



Fish Passage Center

Weekly Report #18-07

April 20, 2018

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 152% and 216% of average at individual sub-basins over April. Precipitation above The Dalles has been 172% of average over April. Over the 2018 water year, precipitation has ranged between 96% and 125% of average.

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

Location	Water Year 2018 April 1-19, 2018		Water Year 2018 October 1, 2017 to April 19, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	3.11	191	27.2
Snake River Above Ice Harbor	1.94	152	14.9	99
Columbia Above The Dalles	2.31	172	19.1	104
Kootenai	3.03	186	27.0	112
Clark Fork	2.52	178	19.6	117
Flathead	3.64	206	28.0	125
Pend Oreille River Basin above Waneta Dam	3.06	196	24.4	117
Salmon River Basin	2.71	166	19.5	104
Upper Snake Tributaries	2.46	166	17.5	103
Clearwater	4.60	216	34.0	122
Willamette River above Portland	6.28	193	51.1	96

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 147% of average, for Snake River Basins the average snowpack is 95% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 98% of average.

Table 2 displays the April 19th ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 19th ESP forecast at The Dalles between April and August is 106,010 Kaf (121% of average).

Table 2. April 19 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	April 19, 2018 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	121	106,010
Grand Coulee (Apr-Aug)	124	70,563
Libby Res. Inflow, MT (Apr-Aug)	123 122*	7,249 7,189*
Hungry Horse Res. Inflow, MT (Apr-Aug)	154	2,978
Lower Granite Res. Inflow (Apr- July)	118	23,414
Brownlee Res. Inflow (Apr-July)	119	6,521
Dworshak Res. Inflow (Apr-July)	122 125*	2,954 3,040*

* Denotes COE April Forecast

Grand Coulee Reservoir is at 1231.2 feet (4-19-18) and has drafted 6.0 feet over the last week. Outflows at Grand Coulee have ranged between 127.9 Kcfs and 155.7 Kcfs over the last week. The April 30th FC Elevation at Grand Coulee is 1222.7 ft. (based on April Forecast).

The Libby Reservoir is currently at elevation 2358.6 feet (4-19-18) and has refilled 0.9 feet over the past week. Daily average outflows at Libby Dam have been reduced to 4.0 Kcfs over the last week. The April 30th FC at Libby is 2359.3 ft. (based on April Forecast).

Hungry Horse is currently at an elevation of 3479.4 feet (4-19-18) and has drafted 6.7 feet last week. Outflows at Hungry Horse have been 12.0-14.1 Kcfs over the last week. The April 30th FC at Hungry Horse is 3475.5 ft. (based on April Forecast).

Dworshak is currently at an elevation of 1474.7 feet (4-19-18) and continues to refill, filling 8.9 feet over last week. Dworshak outflows have been 7.5 Kcfs. The COE plans to maintain 7.5 Kcfs outflows through the remainder of April.

The Brownlee Reservoir was at an elevation of 2022 feet on April 19th, 2018. Outflows at Hells Canyon have ranged between 41.2 and 42.8 Kcfs over the last four days. The April 30th FC (based on April forecast) is 2014.7 ft.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 4th, 2018), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 93.7 Kcfs last week; over the spring season have averaged 92.5 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam (both begin today, April 10th). Flows at McNary averaged 281.0 Kcfs last week at McNary and 275.1 Kcfs over the spring season. Flows averaged 156.6 Kcfs at Priest Rapids last week and 150.1 Kcfs over the spring season.

Spill

Flows in the Snake and Mid-Columbia rivers increased over the past week, with daily average flows ranging from approximately 100 to 115 Kcfs at Lower Granite Dam and approximately 260 to 295 Kcfs at McNary Dam.

The 2018 spill for fish passage program at the lower Snake River and Mid-Columbia FCRPS projects began just after midnight on April 3rd and April 10th, respectively. In response to the order from the U.S. District Court of the District of Oregon, the 2018 Fish Operations Plan (FOP) specifies that spring spill operations on the Snake and Mid-Columbia rivers will

be to spill to the 115%/120% total dissolved gas (TDG) caps at all eight projects. The COE estimates spill caps for each project on a daily basis and projects will be operated to these estimated spill caps. These daily spill caps are implemented at 1600 each day and are published on the TMT website (<http://pweb.crohms.org/tmt/documents/ops/spill/caps/>). The daily spill caps at the Snake and Mid-Columbia river projects for the past week are summarized in Table 3.

Table 3. Spring spill operations and estimated 115%/120% TDG spill caps at Snake and Mid-Columbia river projects. Estimated spill caps for Snake River projects are for most recent week of spill operations.

Project	Spring Spill Level (Day/Night)	Estimated Spill Caps (4/13-4/19)
Lower Granite	Gas Cap/Gas Cap	45 Kcfs
Little Goose	Gas Cap/Gas Cap	32-39 Kcfs
Lower Monumental	Gas Cap/Gas Cap	40 Kcfs
Ice Harbor	Gas Cap/Gas Cap	92-93 Kcfs
McNary	Gas Cap/Gas Cap	195-198 Kcfs
John Day	Gas Cap/Gas Cap	140-146 Kcfs
The Dalles	Gas Cap/Gas Cap	100-113 Kcfs
Bonneville	Gas Cap/Gas Cap	121-123 Kcfs

Spill at all four Lower Snake River projects has met the estimated 115%/120% spill cap levels this week. The estimated 115%/120% spill caps for Lower Granite Dam started at 45.0 Kcfs on Friday, April 13th, and remained there through the week. The estimated 115%/120% spill caps for Little Goose Dam started at 32.0 Kcfs on Friday, April 13th and has gradually increased over the past week. The estimated spill cap for Thursday, April 19th was 39.0 Kcfs. The gradual increase in spill caps for Little Goose Dam resulted in fewer forebay exceedences at Lower Monumental than in previous weeks, with the 115% forebay spill cap exceeded on April 15th, 16th, and April 19th. On all three days, TDG levels at the Lower Monumental forebay were higher than the Little Goose tailrace. The estimated 115%/120% spill caps for Lower Monumental Dam started at 40.0 Kcfs on Friday, April 13th and has not changed over the past week. The forebay TDG exceeded the 115% standard on April 15th and 16th. The estimated 115%/120% spill caps for Ice Harbor Dam started at 93.0 Kcfs on Friday, April 13th, and were decreased to 92.0 on April 16th. There were no exceedences in the McNary forebay over the past week.

As mentioned above, spring spill operations at the Mid-

Columbia projects began on April 10th. Spill at all four Mid-Columbia River projects has met the estimated 115%/120% spill cap levels since spill began this week. The estimated 115%/120% spill cap for McNary Dam was 195.0 Kcfs on Friday, April 13th, and raised to 198.0 Kcfs the next day and for the rest of the week. To date, there have been no exceedences in TDG waiver limits from McNary Dam. The estimated 115%/120% spill caps for John Day Dam started at 143.0 Kcfs on Friday, April 13th but was increased to 146.0 Kcfs on Saturday, April 14th, after which it returned to 143.0 Kcfs until Thursday, April 19th, when it was reduced to 140.0 Kcfs. Total dissolved gas exceeded the 115% waiver limit at The Dalles forebay throughout the week, except on Friday, April 13th and April 17th. The estimated 115%/120% spill caps for The Dalles Dam started at 113.0 Kcfs on Friday, April 13th, was reduced to 108.0 Kcfs on April 14th, and further reduced to 100.0 Kcfs for the remainder of the week. Total dissolved gas levels in the Bonneville forebay exceeded the waiver every day of the last week except April 18th. Finally, the estimated 115%/120% spill caps for Bonneville Dam started at 123.0 Kcfs on Friday, April 13th but was reduced to 121.0 Kcfs on April 16th. The 120% TDG waiver at the Cascade Island monitor was not exceeded over the past week.

High TDG supersaturation levels are occurring below Dworshak Dam on the Clearwater River, due to discharge in excess of hydraulic capacity for flood control operations. Daily average TDG levels in the Dworshak Dam tailrace have ranged from 110% to 112% this week. Consequently, due to these flood control operations, the TDG supersaturation levels are already in excess of 100% when the river water enters the mainstem Snake River hydrosystem. Daily average TDG levels at the Lower Granite Dam forebay monitor ranged from 103% to 106% this week.

Note: The State of Oregon TDG waiver only requires compliance with 120% TDG in the tailrace, while the State of Washington requires compliance with both a 115% TDG forebay requirement and a 120% tailrace TDG requirement. The State of Oregon and the State of Washington also use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour

average for a given day. The location of a TDG monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill will be decreased if needed.

Gas bubble trauma (GBT) monitoring in smolts took place over the past week at Lower Granite, Little Goose, Lower Monumental, Rock Island, McNary, and Bonneville dams this week. Signs of GBT were observed in four of the nine GBT samples conducted this week (April 13-19). No signs of GBT were observed at McNary, Little Goose, or Lower Granite this week. Bonneville Dam observed signs of GBT in each of their two samples this week. The sample on April 14th had two fish (2.4%) with rank 1 signs of GBT and the sample on April 18th had one fish (1%) with rank 1 signs of GBT. Rock Island observed one fish (1.7%) with rank 1 signs of GBT on April 17th but zero fish with signs of GBT in their sample on April 19th. Lower Monumental observed one fish (1%) with rank 1 signs of GBT in their April 19 sample. The action criteria for interruption of the voluntary spill for fish passage program is defined as either 15% of examined fish showing signs of GBT in their non-paired fins, or 5% of the fish examined showing severe signs of GBT in their non-paired fins. Severe signs of GBT are defined as more than 25% of the surface area of the fin is occluded by gas bubbles, which corresponds to a rank of 3 or 4.

Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. Thus far, reported temperatures at Bonneville, McNary, and Ice Harbor are close to average based on the past ten years of data. Temperatures at Lower Granite are slightly above the current 10-year average and very similar to temperatures observed in 2017.

Smolt Monitoring

Smolt Monitoring Program (SMP) activities continued at all bypass facilities and traps this week (April 13-19).

Yearling Chinook dominated the samples at Bonneville Dam (BON) this week. This week's daily average passage index for yearling Chinook was nearly 30,700 per day, which is an increase over last week's daily average passage index of about 12,500 per day. Steelhead and coho passage also increased this week, when compared to last week. This week's daily average passage indices for these two species were 2,400 and 6,200 per day, respectively. Last week's daily average passage indices were 465 for steelhead and 3,900 for coho. Subyearling Chinook passage decreased this week. This week's daily average passage index for subyearling Chinook was 30,700 per day, whereas that for last week was about 112,000 per day. This decrease is due to the fact that the vast majority of the subyearling fall Chinook tulle release from Spring Creek NFH has passed the project. Similar to recent weeks, sockeye were also encountered in this week's samples but in relatively low numbers. Pacific lamprey macrophthalmia were encountered nearly every day this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 100 per day, which is a decrease from last week's daily average collection of about 285 per day. Finally, no Pacific lamprey ammocoetes were encountered in this week's samples at BON.

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 21,700 per day, which is a substantial increase over last week's daily average passage index of 3,300 yearling Chinook per day. Steelhead passage also increased substantially this week. This week's daily average passage index for steelhead was 15,000 per day, whereas that for last week was only 330 per day. Although still relatively low, coho and sockeye passage also increased this week, when compared to last week. This week's daily average passage indices for these two species were 140 and 110 per day, respectively. Last week's daily average passage indices for coho and sockeye were both less than 50 per day. No subyearling Chinook fry were

collected this week. 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 200, which is similar to from last week's daily average collection of about 225 per day. Pacific lamprey ammocoetes were encountered in two of this week's samples (April 14th and 18th).

Similar to John Day, sampling at McNary (MCN) is every-other-day. Yearling Chinook and steelhead predominated in this week's samples at MCN. This week's daily average passage index for yearling Chinook was 17,300 per day. Steelhead were the second most abundant species in this week's samples. This week's daily average passage index for steelhead was 12,900 per day. Sockeye, coho, and subyearling Chinook were also encountered in this week's samples but in relatively low numbers. As with last week, all of the subyearling Chinook that were encountered this week were fry. Finally, Pacific lamprey macrophthalmia were encountered in all three of this week's samples while no ammocoetes were encountered. This week's daily average collection for Pacific lamprey macrophthalmia was about 480 per day.

Steelhead dominated the samples at Lower Granite Dam (LGR) this week. This week's daily average passage indices for steelhead was nearly 89,000 per day, which is an increase over last week's daily average passage index of 65,000 per day. Passage of yearling Chinook decreased slightly this week, when compared to last week. This week's daily average passage index for yearling Chinook was 65,400 per day, whereas that for last week was 68,300 per day. Of the yearling Chinook collected this week, approximately 63% were of hatchery origin (i.e., clipped or CWT). Approximately 94% of the steelhead collected at LGR this week were of hatchery origin. Sockeye, coho, and subyearling Chinook were also encountered in this week's samples. The sockeye collected in this week's sample are likely kokanee from Dworshak reservoir, as Dworshak Dam has been spilling since January. All of the subyearling Chinook encountered in this week's samples were fry. Finally, no Pacific lamprey juveniles were encountered in this week's samples.

Similar to recent years, sampling at Little Goose Dam (LGS) will be every-other-day until the start of transportation, at which time sampling will change to every day. Steelhead dominated this week's samples at LGS. This week's daily average passage index

for steelhead was nearly 115,600 per day, which is an increase over last week's daily average passage index of nearly 102,000 per day. Passage of yearling Chinook also increased this week, when compared to the previous week. This week's daily average passage index for yearling Chinook was nearly 60,000 per day, whereas that for last week was about 32,800 per day. This week's daily average passage index for sockeye was 380 per day, which is a decrease from last week's daily average passage index of about 1,560 per day. Similar to Lower Granite Dam, it is likely that the sockeye collected at LGS so far this year are actually kokanee from Dworshak reservoir. Coho and subyearling Chinook were also collected in this week's samples but in relatively low numbers. All of the subyearling Chinook collected in this week's samples were fry. Pacific lamprey macrophthalmia and ammocoetes were encountered in only one of this week's samples (April 13th). The estimated collection on this single day were 100 for ammocoetes and 700 for macrophthalmia.

Sampling at Lower Monumental Dam (LMN) was every-third-day through April 14th and then transitioned to every-other-day where it is expected to remain until the start of transportation. Once transportation begins, sampling will be every day. Three samples were conducted at LMN this week, all of which were dominated by steelhead. This week's daily average passage index for steelhead was 86,000 per day, which is a substantial increase over last week's daily average passage index of approximately 9,000 per day. Yearling Chinook passage also increased this week when compared to last week. This week's daily average passage index for yearling Chinook was nearly 60,000 per day, whereas that for last week was 21,000 per day. Although relatively low compared to yearling Chinook and steelhead, sockeye passage also increased this week. This week's daily average passage index was about 575 per day, whereas that for last week was 270 per day. Similar to Lower Granite and Little Goose, most if not all of the sockeye encountered this week were likely kokanee from Dworshak reservoir. Finally, coho were encountered in only one of this week's samples (April 14th).

Sockeye dominated this week's samples at Rock Island Dam (RIS). This week's daily average passage index was 230 per day, which is an increase over last week's daily average passage index of only 12

per day. Passage of yearling Chinook also increased this week, when compared to last week. This week's daily average passage index was nearly 150 per day, whereas that for last week was only 4 per day. The increase in yearling Chinook passage is largely due to recent hatchery releases above RIS. For example, of the yearling Chinook that were collected at RIS this week, approximately 81% were clipped. Subyearling Chinook, coho, and steelhead were also encountered in this week's samples but in relatively low numbers. Similar to previous weeks, all of the subyearling Chinook that were collected this week were fry. Finally, Pacific lamprey macrophthalmia were collected in four of this week's samples but in very 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. Yearling Chinook dominated this week's samples at LEW. This week's daily average collection was 240 per day, which is very similar to last week's daily average collection. Steelhead collections increased this week, when compared to the previous week. This week's daily average collection for steelhead was about 180 per day, whereas that for last week was about 90 per day. Finally, coho and subyearling Chinook were also encountered in this week's collections, but in relatively low numbers.

The Grande Ronde Trap (GRN) is located at river kilometer 2 of the Grande Ronde River and is operated by the Oregon Department of Fish and Wildlife. Yearling Chinook dominated this week's collections. This week's daily average collection for yearling Chinook at GRN was about 270 per day, which is a large decrease over last week's daily average collection of 1,650 per day. Of the yearling Chinook that were collected this week, approximately 70% were of known hatchery origin. Steelhead collections this week were very similar to those from last week. This week's daily average collection for steelhead at GRN was 32 per day. Finally, some coho were encountered in this week's samples, but in very low numbers.

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. After high sample counts on April 9th, trapping operations were modified by moving the trap to a less efficient location

in order to reduce handling of hatchery Chinook. The trap has continued sampling in this less efficient location since. Due to an equipment failure last week, sampling at WTB was suspended after the sample on April 12th and no sample was conducted for April 13th. Once repairs were completed on April 13th, the crew at WTB conducted a 20-hour sample for April 14th to make up for this earlier missing day. Yearling Chinook continued to dominate the collections at WTB this week. This week's daily average collection for yearling Chinook at WTB was 950 per day, which is a decrease from last week's daily average collection of about 1,500 per day. Of the yearling Chinook sampled this week, approximately 90% were of hatchery origin. The only other species that has been encountered at this trap this season is steelhead. Although relatively low, steelhead passage continued to increase this week, when compared to previous weeks. A total of 286 steelhead were collected at WTB this week. Of these, 75% 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 April 3rd. Over the last week of available data (April 11-April 17), a total of 12,537 yearling Chinook and 1,842 steelhead were collected at the trap. Of the yearling Chinook collected over this period were, 98% were adipose clipped. Similarly, of the steelhead collected over this period, approximately 92% were clipped.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 04/20/18, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a finalized record of 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. Over the past week approximately two million spring Chinook were released into this zone. Of these, 53% were planned for release into the Pahsimeroi River, and another 14% into the Yankee Fork of the Salmon River. The remaining 650,000 were released into the Grande

Ronde basin at the Catherine Creek, Grande Ronde, and Lostine acclimation ponds. Additionally, over 1.4 million summer steelhead were also released into this zone as well. Nearly half of these (48%) were planned to be released into tributaries of the Salmon River in the Yankee Fork and the Little Salmon. The rest were divided among three releases at Big Canyon acclimation pond (320,000) on the Wallowa River, Little Sheep Creek (215,000) on the Imnaha, and Lolo Creek (202,000) on the middle fork of the Clearwater River.

Over the next two weeks 660,000 sockeye from Springfield Hatchery are planned for release into Redfish Lake Creek on the Salmon River. Additionally, over half a million spring and summer Chinook are planned for release in this zone as well. Of these, 60% are planned for release into the Salmon River, with the remaining split between the Wallowa River (160,000), and Tucannon River (50,000).

