



Fish Passage Center

Weekly Report #18–19

July 13, 2018

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 0% and 67% of average at individual sub-basins over early July. Precipitation above The Dalles has been 28% of average over July. Over the 2018 water year, precipitation has ranged between 87% and 113% of average.

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

Location	Water Year 2018 July 1-12, 2018		Water Year 2018 October 1, 2017 to July 12, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.40	50	33.0	101
Snake River Above Ice Harbor	0.01	2	19.1	93
Columbia Above The Dalles	0.13	28	23.2	95
Kootenai	0.57	67	32.2	99
Clark Fork	0.02	4	27.1	113
Flathead	0.19	24	33.9	108
Pend Oreille River Basin above Waneta Dam	0.09	15	30.6	106
Salmon River Basin	0.00	0	25.4	98
Upper Snake Tributaries	0.06	12	22.7	97
Clearwater	0.01	2	41.1	111
Willamette River above Portland	0.00	1	54.2	87

Grand Coulee Reservoir is at 1289.1 feet (7-12-18) and has refilled 1.6 feet over the last week. Outflows at Grand Coulee have ranged between 82.0 Kcfs and 126.8 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2446.57 feet (7-12-18) and has refilled 2.7 feet over the past week. Daily average outflows at Libby Dam have been between 9.0 Kcfs and 9.5 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3559.86 feet (7-12-18) and has refilled 0.5 feet last week. Outflows at Hungry Horse have been 3.4 – 4.27 Kcfs over the last week.

Dworshak is currently at an elevation of 1593.1 feet (7-12-18) and has drafted 6.6 feet over the last week. Dworshak outflows have been 5.3 – 9.5 Kcfs.

The Brownlee Reservoir was at an elevation of 2069.0 feet on July 12th, 2018 and has drafted 1.5 feet over the last week. Outflows at Hells Canyon have ranged between 9.8 and 21.8 Kcfs over the last four days.

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 was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 111.3 Kcfs over the spring season. The summer biological flow period began on June 21st, 2018 at Lower Granite (Flow Objective = 53.3 Kcfs), flows have averaged 50.8 Kcfs over the summer period and 42.3 Kcfs last week.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objective is 260 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Flows at McNary averaged 343 Kcfs over the spring season; at Priest Rapids flows averaged 229.6 Kcfs over the spring season. The summer flow period began on July 1, 2018 at McNary Dam, with a flow objective of 200 Kcfs. Flows at McNary have averaged 184.5 Kcfs since the start of the summer period.

Spill

Flows in the Lower Snake River remained relatively steady this week, when compared to the previous week. Daily average flows at Lower Granite Dam ranged from 41.2 to 43.4 Kcfs this week. Daily average flows at McNary and Rock Island dams ranged from 168.1 to 206.8 Kcfs and 102.4 to 141.8 Kcfs this week, respectively. Current forecasts for Lower Granite Dam show flows declining slightly over the next week while forecasts for McNary Dam show flows remaining relatively stable over the next week.

Dworshak is currently in its summer draft operation, with daily average discharge ranging from 8.3 to 12.8 Kcfs over the last week. Unit 3 was returned to service last week. With the return of Unit 3, the powerhouse at Dworshak is at full capacity, which is approximately 9.5 Kcfs. Therefore, summer draft operations will no longer be limited to 10.0-11.0 Kcfs, as they have the last two summer draft seasons. Hells Canyon Complex flows have remained steady this week, with daily average outflows at Hells Canyon Dam ranging from 13.3 to 15.6 Kcfs over the last week. The daily average temperature for July 12th at the Lower Granite tailrace was 66.7 °F.

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. Spring spill operations at these projects ran through June 15th in the Mid-Columbia and June 20th in the Snake River. According to the Fish Operations Plan, summer spill operations began at 0001 on June 16th at the Mid-Columbia River sites and 0001 on June 21st at the Snake River sites. These summer spill operations will run through August 31st at all eight FCRPS projects. A summary of summer spill operations is provided in Table 2.

Table 2. Summer spill operations at FCRPS projects.

