on March 4th, with the first sample tallied and reported to the FPC on March 5th. To date, only yearling Chinook have been collected at this trap. Collections of yearling Chinook decreased this week, when compared to the previous week. This week's daily average collection was about 180 fish per day, whereas that for last week was about 510 per day. Of the yearling Chinook collected at WTB this week, approximately 54% were of hatchery origin.

The Imnaha River Trap (IMN) is located at river kilometer 007 of the Imnaha River and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. For 2018, the FPC currently has data from IMN for the period of February 15th through March 21st. Over the last week (March 15-21), a total of 242 yearling Chinook and nine steelhead were

collected at the trap. All of the yearling Chinook and steelhead that were encountered this week were unmarked.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 3/23/18, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a finalized record of scheduled hatchery releases.

Snake River Zone:

The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. During the past week, approximately 1.3 million spring Chinook were scheduled for release into this zone. 818,000 into Clear Creek, and 500,000 at Kooskia Hatchery. There was also a scheduled release of 558,000 summer Steelhead at Hells Canyon Dam on the Snake River.

Over the next two weeks approximately 7.1 million spring Chinook are scheduled to be released into this zone. Of these, nearly 43% are being released into the Clearwater River and its tributaries; 1.3 million at Red River, and another 1.6 million at Dworshak Hatchery have been scheduled for an early release in response to the elevated TDG levels at the hatchery, while another 1.3 million 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, 211,000 into the Tucannon River, and 2.1 million are scheduled for release at the Sawtooth Hatchery on the Salmon River. During this same period, 4.4 million summer Steelhead are planned for release within this zone. Nearly 800,000 into the Grande Ronde, Wallowa, and Imnaha Rivers, 100,000 into the Tucannon River, 775,000 into the Clearwater River, 808,000 into the Pahsimeroi, 558,000 in the Snake at Hells Canyon Dam, and an additional 1.5 million into the South Fork of the Salmon River.

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 612,000 spring Chinook are planned

to be released into the Methow and Wenatchee Rivers on April 1st; at Methow Hatchery (125,000), Chewuch acclimation pond (64,000), Twisp River (30,000), Nason Creek (234,000), and Chiwawa Hatchery (158,000). Additionally, 1.85 million summer Chinook are scheduled for release on April 1st as well; 380,000 into the Similkameen River, at Chelan Falls (606,000), Wells Hatchery (356,000), Dryden acclimation pond (505,000), and a volitional release of 54,000 at the Twisp acclimation pond that is scheduled to run through the end of the month. Finally, almost half a million summer Steelhead are planned for release into this zone on April 1st; 54,000 at the Twisp acclimation pond, 68,000 into the Okanogan River, 210,000 at Wells hatchery, and 150,000 at the Chiwawa Hatchery on the Wenatchee River.

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). One release was scheduled for this zone over the last week of 125,000 juvenile fall Chinook into the Pendleton Acclimation Pond on the Umatilla River.

Over the next two weeks approximately 1.75 million spring Chinook are scheduled to be released into this zone. 25,000 into tributaries of the Deschutes River on March 25th; 7500 in the Metolius River, 7500 in Wychus Creek, and 10,000 into the Crooked River. There is also a spring Chinook release of 247,000 scheduled for March 28th in the Wind River. Additionally, almost 1.5 million spring Chinook are scheduled to be released into the Umatilla River on April 1st (810,000), and April 6th (659,000) at Imeques and Thornhollow acclimation ponds. Additionally, on April 5th there will also be a release of 212,000 summer Chinook into Thornhollow acclimation pond.

On April 1st, nearly 2.4 million juvenile Coho are scheduled to be released into the Klickitat River, and 159,000 summer Steelhead are scheduled to be released into the Touchet River at Dayton acclimation pond. Other summer Steelhead releases include 100,000 into the Pendleton Acclimation pond on the Umatilla River on April 6th, and a volitional release at the Ringold Springs Hatchery of 180,000 starting on April 1st and running through the end of the month.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the

Columbia River and its tributaries below Bonneville Dam. Over the past week approximately 202,000 spring Chinook were scheduled for release at the McKenzie Hatchery, and an additional 300,000 were scheduled to be released into Youngs Bay on March 22nd.

Over the next two weeks 2.1 million spring Chinook smolts are being released into this zone. 900,000 of which will be released into the Columbia River below Bonneville Dam at Tongue Point (250,000), Cathlamet Channel net pens (250,000), and at Youngs Bay (400,000). An additional 900,000 will be released into the Cowlitz River, 66,000 into the Sandy River, and an additional 234,000 are scheduled for release into the Willamette River at Dexter Pond. Additionally, approximately 820,000 juvenile Coho will be released into this zone during this period; 305,000 at the Kalama Falls Hatchery, 295,000 at the Grays River Hatchery, 150,000 at the Lewis River Hatchery, and another 70,000 released into the Columbia below Bonneville Dam. Furthermore, approximately 600,000 summer Steelhead are planned for release in this zone as well. 70% of these will be released into the Willamette River and its tributaries, while the other 30% are scheduled for release at Beaver Creek, Kalama Falls Hatchery, and into the Lewis River at the Echo net pens. Finally, almost 400,000 winter Steelhead are planned for release into the Lower Columbia zone. 120,000 at Beaver Creek, 100,000 at the Eagle Creek Hatchery on the Clackamas River, 85,000 into the Washougal River, 45,000 at the Kalama Falls Hatchery, 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 has to review the tapes. The FPC collects the adult count data from projects several times a day and updates Adult Dam Count Report linked on our homepage (<http://www.fpc.org/>). During the winter season at Bonneville Dam (from 1/1/2018 through 3/21/2018), 9 adult Chinook

and 1,304 adult steelhead were counted. In 2017 for the same time frame, 12 adult Chinook and 1,228 adult steelhead were counted. The 2018 Bonneville Dam winter season count of adult steelhead had 76 more fish than the 2017 count. There have been 8 adult Chinook counted at Willamette Falls Dam so far this year.