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. Over the past week approximately 2.3 million spring and summer Chinook were released into this zone. Of these, 43% were released at Chief Joseph Hatchery, and another 41% were released into the Okanogan River at the Similkameen, Riverside, and Omak ponds. With the final 400,000 being released into the Methow River. Additionally, there were also 1.4 million coho released over the past week, all volitional and expected to last until the end of the month. A majority of these went to the Wenatchee River with releases at Leavenworth Hatchery (493,000), Rolings acclimation pond (113,000), Butcher Creek acclimation pond (121,000), Coulter Creek (76,000), and the Wenatchee River (99,000). The rest went to the Methow River with releases at the Twisp acclimation pond (76,000), Winthrop Hatchery (336,000), and the Methow River itself (117,000). Finally, there was also a single release of summer steelhead from the Methow Hatchery of 72,000 fish. This release is expected to go through the middle of next month.

Over the next two weeks approximately 460,000 summer Chinook are planned for release into this zone. Most of these are planned for release at the Wells Hatchery, however there are also two small releases of a few hundred smolts scheduled for the Methow and Similkameen Rivers. Additionally, there are two small

releases of about 100 fall Chinook planned in this zone as well.

Middle Columbia Zone:

The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). Over the past week there were 340,000 spring Chinook released into this zone. These were all scheduled for release into the Deschutes River and its tributaries with the exception of 75,000 there were released to the west fork of the Hood River. There were also approximately one million coho planned for release into the Yakima River at Holmes, Stiles, Easton, and Prosser acclimation ponds. Steelhead releases scheduled for the past week included 150,000 summer steelhead that were released into the Umatilla River, another 1,000 into the Crooked River, and 20,000 winter steelhead released to Rock Creek near Stevenson Washington.

The next two weeks will see some limited releases of fall Chinook in the Yakima River (13,000), and the McNary Pool (7000). There will also be one large release of about a million coho from Klickitat Hatchery on May first. Summer steelhead releases over the next two weeks will total approximately 75,000 with 25,000 going to the Deschutes River and the rest planned for release into Thornhollow acclimation pond on the Umatilla River. Finally, there will be a winter steelhead release of 50,000 into the Hood River on April 28th.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Over the past week there were approximately 1.6 million fall Chinook released into this zone at Tanner Creek. There were also two spring Chinook releases at both Tongue Point on the Columbia (200,000) and in Dexter Pond (234,000) on the Willamette River. Additionally, in the past week over 1.7 million coho were scheduled for release into this zone. Of these, 48% were planned for release into Youngs Bay near Astoria, while the rest were planned for release into the Klaskanine River (200,000), Blind Slough (400,000), the Sandy River (200,000), and Tanner Creek (102,000).

Steelhead releases over the past week included 150,000 summer steelhead that were released into the Sandy River, as well as volitional releases into the Cowlitz (620,000), Lewis (10,000), Toutle (20,000),

and Washougal (13,000) Rivers that are expected to run through the middle of next month. Finally, there was also roughly a million winter steelhead released into this zone as well. These included 40,000 that were released from the Klaskanine Hatchery, and volitional releases that will run through mid-May into the Lewis (250,000), Kalama (84,000), and Cowlitz (626,000) Rivers.

Over the next two weeks, there are a planned 12.7 million fall Chinook scheduled for release into this zone. 55% of these will be released into the Kalama River, with the remainder split between the Cowlitz Hatchery (3.67 million), and the Klaskanine River (2.1 million). Coho planned for release in this zone over the next two weeks total about 6.25 million. Of these, 37% will be released into the Cowlitz River, and another 27% are planned for release into the Klaskanine River. The remainder will be split between Grays River (700,000), the Washougal River (150,000), the Sandy River (200,000), Tongue Point on the Columbia (540,000), and Big Creek Hatchery (535,000). Finally, there will also be 239,000 winter steelhead released into this zone as well. Most of these will be released into the Clackamas River (135,000) with another 104,000 slated for release into the Lewis River starting May first.

Adult Passage

At Bonneville Dam, 367 adult Chinook and 2,318 adult steelhead were counted. Of the steelhead counted 1,000 were unclipped steelhead. In 2017 for the same time frame, 796 adult Chinook and 2,273 adult steelhead were counted. Of the steelhead counted in 2017, 807 were unclipped steelhead.

The direct counts at Bonneville Dam showed 20 to 51 adult spring Chinook passing over the project this past week, with a cumulative total of 367 for both direct and video counts (through April 19). There were 429 fewer fish in this year's count when compared to the 2017 count (48%), while this year's count was about 3% of the ten-year average. Adult steelhead direct counts ranged from 17 to 28 this week, with a cumulative total of 2,318 for both direct and video counts through April 19th. This is 102% of the 2017 count and 73% of the ten-year average.

The Willamette Falls cumulative steelhead count from January 1st through April 18th was 1,319. The 2018 Willamette Falls steelhead count was about 2.3 times greater than the 2017 count, while this year's count was about 30% of the 10-year average count of

5,083. This year's Lower Granite steelhead count of 3,967 had 2,928 fewer fish than the 2017 count of 6,895 and 3,634 fewer fish than the 10-year average count of 7,601.

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

Hatchery Releases Last Two Weeks

Hatchery Release Summary

	From:	4/7/2018		to	04/20/18					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2018	202,000	04-15-18	04-15-18	Riverside Pond	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2018	556,000	04-15-18	04-15-18	Chief Joseph Hatchery	Wells Pool	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2018	303,000	04-15-18	04-15-18	Omak Pond	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2018	380,000	04-15-18	04-15-18	Similkameen Acclim Pd	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2018	464,000	04-15-18	04-15-18	Chief Joseph Hatchery	Wells Pool	UCOL
Colville Tribe Total					1,905,000					
Douglas County PUD	Methow Hatchery	ST	SU	2018	72,700	04-15-18	05-15-18	Methow Hatchery	Methow River	UCOL
Douglas County PUD Total					72,700					
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2018	131,564	04-09-18	04-10-18	Newsome Creek	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	196,779	04-19-18	04-23-18	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	281,893	04-11-18	04-13-18	Sawtooth Hatchery	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	296,925	04-16-18	04-18-18	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	407,487	04-04-18	04-10-18	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	200,000	04-16-18	04-19-18	Little Salmon River	Salmon River (ID)	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	Pahsimeroi Hatchery	CH1	SU	2018	66,650	04-16-18	04-24-18	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2018	991,775	04-16-18	04-24-18	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2018	276,502	04-16-18	04-20-18	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					3,657,575					
Nez Perce Tribe	Dworshak NFH	ST	SU	2018	202,238	04-16-18	04-16-18	Lolo Creek	Clearwater River M F	SNAK
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2018	250,000	04-20-18	04-20-18	Lostine Accim Pond	Wallowa River	SNAK
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2018	150,000	04-10-18	04-10-18	Big Canyon (Clearwater River)	Clearwater River M F	SNAK
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2018	150,000	04-12-18	04-12-18	Pittsburg Landing Acclim Pond	Snake River	SNAK
Nez Perce Tribe Total					752,238					
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	ST	WI	2018	60,000	04-07-18	04-07-18	Big Creek Hatchery	Big Creek	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CH0	FA	2018	1,600,000	04-18-18	04-18-18	Tanner Creek	Tanner Creek	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CO	UN	2018	400,000	04-14-18	04-14-18	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CO	UN	2018	825,000	04-14-18	04-14-18	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	SU	2018	25,000	04-11-18	04-11-18	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	SU	2018	125,000	04-07-18	04-07-18	Clackamas Hatchery	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2018	200,000	04-20-18	04-20-18	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2018	200,000	04-14-18	04-14-18	Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH1	SP	2018	55,000	04-07-18	04-07-18	Clear Creek	Clearwater River M F	SNAK
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	ST	WI	2018	40,000	04-07-18	04-07-18	Gnat Creek Hatchery	Col R Bel. Bon Dam	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	04-15-18	04-15-18	Big Canyon Acclim. Pd (Grande Ronde)	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	ST	WI	2018	40,000	04-14-18	04-14-18	Klaskanine Hatchery	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Leaburg Hatchery	ST	SU	2018	108,000	04-07-18	04-07-18	McKenzie River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Opal Springs Hatchery	ST	SU	2018	1,000	04-15-18	04-15-18	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2018	240,000	04-14-18	04-14-18	Deschutes River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2018	162,000	04-07-18	04-07-18	Deschutes River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	CO	UN	2018	200,000	04-14-18	04-14-18	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	SU	2018	75,000	04-18-18	04-18-18	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	SU	2018	75,000	04-18-18	04-18-18	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	WI	2018	160,000	04-13-18	04-13-18	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2018	234,000	04-14-18	04-14-18	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	04-15-18	04-15-18	Metolius River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	7,500	04-15-18	04-15-18	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2018	10,000	04-15-18	04-15-18	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					5,385,000					
U.S. Fish and Wildlife Service	Carson NFH	CH1	SP	2018	1,193,064	04-10-18	04-10-18	Wind River	Wind River	MCOL
U.S. Fish and Wildlife Service	Entiat Hatchery	CH1	SU	2018	440,123	04-13-18	04-13-18	Entiat River	Entiat River	UCOL
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH1	SP	2018	1,078,134	04-10-18	04-10-18	Little White Salmon Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2018	6,000,000	04-09-18	04-09-18	Spring Creek Hatchery	Bonneville Pool	MCOL
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2018	405,000	04-15-18	04-20-18	Methow River	Methow River	UCOL
U.S. Fish and Wildlife Service Total					9,116,321					

