



Fish Passage Center

Weekly Report #18-06

April 13, 2018

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 147% and 241% of average at individual sub-basins over April. Precipitation above The Dalles has been 169% of average over April. Over the 2018 water year, precipitation has ranged between 95% and 122% 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 1-11, 2018		Water Year 2018 October 1, 2017 to April 11, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.60	161	25.7
Snake River Above Ice Harbor	1.34	172	14.3	98
Columbia Above The Dalles	1.39	169	18.2	102
Kootenai	1.46	147	25.4	108
Clark Fork	1.65	190	18.7	116
Flathead	2.06	191	26.4	122
Pend Oreille River Basin above Waneta Dam	1.81	190	23.2	115
Salmon River Basin	1.73	174	18.5	102
Upper Snake Tributaries	1.88	206	16.9	103
Clearwater	3.13	241	32.5	120
Willamette River above Portland	4.07	204	48.9	95

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 137% of average, for Snake River Basins the average snowpack is 89% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 77% of average.

Table 2 displays the April 12th ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 12th ESP forecast at The Dalles between April and August is 107,080 Kaf (122% of average).

Table 2. April 12 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	April 12, 2018 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	122	107,080
Grand Coulee (Apr-Aug)	124	70,220
Libby Res. Inflow, MT (Apr-Aug)	123 122*	7,221 7,189*
Hungry Horse Res. Inflow, MT (Apr-Aug)	155	2,999
Lower Granite Res. Inflow (Apr- July)	125	24,775
Brownlee Res. Inflow (Apr-July)	127	6,949
Dworshak Res. Inflow (Apr-July)	124 125*	2,998 3,040*

* Denotes COE April Forecast

Grand Coulee Reservoir is at 1238.2 feet (4-12-18) and has drafted 5.4 feet over the last week. Outflows at Grand Coulee have ranged between 102.9 Kcfs and 124.9 Kcfs over the last week. The April 15th FC Elevation at Grand Coulee is 1234.0 ft. (based on April Forecast).

The Libby Reservoir is currently at elevation 2357.6 feet (4-12-18) and has held steady 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 3487.3 feet (4-12-18) and has drafted 4.3 feet last week. Outflows at Hungry Horse have been 6.9-12.0 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 1464.2 feet (4-12-18) and has begun refilling, filling 10.5 feet over last week. Dworshak outflows have been decreased slightly from 10.3 Kcfs to 7.4 Kcfs. The COE plans to maintain 7.5 Kcfs outflows through the remainder of April.

The Brownlee Reservoir was at an elevation of 2026.0 feet on April 12th, 2018. Outflows at Hells Canyon have ranged between 39.8 and 43.9 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 117.0 Kcfs last week; over the spring season have averaged 100.0 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 from April 10th-12th, 2018 averaged 261.2 Kcfs at McNary and 134.0 Kcfs at Priest Rapids.

Spill

Flows in the Snake and Mid-Columbia rivers increased over the past week, with daily average flows ranging from approximately 75 to 115 Kcfs at Lower Granite Dam and approximately 235 to 270 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 (4/6-4/12)*
Lower Granite	Gas Cap/Gas Cap	45-53 Kcfs
Little Goose	Gas Cap/Gas Cap	30-39 Kcfs
Lower Monumental	Gas Cap/Gas Cap	40-46 Kcfs
Ice Harbor	Gas Cap/Gas Cap	90-96 Kcfs
McNary	Gas Cap/Gas Cap	195 Kcfs
John Day	Gas Cap/Gas Cap	135-140 Kcfs
The Dalles	Gas Cap/Gas Cap	113-125 Kcfs
Bonneville	Gas Cap/Gas Cap	121-126 Kcfs

* Spill caps for Mid-Columbia projects are for 4/10-4/12

Spill at all four Lower Snake River projects has met the estimated 115%/120% spill cap levels this week. Spill at Ice Harbor Dam was below the estimated spill caps from April 6th through April 8th but this was due to low flows and powerhouse minimum requirements. During this period, spill at Ice Harbor was all flows in excess of powerhouse minimum requirements (~10 Kcfs). The estimated 115%/120% spill caps for Lower Granite Dam started at 51.0 Kcfs on Friday, April 6th, was increased to 53.0 Kcfs on Saturday, April 7th but has gradually decreased over the last five days. The estimated spill cap for Thursday, April 12th was 45.0 Kcfs. The gradual reduction in spill caps for Lower Granite Dam is likely due to elevated TDG at the Little Goose forebay, which exceeded the 115% TDG waiver limits for a total of five days over the last week. The estimated 115%/120% spill caps for Little Goose Dam started at 39.0 Kcfs on Friday, April 6th but has gradually decreased over the past week. The estimated spill cap for Thursday, April 12th was 30.0 Kcfs. The gradual reduction in spill caps for Little Goose Dam is likely due to elevated TDG at the Lower Monumental forebay, which exceeded the 115% TDG waiver limits for a total of six days over the last week. It is worth noting that, for all six of those days, TDG

levels at the Lower Monumental forebay were higher than what had previously been observed in the Little Goose tailrace. The estimated 115%/120% spill caps for Lower Monumental Dam started at 46.0 Kcfs on Friday, April 6th but has gradually decreased over the past week. The estimated spill cap for Thursday, April 12th was 40.0 Kcfs. The gradual reduction in spill caps for Lower Monumental is likely due to elevated TDG at the Ice Harbor forebay, which exceeded the 115% TDG waiver limits for a total of six days over the last week. Similar to Little Goose, it is worth noting that, for two of these days (4/7 and 4/8), TDG levels at the Ice Harbor forebay were higher than what had previously been observed in the Lower Monumental tailrace. The estimated 115%/120% spill caps for Ice Harbor Dam started at 90.0 Kcfs on Friday, April 6th, were increased to 96.0 Kcfs on Monday, April 9th, and were decreased to 93.0 Kcfs on Thursday, April 12th. The reduction in spill caps for Ice Harbor on April 12th was likely due to elevated TDG at the Ice Harbor tailrace, which exceeded the 120% TDG waiver limits on April 11th and 12th.