The Willamette Falls cumulative steelhead count from January 1st through March 21st is 864. The 2018 Willamette Falls winter steelhead count has 396 more fish than the 2017 count of 468, while being about 29.7% of the 10-year average count of 2,908. This year's Lower Granite steelhead count of 1,304 had 1,520 fewer fish than the 2017 count of 2,824 and has 1,700 fewer fish than the 10-year average count of 3,004.

The Bonneville Dam corner collector was opened on March 22nd for kelt passage. Between March 2nd and March 21st, a total of 1 salmon was observed over the separator at the Bonneville Juvenile Monitoring Facility (JMF). Kelt passage at the Bonneville JMF can be found at: <http://www.fpc.org/adultsalmon/bonkeltcounts.htm>.

The Corp of Engineers adult count project and ladder queries are available on FPC.org at the following url: <http://www.fpc.org/environment/home.asp>.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/10/2018 to 03/23/18

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	818,207	03-19-18	04-04-18	Clear Creek	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2018	674,919	03-12-18	03-14-18	Powell Acclim Pond	Lochsa River	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	558,000	03-19-18	03-30-18	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	200,000	03-16-18	03-16-18	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	458,442	03-12-18	03-12-18	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2018	2,500,000	03-12-18	04-27-18	Rapid River	Little Salmon River	SNAK
Idaho Dept. of Fish and Game Total					5,209,568					
Nez Perce Tribe	Kooskia NFH	CH1	SP	2018	513,409	03-19-18	03-19-18	Kooskia Hatchery	Clearwater River M F	SNAK
Nez Perce Tribe Total					513,409					
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	WI	2018	25,000	03-15-18	03-15-18	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2018	240,000	03-15-18	03-15-18	Eagle Creek Hatchery	Eagle Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	150,000	03-15-18	03-15-18	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	300,000	03-22-18	03-22-18	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH1	SP	2018	55,000	03-15-18	03-15-18	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	CH1	SP	2018	400,000	03-15-18	03-15-18	Gnat Creek	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CH0	FA	2018	1,200,000	03-15-18	03-15-18	Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2018	210,000	03-15-18	03-15-18	Imnaha River	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	50,000	03-15-18	03-15-18	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	100,000	03-15-18	03-15-18	Mollala River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Marion Forks Hatchery	CH1	SP	2018	635,000	03-15-18	03-15-18	Santiam River & N Fk	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	McKenzie Hatchery	CH1	SP	2018	202,000	03-21-18	03-21-18	McKenzie Hatchery	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	CH1	SP	2018	421,000	03-10-18	03-10-18	South Santiam Hatchery	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife Total					3,988,000					
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2018	125,000	03-22-18	03-22-18	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					125,000					
Grand Total					9,835,977					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary
From: 3/24/2018 to 4/6/2018

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Colville Tribe	Wells Hatchery	ST	SU	2018	68,300	04-01-18	04-01-18	Okanogan River	Okanogan River	UCOL
Colville Tribe Total					68,300					
Douglas County PUD	Methow Hatchery	CH1	SP	2018	30,698	04-01-18	04-01-18	Twisp River	Methow River	UCOL
Douglas County PUD	Methow Hatchery	CH1	SP	2018	64,000	04-01-18	04-01-18	Chewuch Acclim Pond	Methow River	UCOL
Douglas County PUD	Methow Hatchery	CH1	SP	2018	124,973	04-01-18	04-01-18	Methow Hatchery	Methow River	UCOL
Douglas County PUD	Methow Hatchery	CH1	SU	2018	215,000	04-01-18	05-01-18	Carlton Acclim Pond	Methow River	UCOL
Douglas County PUD	Wells Hatchery	CH1	SU	2018	356,300	04-01-18	04-01-18	Wells Hatchery	Rocky Reach Pool	UCOL
Douglas County PUD	Wells Hatchery	ST	SU	2018	54,300	04-01-18	04-01-18	Twisp Acclim Pond	Methow River	UCOL
Douglas County PUD	Wells Hatchery	ST	SU	2018	210,400	04-01-18	04-01-18	Wells Hatchery	Rocky Reach Pool	UCOL
Douglas County PUD Total					1,055,671					
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	544,340	03-26-18	03-27-18	N Fk Clearwater River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	818,207	03-19-18	04-04-18	Clear Creek	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2018	1,277,096	03-26-18	03-30-18	Red River	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2018	233,972	04-02-18	04-03-18	S Fk Clearwater River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2018	541,123	04-03-18	04-06-18	S Fk Clearwater River	Clearwater River M F	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	558,000	03-19-18	03-30-18	Hells Canyon Dam	Snake River	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	808,000	03-29-18	04-13-18	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2018	169,395	03-30-18	03-30-18	Sawtooth Hatchery	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2018	1,938,255	03-28-18	03-28-18	Sawtooth Hatchery	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					6,888,388					
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2018	66,000	04-06-18	04-06-18	Bull Run Acclimation	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2018	100,000	03-31-18	03-31-18	Eagle Creek Hatchery	Eagle Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	250,000	03-31-18	03-31-18	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	400,000	03-31-18	03-31-18	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2018	215,000	04-01-18	04-20-18	Little Sheep Creek	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2018	320,000	04-01-18	04-01-18	Wallowa Acclim Pond	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2018	250,000	04-01-18	04-01-18	Lookingglass Creek	Grande Ronde River	SNAK
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2018	280,000	04-01-18	04-01-18	Imnaha Acclim Pond	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Roaring River Hatchery	ST	SU	2018	96,000	04-01-18	04-01-18	Willamette River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	ST	SU	2018	55,000	03-31-18	03-31-18	Minto Pond	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	ST	SU	2018	161,500	04-03-18	04-03-18	South Santiam Hatchery	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	ST	SU	2018	100,000	04-06-18	04-06-18	Pendelton Acclim Pond	Umatilla River	MCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2018	234,000	03-24-18	03-24-18	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	ST	SU	2018	61,000	03-31-18	03-31-18	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	ST	SU	2018	66,000	03-31-18	03-31-18	Minto Pond	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	03-25-18	03-25-18	Metolius River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	03-25-18	03-25-18	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	10,000	03-25-18	03-25-18	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					2,679,500					
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2018	1,648,668	03-28-18	03-28-18	Dworshak Hatchery	Clearwater River M F	SNAK
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2018	1,477,066	04-02-18	04-30-18	S Fk Salmon River	Salmon River (ID)	SNAK
U.S. Fish and Wildlife Service Total					3,125,734					
Umatilla Tribe	Carson NFH	CH1	SP	2018	247,338	03-28-18	03-28-18	Wind River	Wind River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	150,000	04-01-18	04-01-18	Thornhollow Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	159,114	04-06-18	04-06-18	Imeques Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	220,000	04-01-18	04-01-18	Thornhollow Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	440,000	04-01-18	04-01-18	Imeques Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	500,000	04-06-18	04-06-18	Imeques Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SU	2018	212,400	04-05-18	04-05-18	Thornhollow Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					1,928,852					
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	SU	2018	30,000	04-01-18	05-01-18	Beaver Creek	Elochoman River	LCOL
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	WI	2018	120,000	04-01-18	05-18-18	Beaver Creek	Elochoman River	LCOL
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2018	604,500	04-01-18	04-01-18	Chelan Falls	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2018	158,500	04-01-18	04-01-18	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2018	234,000	04-01-18	04-01-18	Nason Creek	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2018	149,500	04-01-18	04-01-18	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	COOP	CH1	SU	2018	1,500	04-01-18	04-01-18	Chelan Falls	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife	COOP	CO	NO	2018	30,800	04-01-18	05-01-18	Below Bonn Dam	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	COOP	CO	NO	2018	39,000	04-01-18	04-01-18	Cathlamet Channel Net Pen	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Hatchery	CH1	SP	2018	250,000	04-01-18	05-01-18	Cathlamet Channel Net Pen	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2018	100,000	03-01-18	04-01-18	Cowlitz Hatchery	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH1	SP	2018	809,000	03-01-18	04-01-18	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2018	505,000	04-01-18	04-01-18	Dryden Acclim Pond	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Grays River Hatchery	CO	NO	2018	295,000	04-01-18	04-01-18	Grays River Hatchery	Grays River	LCOL

Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	CO	NO	2018	305,000	04-01-18	05-01-18	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	SU	2018	91,500	04-01-18	04-01-18	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2018	45,500	04-01-18	04-01-18	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	SO	2018	150,000	04-01-18	05-01-18	Lewis River Hatchery	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2018	274,845	04-01-18	04-01-18	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2018	50,000	04-01-18	04-01-18	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2018	59,000	04-01-18	04-01-18	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2018	100,000	04-01-18	04-01-18	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2018	225,000	04-01-18	04-01-18	Cottonwood Acclim Pond	Grande Ronde River	SNAK
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	SU	2018	65,000	04-01-18	05-01-18	Echo Net Pens	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2018	180,000	04-01-18	05-01-18	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Similkameen Hatchery	CH1	SU	2018	380,000	04-01-18	04-01-18		Okanogan River	UCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2018	40,000	04-01-18	05-01-18	Salmon Creek (WA)	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2018	85,000	04-01-18	05-01-18	Washougal River	Washougal River	LCOL
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2018	211,400	04-01-18	04-30-18	Curl Lake Acclim Pond	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2018	50,000	04-01-18	04-01-18	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2018	2,366,000	04-01-18	04-01-18	Klickitat River	Klickitat River	MCOL
Washington Dept. of Fish and Wildlife Total					8,005,045					
Grand Total					23,751,490					

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

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/09/2018	129.8	0.0	129.4	0.0	127.6	5.2	122.6	0.0	126.9	1.7	130.3	0.0	127.6	0.0
03/10/2018	131.2	0.0	136.1	0.0	138.6	13.6	140.3	0.0	145.8	8.0	146.5	0.0	136.0	4.8
03/11/2018	99.4	0.0	102.9	0.0	109.4	1.2	114.0	0.0	119.1	0.5	134.0	0.0	136.3	2.8
03/12/2018	101.3	0.0	98.1	0.0	110.4	0.0	104.7	0.0	109.3	1.0	131.5	0.0	131.9	2.5
03/13/2018	94.0	0.0	92.4	0.0	92.8	0.0	89.9	0.0	93.8	0.0	119.4	0.0	119.7	0.0
03/14/2018	100.1	0.0	107.2	0.0	103.7	0.0	96.7	0.0	103.2	0.0	99.7	0.0	98.6	0.0
03/15/2018	126.3	0.0	126.2	0.0	125.8	10.5	120.4	0.0	125.0	1.6	123.5	0.0	116.3	0.0
03/16/2018	124.1	0.0	125.4	0.0	127.8	1.7	129.1	0.0	136.6	2.1	139.8	0.0	130.9	0.0
03/17/2018	97.1	0.0	99.3	0.0	110.5	0.0	111.6	0.0	118.3	0.2	124.1	0.0	123.9	0.0
03/18/2018	75.4	0.0	70.2	0.0	71.0	0.0	72.1	0.0	75.1	0.0	99.2	0.0	100.8	0.0
03/19/2018	105.4	0.0	112.7	0.0	110.7	4.1	102.8	0.0	106.6	1.4	107.9	0.0	102.6	0.0
03/20/2018	108.4	0.0	109.4	0.0	122.8	0.0	124.3	0.0	130.6	8.8	136.6	0.0	126.9	0.0
03/21/2018	111.4	0.0	109.0	0.0	109.1	0.0	110.0	0.0	117.8	0.0	136.5	0.0	134.9	1.8
03/22/2018	108.7	0.0	105.9	0.0	102.2	0.0	96.2	0.0	99.6	3.3	103.6	0.0	100.9	0.0