Hatchery Releases Last Two Weeks

Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2018	150,000	04-20-18	04-20-18	Catherine Cr Acclim Pond	Grande Ronde River	SNAK
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2018	250,000	04-15-18	04-15-18	Grande Ronde Acclim Pond	Grande Ronde River	SNAK
Umatilla Tribe	Umatilla Hatchery	ST	SU	2018	50,000	04-20-18	04-20-18	Minthorn Acclimation Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	ST	SU	2018	50,000	04-20-18	04-20-18	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	ST	SU	2018	50,000	04-20-18	04-20-18	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					550,000					
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2018	75,000	04-15-18	04-15-18	W Fk Hood River	Hood River	MCOL
Warm Springs Tribe Total					75,000					
Washington Dept. of Fish and Wildlife	COOP	CT	UN	2018	10,000	04-15-18	05-15-18	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	CT	UN	2018	95,000	04-15-18	05-15-18	Blue Creek	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	SU	2018	620,000	04-15-18	05-15-18	Blue Creek	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2018	53,000	04-15-18	05-15-18	Cowlitz River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2018	103,000	04-15-18	05-15-18	Blue Creek	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2018	470,000	04-15-18	05-15-18	Blue Creek	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2018	84,000	04-15-18	05-15-18	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	SU	2018	10,000	04-15-18	05-15-18	N Fk Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	WI	2018	247,000	04-15-18	05-15-18	N Fk Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2018	180,000	04-05-18	04-13-18	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2018	13,200	04-15-18	05-15-18	Washougal River	Washougal River	LCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2018	20,000	04-15-18	05-15-18	S Fk Toutle River	Toutle River	LCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2018	20,000	04-15-18	05-15-18	Rock Cr (Stevenson)	Bonneville Pool	MCOL
Washington Dept. of Fish and Wildlife Total					1,925,200					
Yakama Tribe	Eagle Creek NFH	CO	UN	2018	174,641	04-15-18	04-15-18	Stiles Pond	Yakima River	MCOL
Yakama Tribe	Eagle Creek NFH	CO	UN	2018	174,880	04-15-18	04-15-18	Easton Pond	Yakima River	MCOL
Yakama Tribe	Eagle Creek NFH	CO	UN	2018	232,316	04-15-18	04-15-18	Holmes Pond	Yakima River	MCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	74,798	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	102,681	04-15-18	04-30-18	Tanner Creek	Tanner Creek	LCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	128,426	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2018	180,000	04-15-18	04-15-18	Prosser Acclim Pond	Yakima River	MCOL
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2018	280,000	04-15-18	04-15-18	Prosser Acclim Pond	Yakima River	MCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	48,983	04-15-18	04-30-18	Methow River	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	62,337	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	68,019	04-15-18	04-30-18	Methow River	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	76,174	04-15-18	04-30-18	Twisp Acclim Pond	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	76,232	04-15-18	04-30-18	Coulter Creek	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	95,514	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	99,103	04-15-18	04-30-18	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	113,613	04-15-18	04-30-18	Rolfings Acclim Pond	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	121,780	04-15-18	04-30-18	Butcher Creek Acclim. Pond	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	194,330	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Winthrop NFH	CO	UN	2018	24,890	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Winthrop NFH	CO	UN	2018	249,529	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe Total					2,578,246					
Grand Total					26,017,280					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

	From:	4/21/2018		to	5/4/2018						
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone	
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	CH0	SU	2018	460,000	05-01-18	05-01-18	Wells Hatchery	Rocky Reach Pool	UCOL	
Douglas County PUD Total					675,000						
Idaho Dept. of Fish and Game	Hagerman NFH	ST	SU	2018	56,600	05-01-18	05-01-18	East Fk Salmon River	Salmon River (ID)	STNAK	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	196,779	04-19-18	04-23-18	Yankee Fk (Salmon R)	Salmon River (ID)	STNAK	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2018	256,118	04-23-18	04-24-18	Little Salmon River	Salmon River (ID)	STNAK	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2018	66,650	04-16-18	04-24-18	Pahsimeroi River	Pahsimeroi River	STNAK	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2018	991,775	04-16-18	04-24-18	Pahsimeroi River	Pahsimeroi River	STNAK	
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	STNAK	
Idaho Dept. of Fish and Game	Springfield Hatchery	SO		2018	662,621	04-30-18	05-11-18	Redfish Lake Creek	Salmon River (ID)	STNAK	
Idaho Dept. of Fish and Game Total					4,730,543						
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	CO	UN	2018	535,000	05-02-18	05-02-18	Big Creek Hatchery	Big Creek	LCOL	
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CO	UN	2018	200,000	05-02-18	05-02-18	Klaskanine River	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CO	UN	2018	400,000	05-04-18	05-04-18	Tongue Pt	Col R Bel. Bon Dam	LCOL	
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	ST	WI	2018	25,000	05-01-18	05-01-18	Clackamas River	Clackamas River	LCOL	
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CO	UN	2018	540,000	05-02-18	05-02-18	Tongue Pt	Col R Bel. Bon Dam	LCOL	
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2018	50,000	05-02-18	05-02-18	Clackamas Hatchery	Clackamas River	LCOL	
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2018	60,000	05-02-18	05-02-18	Clackamas Hatchery	Clackamas River	LCOL	
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH0	FA	2018	2,100,000	05-01-18	05-01-18	Klaskanine River	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2018	200,000	05-02-18	05-02-18	Cedar Creek (Sandy R)	Sandy River	LCOL	
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2018	160,000	04-25-18	04-25-18	Wallowa Acclim Pond	Wallowa River	STNAK	
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2018	500,000	04-30-18	04-30-18	Klaskanine River	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2018	500,000	04-30-18	04-30-18	Klaskanine River	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2018	500,000	05-02-18	05-02-18	Klaskanine Hatchery	Klaskanine River	LCOL	
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	ST	SU	2018	50,000	04-25-18	04-25-18	Thornhollow Acclim Pond	Umatilla River	MCOL	
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2018	10,000	04-25-18	04-25-18	Wychus Creek	Deschutes River	MCOL	
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2018	15,000	04-25-18	04-25-18	Crooked River (OR)	Deschutes River	MCOL	
Oregon Dept. of Fish and Wildlife Total					5,845,000						
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)	STNAK	
U.S. Fish and Wildlife Service Total					1,477,066						
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2018	50,000	04-28-18	04-28-18	E Fk Irrig Dist Sand Trap	Hood River	MCOL	
Warm Springs Tribe Total					50,000						
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	COOP	CH0	FA	2018	100	05-01-18	05-01-18		Wanapum Pool	UCOL	
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2018	150	05-01-18	05-01-18	Wenatchee River	Wenatchee River	UCOL	
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2018	3,300	05-01-18	05-01-18	Above McNary Dam	McNary Pool	MCOL	
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2018	3,975	05-01-18	05-01-18	Above McNary Dam	McNary Pool	MCOL	
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2018	13,400	05-01-18	05-01-18	Yakama River	Yakama River	MCOL	
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2018	100	05-01-18	05-01-18		Okanogan River	UCOL	
Washington Dept. of Fish and Wildlife	COOP	CH1	SU	2018	200	05-01-18	05-15-18	Methow River	Methow River	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	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	CH0	FA	2018	1,581,000	05-01-18	06-01-18	Cowlitz Hatchery	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH0	FA	2018	2,093,500	05-01-18	06-01-18	Cowlitz Hatchery	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CO	NO	2018	1,099,000	05-01-18	05-01-18	Cowlitz Salmon	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CO	NO	2018	1,200,000	05-01-18	05-01-18	Cowlitz Salmon	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	CH0	FA	2018	3,500,000	05-01-18	07-01-18	Fallert Creek Hatchery	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	CH0	FA	2018	3,500,000	05-01-18	07-01-18	Kalama Falls Hatchery	Kalama 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	Lewis River Hatchery	CO	NO	2018	1,790,700	04-01-18	05-01-18	Lewis River Hatchery	Lewis River	LCOL	
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	NO	2018	150,000	04-01-18	05-01-18	Lewis River Hatchery	Lewis River	LCOL	
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	Merwin Hatchery	ST	WI	2018	104,000	05-01-18	06-01-18	N Fk Lewis River	Lewis River	LCOL	
Washington Dept. of Fish and Wildlife	North Toutle Hatchery	CO	SO	2018	125,000	05-01-18	05-01-18	Green River	Cowlitz River	LCOL	
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	STNAK	
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2018	50,000	04-30-18	05-15-18	Curl Lake Acclim Pond	Tucannon River	STNAK	
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2018	45,000	05-01-18	05-01-18	Deep River Net Pens	Grays River	LCOL	
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2018	150,000	05-01-18	06-01-18	Washougal River	Washougal River	LCOL	
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2018	250,000	05-01-18	05-01-18	Deep River Net Pens	Grays River	LCOL	
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2018	405,000	05-01-18	05-01-18	Deep River Net Pens	Grays River	LCOL	

Hatchery Releases Next Two Weeks

Washington Dept. of Fish and Wildlife Total					17,081,625					
Yakama Tribe	Klickitat Hatchery	CO	NO	2018	1,000,000	05-01-18	05-01-18	Klickitat Hatchery	Klickitat River	MCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	74,798	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	102,681	04-15-18	04-30-18	Tanner Creek	Tanner Creek	LCOL
Yakama Tribe	Leavenworth NFH	CO	UN	2018	128,426	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	48,983	04-15-18	04-30-18	Methow River	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	62,337	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	68,019	04-15-18	04-30-18	Methow River	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	76,174	04-15-18	04-30-18	Twisp Acclim Pond	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	76,232	04-15-18	04-30-18	Coulter Creek	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	95,514	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	99,103	04-15-18	04-30-18	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	113,613	04-15-18	04-30-18	Rolfings Acclim Pond	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	121,780	04-15-18	04-30-18	Butcher Creek Acclim. Pond	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2018	194,330	04-15-18	04-30-18	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Winthrop NFH	CO	UN	2018	24,890	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Winthrop NFH	CO	UN	2018	249,529	04-15-18	04-30-18	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe Total					2,536,409					
Grand Total					32,395,643					