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 for all three days of fish spill this week. To date, there have been no exceedences in TDG waiver limits from McNary Day. The estimated 115%/120% spill caps for John Day Dam started at 135.0 Kcfs on Tuesday, April 10th but was increased to 140.0 Kcfs on Wednesday, April 11th where it has remained. Total dissolved gas exceeded the 115% waiver limit at The Dalles forebay on April 11th but has since dropped below waiver limits. The estimated 115%/120% spill caps for The Dalles Dam started at 125.0 Kcfs on Tuesday, April 10th but has decreased each day since. The estimated spill cap for Thursday, April 12th was 113.0 Kcfs. The gradual reduction in spill caps for The Dalles is likely due to elevated TDG at the Bonneville forebay, which exceeded the 115% TDG waiver limits on April 11th and 12th. Finally, the estimated 115%/120% spill caps for Bonneville Dam started at 126.0 Kcfs on Tuesday, April 10th but was reduced to 121.0 Kcfs on Wednesday, April 11th. The reduction in spill caps for Bonneville on April 11th was likely due to elevated TDG at the Cascade Island monitor, which

exceeded the 120% TDG waiver limit on April 11th. Total dissolved gas for April 12th was below the 120% TDG waiver limit.

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 113% to 122% 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 103.7% to 106.5% 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, and McNary dams this week. Of the four GBT samples that were conducted this week, signs of GBT were only observed in one. Lower Monumental Dam observed Rank 1 signs of fin GBT in one fish in their sample from April 10th. 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 are close to average based on the past ten years of data.

Smolt Monitoring

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

Subyearling Chinook dominated the samples at Bonneville Dam (BON) this week. This week's daily average passage index for subyearling Chinook was nearly 112,000 per day, which is a substantial increase over last week's daily average passage index of nearly 1,600 per day. This increase is due to the release of 6.0 million subyearling fall Chinook tules from Spring Creek NFH on the morning of April 9th. Subyearling Chinook from this release were first observed entering the sample at BON at 2330 on April 9th. The passage indices for subyearling Chinook at BON were nearly 318,000 on April 10th and 427,000 on April 11th. The passage index decreased to only 30,000 for the sample on April 12th, as most of the subyearling Chinook from the Spring Creek NFH release had passed by this point. Yearling Chinook were the second most abundant species in this week's samples. This week's daily average passage index for yearling Chinook was about 12,500 per day, which is an increase over last week's daily average passage index of 7,000 per day. Coho and steelhead passage also increased this week, then compared to the previous week. This week's daily average passage indices for these two species were 3,900 and 465 per day, respectively. Last week's daily average passage indices were 200 for coho and less than 100 for steelhead. Similar to recent weeks, sockeye were also encountered in this week's samples but in relatively low numbers. Pacific lamprey macrophthalmia were encountered every day this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 290 per day, which is an increase from last week's daily average collection of about 80. 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 3,300 per day, which is an increase over last week's daily average passage index of about 900 yearling Chinook per day. Steelhead passage also increased this week. This week's daily average passage index for steelhead was 330 per day, whereas that for last week was 120 per day. Coho, sockeye, and subyearling Chinook were also encountered in this week's samples but in relatively low numbers. Pacific lamprey macrophthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific lamprey macrophthalmia was about 225, which is a decrease from last week's daily average collection of about 350 per day. Pacific lamprey ammocoetes were encountered in only one of this week's samples (April 6th).

Similar to John Day, sampling at McNary (MCN) is every-other-day. Yearling Chinook dominated this week's samples at MCN. This week's daily average passage index for yearling Chinook was 4,800 per day. Steelhead were the second most abundant species in this week's samples. This week's daily average passage index for steelhead was 1,900 per day. Sockeye, coho, and subyearling Chinook were also encountered in this week's samples but in relatively low numbers. 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 70 per day.

Yearling Chinook and steelhead dominated the samples at Lower Granite Dam (LGR) this week. This week's daily average passage indices for these two species were 68,300 and 65,150 per day, respectively. Both are increases over last week's daily average passage indices of 18,100 for yearling Chinook and 8,300 for steelhead. Of the yearling Chinook collected this week, approximately 80% were of hatchery origin (i.e., clipped or CWT). Approximately 97% 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,

one Pacific lamprey ammocoete was encountered in the sample from April 10th. No macrophthalmia were encountered at LGR this week.

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 102,000 per day, which is a substantial increase over last week's daily average passage index of 730 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 33,000 per day, whereas that for last week was only 330 per day. This week's daily average passage index for sockeye was 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 were also collected in this week's samples but in very low numbers. Pacific lamprey macrophthalmia were encountered in two of this week's samples. This week's daily average collection for lamprey macrophthalmia was about 140 per day, which is a decrease from last week's daily average collection of over 500 per day. Pacific lamprey ammocoetes were also encountered in two of this week's samples (April 7th and 9th).

Sampling at Lower Monumental Dam (LMN) will be every-third-day through mid-April and then every-other-day until the start of transportation. Once transportation begins, sampling will be every day. Two samples were conducted at LMN this week, both of which were dominated by yearling Chinook. The passage indices for yearling Chinook at LMN this week ranged between 15,000 and 27,200. Steelhead were the second most abundant, with passage index in the 3,700 to 14,200 range. The only other species that was encountered in this week's samples was sockeye. Sockeye passage this week was relatively low and, like Lower Granite and Little Goose, most if not all of the sockeye encountered this week were likely kokanee from Dworshak reservoir.

Sampling at Rock Island Dam (RIS) continued this week but, similar to last week, collections of juvenile salmonids were relatively low. Subyearling Chinook, yearling Chinook, coho, sockeye, and steelhead were all encountered in this week's samples. Similar to last week, all of the subyearling Chinook that were

collected this week were fry. Finally, Pacific lamprey macrophthalmia were collected in three of this week's samples but, as with salmonids, collection numbers were low.