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

Date	Dworshak		Brownlee Inflow	Hells Canyon Outflow	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill			Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/09/2018	16.5	11.7	---	---	51.0	0.0	55.2	0.0	56.4	0.0	55.2	0.0
03/10/2018	16.6	12.0	---	---	54.5	0.0	56.1	0.0	63.5	0.0	58.7	3.2
03/11/2018	16.5	12.0	---	---	59.6	0.0	58.4	0.0	65.0	0.0	68.3	12.6
03/12/2018	16.5	11.9	---	---	58.9	0.0	58.9	0.0	62.3	0.0	62.7	6.8
03/13/2018	16.5	11.9	---	---	53.9	0.0	55.1	0.0	63.5	0.4	64.2	8.5
03/14/2018	16.5	11.9	---	---	62.7	0.0	62.2	0.0	67.4	2.3	68.5	12.4
03/15/2018	15.1	10.6	---	---	65.7	0.0	64.5	0.0	70.9	1.0	76.8	20.5
03/16/2018	14.9	10.6	---	---	70.2	0.0	63.5	0.0	63.8	0.0	64.4	8.7
03/17/2018	14.0	9.7	---	---	64.8	0.0	53.6	0.0	55.6	0.0	55.0	0.0
03/18/2018	14.0	9.6	---	---	69.2	0.0	67.8	0.0	69.2	0.0	68.4	12.9
03/19/2018	14.1	9.6	---	---	62.7	0.2	61.3	0.0	67.3	1.9	75.3	25.4
03/20/2018	14.0	9.6	---	---	61.9	0.0	61.0	0.0	61.6	1.7	65.4	13.8
03/21/2018	14.0	9.5	---	---	63.1	0.0	60.5	0.0	63.2	3.9	61.4	8.1
03/22/2018	14.0	9.5	---	---	62.2	0.0	57.6	0.0	60.9	0.6	63.9	8.4

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/09/2018	171.8	0.0	184.3	33.7	182.6	0.0	195.7	1.2	93.3	94.2
03/10/2018	195.2	0.0	202.6	53.0	194.0	0.0	212.6	1.3	107.2	97.2
03/11/2018	207.4	0.0	200.9	51.2	191.8	0.0	208.1	1.3	104.2	95.5
03/12/2018	196.1	0.0	203.5	54.7	194.6	0.0	214.6	1.3	107.8	98.5
03/13/2018	189.3	0.0	203.6	53.0	193.7	0.0	203.6	1.2	100.7	94.7
03/14/2018	183.7	0.0	189.0	47.7	186.1	0.0	199.9	1.2	99.4	92.3
03/15/2018	186.0	0.0	194.3	64.9	188.6	0.0	205.2	1.2	102.9	94.0
03/16/2018	189.3	0.0	197.2	63.0	186.1	0.0	204.9	1.2	104.0	92.3
03/17/2018	192.5	0.0	205.6	54.5	199.0	0.0	213.9	1.3	106.1	99.1
03/18/2018	180.4	0.0	198.3	47.0	191.4	0.0	198.5	1.3	96.7	93.1
03/19/2018	185.3	0.0	201.3	49.9	191.0	0.0	209.1	1.3	116.6	83.9
03/20/2018	179.4	0.0	187.3	38.6	182.7	0.0	203.1	1.2	103.7	90.8
03/21/2018	195.1	0.0	199.5	53.3	189.9	0.0	203.8	1.3	102.3	92.8
03/22/2018	200.7	0.0	202.3	46.4	192.6	0.0	205.8	1.2	102.4	94.8

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 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	
03/09									101.0	101.4	101.8	24	100.3	100.8	101.0	24	100.7	101.2	101.3	24	100.0	100.5	100.8	24	03/09
03/10									100.1	100.3	100.5	24	99.1	99.5	100.0	24	99.5	99.7	100.4	20	98.7	98.9	99.3	24	03/10
03/11									99.8	100.0	100.3	23	99.2	99.7	100.1	23	99.6	99.6	100.4	15	98.8	99.1	99.7	23	03/11
03/12									100.2	100.7	100.8	24	99.7	100.3	101.1	24	100.0	100.3	101.7	17	99.0	99.6	99.9	24	03/12
03/13									101.4	101.9	102.2	24	101.0	101.6	102.2	24	100.8	101.3	101.4	24	100.4	100.8	101.1	24	03/13
03/14									101.8	101.9	101.9	24	101.3	101.6	101.9	24	101.7	101.9	102.4	24	101.2	101.5	101.8	23	03/14
03/15									101.6	101.8	101.9	24	101.0	101.3	101.8	24	101.8	102.0	102.3	24	101.1	101.3	101.5	24	03/15
03/16									101.6	101.9	102.1	24	101.0	101.4	101.9	24	101.7	101.9	102.3	24	101.0	101.2	101.6	24	03/16
03/17									101.7	101.9	102.1	24	101.6	101.9	102.3	24	101.7	102.0	102.7	24	101.0	101.3	101.7	24	03/17
03/18									101.2	101.4	101.5	24	101.8	102.2	102.6	24	101.0	101.2	101.7	24	100.8	101.4	102.7	24	03/18
03/19									100.9	101.3	101.5	24	101.0	101.5	102.6	24	100.9	101.2	101.6	23	100.2	100.5	100.8	24	03/19
03/20									101.6	102.0	102.2	24	101.5	102.1	102.6	24	101.9	102.4	102.7	21	101.2	101.8	102.0	24	03/20
03/21									101.9	101.9	101.9	3	102.1	102.5	103.1	24	103.2	103.4	104.4	18	102.3	102.5	102.8	24	03/21
03/22												0	103.0	103.4	104.0	23	103.4	103.8	104.2	23	102.9	103.4	104.4	23	03/22