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
04/06/2018	114.3	0.0	114.0	0.0	126.7	0.0	124.2	0.0	131.2	7.1	136.9	0.0	135.7	0.0
04/07/2018	118.3	0.0	124.4	0.0	116.3	1.8	111.5	0.0	119.2	0.1	132.1	0.0	130.6	0.0
04/08/2018	102.9	0.0	101.0	0.0	106.3	0.3	102.1	0.0	109.6	5.2	115.8	0.0	115.7	0.0
04/09/2018	107.5	0.0	106.8	0.0	130.3	9.8	129.2	0.0	136.1	16.7	122.2	2.8	115.8	0.0
04/10/2018	121.8	0.0	123.2	0.0	118.1	9.4	110.8	0.0	120.2	4.4	132.2	0.3	128.5	0.0
04/11/2018	123.4	0.0	129.6	0.0	134.6	13.6	135.2	0.0	142.8	23.0	140.8	0.0	136.4	0.0
04/12/2018	124.9	0.0	122.2	0.0	128.2	10.0	127.1	0.0	135.7	17.2	145.7	0.0	139.6	0.0
04/13/2018	129.5	0.0	134.8	0.0	139.5	21.0	127.5	0.0	135.3	12.7	145.2	0.0	141.9	0.0
04/14/2018	131.0	0.0	132.0	0.0	140.8	17.6	143.3	0.0	154.6	12.6	144.8	8.2	139.7	0.0
04/15/2018	127.9	0.0	131.9	0.0	135.6	16.8	131.9	0.0	142.1	3.3	147.7	0.0	145.4	0.0
04/16/2018	137.2	0.0	133.9	0.0	141.5	21.0	138.5	0.0	149.6	10.6	148.7	0.0	144.0	0.0
04/17/2018	146.0	0.0	142.9	6.4	149.6	25.3	146.2	12.0	155.0	18.9	171.9	37.2	169.5	21.8
04/18/2018	155.7	0.0	159.9	0.0	169.6	34.1	168.9	12.1	176.2	31.8	182.8	61.8	179.0	42.8
04/19/2018	145.6	0.0	151.7	0.0	167.4	33.7	168.4	10.0	177.5	32.3	184.0	60.2	176.8	43.2

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
04/06/2018	10.1	5.9	---	---	76.6	50.0	74.8	40.8	77.0	46.0	84.3	74.4
04/07/2018	10.3	6.0	---	---	87.4	51.6	85.8	38.3	88.8	46.0	93.8	81.2
04/08/2018	10.3	6.0	---	---	105.1	51.6	104.3	37.6	105.6	46.0	109.4	90.7
04/09/2018	10.2	6.4	---	---	113.6	49.2	111.2	36.1	112.8	44.0	120.7	93.9
04/10/2018	8.3	4.1	---	---	110.0	49.1	107.1	35.5	109.5	43.4	115.7	96.0
04/11/2018	7.4	3.3	---	---	107.1	48.5	103.2	33.7	105.0	42.1	111.8	96.0
04/12/2018	7.4	3.3	---	---	111.1	46.6	108.7	31.2	112.6	41.6	117.7	95.0
04/13/2018	7.5	3.2	---	---	116.4	45.4	113.3	29.3	113.6	39.9	122.5	93.1
04/14/2018	7.5	3.1	---	---	107.5	45.3	103.3	32.4	105.3	40.0	110.9	93.0
04/15/2018	7.5	3.1	---	---	107.0	45.1	102.4	36.0	105.3	39.7	111.7	93.1
04/16/2018	7.5	3.1	---	---	106.6	45.2	103.5	36.0	103.3	39.9	109.5	92.7
04/17/2018	7.5	3.1	---	---	110.9	45.3	106.6	37.0	109.1	40.0	116.5	91.9
04/18/2018	7.5	3.2	---	---	103.3	45.2	100.9	36.9	102.6	39.8	109.9	92.0
04/19/2018	7.5	3.2	---	---	100.2	45.1	96.8	38.3	97.5	39.9	103.4	91.9

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
04/06/2018	234.1	60.2	228.8	0.0	221.3	50.6	225.1	1.4	76.8	139.6
04/07/2018	234.1	60.2	234.7	0.0	228.9	58.0	253.4	20.4	70.0	150.8
04/08/2018	246.9	73.0	246.3	12.0	236.5	66.3	264.3	31.8	70.1	150.1
04/09/2018	249.8	89.6	251.7	14.2	237.6	72.1	272.4	40.0	68.7	151.2
04/10/2018	268.0	184.0	271.4	137.8	258.6	123.4	287.0	127.3	32.9	114.4
04/11/2018	254.9	194.9	270.0	136.7	253.2	122.0	285.0	124.9	29.4	118.3
04/12/2018	260.8	195.1	257.6	139.9	240.6	117.3	274.0	120.3	27.7	113.6
04/13/2018	279.3	195.1	292.3	141.3	275.1	112.6	297.1	121.2	38.2	125.3
04/14/2018	275.9	195.9	281.0	144.1	265.2	110.7	288.5	123.6	40.3	112.3
04/15/2018	273.5	198.0	283.7	145.0	267.0	105.0	296.2	123.7	39.8	120.3
04/16/2018	260.6	198.1	264.3	142.9	247.4	99.5	282.1	123.3	47.5	98.9
04/17/2018	287.2	198.1	291.2	143.0	268.0	100.2	292.7	121.4	54.8	104.1
04/18/2018	295.8	197.9	302.0	143.1	290.7	108.6	322.3	120.8	67.1	121.9
04/19/2018	294.8	197.9	312.8	142.0	290.1	100.2	317.5	119.8	67.7	117.7

Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and Columbia River

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
Lower Granite Dam	04/12/18	Chinook + Steelhead	104	0	0	0.00%	0.00%	0	0	0	0
	04/19/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam	04/08/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/16/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam	04/10/18	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	04/19/18	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
McNary Dam	04/10/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/14/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/16/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam	04/14/18	Chinook + Steelhead	81*	2	2			2	0	0	0
	04/18/18	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0

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

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
04/06									104.1	104.2	104.4	24	103.0	103.4	103.7	24	103.7	103.9	104.1	24	103.0	103.3	103.5	24	04/06
04/07									105.2	105.5	105.7	24	104.1	104.4	104.8	24	105.0	105.3	105.9	24	104.2	104.5	104.7	24	04/07
04/08									104.2	104.6	105.0	24	103.4	103.9	104.2	24	103.9	104.5	105.6	24	103.1	103.6	104.1	24	04/08
04/09									103.4	104.1	104.5	24	102.2	102.8	103.1	24	102.8	103.1	103.5	24	102.4	102.7	103.3	16	04/09
04/10									104.7	104.9	105.1	24	103.4	103.7	104.0	24	104.0	104.5	104.6	24	103.8	104.3	104.6	24	04/10
04/11									104.8	105.2	105.7	24	103.7	104.0	104.3	24	104.8	105.1	105.3	24	104.5	104.8	105.1	24	04/11
04/12									104.8	105.3	105.7	24	103.7	104.2	104.6	24	104.7	105.1	105.4	24	104.3	104.7	105.0	24	04/12
04/13									103.1	103.2	103.4	24	102.0	102.2	102.6	24	102.9	103.1	103.4	24	102.6	102.8	102.9	24	04/13
04/14									103.6	104.1	104.3	24	102.6	103.0	103.4	24	103.1	103.4	103.6	24	102.7	103.1	103.2	24	04/14
04/15									105.0	105.5	106.0	24	103.8	104.2	104.4	24	104.2	104.7	105.0	24	103.8	104.3	104.6	24	04/15
04/16									105.3	105.7	106.0	24	103.9	104.3	104.8	24	104.7	105.0	105.1	24	104.3	104.5	104.6	24	04/16
04/17									103.8	104.2	104.6	24	102.5	102.9	103.1	24	103.5	103.8	104.0	24	104.8	106.6	110.3	24	04/17
04/18									103.4	103.9	104.8	24	101.7	102.0	102.2	24	102.4	102.6	102.7	24	102.0	102.2	102.4	24	04/18
04/19									103.6	104.0	104.7	23	102.2	102.6	102.8	23	102.5	102.7	102.9	23	102.2	102.3	102.6	23	04/19

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
04/06	102.8	102.9	103.1	24	102.9	103.1	103.1	24	104.1	104.3	104.5	24	104.6	104.8	104.9	23	103.7	103.8	104.2	24	104.5	105.2	107.9	22	04/06
04/07	104.1	104.3	104.7	24	104.5	105.1	108.9	24	104.9	105.1	105.2	23	105.3	105.4	105.5	19	104.4	104.6	104.9	21	104.3	104.5	104.9	19	04/07
04/08	103.1	103.5	103.8	24	103.7	104.4	108.7	24	103.5	104.1	104.7	23	103.9	104.2	105.1	20	103.0	103.4	104.1	22	103.6	104.2	107.8	19	04/08
04/09	102.3	102.6	102.8	24	104.3	104.9	105.4	24	103.2	103.9	104.4	24	103.8	104.4	105.0	20	102.5	103.0	103.9	23	106.0	107.4	109.3	17	04/09
04/10	103.3	103.8	104.1	24	105.3	105.9	106.4	24	104.6	105.1	105.5	24	105.3	105.7	106.5	22	104.0	104.2	104.3	23	104.8	105.4	107.3	20	04/10
04/11	103.8	104.3	104.8	24	106.7	107.9	110.3	24	106.2	106.6	107.0	23	106.9	107.2	107.8	22	105.3	106.1	106.5	22	109.1	111.4	115.1	20	04/11
04/12	103.9	104.4	104.8	24	106.4	107.4	108.8	24	106.5	106.8	107.0	24	106.8	107.2	107.5	24	105.3	105.5	105.8	24	108.0	109.1	113.3	22	04/12
04/13	102.3	102.4	102.6	24	106.4	108.0	109.9	24	105.5	105.8	106.0	24	106.0	106.2	106.4	21	104.8	105.0	105.6	21	107.0	108.3	110.6	21	04/13
04/14	102.4	102.7	102.8	24	106.8	108.8	112.4	24	106.1	107.4	108.0	24	106.6	107.5	108.4	23	105.0	105.5	106.6	24	106.8	107.7	108.4	22	04/14
04/15	103.7	104.0	104.1	24	107.3	109.1	112.1	24	108.7	109.7	111.2	24	108.9	109.6	111.2	21	107.5	108.0	108.7	22	107.7	108.2	109.9	21	04/15
04/16	103.6	104.1	104.3	24	108.0	109.7	112.4	24	108.1	109.1	111.0	24	108.3	109.2	111.0	24	107.8	109.1	109.8	24	108.7	110.0	110.7	24	04/16
04/17	102.1	102.4	102.7	24	107.8	108.9	111.3	24	106.7	107.2	107.7	23	110.0	111.8	115.3	23	106.0	106.8	108.1	23	108.8	109.6	111.7	22	04/17
04/18	102.1	102.3	102.7	24	109.1	109.6	110.7	24	107.1	107.6	108.1	24	112.2	113.1	115.7	23	107.8	108.4	108.9	23	112.3	112.7	113.4	22	04/18
04/19	102.0	102.2	102.3	23	108.8	110.3	112.2	23	109.0	109.6	109.9	23	113.0	114.0	116.2	21	108.6	109.6	110.4	21	113.1	113.7	114.9	19	04/19