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 230 per day, which is an increase from last week's daily average collection of only 11 per day. Steelhead collections also increased this week, when compared to the previous week. This week's daily average collection for steelhead was nearly 100 per day, whereas that for last week was only 12 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 002 of the Grande Ronde River and is operated by the Oregon Department of Fish and Wildlife. Due to high flows, sampling at GRN was suspended for the April 8, 9, and 10 samples. Prior to the suspension of sampling, yearling Chinook passage increased substantially. The collection for the sample on April 7th was nearly 5,000 yearling Chinook. This increase in passage is largely due to recent hatchery releases upstream of the trap, as approximately 97% of the yearling Chinook collection from April 7th were of hatchery origin. Since sampling resumed for April 11th, yearling Chinook collections have decreased. However, this decrease is at least partially due to the fact that the trap was moved to a less efficient location in order to minimize the collection of hatchery Chinook. Coho and steelhead were also encountered in this week's samples, but in relatively 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. Yearling Chinook continued to dominate the collections at WTB this week. This week's daily average collection for yearling Chinook at WTB was 1,650 per day, which is an increase from last week's daily average collection of about 900 per day. Of the yearling Chinook sampled

this week, approximately 82% were of hatchery origin. The only other species that has been encountered at this trap this season is steelhead. Although relatively low, steelhead passage increased this week, when compared to previous weeks. A total of 124 steelhead were collected at WTB this week. Of these, 64% were of hatchery origin. It is worth noting that the collections for the sample on April 12th are low because of an equipment failure and subsequent loss of fish from the holding tank. Trapping was suspended after the April 12 sample in order to make repairs. Trapping may resume over the weekend to make up the lost sample from Friday, April 13th.

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 (March 28-April 3), a total of 324 yearling Chinook and 908 steelhead were collected at the trap. All of the yearling Chinook collected over this period were unmarked. However, of the 908 steelhead collected over this period, approximately 98% were clipped. All of the clipped steelhead were encountered in the last two samples (April 2nd and April 3rd).

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 04/13/18, 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 300,000 fall Chinook were released into this zone, 50% at Pittsburg Landing acclimation pond on the Snake River, and the rest at Big Canyon on the Clearwater. Additionally, 55,000 spring Chinook were released at Clear Creek, a tributary of the South Fork Clearwater. Other releases within this zone consisted of the continuing release of 808,000 summer steelhead to the Pahsimeroi River which has been ongoing since March 29th and is scheduled to end today, April 13th. Another 820,000 summer steelhead were also released into this zone, with 84% going into the

Salmon River and the rest being released into the South Fork Clearwater at Newsome Creek.

In the next two weeks, approximately 2 million spring and summer Chinook are planned for release into this zone. Of these, approximately half will be scheduled for release into the Pahsimeroi River between April 16th and 24th. The rest are split between the Yankee Fork of the Salmon (275,000), the Lostine River (250,000), and the Grande Ronde (400,000). There will also be approximately 1.6 million summer steelhead scheduled for release over the next two weeks. Most of these will be allocated to the Salmon River, with over 450,000 going into the Little Salmon River, and another 500,000 released into the Yankee Fork of the Salmon. The Remaining steelhead are scheduled for releases from Lolo Creek on the Clearwater (200,000), and the Wallowa River (480,000)

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 there was only one scheduled hatchery release in this zone. 440,000 summer Chinook were planned for release into the Entiat River today, April 13th.

Over the next two weeks approximately 2.31 million spring and summer Chinook are scheduled to be released into this zone. 44% of these are planned to be direct releases from Chief Joseph Hatchery, while another 38% will be released into the Okanogan River at Omak pond (303,000), Similkameen pond (380,000), and Riverside pond (202,000). The remaining fish are scheduled for release in the Methow River (405,000) over five days starting on April 15th. In addition, over 1.4 million coho are planned for release into this zone as well. 67% are planned for release into the Wenatchee River, with the remaining being split between the Twisp (76,000) and Methow Rivers (450,000). All coho releases are volitional and expected to run through the end of this month. Finally, there is one planned release of 73,000 summer steelhead at the Methow Hatchery starting on April 15th and continuing through the middle of next month.

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 scheduled to be

six million fall Chinook released from Spring Creek Hatchery. Additionally, there were also two releases of spring Chinook scheduled into the Little White Salmon (1.1 million), and the Wind River (1.2 million). In addition, there were also 340,000 summer steelhead that were planned for release into the Deschutes River (162,000) and from Ringold Springs Hatchery (180,000).

Over the next two weeks, spring Chinook releases in this zone should total around 340,000 juveniles. Of these, a majority are planned for release into the Deschutes River and its tributaries, but there is also a release of 75,000 planned for the West Fork of the Hood River. There will also be approximately a million juvenile coho released into this zone, all of which are planned for the Yakima River at Holmes pond (232,000), Stiles pond (175,000), Easton pond (175,000), and Prosser pond (460,000). Steelhead releases total approximately 250,000 over the next two weeks. With 226,000 summer steelhead planned for release, most of which will go to the Umatilla (~200,000), and 26,000 to the Deschutes River. There will also be a release of 20,000 winter steelhead into Rock Creek beginning on the 15th and running through the middle of next month.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Over the past week there have been only steelhead releases in the Lower Columbia Zone. Approximately 250,000 summer steelhead were released into the Clackamas and McKenzie Rivers, while another 260,000 winter steelhead were released at Big Creek (60,000) and Gnat Creek (40,000) hatcheries, as well as the Sandy River (160,000).

Over the next two weeks, nearly a million winter steelhead are planned for release into this zone. A majority of these (63%) will be into the Cowlitz River, with the rest split between the Kalama (84,000), Lewis (247,000), and Klaskanine rivers (40,000). These releases are all scheduled to run through the middle of May. Summer steelhead releases over the next two weeks total 813,000 that are spread out across the Sandy (150,000), Washougal (13,000), Toutle (20,000), Lewis (10,000), and Cowlitz Rivers (620,000). Additionally, there are approximately 1.7 million juvenile coho scheduled for release into this zone as well. Most of these will be released into Youngs Bay (825,000),

with the remainder split among the Klaskanine River (200,000), Sandy River (200,000), Tanner Creek (102,000), and Blind Slough (400,000). There will also be two spring Chinook releases in this zone, one at Tongue Point of 200,000, and another into Dexter Pond on the Willamette of 234,000. Finally, there is an expected 1.6 million fall Chinook planned for release into Tanner Creek on April 18th.

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 3/31/2018), 22 adult Chinook and 1,666 adult steelhead were counted. Of the steelhead counted 675 were unclipped steelhead. In 2017 for the same time frame, 16 adult Chinook and 1,666 adult steelhead were counted. Of the steelhead counted in 2017, 544 were unclipped steelhead.

The direct counts at Bonneville Dam showed 2 to 27 adult spring Chinook passing over the project this past week, with a cumulative total of 139 for both direct and video counts (through April 12). There were 166 fewer fish in this year's count when compared to the 2017 count (46%), while this year's count was about 4% of the ten-year average. Adult steelhead direct counts ranged from 18 to 106 this week, with a cumulative total of 2,171 for both direct and video counts through April 12th. This is 103% of the 2017 count and 75% of the ten-year average.