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	
03/09	99.9	100.2	100.4	23	101.3	102.5	104.6	23	101.0	101.3	101.8	24	101.5	101.9	102.6	22	100.3	100.5	100.8	24	100.9	101.4	103.4	21	03/09
03/10	99.0	99.2	99.3	24	102.6	105.3	109.2	24	101.7	102.0	102.4	24	102.2	102.4	102.7	23	101.0	102.1	102.9	23	102.7	103.5	105.1	22	03/10
03/11	98.7	99.0	99.5	23	99.8	100.7	104.7	23	101.9	102.9	104.3	23	102.4	102.9	104.5	21	100.6	101.0	102.1	21	100.9	101.3	102.0	21	03/11
03/12	99.2	99.9	100.1	24	99.4	100.2	100.7	24	103.3	104.0	104.7	24	103.9	104.6	105.7	23	103.5	104.5	105.2	23	103.9	105.0	106.2	22	03/12
03/13	100.5	101.0	101.2	24	100.7	101.2	101.4	24	102.2	102.4	102.6	24	102.4	102.6	103.0	24	102.0	102.5	102.6	24	102.7	102.8	103.2	20	03/13
03/14	100.9	101.1	101.4	24	101.1	101.4	101.8	24	101.7	101.8	101.9	24	102.1	102.2	102.2	23	101.4	101.6	102.0	24	101.6	101.8	102.3	22	03/14
03/15	101.1	101.6	102.0	24	103.6	106.3	111.6	24	101.8	102.0	102.2	24	102.4	102.5	103.0	20	101.2	101.8	101.9	21	101.9	102.1	103.1	17	03/15
03/16	101.3	101.6	101.9	24	102.0	102.8	106.0	24	101.8	102.1	102.7	24	102.6	103.0	103.5	23	101.3	101.7	101.9	24	101.9	102.5	103.6	21	03/16
03/17	101.5	101.9	102.3	24	101.9	102.5	103.3	24	104.7	105.3	105.6	24	104.9	105.4	105.8	22	103.4	105.0	105.8	22	103.5	104.8	105.8	21	03/17
03/18	100.9	101.0	101.3	24	101.0	101.3	101.8	24	102.6	102.9	103.5	24	102.8	103.7	105.1	24	102.7	103.4	105.0	24	103.1	103.9	105.9	24	03/18
03/19	100.7	101.1	101.5	24	102.1	103.8	107.7	24	102.1	102.3	102.4	24	102.9	103.3	103.6	24	101.6	102.1	102.3	24	102.1	102.6	103.9	24	03/19
03/20	101.2	101.6	101.8	24	101.6	102.1	103.8	24	102.1	102.5	102.7	24	103.0	103.4	104.1	23	101.5	102.4	102.7	24	103.7	104.9	106.8	22	03/20
03/21	102.0	102.4	102.6	24	102.1	102.5	102.9	24	104.0	104.3	104.5	24	104.9	105.1	105.6	24	103.0	104.0	104.6	24	102.9	103.8	104.5	24	03/21
03/22	102.9	103.4	103.8	23	102.9	103.4	103.8	23	103.5	103.9	104.0	23	104.3	104.4	104.8	16	103.5	103.9	104.3	20	104.2	104.3	105.3	13	03/22

FISH PASSAGE CENTER

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

Date 3/23/2018 7:15:08 AM

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Total Dissolved Gas Data at Upper and Mid-Columbia Sites

Wanapum					Wanapum Tlwr				Priest Rapids				Priest R. Dnstr				Pasco				Date
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/09	101.3	101.8	102.4	24	101.2	101.6	102.1	24	102.1	102.8	103.5	24				0					03/09
03/10	100.5	100.8	101.0	24	100.3	100.6	100.8	24	100.4	100.6	101.0	24				0					03/10
03/11	100.6	100.8	100.9	24	100.4	100.5	100.7	24	100.5	100.7	101.1	24				0					03/11
03/12	102.5	103.5	103.7	24	101.8	102.8	103.1	24	101.2	101.6	101.9	24				0					03/12
03/13	103.6	103.8	103.9	24	103.4	103.6	103.9	24	103.4	103.9	104.1	24				0					03/13
03/14	104.1	104.6	104.9	24	104.2	105.1	107.4	24	103.6	103.8	104.1	24				0					03/14
03/15	104.8	105.0	105.2	24	104.5	104.7	104.8	24	103.6	104.4	104.9	24				0					03/15
03/16	103.2	103.5	104.1	24	103.1	103.3	103.8	24	104.2	104.4	104.6	24				0					03/16
03/17	102.8	102.9	103.0	24	102.6	102.7	102.8	24	103.3	103.7	103.8	24				0					03/17
03/18	101.8	102.0	102.4	24	101.7	101.9	102.2	24	102.1	102.4	102.9	24				0					03/18
03/19	102.0	102.6	103.2	24	101.6	101.9	102.0	24	101.7	102.4	103.0	24				0					03/19
03/20	103.9	104.6	105.1	24	103.6	104.4	104.7	24	102.7	103.4	103.6	24	102.6	102.7	103.1	16					03/20
03/21	104.6	104.9	105.0	24	104.3	104.4	104.6	24	104.7	104.8	104.9	24	104.6	105.1	107.5	24					03/21
03/22	105.2	105.8	106.2	24	105.0	105.4	105.7	24	105.0	105.4	105.7	24	104.5	104.9	105.2	24					03/22