FISH PASSAGE CENTER

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

Date 4/20/2018 10:15:08 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
04/06	106.6	106.9	107.1	24	106.4	106.6	106.7	24	106.1	106.3	106.4	24	106.4	106.6	106.8	24					04/06
04/07	108.0	108.4	108.8	24	107.6	108.1	108.4	24	107.0	107.3	107.4	24	107.1	107.4	107.5	24					04/07
04/08	105.4	106.0	106.7	24	105.0	105.5	106.3	24	105.4	106.1	106.6	24	105.4	106.2	106.5	24					04/08
04/09	103.7	104.1	105.0	24	103.9	104.7	110.0	24	104.5	105.3	105.9	24	104.5	105.2	106.9	24					04/09
04/10	104.6	104.9	105.1	24	104.3	104.6	104.7	24	105.2	105.6	106.0	24	105.0	105.3	106.0	24					04/10
04/11	106.3	107.2	108.0	21	106.2	107.3	107.5	24	104.8	105.3	105.8	24	104.9	105.4	105.8	24					04/11
04/12	106.0	106.8	107.9	24	105.6	106.4	107.3	24	105.5	105.9	106.2	24	105.7	106.1	106.3	24					04/12
04/13	105.7	106.2	106.3	24	105.4	106.0	106.4	24	103.9	104.2	104.3	24	104.0	104.2	104.4	24					04/13
04/14	106.3	106.8	107.1	24	107.7	109.4	117.9	24	104.9	105.6	106.7	24	105.5	106.3	109.6	24					04/14
04/15	108.0	108.6	109.0	24	107.8	108.3	108.6	24	108.0	108.5	109.2	24	108.1	109.0	111.7	24					04/15
04/16	108.2	108.7	109.2	24	107.7	108.1	108.5	24	106.4	107.2	108.4	24	106.5	107.1	108.2	24					04/16
04/17	106.3	106.7	107.2	24	108.6	110.1	110.6	24	106.0	106.9	109.9	24	107.8	109.3	110.2	24					04/17
04/18	106.1	106.3	106.4	24	112.0	115.1	118.3	24	112.3	115.4	118.1	24	112.4	114.1	116.1	24					04/18
04/19	108.9	110.6	112.2	24	112.1	114.7	117.4	24	109.9	110.9	115.5	24	111.9	113.6	116.1	24					04/19

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
04/06	118.8	119.4	119.7	24	106.8	107.2	107.8	24	104.4	105.0	105.7	24	104.4	105.3	106.2	24	103.2	103.7	104.1	24	118.7	118.9	119.1	24	04/06
04/07	119.5	119.7	120.2	24	105.8	106.4	106.7	24	104.3	104.6	104.9	24	103.7	104.1	104.6	24	105.3	105.5	105.8	24	119.5	119.8	120.0	24	04/07
04/08	118.5	118.9	119.3	24	103.5	103.7	104.3	24	103.4	103.6	104.0	24	102.4	102.6	102.8	24	104.6	105.1	105.4	24	119.3	120.0	120.5	24	04/08
04/09	120.0	122.2	126.9	24	104.5	105.8	107.1	24	103.8	104.7	105.3	24	103.6	104.9	105.3	24	102.4	102.6	103.2	24	118.2	118.4	118.6	24	04/09
04/10	114.2	116.7	118.2	24	103.0	103.9	104.5	24	104.3	104.6	104.9	24	103.3	103.7	104.6	24	103.5	103.8	104.2	24	118.6	118.7	119.0	24	04/10
04/11	112.5	112.9	113.3	24	102.7	103.4	103.8	24	104.9	105.7	106.2	24	102.8	104.0	104.8	24	105.4	106.3	106.9	24	118.9	119.1	119.3	24	04/11
04/12	111.8	112.4	113.2	24	101.6	102.1	103.5	24	104.0	104.4	105.0	24	101.5	102.0	102.7	24	105.1	105.8	106.6	24	118.0	118.2	118.7	24	04/12
04/13	109.9	110.5	110.9	24	101.2	101.7	101.9	24	104.1	104.8	105.1	24	101.3	102.1	102.5	24	102.8	103.0	103.5	24	117.4	117.4	117.6	24	04/13
04/14	109.6	110.0	110.5	24	101.4	101.9	102.1	24	105.2	105.8	106.4	24	102.5	103.4	104.2	24	102.5	102.8	103.2	24	117.6	117.9	118.1	24	04/14
04/15	111.5	112.3	112.7	24	101.7	102.4	102.7	24	105.4	106.0	106.5	24	102.9	103.8	104.7	24	104.7	105.8	106.3	24	118.2	118.4	118.7	24	04/15
04/16	111.8	112.3	112.8	24	100.8	101.2	102.2	24	104.4	104.8	105.2	24	101.9	102.3	102.8	24	106.0	106.3	106.5	24	118.2	118.3	118.5	24	04/16
04/17	109.9	110.3	110.7	24	101.4	102.3	102.7	23	104.0	104.4	104.8	24	101.1	101.5	102.1	24	103.5	104.3	104.9	24	117.8	117.9	118.2	24	04/17
04/18	110.0	110.5	111.0	24	103.2	104.2	104.6	24	104.9	105.9	106.5	24	102.3	103.7	104.9	24	102.4	102.8	103.2	24	118.0	118.1	118.6	24	04/18
04/19	111.1	111.6	111.9	23	104.0	104.7	105.3	23	105.3	105.9	106.6	23	103.0	104.1	105.2	23	103.5	104.0	104.5	23	118.1	118.3	118.5	23	04/19

FISH PASSAGE CENTER

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

Date 4/20/2018 10:15:08 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				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
04/06	107.7	110.3	112.9	24	117.2	117.5	117.9	24	117.9	118.5	119.1	24	116.8	116.9	117.2	24	114.9	115.9	116.9	24	115.7	115.9	116.2	24	04/06
04/07	116.2	117.0	117.2	24	117.1	117.3	117.4	24	119.1	119.6	120.1	24	117.1	117.4	117.6	24	117.8	118.1	118.3	24	117.3	118.3	118.9	24	04/07
04/08	116.1	116.9	117.4	24	116.2	116.7	116.8	24	115.4	117.0	118.4	24	117.4	117.7	118.3	24	115.0	116.3	117.5	24	118.3	118.6	118.8	24	04/08
04/09	113.5	113.8	114.1	24	115.2	115.3	115.4	24	113.3	114.0	115.0	24	117.8	118.1	118.2	24	112.5	113.2	114.5	24	119.1	119.5	119.7	24	04/09
04/10	115.2	115.8	116.2	24	115.8	116.0	116.1	24	116.8	117.4	117.8	24	118.1	118.2	118.4	24	115.8	116.3	116.6	24	120.0	120.1	120.2	24	04/10
04/11	117.2	118.1	118.6	24	116.2	116.5	116.8	24	117.0	117.5	117.8	24	118.0	118.3	118.5	24	116.6	117.3	117.7	24	120.7	121.3	121.6	24	04/11
04/12	115.7	116.9	118.3	24	114.8	115.4	115.9	24	115.4	116.3	117.5	24	117.7	117.9	118.1	24	114.9	116.1	117.1	24	120.1	120.7	121.4	24	04/12
04/13	111.8	112.2	113.0	24	113.5	113.6	113.8	24	111.7	112.1	113.1	24	117.0	117.4	117.5	24	110.9	111.2	111.9	24	119.4	119.7	119.9	24	04/13
04/14	111.3	112.1	112.9	24	114.5	115.2	115.6	24	112.4	113.1	113.8	24	117.4	117.7	117.8	24	112.2	113.1	113.7	24	119.6	120.0	120.2	24	04/14
04/15	114.9	116.2	116.9	24	116.1	116.3	116.6	24	115.3	116.4	117.4	24	117.6	117.8	118.2	24	115.2	116.3	116.6	24	120.5	120.9	121.2	24	04/15
04/16	115.8	116.3	116.9	24	115.9	116.1	116.3	24	115.9	116.8	117.5	24	117.3	117.4	117.8	24	114.6	115.5	116.4	24	119.9	120.3	120.8	24	04/16
04/17	112.3	113.3	114.4	24	115.4	115.8	117.9	24	112.5	113.1	114.3	24	117.1	117.3	117.4	24	110.4	111.1	112.2	24	119.1	119.3	119.7	24	04/17
04/18	110.4	110.8	111.1	24	115.3	115.8	116.1	24	113.2	114.2	114.9	24	116.8	117.0	117.2	24	111.0	111.9	112.7	24	119.3	119.4	119.8	24	04/18
04/19	112.1	113.0	113.8	23	116.0	116.2	116.4	23	115.1	115.6	116.2	23	116.7	117.0	117.3	23	113.5	114.2	114.8	23	119.2	119.5	120.0	23	04/19