The Willamette Falls cumulative steelhead count from January 1st through April 11th was 1,203. The 2018 Willamette Falls winter steelhead count was about two times greater than the 2017 count, while this year's count was about 27% of the 10-year average count of 4,501. This year's Lower Granite steelhead count of 3,538 had 3,063 fewer fish than the 2017 count of 6,601

and 3,354 fewer fish than the 10-year average count of 6,892.

Between March 2nd and April 9th, a total of 26 steelhead and 2 salmon were observed over the separator at the Bonneville Juvenile Monitoring Facility (JMF). The trigger to open the Bonneville Corner Collector was reached on April 7th, 2018. 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 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:	3/31/2018		to	04/13/18						
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	356,339	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	818,207	03-19-18	04-04-18	Clear Creek	Clearwater River M F	SNAK	
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	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	Magic Valley Hatchery	ST	SU	2018	93,778	04-02-18	04-02-18	Pahsimeroi River	Pahsimeroi River	SNAK	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2018	156,339	04-03-18	04-04-18	Pahsimeroi River	Pahsimeroi River	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	407,487	04-04-18	04-10-18	Little Salmon River	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2018	156,500	04-02-18	05-20-18	S Fk Salmon River	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2018	969,500	04-02-18	05-05-18	S Fk 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 Total					4,598,363						
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2018	150,000	04-10-18	04-10-18	Big Canyon (Clearwater)	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	Snake River	SNAK	
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2018	160,000	04-02-18	04-02-18	Cpt John Acclim Pond	Snake River	SNAK	
Nez Perce Tribe	McCall Hatchery	CH1	SU	2018	103,500	03-29-18	04-01-18	Johnson Cr Idaho	South Fork Salmon River	SNAK	
Nez Perce Tribe Total					563,500						
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	ST	SU	2018	25,000	04-11-18	04-11-18	Clackamas River	Clackamas River	LCOL	
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	SU	2018	125,000	04-07-18	04-07-18	Clackamas Hatchery	Clackamas 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	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	04-01-18	04-01-18	Wallowa Acclim Pond	Wallawa River	SNAK	
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	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	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	ST	WI	2018	160,000	04-13-18	04-13-18	Cedar Creek (Sandy R)	Sandy 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	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 Total					3,155,500						
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	Dworshak NFH	CH1	SP	2018	1,648,668	04-02-18	04-03-18	Dworshak Hatchery	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2018	353,626	04-02-18	04-02-18	Clear Creek	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2018	417,333	04-02-18	04-02-18	S Fk Clearwater River	Clearwater River M F	SNAK	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2018	1,361,558	04-02-18	04-02-18	Dworshak Hatchery	Clearwater River M F	SNAK	
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	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	Little White Salmon NFH	CH1	SP	2018	1,078,134	04-10-18	04-10-18	Little White Salmon Hat	Little White Salmon River	MCOL	
U.S. Fish and Wildlife Service	Spring Creek NFH	CHO	FA	2018	6,000,000	04-09-18	04-09-18	Spring Creek Hatchery	Bonneville Pool	MCOL	
U.S. Fish and Wildlife Service Total					13,969,572						
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2018	150,000	04-01-18	04-01-18	Thornhollow Acclim Pon	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 Pon	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 Pon	Umatilla River	MCOL	
Umatilla Tribe Total					1,681,514						
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	SP	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	Col R Bel. Bon Dam	LCOL	

Hatchery Releases Last Two Weeks

Washington Dept. of Fish and Wildlife	Cowlitz Hatchery	CH1	SP	2018	250,000	04-01-18	05-01-18	Cathlamet Channel Net	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	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	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	04-05-18	04-13-18	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	Similkameen River	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					9,795,745					
Grand Total					34,888,165					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

	From:	4/14/2018		to	4/27/2018						
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		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		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	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	296,925	04-16-18	04-18-18	Yankee Fk (Salmon R)	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	256,118	04-23-18	04-24-18	Little Salmon River	Salmon River (ID)	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	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	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					4,784,749						
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 Total					452,238						
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	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	Irrigon Hatchery Complex	ST	SU	2018	160,000	04-25-18	04-25-18	Wallowa Acclim Pond	Wallowa River	SNAK	
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	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	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	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	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	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	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					4,885,000						
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					405,000						
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 P	Grande Ronde River	SNAK	
Umatilla Tribe	Umatilla Hatchery	ST	SU	2018	50,000	04-20-18	04-20-18	Minthorn Acclimation Pd	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	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					1,745,200						
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	

Hatchery Releases Next Two Weeks

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. P	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					17,453,133					

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
03/30/2018	90.6	0.0	94.1	0.0	85.6	2.5	90.2	0.0	94.4	0.0	88.8	0.3	86.2	0.0
03/31/2018	108.1	0.0	107.1	0.0	113.5	5.7	112.7	0.0	117.6	0.0	107.6	0.0	104.4	0.0
04/01/2018	92.5	0.0	93.3	0.0	101.6	0.0	99.9	0.0	106.2	0.0	112.1	0.0	110.8	0.0
04/02/2018	123.0	0.0	115.5	0.0	111.5	1.2	103.6	0.0	108.2	1.1	122.4	0.0	121.4	0.0
04/03/2018	113.1	0.0	124.1	0.0	136.3	10.2	137.6	0.0	142.4	25.1	132.4	0.0	127.6	0.8
04/04/2018	112.2	0.0	106.7	0.0	118.5	0.0	113.9	0.0	119.3	16.2	137.7	0.0	135.7	0.0
04/05/2018	111.7	0.0	117.5	0.0	113.7	0.0	113.5	0.0	119.2	8.8	142.4	0.0	138.9	0.0
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	128.1	10.0	127.1	0.0	135.7	17.2	145.7	0.0	139.6	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
03/30/2018	8.4	4.2	---	---	58.7	6.8	63.3	0.0	64.6	0.0	63.7	6.1
03/31/2018	8.4	4.2	---	---	56.5	6.8	63.3	0.0	67.8	0.0	72.8	14.8
04/01/2018	8.4	4.2	---	---	57.4	6.8	59.7	0.0	62.4	0.0	64.0	9.8
04/02/2018	8.4	4.9	---	---	59.6	6.8	59.9	0.0	62.7	0.1	62.1	8.1
04/03/2018	8.4	4.8	---	---	62.1	44.4	61.8	42.0	62.1	40.0	69.2	58.8
04/04/2018	10.0	5.7	---	---	68.5	45.5	67.9	42.2	68.5	40.9	72.3	61.8
04/05/2018	9.9	5.7	---	---	74.9	47.5	72.8	42.2	73.3	43.9	78.7	68.6
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	104.2	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