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
03/09	122.0	122.2	122.3	24	113.2	113.8	114.2	24				0	105.9	106.4	106.7	24					104.2	104.4	104.7	24	03/09
03/10	121.9	122.2	122.4	24	112.2	112.8	113.4	24				0	105.8	107.1	108.2	24					104.1	104.5	105.7	24	03/10
03/11	122.0	122.1	122.3	23	112.8	113.2	113.7	23				0	106.3	107.5	108.6	23					103.3	103.5	103.8	23	03/11
03/12	122.0	122.2	122.4	24	113.2	113.9	114.5	24				0	106.8	108.3	109.6	24					102.9	103.2	103.4	24	03/12
03/13	122.5	122.8	123.0	24	113.6	114.3	114.8	24				0	107.0	108.3	109.3	24					103.9	104.4	104.7	24	03/13
03/14	122.5	122.6	122.8	24	112.6	112.9	113.5	24				0	105.6	105.8	106.1	24					104.4	104.6	104.8	24	03/14
03/15	122.5	122.6	122.9	24	111.2	111.4	112.0	24				0	105.3	105.6	106.1	24					104.7	104.9	105.2	24	03/15
03/16	122.6	122.7	123.0	24	111.3	112.0	112.3	24				0	105.6	106.8	107.8	24					104.4	104.6	104.8	24	03/16
03/17	122.3	122.4	122.5	24	110.8	111.0	111.6	24				0	104.9	105.1	105.4	24					103.0	103.5	103.7	24	03/17
03/18	121.7	121.8	122.0	24	109.6	109.9	110.3	24				0	104.5	104.9	105.3	24					101.3	101.6	102.1	24	03/18
03/19	121.7	121.8	122.0	24	110.2	110.9	111.3	24				0	105.1	106.3	107.4	24					101.5	102.0	102.8	24	03/19
03/20	121.9	122.1	122.2	24	110.9	111.5	112.1	24	102.3	103.1	104.1	17	106.1	107.6	108.5	24					102.1	102.4	102.8	24	03/20
03/21	122.9	123.7	124.2	24	111.5	112.1	112.7	24	102.5	103.0	103.5	24	106.4	107.3	108.1	24					103.5	103.9	104.3	24	03/21
03/22	123.7	123.9	124.1	23	111.6	111.9	112.2	23	102.0	102.4	103.1	23	106.1	106.6	107.3	23					104.4	104.6	105.0	23	03/22

FISH PASSAGE CENTER

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

Date 3/23/2018 7:15:08 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				Tlwr Ice Harbor				Date
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/09					103.9	104.3	104.6	24					103.1	103.4	103.6	24					103.2	103.5	103.8	24	03/09
03/10					102.9	103.2	103.4	24					102.6	102.9	103.1	24					103.2	104.0	104.4	24	03/10
03/11					102.4	102.5	102.7	23					102.6	102.7	102.9	23					105.1	106.0	106.3	23	03/11
03/12					103.0	103.6	103.8	24					103.2	103.7	103.9	24					104.6	105.1	105.6	24	03/12
03/13					104.9	105.5	105.9	24					104.7	105.5	112.3	24					105.8	106.3	106.9	24	03/13
03/14					105.2	105.3	105.5	24					105.3	106.6	110.3	24					106.5	107.0	108.8	24	03/14
03/15					104.7	104.8	105.0	24					105.2	105.9	110.4	24					109.1	109.3	109.6	24	03/15
03/16					103.8	103.9	104.1	24					104.8	105.0	105.3	24					106.9	108.6	109.0	24	03/16
03/17					103.6	103.7	103.8	24					104.7	104.9	105.4	24					104.9	105.1	105.5	24	03/17
03/18					102.8	103.0	103.2	24					103.2	103.5	104.0	24					105.8	106.7	108.2	24	03/18
03/19					102.6	102.8	103.0	24					103.9	105.3	108.2	24					110.3	113.5	116.0	24	03/19
03/20					102.8	103.3	103.4	24					104.3	105.7	109.5	24					106.6	107.2	107.9	24	03/20
03/21					103.3	103.6	104.0	24					106.5	107.7	110.5	24					106.1	106.5	107.1	24	03/21
03/22					103.6	104.0	104.3	23					105.0	105.5	107.2	23					106.8	108.2	109.8	22	03/22

Total Dissolved Gas Data at Mid-Columbia Sites

McNary-Wash.					Tlwr McNary				John Day				Tlwr John Day				The Dalles				Dnstr T. Dalles				Date
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/09				0	104.4	104.8	105.2	24	104.2	104.5	105.1	24	112.6	113.5	113.9	24	105.4	105.8	106.1	24	105.0	105.3	105.4	24	03/09
03/10				0	103.6	104.0	104.4	24	103.1	103.4	103.6	24	114.8	115.8	117.5	24	104.9	105.3	105.5	24	104.4	104.8	105.0	24	03/10
03/11				0	103.0	103.4	103.9	23	103.1	103.3	103.4	23	114.3	114.7	115.1	23	106.1	106.4	106.6	23	106.0	106.4	106.8	23	03/11
03/12				0	102.8	102.9	103.2	24	103.9	104.5	104.9	24	115.1	115.3	115.4	24	106.7	107.3	107.8	24	106.3	107.0	107.4	24	03/12
03/13				0	103.7	103.8	104.1	24	105.2	105.3	105.6	24	114.8	115.2	115.4	24	107.8	108.1	108.2	24	107.5	107.9	108.1	24	03/13
03/14				0	103.8	104.1	104.5	24	104.8	104.8	104.9	24	114.2	114.4	114.5	24	106.7	106.8	107.0	24	106.3	106.5	106.7	24	03/14
03/15				0	104.0	104.3	104.5	24	105.2	105.6	105.9	24	117.0	118.2	118.4	24	107.0	107.7	108.0	24	106.5	107.1	107.3	24	03/15
03/16				0	104.2	104.6	104.9	24	105.3	105.4	105.7	24	116.7	118.2	118.6	24	109.0	109.3	109.4	24	108.3	108.8	109.0	24	03/16
03/17				0	103.9	104.0	104.3	24	104.7	104.9	104.9	24	115.0	115.5	118.6	24	108.1	108.6	108.9	24	107.7	108.2	108.7	24	03/17
03/18				0	103.7	104.2	104.5	24	103.5	103.7	104.0	24	113.9	114.1	114.2	24	105.4	105.7	106.2	24	105.1	105.3	105.8	24	03/18
03/19				0	102.7	103.0	103.3	24	103.2	103.6	103.8	24	114.2	114.3	114.6	24	105.7	106.2	106.4	24	105.3	105.8	106.0	24	03/19
03/20				0	103.1	103.3	103.5	24	104.1	104.6	105.2	24	113.6	114.4	114.6	24	106.9	107.4	107.7	24	106.6	107.0	107.3	24	03/20
03/21	106.1	106.0	106.2	6	104.8	105.2	105.6	22	105.4	105.6	106.0	24	115.1	115.5	115.7	24	107.4	107.7	107.9	24	106.9	107.2	107.3	24	03/21
03/22	104.9	105.4	106.0	23	105.6	105.7	106.0	23	105.4	105.9	106.1	23	114.2	115.0	115.7	23	107.7	108.2	108.3	23	107.1	107.6	107.8	23	03/22