Project	Summer Spill Level (Day/Night)
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	Jun. 21-Jul. 13: 45 Kcfs/Gas Cap or 30%/30% Jul. 13-Aug. 31: 45 Kcfs/Gas Cap
McNary	50%/50%
John Day	Jun. 16-Jul. 20: 30%/30% or 40%/40% Jul. 20-Aug. 31: 30%/30%
The Dalles	40%/40%
Bonneville	95 Kcfs/95 Kcfs or 85 Kcfs/121 Kcfs

The summer spill operation for Lower Granite Dam is 18 Kcfs, 24-hours per day. Summer spill volumes at LGR were met this week and there were no exceedences in total dissolved gas (TDG) waiver limits in the LGR tailrace or the Little Goose (LGS) forebay. The summer spill operation for LGS is 30%, 24-hours per day. Summer spill volumes at LGS were met this week and there were no exceedences in TDG waiver limits in the LGS tailrace or Lower Monumental (LMN) forebay. The summer spill operation for LMN is 17 Kcfs, 24-hours per day. Summer spill volumes at LMN were met this week and there were no exceedences in TDG waiver limits in the LMN tailrace or the Ice Harbor (IHR) forebay. The summer spill operation for IHR alternates between 30% (24-hours per day) and 45 Kcfs during the day and gas cap spill at night. These two operations will alternate in two-day blocks through July 12th. From July 13th to August 31st, the operation at IHR will be 45 Kcfs during the day and gas cap spill at night. Summer spill volumes at IHR were met this week. However, due to low flows, the nighttime spill to the gas cap has not been possible. Instead, spill during these periods was all flows in excess of powerhouse minimum requirements. There were no exceedences in TDG waiver limits in the IHR tailrace or the McNary (MCN) forebay this week.

Summer spill at McNary (MCN) is 50%, 24-hours per day. This summer spill operation has been met this week and there have been no exceedences of TDG waiver limits in the MCN tailrace or the John Day (JDA) forebay. The summer spill operation at JDA alternates between 30% (24-hours) and 40% (24-hours). These two “treatments” will alternate in two-day blocks.

This summer spill operation at JDA has been met this week and there were no exceedances of TDG waivers in the JDA tailrace or The Dalles (TDA) forebay this week. The summer spill operation at TDA is 40%, 24-hours per day. This summer spill operation has been met this week and there were no exceedances of TDG waivers in the TDA tailrace or the Bonneville (BON) forebay this week. Finally, the summer spill operation at BON alternates between 95 Kcfs (24-hours) and 85 Kcfs during the day and 121 Kcfs at night. These two “treatments” will alternate in 2-day blocks. This summer spill operation has been met this week. The tailrace monitor at Cascades Island was out of service from May 13th to July 10th, but has recently been restored. The 12-hour average TDG at this monitor has been 117% over the last two days.

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 at Little Goose, Lower Monumental, Rock Island, McNary, and Bonneville dams this week. GBT monitoring at Lower Granite did not occur this week and will likely not occur the rest of this season. Signs of fin GBT were observed in two of the eight GBT samples conducted this week (July 6-12). Bonneville observed zero signs of fin GBT in their samples on July 7th and July 10th. This week’s samples (July 10th and July 12th) at Rock Island each had four fish (4%) with signs of fin GBT. Of the four fish observed with

fin GBT, each sample had three had Rank 1 signs and one with Rank 2 signs. McNary observed no signs of fin GBT in their samples on July 7th and July 9th. Little Goose and Lower Monumental observed zero signs of fin GBT in their samples on July 9th and July 11th, respectively. It should be noted that the last two GBT samples at Lower Monumental Dam have not met sample the size requirement. If fish numbers continue to decline, and TDG levels remain low, sampling at this site may be terminated for the season. 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. Neither of these action criteria were met this week.

Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. Currently, forebay temperatures at Bonneville Dam are slight higher than the 10-year average for this time of year. The daily average temperature for July 12th at Bonneville was 67.8 °F. The current 10-year average for the Bonneville forebay at this time of year is 66.8 °F. The current forebay temperature at McNary Dam is also slightly higher than the current 10-year average. The daily average temperature for July 12th in the McNary forebay was 67.2 °F and the 10-year average for that date is 66.2 °F. The forebay temperature at Ice Harbor Dam is less than a degree higher than the current 10-year average. The daily average temperature for July 12th in the Ice Harbor forebay was 68.0 °F and the current 10-year average for that date is 67.1 °F. The forebay temperature at Lower Granite Dam is very close to the current 10-year average. The daily average temperature for July 12th in the Lower Granite forebay was 66.2 °F and the current 10-year average for that date is 65.6 °F.

Smolt Monitoring

Smolt Monitoring Program (SMP) activities continued at all bypass facilities this week. Sampling also continued at the Imnaha River trap this week. This week’s samples were dominated by subyearling Chinook at all seven SMP bypass facilities. Passage of

spring migrants (yearling Chinook, coho, sockeye, and steelhead) remained low at all bypass facilities.

This week's samples at Bonneville Dam (BON) were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 11,500 per day, which is a decrease from last week's daily average passage index of about 22,500 per day. Passage of spring migrants (yearling Chinook, coho, sockeye, and steelhead) remained low this week. Pacific lamprey macrophthalmia were encountered in only two of this week's samples while ammocoetes were not encountered this week.

Similar to the last two years, sampling at John Day Dam (JDA) is every-other-day. Subyearling Chinook again dominated the samples at JDA this week. This week's daily average passage index for subyearling Chinook was about 35,700 per day, which is a slight increase from last week's daily average passage index of 32,600 per day. No spring migrants were encountered in this week's samples at JDA. No Pacific lamprey macrophthalmia or ammocoetes were encountered in this week's samples.

Sampling at McNary (MCN) is also every-other-day. Subyearling Chinook dominated this week's samples at MCN. This week's daily average passage index for subyearling Chinook was about 83,600 per day, which is an increase from last week's daily average passage index of nearly 67,000 per day. Passage of spring migrants remained low this week. In fact, the only spring migrants that were encountered in this week's samples were yearling Chinook and sockeye. Finally, Pacific lamprey macrophthalmia were encountered in two of this week's four samples and no ammocoetes were encountered this week.

Subyearling Chinook continued to dominate the samples at Lower Granite Dam (LGR) this week. This week's daily average passage index for subyearling Chinook was about 2,900 per day, which is similar to last week's daily average passage index of about 3,500 per day. Passage of spring migrants remained low this week. Finally, one Pacific lamprey macrophthalmia was sampled on July 9th while Pacific lamprey ammocoetes were encountered in five of this week's samples. When present, this week's daily sample counts for Pacific ammocoetes were low, ranging from one to three per day.

Similar to recent years, sampling at Little Goose

Dam (LGS) began as every-other-day but was increased to every day when transportation started on April 23rd. Subyearling Chinook continued to dominate the samples at LGS this week. This week's daily average passage index for subyearling Chinook was about 4,000 per day, which is similar to last week's daily average passage index of about 4,350 per day. Passage of spring migrants remained low this week. This week's daily average passage indices for spring migrants were all less than 100 per day. Finally, no Pacific lamprey macrophthalmia were encountered in this week's samples while ammocoetes were encountered in five of this week's samples.

Sampling at Lower Monumental Dam (LMN) was every-third-day through April 14th, transitioned to every-other-day through April 23rd, and then transitioned to every day with the start of transportation. This week's samples at LMN were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 2,200 per day, which is a slight decrease from last week's daily average passage index of about 3,100 per day. Passage of spring migrants remained low this week. Finally, Pacific lamprey macrophthalmia were encountered in three of this week's samples and ammocoetes were encountered in only one of this week's samples.

Subyearling Chinook continued to dominate the samples at Rock Island Dam (RIS). This week's daily average passage index for subyearling Chinook was about 500 per day, which is an increase over last week's daily average passage index of about 300 per day. Passage of spring migrants was very low this week. Pacific lamprey macrophthalmia were encountered in three of this week's samples while no ammocoetes were encountered this week.