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
03/30/2018	171.1	0.0	172.9	3.9	171.2	0.0	186.7	1.4	78.1	99.7
03/31/2018	169.9	0.0	181.4	0.0	175.7	0.0	192.9	1.5	79.2	104.8
04/01/2018	169.7	0.0	183.9	0.0	175.6	14.8	192.8	1.2	82.1	102.1
04/02/2018	179.5	20.1	176.6	0.0	174.2	14.8	191.5	1.3	78.2	104.6
04/03/2018	190.6	31.8	204.2	0.0	197.4	40.4	211.4	1.3	81.7	120.9
04/04/2018	213.6	57.6	199.1	0.0	190.0	30.7	207.7	1.4	87.6	111.3
04/05/2018	225.9	60.6	213.3	0.0	206.0	43.4	224.6	1.3	89.2	126.7
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

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										
	04/05/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/12/18 Chinook + Steelhead	104	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
Lower Monumental Dam										
	04/10/18 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
Bonneville Dam										

FISH PASSAGE CENTER

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

Date 4/13/2018 8:15:08 AM

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Total Dissolved Gas Data at Upper Columbia Sites

Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph				Chief J. Dnst				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/30									103.0	103.2	103.4	24	102.9	103.6	104.2	24	103.3	103.8	104.5	24	102.7	103.2	103.8	24	03/30
03/31									102.6	102.9	103.0	24	102.2	102.7	103.0	24	103.3	103.7	104.0	24	102.5	102.9	103.3	24	03/31
04/01									104.3	104.8	105.0	24	103.9	104.8	105.4	24	104.5	105.0	105.5	22	103.9	104.7	105.5	24	04/01
04/02									103.9	104.3	104.6	24	103.2	103.7	104.0	24	104.2	104.5	104.9	21	103.5	103.8	104.2	24	04/02
04/03									103.5	103.7	103.9	24	102.6	103.0	103.3	24	103.6	103.8	104.0	18	102.7	103.0	103.2	24	04/03
04/04									103.3	103.4	103.6	24	102.6	102.8	103.1	24	103.4	103.6	103.8	24	102.7	102.9	103.2	24	04/04
04/05									103.7	104.0	104.3	24	102.9	103.2	103.4	24	103.2	103.4	103.5	24	102.4	102.7	102.9	24	04/05
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									104.9	105.3	105.7	23	103.8	104.2	104.6	23	104.7	105.1	105.4	23	104.4	104.7	105.0	23	04/12

Total Dissolved Gas Data at Upper Columbia Sites

Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr				Rock Island				Rock I. Tlwr				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
03/30	102.9	103.3	103.7	24	103.9	105.1	109.1	24	103.0	103.2	103.2	24	103.6	103.9	104.4	21	103.0	103.3	103.6	24	103.0	103.3	103.6	21	03/30
03/31	102.4	102.9	103.0	24	105.0	106.9	112.3	24	103.0	103.3	103.6	24	103.9	104.3	104.8	22	102.4	102.9	103.2	24	102.5	102.7	103.2	20	03/31
04/01	103.9	104.6	104.9	24	104.0	104.8	105.2	24	105.8	106.7	107.6	24	106.2	106.8	108.6	22	104.1	104.9	105.7	22	104.1	104.6	105.4	20	04/01
04/02	103.3	103.6	103.8	24	103.6	104.0	104.6	24	105.5	106.4	107.6	24	106.1	107.1	108.4	22	105.3	105.7	106.0	22	105.4	105.8	106.3	22	04/02
04/03	102.8	103.1	103.2	24	105.2	107.2	109.4	24	103.6	103.8	104.1	24	104.3	104.6	104.9	22	103.3	103.6	104.0	24	107.1	109.0	112.0	21	04/03
04/04	102.7	102.8	103.0	24	102.9	103.2	103.4	24	104.6	105.6	107.0	23	105.3	106.0	107.7	20	103.1	103.5	104.3	22	105.7	107.1	109.9	20	04/04
04/05	102.9	103.1	103.2	24	103.0	103.3	103.5	24	105.3	105.9	106.9	24	105.7	106.4	107.7	21	105.3	105.8	106.3	22	106.4	107.5	109.0	21	04/05
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	104.0	104.4	104.8	22	106.6	107.4	108.8	22	106.5	106.8	107.0	23	106.8	107.2	107.5	23	105.3	105.5	105.8	23	108.0	109.1	113.3	21	04/12

FISH PASSAGE CENTER

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

Date 4/13/2018 8:15:08 AM

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Total Dissolved Gas Data at Upper and Mid-Columbia Sites

Date	Wanapum				Wanapum Tlwr				Priest Rapids				Priest R. Dnstr				Pasco				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	
03/30	103.3	103.4	103.5	24	103.2	103.3	103.8	24	103.2	103.5	103.7	24	103.1	103.4	103.7	24					03/30
03/31	103.0	103.5	104.0	24	102.6	102.9	103.3	24	102.9	103.4	103.7	24	102.8	103.2	103.4	24					03/31
04/01	105.1	105.6	105.9	24	104.9	105.4	105.7	24	104.2	104.7	104.9	24	104.2	104.7	105.0	24					04/01
04/02	103.5	104.0	104.6	24	103.6	104.0	104.8	24	103.4	103.8	104.0	24	103.7	104.0	104.2	24					04/02
04/03	103.3	103.8	104.3	24	102.9	103.3	103.7	24	102.9	103.2	103.5	24	102.9	103.2	103.7	24					04/03
04/04	104.5	105.2	105.8	24	104.4	104.9	105.1	24	103.3	103.6	104.1	24	103.4	103.7	104.2	24					04/04
04/05	106.6	107.3	107.6	24	106.0	106.6	106.9	24	105.0	105.3	105.5	24	104.9	105.2	105.5	24					04/05
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