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	
03/09	115.3	122.5	123.7	23	106.9	107.4	107.7	24	105.7	105.7	105.9	8	109.3	109.7	109.9	24	03/09
03/10	105.2	105.4	105.5	24	105.4	105.6	106.0	24				0	107.6	108.1	108.3	24	03/10
03/11	105.1	105.4	105.5	23	105.4	105.6	105.8	23				0	107.5	108.0	108.4	23	03/11
03/12	106.0	106.9	108.1	24	106.0	106.7	107.5	24				0	108.0	108.7	109.1	24	03/12
03/13	107.6	108.0	108.4	24	107.6	107.8	108.1	24	105.9	106.6	107.4	18	109.7	109.9	110.1	24	03/13
03/14	107.6	107.8	107.9	24	107.8	108.0	108.2	24	107.0	107.6	108.3	24	110.1	110.3	110.6	23	03/14
03/15	107.7	107.8	107.8	24	108.0	108.2	108.6	24	107.1	107.8	108.4	24	109.8	110.2	110.5	24	03/15
03/16	107.0	107.1	107.2	24	107.3	107.6	107.9	24	107.2	107.7	108.5	24	108.9	109.5	109.8	24	03/16
03/17	106.8	107.0	107.4	24	106.8	106.9	107.1	24	106.4	106.7	107.0	24	108.3	108.6	108.8	24	03/17
03/18	106.9	107.0	107.3	24	107.2	107.5	108.0	24	106.3	107.1	107.6	24	108.4	109.1	109.8	24	03/18
03/19	106.4	106.5	106.7	24	107.0	107.4	108.0	24	106.9	107.7	108.6	24	108.2	108.7	109.0	24	03/19
03/20	106.7	107.3	107.8	24	107.1	107.8	108.4	24	107.2	108.2	109.0	24	108.5	109.3	109.8	24	03/20
03/21	108.3	108.7	109.1	24	108.5	108.9	109.2	24	107.5	108.1	108.6	24	110.0	110.2	110.6	24	03/21
03/22	108.1	108.9	109.4	23	108.3	109.0	109.5	23	107.6	107.9	108.4	23	108.9	109.2	109.3	23	03/22

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

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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)
03/09/2018	1	1		0						223	0
03/10/2018		3	23	0		15					0
03/11/2018		1	12	0						701	11
03/12/2018	6	4	45	0		18					0
03/13/2018	27	4	39	0						788	10
03/14/2018	1,745	27	26	1		9					21
03/15/2018	549	56	36	2						782	11
03/16/2018	235	46	14	4		23					42
03/17/2018		37	70	3						4,299	64
03/18/2018		26	62	15		10					21
03/19/2018	225	18	90	6						3,455	64
03/20/2018	324	15	68	7		20					106
03/21/2018	92	44	53	3						3,419	84
03/22/2018	73		45	1		39					74
03/23/2018											
Total:	3,277	282	583	42	0	134	0	0	0	13,667	508
# Days:	10	13	13	14	0	7	0	0	0	7	14
Average:	328	22	45	3	0	19	0	0	0	1,952	36
YTD:	3,351	297	583	42	0	157	0	0	0	13,920	567

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)
03/09/2018	0	0		0						0	766
03/10/2018		0	0	0		0					1,110
03/11/2018		0	0	0						0	1,232
03/12/2018	0	0	0	0		0					921
03/13/2018	0	0	0	0						0	1,491
03/14/2018	0	0	0	0		0					1,332
03/15/2018	0	0	0	2						0	963
03/16/2018	0	0	0	1		0					1,256
03/17/2018		0	0	1						77	1,611
03/18/2018		0	0	1		0					1,687
03/19/2018	0	0	0	0						47	1,234
03/20/2018	0	0	0	0		0					1,139
03/21/2018	0	0	0	1						64	1,547
03/22/2018	0		1	2		0					1,770
03/23/2018											
Total:	0	0	1	8	0	0	0	0	0	188	18,059
# Days:	10	13	13	14	0	7	0	0	0	7	14
Average:	0	0	0	1	0	0	0	0	0	27	1,290
YTD:	0	0	1	10	0	0	0	0	0	211	22,589

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)
03/09/2018	0	0		0						0	40
03/10/2018		0	0	0		0					62
03/11/2018		0	3	0						0	53
03/12/2018	0	0	2	0		0					42
03/13/2018	0	0	4	0						0	31
03/14/2018	0	0	5	0		0					31
03/15/2018	0	0	0	0						7	32
03/16/2018	0	0	0	0		0					21
03/17/2018		0	4	0						39	43
03/18/2018		0	6	0		1					31
03/19/2018	0	0	3	0						7	21
03/20/2018	0	0	2	1		0					0
03/21/2018	0	0	2	0						0	53
03/22/2018	0		2	0		0					0
03/23/2018											
Total:	0	0	33	1	0	1	0	0	0	53	460
# Days:	10	13	13	14	0	7	0	0	0	7	14
Average:	0	0	3	0	0	0	0	0	0	8	33
YTD:	0	0	33	1	0	2	0	0	0	53	695

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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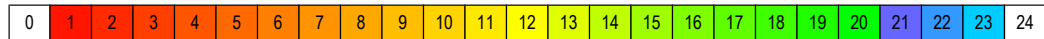
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COMBINED STEELHEAD