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
04/06	106.1	107.2	108.4	24	112.1	112.2	113.0	24	104.6	105.2	105.8	24	104.2	104.6	104.9	24	104.5	105.0	105.3	24	107.4	108.4	108.8	24	04/06
04/07	107.5	107.9	109.1	24	113.3	113.4	113.7	24	105.8	105.9	106.1	24	105.5	105.6	105.8	24	105.0	105.3	105.5	24	108.1	108.3	108.6	24	04/07
04/08	106.8	107.2	107.8	24	112.8	113.2	113.7	24	104.9	105.3	105.5	24	108.3	110.5	111.1	24	103.9	104.1	104.4	24	107.3	107.8	108.1	24	04/08
04/09	105.9	106.7	107.4	24	113.9	114.4	116.2	24	105.2	106.0	106.8	24	109.4	110.9	112.0	24	104.8	105.8	106.6	24	108.5	110.1	113.1	24	04/09
04/10	108.5	109.0	109.9	24	117.3	118.1	118.9	24	107.6	107.8	108.1	24	119.0	119.9	120.8	24	110.1	113.8	117.1	24	116.6	118.1	119.9	24	04/10
04/11	111.3	112.0	112.3	23	119.4	119.6	120.0	24	108.1	108.5	108.9	24	118.3	118.5	118.7	24	114.5	115.1	115.7	24	119.7	120.1	120.9	24	04/11
04/12	108.9	110.3	111.7	24	119.4	119.7	120.1	24	106.9	107.4	108.2	24	118.0	118.0	118.3	24	112.3	113.1	114.8	24	118.6	119.6	120.5	24	04/12
04/13	105.7	105.9	106.0	24	119.1	119.4	119.8	24	107.1	107.6	107.9	24	118.3	118.7	119.0	24	113.0	113.9	115.3	24	117.4	117.9	118.9	24	04/13
04/14	106.6	107.8	109.4	24	119.4	119.6	119.8	24	109.5	110.8	111.3	24	118.4	118.7	118.9	24	114.6	116.2	117.3	24	118.2	118.7	119.2	24	04/14
04/15	110.3	110.9	111.2	24	119.9	120.1	120.6	24	111.7	112.1	112.2	24	118.8	119.0	119.3	24	116.9	117.7	118.6	24	119.1	119.5	119.9	24	04/15
04/16	110.0	110.6	111.0	24	119.8	120.1	120.7	24	111.9	112.3	112.6	24	118.5	118.7	118.9	24	114.4	115.3	117.0	24	117.3	117.9	118.4	24	04/16
04/17	106.6	107.4	108.2	24	119.3	119.4	119.6	24	112.0	112.2	112.5	24	118.4	118.7	119.0	24	113.0	113.4	113.7	24	116.0	116.2	116.7	24	04/17
04/18	105.4	106.0	106.6	24	119.5	119.6	120.0	24	112.3	112.5	112.8	24	118.7	118.9	119.1	24	115.1	115.9	116.2	24	117.8	118.6	119.3	24	04/18
04/19	107.9	109.4	110.8	23	119.5	119.7	120.0	23	111.3	111.5	112.2	23	118.5	118.8	119.3	23	115.2	115.7	116.2	23	117.3	117.6	118.1	23	04/19

FISH PASSAGE CENTER

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

Date 4/20/2018 10:15:08 AM

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Total Dissolved Gas Data at Mid-Columbia Sites

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Isl.d.				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	
04/06	108.3	109.6	110.1	24	108.5	110.1	110.8	24	107.8	108.6	109.3	24	111.6	112.6	113.2	24	04/06
04/07	108.5	109.1	109.9	24	109.0	109.6	110.6	24	108.4	109.0	109.4	24	111.5	111.8	112.4	24	04/07
04/08	106.9	107.7	108.5	24	107.5	107.9	108.6	24	105.4	105.6	106.0	24	112.1	113.3	113.4	24	04/08
04/09	107.0	107.9	109.1	24	108.0	108.5	109.4	21	106.8	108.0	108.6	24	113.5	113.8	114.4	24	04/09
04/10	110.0	110.5	111.1	24	115.6	116.8	117.6	24	109.5	112.4	113.7	24	120.3	120.5	120.7	24	04/10
04/11	115.0	116.1	117.8	24	118.3	119.0	119.8	24	114.1	115.0	115.3	24	120.4	120.8	120.9	24	04/11
04/12	116.1	117.3	118.0	24	118.2	118.8	119.0	24	113.9	114.4	115.1	24	119.3	119.5	119.7	24	04/12
04/13	115.2	116.1	116.5	24	117.3	117.6	118.1	24	114.0	114.1	114.3	24	119.4	119.8	120.1	24	04/13
04/14	117.6	118.3	118.8	24	118.7	119.2	119.4	24	116.1	117.3	117.7	24	119.9	120.0	120.2	24	04/14
04/15	119.5	120.2	120.6	24	120.0	120.3	120.7	24	118.2	118.9	119.6	24	120.4	120.7	120.9	24	04/15
04/16	117.3	118.6	119.8	24	118.4	119.0	119.8	24	115.3	116.0	117.4	24	119.9	120.2	120.4	24	04/16
04/17	113.0	113.5	114.6	24	115.8	116.2	116.9	24	113.3	113.7	113.9	24	119.2	119.4	119.6	24	04/17
04/18	115.5	116.4	117.1	24	117.1	117.5	117.7	24	114.6	115.6	116.1	24	119.5	119.9	120.6	24	04/18
04/19	117.7	117.9	118.2	23	118.3	118.5	118.6	23	116.5	117.8	118.6	23	119.4	119.8	120.3	23	04/19

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)
04/06/2018	842	8,860	1,185	41	32,191			4		1,360	3,751
04/07/2018		2,410	4,904	36	27,173	9,098		0	1,057		4,099
04/08/2018		3,922		89	45,045		14,717	0		1,090	3,791
04/09/2018	3,470	1,529		251	59,774	57,691		8	7,500		3,698
04/10/2018	1,584	1,717		490	143,180			4		2,312	4,618
04/11/2018	1,213	4,332	312	345	73,830	31,526	27,215	3	5,902		27,997
04/12/2018	361	6,344	205	346	96,954			12		8,487	39,807
04/13/2018		867	376	122	62,209	38,466		11	8,432		33,067
04/14/2018	719	527	418	111	100,617		45,578	16		21,276	40,659
04/15/2018		154	268	72	62,723	68,159		10	8,747		19,125
04/16/2018	409	110	145	97	54,647		57,168	20		25,356	24,428
04/17/2018	1,869	203	183	462	66,677	60,666		78	14,750		28,530
04/18/2018	806		291	553	68,418		77,240	289		18,468	29,905
04/19/2018			185	258	42,612	71,764		610	28,426		39,217
04/20/2018										31,907	
Total:	11,273	30,975	8,472	3,273	936,050	337,370	221,918	1,065	74,814	110,256	302,692
# Days:	9	12	11	14	14	7	5	14	7	8	14
Average:	1,253	2,581	770	234	66,861	48,196	44,384	76	10,688	13,782	21,621
YTD:	20,604	38,917	14,376	3,384	1,008,575	339,022	231,127	1,071	76,220	135,537	355,131

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)
04/06/2018	0	0	0	1	0			2		0	426
04/07/2018		0	0	0	0	0		9	38		2,425
04/08/2018		0		1	460		0	4		0	2,596
04/09/2018	0	0		3	0	0		28	12		3,297
04/10/2018	0	0		2	355			14		0	317,995
04/11/2018	0	0	0	2	1,846	0	0	53	69		427,027
04/12/2018	0	0	0	0	2,873			18		21	30,106
04/13/2018		0	0	0	1,018	830		66	0		9,904
04/14/2018	0	0	0	0	5,997		0	29		0	6,750
04/15/2018		0	0	0	4,505	0		27	72		2,854
04/16/2018	0	0	0	0	348		0	25		0	2,004
04/17/2018	0	0	0	0	2,431	0		30	260		2,163
04/18/2018	0		0	0	342		0	20		0	3,231
04/19/2018			0	0	0	326		35	494		1,963
04/20/2018										0	
Total:	0	0	0	9	20,175	1,156	0	360	945	21	812,741
# Days:	9	12	11	14	14	7	5	14	7	8	14
Average:	0	0	0	1	1,441	165	0	26	135	3	58,053
YTD:	0	0	1	36	20,685	1,156	0	431	978	289	855,453

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)
04/06/2018	0	0	1	1	0			1		50	1,108
04/07/2018		0	1	8	0	4		1	114		1,888
04/08/2018		0		13	0		0	0		60	2,460
04/09/2018	0	0		74	0	6		0	293		2,722
04/10/2018	0	0		57	355			3		37	7,129
04/11/2018	0	0	1	28	0	0	0	1	276		9,568
04/12/2018	0	0	0	65	1,795			1		21	2,676
04/13/2018		0	2	26	0	0		6	169		5,639
04/14/2018	0	0	2	58	666		156	0		118	8,037
04/15/2018		0	4	32	1,040	298		5	36		4,951
04/16/2018	0	0	3	7	696		0	4		204	5,637
04/17/2018	0	0	1	19	695	0		3	87		6,896
04/18/2018	0		1	9	342		0	4		96	6,418
04/19/2018			1	10	355	0		4	1,359		5,709
04/20/2018										471	
Total:	0	0	17	407	5,944	308	156	33	2,334	1,057	70,838
# Days:	9	12	11	14	14	7	5	14	7	8	14
Average:	0	0	2	29	425	44	31	2	333	132	5,060
YTD:	0	0	64	446	5,944	309	156	37	2,506	1,369	73,114