Total Dissolved Gas Data at Snake and Clearwater Sites

Date	Dworshak				Clrwr Peck				Anatone				Clrwr-Lewiston				Lower Granite				Lower G. 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	
03/30	114.5	114.8	115.0	24	106.1	106.4	106.6	24	102.5	103.1	104.0	24	103.9	104.9	105.9	24	104.0	104.1	104.3	24	106.3	106.6	106.8	24	03/30
03/31	114.5	114.8	115.3	24	106.1	106.8	107.4	24	102.2	102.8	103.2	24	103.6	104.9	105.8	24	103.3	103.5	103.8	24	105.9	106.3	106.6	24	03/31
04/01	115.0	115.3	115.6	24	105.9	106.2	106.6	24	102.4	102.9	103.3	24	103.3	104.1	104.6	24	104.4	104.8	105.0	24	106.4	106.9	107.2	24	04/01
04/02	118.1	121.9	124.4	24	106.2	107.5	108.7	24	101.7	102.1	102.5	24	102.9	103.7	104.1	24	103.9	104.4	105.0	24	106.0	106.3	107.5	24	04/02
04/03	117.8	121.5	124.5	24	106.8	108.8	110.6	24	102.3	103.4	104.0	24	104.0	105.5	105.9	24	102.9	103.0	103.1	24	116.6	117.2	117.4	24	04/03
04/04	117.6	117.8	118.0	24	107.5	108.0	108.4	24	103.6	104.9	105.3	24	104.4	105.3	106.1	24	102.4	102.6	102.9	24	117.6	118.1	118.8	24	04/04
04/05	118.0	118.3	118.4	24	107.2	107.5	107.8	24	104.9	105.3	105.6	24	104.2	104.8	105.4	24	102.3	102.5	102.7	24	118.4	118.6	118.8	24	04/05
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	111.9	112.4	113.2	23	101.6	102.1	103.5	23	104.0	104.4	105.0	23	101.5	102.0	102.7	23	105.2	105.8	106.6	23	118.0	118.2	118.7	23	04/12

FISH PASSAGE CENTER

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

Date 4/13/2018 8:15:08 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
03/30	104.6	105.0	105.1	24	104.6	104.9	105.1	24	103.0	103.3	103.4	24	102.7	103.0	103.1	24	102.9	103.0	103.1	24	104.2	106.2	106.5	24	03/30
03/31	104.6	104.9	105.2	24	104.8	105.1	105.3	24	103.2	103.6	104.1	24	103.1	103.4	103.7	24	102.8	103.1	103.3	24	107.3	107.6	108.0	24	03/31
04/01	106.2	106.7	106.9	24	106.2	106.6	106.7	24	104.9	105.3	105.5	24	104.7	105.2	105.4	24	103.9	104.2	104.3	24	106.9	107.2	107.6	24	04/01
04/02	105.7	106.2	107.0	24	105.6	106.1	106.7	24	104.5	104.8	105.4	24	104.3	104.5	105.0	24	103.3	103.5	103.9	24	105.2	106.7	109.9	24	04/02
04/03	104.7	104.8	104.9	24	116.9	117.7	118.0	24	104.1	104.3	104.5	24	115.1	115.7	116.0	24	103.1	103.5	103.7	24	114.1	115.0	115.2	24	04/03
04/04	104.3	104.5	104.6	24	117.0	117.1	117.5	24	104.3	104.5	104.7	24	115.9	116.3	116.5	24	103.7	103.9	104.5	24	114.8	115.3	115.5	24	04/04
04/05	104.5	104.8	105.0	24	117.0	117.1	117.4	24	112.3	115.4	116.8	24	116.7	116.9	117.0	24	110.1	112.3	113.5	24	115.4	115.6	115.7	24	04/05
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	116.9	117.0	117.8	16	117.8	117.9	118.4	16	116.6	117.3	117.7	24	120.7	121.3	121.6	24	04/11
04/12	115.8	116.9	118.3	23	114.9	115.4	115.9	23	115.5	116.3	117.5	23	117.7	117.9	118.1	23	115.0	116.1	117.1	23	120.2	120.7	121.4	23	04/12

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
03/30	104.5	104.8	105.0	24	102.4	102.6	103.1	24	102.7	102.8	102.8	24	103.9	105.5	106.2	24	104.0	104.4	104.6	24	103.3	103.8	104.2	24	03/30
03/31	104.8	105.3	105.9	24	102.5	103.0	103.3	24	102.7	103.0	103.4	24	102.1	102.5	102.6	24	102.9	103.0	103.2	24	102.1	102.2	102.4	24	03/31
04/01	105.1	105.3	105.5	24	103.7	103.9	104.3	24	103.9	104.2	104.4	24	103.1	103.4	103.7	24	103.5	103.6	103.7	24	103.7	104.1	104.3	24	04/01
04/02	103.5	103.9	104.7	24	104.2	104.8	106.0	24	103.2	103.6	106.6	24	102.4	102.5	102.8	24	102.3	102.6	103.2	24	103.2	103.4	103.5	24	04/02
04/03	103.0	103.2	103.6	24	106.8	107.5	108.9	24	102.8	103.2	103.5	24	102.5	102.9	103.2	24	102.4	102.8	103.0	24	105.3	106.8	108.7	24	04/03
04/04	103.1	103.3	103.8	24	107.7	108.1	109.1	24	103.0	103.2	103.4	24	102.7	102.8	103.0	24	102.9	103.1	103.3	24	104.9	105.4	105.7	24	04/04
04/05	104.6	105.2	105.5	24	111.8	112.4	113.0	24	103.6	103.9	104.1	24	103.5	103.8	104.0	24	103.5	103.7	103.8	24	106.6	107.3	107.5	24	04/05
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	109.0	110.3	111.7	23	119.4	119.7	120.1	23	106.9	107.4	108.2	23	118.0	118.0	118.3	23	112.3	113.1	114.8	23	118.7	119.6	120.5	23	04/12

FISH PASSAGE CENTER

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

Date 4/13/2018 8:15:09 AM

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Total Dissolved Gas Data at Mid-Columbia Sites