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/09/2018	0	0		0						6	0
03/10/2018		1	1	0		7					0
03/11/2018		0	0	0						7	0
03/12/2018	0	2	0	0		11					0
03/13/2018	0	0	0	1						0	0
03/14/2018	0	3	0	4		6					0
03/15/2018	0	4	1	0						7	0
03/16/2018	0	1	3	0		21					11
03/17/2018		0	2	1						13	0
03/18/2018		0	1	0		10					0
03/19/2018	0	0	0	1						40	0
03/20/2018	0	1	0	2		24					0
03/21/2018	0	3	0	1						64	0
03/22/2018	0		2	1		42					0
03/23/2018											
Total:	0	15	10	11	0	121	0	0	0	137	11
# Days:	10	13	13	14	0	7	0	0	0	7	14
Average:	0	1	1	1	0	17	0	0	0	20	1
YTD:	0	16	10	11	0	197	0	0	0	165	11

Number of hours sampled:

- No data available or no sample conducted



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)
03/09/2018	0	0		0						0	0
03/10/2018		0	0	0		8					0
03/11/2018		0	0	0						0	0
03/12/2018	0	0	0	0		10					0
03/13/2018	0	0	0	0						0	0
03/14/2018	0	0	0	0		7					0
03/15/2018	0	0	0	0						0	0
03/16/2018	0	0	0	0		7					0
03/17/2018		0	0	0						0	0
03/18/2018		0	0	0		6					0
03/19/2018	0	0	0	0						0	0
03/20/2018	0	0	0	0		9					12
03/21/2018	0	0	0	0						0	0
03/22/2018	0		0	0		14					0
03/23/2018											
Total:	0	0	0	0	0	61	0	0	0	0	12
# Days:	0	0	0	0	0	9	0	0	0	0	1
Average:	0	0	0	0	0	9	0	0	0	0	1
YTD:	0	0	0	0	0	106	0	0	0	0	12

Number of hours sampled:

- No data available or no sample conducted



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)
03/09/2018	0	0		0						420	95
03/10/2018		0	0	0		5					70
03/11/2018		0	0	0						380	55
03/12/2018	0	0	0	0		2					70
03/13/2018	0	0	0	0						120	80
03/14/2018	0	0	0	0		2					90
03/15/2018	0	0	0	0						260	40
03/16/2018	0	0	3	0		9					75
03/17/2018		0	0	0						2,840	70
03/18/2018		0	0	0		24					65
03/19/2018	0	0	0	0						15,720	45
03/20/2018	0	0	0	0		19					60
03/21/2018	0	0	0	0						4,880	105
03/22/2018	0		0	0		31					115
03/23/2018											
Total:	0	0	3	0	0	92	0	0	0	24,620	1,035
# Days:	10	13	13	14	0	11	0	0	0	9	15
Average:	0	0	0	0	0	8	0	0	0	2,736	69
YTD:			3			99				29,910	1,550

- No data available or no sample conducted

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

Number of hours sampled:

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

Smolt Monitoring Program Two Week Passage Index Report

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Smolt Monitoring Program Sites and Agency Collaborations:

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

- No data available or no sample conducted

Number of hours sampled:



Important Information About this Report:

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

FISH PASSAGE CENTER

Two Week Transportation Summary Report

3/9/2018 12:00:00 AM TO 3/23/2018 12:00:00 AM

Date 3/23/2018 7:17:56 AM

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Lower Granite Dam

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

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	134	1	61	121	438
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	130	1	59	121	432
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	3	0	1	0	4
Sum of Facility Morts	0	1	0	1	0	2
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	4	0	2	0	6

FISH PASSAGE CENTER

Two Week Transportation Summary Report

3/9/2018 12:00:00 AM TO 3/23/2018 12:00:00 AM

Date 3/23/2018 7:17:56 AM

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Lower Monumental Dam

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

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	134	1	61	121	438
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	130	1	59	121	432
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	3	0	1	0	4
Sum of Facility Morts	0	1	0	1	0	2
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	4	0	2	0	6

FISH PASSAGE CENTER

YTD Transportation Summary Report

Date 3/23/2018 7:17:34 AM

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Lower Granite Dam

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

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	157	1	92	155	560
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	153	1	90	155	554
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	3	0	1	0	4
Sum of Facility Morts	0	1	0	1	0	2
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	4	0	2	0	6

YTD Transportation Summary Report

Date 3/23/2018 7:17:34 AM

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Lower Monumental Dam

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

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	157	1	92	155	560
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	153	1	90	155	554
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	3	0	1	0	4
Sum of Facility Morts	0	1	0	1	0	2
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	4	0	2	0	6

Cumulative Adult Passage at Mainstem Dams Through: 03/22

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2018		2017		10-Yr Avg.		2018		2017		10-Yr Avg.		2018		2017		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	03/21	9	0	12	0	92	0	0	0	0	0	0	0	0	0	0	0	0	0
TDA	02/28	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	03/21	5	-1	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0
MCN	02/27	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	03/21	4	0	0	0	1	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	03/21	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	03/21	8	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2018		2017		10-Yr Avg.		2018	2017	10-Yr Avg.	10-Yr Unclipped		Unclipped		10-Yr Avg.	2018	2017	Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack				2018	2017	2018	2017					
BON	03/21	1	-1	0	0	0	0	0	0	1304	1228	1704	526	468	633	0	0	0	
TDA	02/28	4	0	0	0	0	0	0	0	43	0	79	15	0	38	0	0	0	
JDA	03/21	0	0	0	0	0	1	0	0	162	0	2195	47	0	821	0	0	-1	
MCN	02/27	0	0	0	0	1	0	0	0	184	0	214	79	0	82	0	0	0	
IHR	03/21	0	0	0	0	0	0	0	0	340	0	1559	104	0	435	2	0	0	
LMN		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	
LGR	03/21	0	0	0	0	0	0	0	0	1304	2824	3004	267	986	990	0	0	0	
PRD		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	
RIS		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	
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WFA	03/21	0	2	117	117	0	0	0	0	864	468	2908	822	465	0	0	0	0	

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