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)
04/06/2018	0	1,088	16	11	13,081			0		140	85
04/07/2018		694	56	13	29,426	4,470		0	260		123
04/08/2018		2,669		25	39,529		3,710	0		240	188
04/09/2018	63	1,201		95	72,585	264,129		0	1,727		374
04/10/2018	20	294		99	186,170			4		507	1,123
04/11/2018	31	342	44	172	51,680	36,623	14,232	0	3,808		355
04/12/2018	10	188	37	231	63,559			1		446	1,005
04/13/2018		600	47	103	82,170	144,428		6	3,626		304
04/14/2018	47	285	27	70	178,910		75,289	11		7,498	803
04/15/2018		68	29	75	73,121	93,159		4	6,028		2,188
04/16/2018	47	108	27	116	65,089		82,037	4		9,980	1,839
04/17/2018	83	251	37	443	123,283	161,601		9	5,165		2,569
04/18/2018	109		43	263	61,576		100,693	14		27,606	3,870
04/19/2018			17	213	37,285	63,249		39	27,626		5,081
04/20/2018										29,742	
Total:	410	7,788	380	1,929	1,077,464	767,659	275,961	92	48,240	76,159	19,907
# Days:	9	12	11	14	14	7	5	14	7	8	14
Average:	46	649	35	138	76,962	109,666	55,192	7	6,891	9,520	1,422
YTD:	522	11,965	401	2,045	1,110,718	770,823	276,085	93	48,558	76,881	20,585

Number of hours sampled:

- No data available or no sample conducted

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

Smolt Monitoring Program Two Week Passage Index Report

Date 4/20/2018 10:17:33 AM

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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)
04/06/2018	0	0	0	0	1,376			0		0	17
04/07/2018		0	0	0	0	2,578		3	5		15
04/08/2018		0		0	919		204	5		30	0
04/09/2018	0	0		0	557	68		4	111		0
04/10/2018	0	0		0	355			1		12	0
04/11/2018	0	0	0	0	0	2,039	337	36	276		0
04/12/2018	0	0	0	0	0			34		42	335
04/13/2018		0	0	0	0	558		48	211		0
04/14/2018	0	0	0	0	666		156	147		39	0
04/15/2018		0	0	0	0	301		159	434		215
04/16/2018	0	0	0	0	348		323	139		0	0
04/17/2018	0	0	0	0	0	320		74	433		0
04/18/2018	0		0	0	342		1,251	248		289	0
04/19/2018			0	0	355	342		812	556		78
04/20/2018										188	
Total:	0	0	0	0	4,918	6,206	2,271	1,710	2,026	600	660
# Days:	0	0	0	0	351	887	454	122	289	75	47
Average:	0	0	0	0	351	887	454	122	289	75	47
YTD:	0	0	0	0	7,884	9,369	2,271	2,522	2,042	610	717

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)
04/06/2018	0	0	0	0	0			0		320	70
04/07/2018		0	0	0	0	8		1	36		70
04/08/2018		1		0	0		0	2		290	86
04/09/2018	0	0		0	0	812		1	20		143
04/10/2018	0	0		0	1			0		180	486
04/11/2018	0	0	0	0	0	0	0	0	160		1,000
04/12/2018	0	0	0	0	0			0		120	143
04/13/2018		0	0	0	0	800		2	190		133
04/14/2018	0	0	0	0	0		0	0		220	133
04/15/2018		0	0	0	0	0		1	150		200
04/16/2018	0	0	0	0	0		0	0		200	50
04/17/2018	0	0	0	0	0	0		0	580		50
04/18/2018	0		0	0	0		0	1		250	0
04/19/2018			0	0	0	0		1	700		143
04/20/2018										250	
Total:	0	1	0	0	1	1,620	0	9	1,836	1,830	2,707
# Days:	9	12	11	14	14	10	5	14	7	11	14
Average:	0	0	0	0	0	162	0	1	262	166	193
YTD:		1	3		2	4,234		12	1,872	35,100	5,688

- 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
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Important Information About this Report:

- For clip information see: <http://www.fpc.org/currentdaily/smpcomments.htm>
- Three classes of fish counts are shown in these tables:
 - Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details.
 - Collection counts (Coll), which account for sample rates but are not adjusted for flow;
 - Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.
- Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations. Equations for passage index are provided below for each site.
 - LGR, LGS, LMN, MCN, JDA (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts $\text{Passage Index} = \text{Collection Counts} / (\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}))$
 - 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 4/6/2018 12:00:00 AM TO 4/20/2018 12:00:00 AM

Date 4/20/2018 10:18:08 AM

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	11,600	514,819	3,400	2,400	603,143	1,738,505
Sum of Number Barged	398	27,950	116	66	31,381	91,292
Sum of Number Bypassed	11,197	486,828	3,284	2,334	571,730	1,647,103
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	5	15	0	0	16	52
Sum of Facility Morts	0	26	0	0	15	56
Sum of Reseach Morts	0	0	0	0	1	2
Sum of Total Project Mort	5	41	0	0	32	110

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	800	220,021	206	3,656	510,575	1,245,833
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	800	219,973	206	3,632	510,565	1,245,741
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	2	0	2	3	10
Sum of Facility Morts	0	46	0	22	7	82
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	48	0	24	10	92

FISH PASSAGE CENTER

Two Week Transportation Summary Report

4/6/2018 12:00:00 AM TO 4/20/2018 12:00:00 AM

Date 4/20/2018 10:18:08 AM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	137,473	100	1,400	173,867	486,707
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	137,473	100	1,398	173,867	486,705
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	2	0	2
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	2	0	2

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	12,400	872,313	3,706	7,456	1,287,585	3,471,045
Sum of Number Barged	398	27,950	116	66	31,381	91,292
Sum of Number Bypassed	11,997	844,274	3,590	7,364	1,256,162	3,379,549
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	5	17	0	4	19	64
Sum of Facility Morts	0	72	0	22	22	138
Sum of Reseach Morts	0	0	0	0	1	2
Sum of Total Project Mort	5	89	0	26	42	204

FISH PASSAGE CENTER

YTD Transportation Summary Report

Date 4/20/2018 10:17:45 AM

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	11800	547549	3400	3820	617213	1800995
Sum of Number Barged	398	27950	116	66	31381	91292
Sum of Number Bypassed	11396	519555	3284	3754	585800	1709589
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	18	0	0	16	56
Sum of Facility Morts	0	26	0	0	15	56
Sum of Reseach Morts	0	0	0	0	1	2
Sum of Total Project Mort	6	44	0	0	32	114

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	800	221411	207	6747	513019	1255203
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	800	221356	207	6716	513009	1255097
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	8	0	6	3	20
Sum of Facility Morts	0	47	0	25	7	86
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	55	0	31	10	106

FISH PASSAGE CENTER

YTD Transportation Summary Report

Date 4/20/2018 10:17:45 AM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	141183	100	1400	173917	490517
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	141183	100	1398	173917	490515
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	0	0	2	0	2
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	2	0	2

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	12600	910143	3707	11967	1304149	3546715
Sum of Number Barged	398	27950	116	66	31381	91292
Sum of Number Bypassed	12196	882094	3591	11868	1272726	3455201
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	26	0	8	19	78
Sum of Facility Morts	0	73	0	25	22	142
Sum of Reseach Morts	0	0	0	0	1	2
Sum of Total Project Mort	6	99	0	33	42	222

Cumulative Adult Passage at Mainstem Dams Through: 04/19

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	04/19	367	5	796	0	12892	53	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/19	89	3	145	4	6431	28	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/19	85	4	57	6	3857	28	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/19	36	-1	25	-2	1400	5	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/19	19	0	14	0	655	1	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/19	9	2	16	0	288	1	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/19	7	1	7	1	123	2	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/19	3	0	2	0	46	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	04/18	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	04/18	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	04/18	38	2	5	0	1087	1	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.	2018	2017	10-Yr Avg.	Unclipped	Unclipped	10-Yr Avg.	2018	2017	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
PRD	04/19	1	-1	0	0	0	0	0	0	0	2318	2273	3177	1000	807	1162	0	0	0
RIS	04/19	4	0	0	0	0	0	0	0	0	123	1402	1772	35	472	807	-2	0	0
RRH	04/19	0	0	0	0	0	1	0	0	0	333	342	3473	148	220	1513	0	0	-1
WEL	04/19	-2	0	0	0	1	0	0	0	0	319	2353	3719	149	659	1451	4	0	0
IHR	04/19	-1	0	0	0	0	0	0	0	0	1079	802	3624	349	394	1251	3	0	0
LMN	04/19	0	0	0	0	0	0	0	0	0	906	1102	7271	231	529	2279	0	0	0
LGS	04/19	0	0	0	0	0	0	0	0	0	833	1100	4021	199	483	1958	0	0	0
LGR	04/19	0	0	0	0	0	0	0	0	0	3967	6895	7601	1017	2810	2970	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	04/18	0	0	0	0	0	0	0	0	0	13	15	25	5	2	15	0	0	0
RRH	04/18	0	0	0	0	0	0	0	0	0	18	38	75	5	7	52	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/18	0	2	117	117	0	0	0	0	0	1319	571	5083	1193	549	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.