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Isl.				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
03/30	103.9	104.2	104.4	24	104.7	105.0	105.3	24	105.3	106.0	106.5	24	111.1	111.4	111.5	24	03/30
03/31	104.0	104.4	105.0	24	104.7	105.3	105.8	24	105.0	106.0	106.7	24	111.4	111.7	112.3	24	03/31
04/01	104.7	104.9	105.1	24	104.8	105.0	105.1	24	104.8	105.3	105.7	24	110.8	111.3	112.0	24	04/01
04/02	102.7	103.2	103.8	24	103.3	103.6	103.9	24	103.7	104.2	104.7	24	110.9	111.5	112.0	24	04/02
04/03	103.8	104.3	104.6	24	104.1	104.4	105.0	19	103.7	104.8	105.4	24	110.2	110.9	111.3	24	04/03
04/04	104.8	105.5	106.8	24	105.2	105.7	106.0	24	104.7	105.5	106.0	24	109.7	110.3	110.6	24	04/04
04/05	107.1	107.3	107.4	24	107.4	107.8	108.0	24	106.0	107.0	107.4	24	110.9	111.4	111.7	24	04/05
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	116.2	117.3	118.0	23	118.3	118.8	119.0	23	113.9	114.4	115.1	23	119.4	119.5	119.7	23	04/12

Hours used in calculating values:

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

Smolt Monitoring Program Two Week Passage Index Report

Date 4/13/2018 3:17:53 PM

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COMBINED YEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/30/2018	176	24	330	2		57					2,922
03/31/2018		20	146	2						795	8,961
04/01/2018		43	217	2		474		0			15,049
04/02/2018	803	55	239	1	7,444		0	1		930	6,796
04/03/2018	1,967	105	1,408		16,594	523		1	234		6,532
04/04/2018	100		243		31,696			1		970	4,888
04/05/2018	806		1,377	48	16,791	267	9,209	3	1,172		3,915
04/06/2018	842		1,185	41	32,191			4		1,360	3,751
04/07/2018			4,904	36	27,173	9,098		0	1,057		4,099
04/08/2018				89	45,045		14,717	0		1,090	3,791
04/09/2018	3,470			251	59,774	57,691		8	7,500		3,698
04/10/2018	1,584			490	143,180			4		2,312	4,618
04/11/2018	1,213		312	345	73,830	31,526	27,215	3	5,902		27,997
04/12/2018	361		205	346	96,954			12		8,487	39,807
04/13/2018			376		62,209	38,466		11	8,432		33,067
Total:	11,322	247	10,942	1,653	612,881	138,102	51,141	48	24,297	15,944	169,891
# Days:	10	5	12	12	12	8	4	13	6	7	15
Average:	1,132	49	912	138	51,073	17,263	12,785	4	4,050	2,278	11,326
YTD:	16,356	1,052	12,886	1,709	612,881	138,433	51,141	48	24,297	38,530	173,267

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 4/13/2018 3:17:53 PM

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COMBINED SUBYEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/30/2018	0	0	0	0		0					955
03/31/2018		0	0	1						0	1,404
04/01/2018		0	0	3		0		12			1,307
04/02/2018	0	0	0	0	45		0	6		10	1,168
04/03/2018	0	0	0		85	0		5	10		2,051
04/04/2018	0		0		380			9		10	2,312
04/05/2018	0		0	1	0	0	0	4	23		1,957
04/06/2018	0		0	1	0			2		0	426
04/07/2018			0	0	0	0		9	38		2,425
04/08/2018				1	460		0	4		0	2,596
04/09/2018	0			3	0	0		28	12		3,297
04/10/2018	0			2	355			14		0	317,995
04/11/2018	0		0	2	1,846	0	0	53	69		427,027
04/12/2018	0		0	0	2,873			18		21	30,106
04/13/2018			0		1,018	830		66	0		9,904
Total:	0	0	0	14	7,062	830	0	230	152	41	804,930
# Days:	10	5	12	12	12	8	4	13	6	7	15
Average:	0	0	0	1	589	104	0	18	25	6	53,662
YTD:	0	0	1	36	7,062	830	0	296	152	289	836,488

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 4/13/2018 3:17:53 PM

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COMBINED COHO

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/30/2018	0	0	0	13		0					19
03/31/2018		0	1	5						40	26
04/01/2018		0	0	6		0		0			114
04/02/2018	0	0	0	3	0		0	0		70	71
04/03/2018	0	0	8		0	0		0	86		172
04/04/2018	0		0		0			0		70	360
04/05/2018	0		0	3	0	0	0	0	86		705
04/06/2018	0		1	1	0			1		50	1,108
04/07/2018			1	8	0	4		1	114		1,888
04/08/2018				13	0		0	0		60	2,460
04/09/2018	0			74	0	6		0	293		2,722
04/10/2018	0			57	355			3		37	7,129
04/11/2018	0		1	28	0	0	0	1	276		9,568
04/12/2018	0		0	65	1,795			1		21	2,676
04/13/2018			2		0	0		6	169		5,639
Total:	0	0	14	276	2,150	10	0	13	1,024	348	34,657
# Days:	10	5	12	12	12	8	4	13	6	7	15
Average:	0	0	1	23	179	1	0	1	171	50	2,310
YTD:	0	0	52	285	2,150	11	0	19	1,024	480	35,466

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 4/13/2018 3:17:53 PM

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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)
03/30/2018	1	1	0	8		109					37
03/31/2018		2	1	11						81	53
04/01/2018		1	0	9		684		0			69
04/02/2018	1	18	1	14	3,790		0	0		80	35
04/03/2018	0	876	0		5,701	1,369		0	105		111
04/04/2018	1		3		19,359			1		190	160
04/05/2018	0		2	17	4,404	757	124	0	213		71
04/06/2018	0		16	11	13,081			0		140	85
04/07/2018			56	13	29,426	4,470		0	260		123
04/08/2018				25	39,529		3,710	0		240	188
04/09/2018	63			95	72,585	264,129		0	1,727		374
04/10/2018	20			99	186,170			4		507	1,123
04/11/2018	31		44	172	51,680	36,623	14,232	0	3,808		355
04/12/2018	10		37	231	63,559			1		446	1,005
04/13/2018			47		82,170	144,428		6	3,626		304
Total:	127	898	207	705	571,454	452,569	18,066	12	9,739	1,684	4,093
# Days:	10	5	12	12	12	8	4	13	6	7	15
Average:	13	180	17	59	47,621	56,571	4,517	1	1,623	241	273
YTD:	137	983	221	762	571,454	452,814	18,066	12	9,739	2,055	4,235

Number of hours sampled:

- No data available or no sample conducted

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

Smolt Monitoring Program Two Week Passage Index Report

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COMBINED SOCKEYE

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
03/30/2018	0	0	0	0		22					0
03/31/2018		0	0	0						0	0
04/01/2018		0	0	0		2,816		0			0
04/02/2018	0	0	0	0	373		0	0		0	0
04/03/2018	0	0	0		766	101		0	5		0
04/04/2018	0		0		1,139			0		10	0
04/05/2018	0		0	0	688	87	0	0	11		35
04/06/2018	0		0	0	1,376			0		0	17
04/07/2018			0	0	0	2,578		3	5		15
04/08/2018				0	919		204	5		30	0
04/09/2018	0			0	557	68		4	111		0
04/10/2018	0			0	355			1		12	0
04/11/2018	0		0	0	0	2,039	337	36	276		0
04/12/2018	0		0	0	0			34		42	335
04/13/2018			0		0	558		48	211		0
Total:	0	0	0	0	6,173	8,269	541	131	619	94	402
# Days:	0	0	0	0	514	1,034	135	10	103	13	27
Average:	0	0	0	0	514	1,034	135	10	103	13	27
YTD:	0	0	0	0	6,173	8,406	541	179	619	94	424

Number of hours sampled:

- No data available or no sample conducted

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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Smolt Monitoring Program Two Week Passage Index Report

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COMBINED LAMPREY JUVENILES

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR* (Sample)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
03/30/2018	0	0	0	0		19					125
03/31/2018		0	0	0						240	95
04/01/2018		0	0	0		2,421		0			100
04/02/2018	0	0	0	0	0		0	1		460	80
04/03/2018	0	0	0		1	20		0	8		43
04/04/2018	0		0		0			1		360	103
04/05/2018	0		0	0	0	2	0	1	28		80
04/06/2018	0		0	0	0			0		320	70
04/07/2018			0	0	0	8		1	36		70
04/08/2018				0	0		0	2		290	86
04/09/2018	0			0	0	812		1	20		143
04/10/2018	0			0	1			0		180	486
04/11/2018	0		0	0	0	0	0	0	160		1,000
04/12/2018	0		0	0	0			0		120	143
04/13/2018			0		0	800		2	190		133
Total:	0	0	0	0	2	4,082	0	9	442	1,970	2,757
# Days:	10	5	12	12	12	13	4	13	6	8	19
Average:	0	0	0	0	0	314	0	1	74	246	145
YTD:			3		2	4,234		9	442	34,180	5,112

- 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

3/30/2018 12:00:00 AM TO 4/13/2018 12:00:00 AM

Date 4/13/2018 3:18:28 PM

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	3,800	317,147	1,200	2,820	302,209	929,385
Sum of Number Barged	175	13,587	18	18	13,899	41,596
Sum of Number Bypassed	3,619	303,540	1,182	2,802	288,294	887,731
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	9	0	0	11	37
Sum of Facility Morts	0	11	0	0	5	21
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	6	20	0	0	16	58

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	600	92,191	6	5,992	307,320	713,429
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	600	92,182	6	5,983	307,316	713,403
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	2	0	3	1	7
Sum of Facility Morts	0	7	0	6	3	19
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	9	0	9	4	26

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Two Week Transportation Summary Report

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	27,083	0	300	10,317	48,017
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	27,083	0	300	10,317	48,017
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	4,400	436,421	1,206	9,112	619,846	1,690,831
Sum of Number Barged	175	13,587	18	18	13,899	41,596
Sum of Number Bypassed	4,219	422,805	1,188	9,085	605,927	1,649,151
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	11	0	3	12	44
Sum of Facility Morts	0	18	0	6	8	40
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	6	29	0	9	20	84

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YTD Transportation Summary Report

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	3800	317147	1200	2820	302209	929385
Sum of Number Barged	175	13587	18	18	13899	41596
Sum of Number Bypassed	3619	303540	1182	2802	288294	887731
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	9	0	0	11	37
Sum of Facility Morts	0	11	0	0	5	21
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	6	20	0	0	16	58

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	600	92522	7	6129	307565	714388
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	600	92507	7	6117	307561	714353
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	0	7	0	5	1	14
Sum of Facility Morts	0	8	0	7	3	21
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	0	15	0	12	4	35

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YTD Transportation Summary Report

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	0	27083	0	300	10317	48017
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	27083	0	300	10317	48017
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	4400	436752	1207	9249	620091	1691790
Sum of Number Barged	175	13587	18	18	13899	41596
Sum of Number Bypassed	4219	423130	1189	9219	606172	1650101
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	16	0	5	12	51
Sum of Facility Morts	0	19	0	7	8	42
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	6	35	0	12	20	93

Cumulative Adult Passage at Mainstem Dams Through: 04/12

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	04/12	139	4	305	0	3318	3	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/12	46	2	60	0	1179	5	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/12	42	0	9	4	522	8	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/11	7	0	8	-2	149	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/12	8	0	4	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/12	1	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/12	0	0	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/12	1	0	1	0	4	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	04/11	38	2	2	0	337	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	10-Yr			
		Adult	Jack	Adult	Jack	Adult	Jack	2018	2017	Avg.	2018	2017	Avg.	2018	2017	Avg.	2018	2017	Avg.
PRD	04/12	1	-1	0	0	0	0	0	0	0	2171	2116	2891	912	740	1059	0	0	0
RIS	04/12	4	0	0	0	0	0	0	0	0	98	1385	1587	31	465	715	0	0	0
RRH	04/12	0	0	0	0	0	1	0	0	0	299	230	3090	128	147	1283	0	0	-1
WEL	04/11	0	0	0	0	1	0	0	0	0	257	2226	3326	119	583	1234	4	0	0
IHR	04/12	-1	0	0	0	0	0	0	0	0	981	651	3123	319	311	1034	2	0	0
LMN	04/12	0	0	0	0	0	0	0	0	0	636	896	6560	158	430	1895	0	0	0
LGS	04/12	0	0	0	0	0	0	0	0	0	467	849	3344	102	360	1607	0	0	0
LGR	04/12	0	0	0	0	0	0	0	0	0	3538	6601	6892	870	2624	2615	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	04/11	0	2	117	117	0	0	0	0	0	1203	553	4501	1106	536	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.