The Imnaha River Trap (IMN) is located at river kilometer 7 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 15 through July 9th. However, the trap was not operated for several days over the last two weeks due to holidays and high temperatures. Yearling Chinook and steelhead continue to be collected at the trap, although in relatively low numbers.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 07/13/18, 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. In the past week there were no scheduled releases into this zone, nor are there any scheduled for the next two.

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. In the past week there were no scheduled releases into this zone, nor are there any scheduled for the next two.

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). In the past week there were three scheduled releases into this zone, all occurring in the Little White Salmon River. On July 9-11th, a release of 950,000 subyearling fall Chinook were released at the mouth of the Little White Salmon River. On the 10th, 950,000 more were released at the Willard NFH, and another 3.86 million were released at the Little White Salmon NFH on July 11th.

In the next two weeks, there are no scheduled releases into this zone.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. In the past week there were no scheduled releases into this zone, nor are there any scheduled for the next two.

Adult Passage

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 532 and 888 adult summer Chinook in the last week. The 2018 summer Chinook count of 54,004 is about 70.1% of the 2017 count and 62.1% of the 10-year average. The 2018 summer Chinook jack count of 3,547 is about 38.5% of the 2017 count and 19.1% of the 10-year average count. At Willamette Falls, 23,906 adult spring Chinook have been counted so far this year. In 2017, 32,638 adult spring Chinook were counted at Willamette Falls. This year's count is about 73.2% of the 2017 count and 69.7% of the 10-year average count of 34,279. As of July 12th, a total of 35,726 adult summer Chinook have been counted at McNary Dam and 6,183 have been counted at Lower Granite Dam. The 2018 McNary Dam adult summer Chinook count is about 74.1% of the 2017 count and 61.5% the 10-year average count. The 2018 Lower Granite Dam adult summer Chinook count is about 87.2% of the 2017 count and 49.2% fewer fish than the 10-year average count.

The 2018 Bonneville Dam adult steelhead count of 14,662 is about 1.9 times greater than the 2017 count of 7,519, while being 47.2% of the 10-year average count of 31,086. The 2018 Bonneville Dam adult unclipped steelhead count of 6,930 is about 2.4 times greater than the 2017 count of 3,082, while being 50% of the 10-year average count of 13,744. This year's Lower Granite steelhead count of 4,901 is about 66.6% of the 2017 count of 7,361 and 51.5% of the 10-year average count of 9,514. The 2018 Lower Granite Dam adult unclipped steelhead count of 1,461 has 1,621 fewer fish than the 2017 count of 3,082 and has 2,477 fewer fish than the 10-year average count of 3,938. At Willamette Falls, the 2018 count for steelhead was 10,174 as of July 10th. This year's steelhead count is about 4 times greater than the 2017 count of 2,557, while being about 52.7% of the 10-year average count of 19,276.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 927 and 4,508 last week. The 2018 adult sockeye count at Bonneville Dam of 186,367 is about 2.2 times greater than the 2017 count, while being about 60.6% of the 10-year average count. A total of 28,823 lampreys have been counted at

Bonneville Dam so far this year. The Bonneville 2018 lamprey count is about 53.3% of the 2017 count of 54,122, while being about 1.9 times greater than the 10-year average count of 15,011.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 6/30/2018 to 07/13/18

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2018	3,860,000	07-11-18	07-11-18	Little White Salmon River	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2018	950,000	07-09-18	07-11-18	Little White Salmon River	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2018	950,000	07-10-18	07-10-18	Willard Hatchery	Little White Salmon River	MCOL
Total					5,760,000					
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	North Toutle Hatchery	CH0	FA	2018	830,000	06-01-18	07-01-18	Green River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife Total					7,830,000					
Grand Total					13,590,000					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 7/14/2018 to 7/27/2018

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
No Releases Scheduled										

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
06/29/2018	165.6	0.1	164.9	0.0	176.5	36.7	177.0	26.7	182.5	35.3	185.7	52.4	183.9	66.7
06/30/2018	142.9	0.1	146.8	0.0	160.7	21.3	159.5	16.5	167.8	31.0	176.5	52.5	176.3	56.1
07/01/2018	128.3	0.1	128.6	0.0	133.9	20.3	131.4	12.2	139.7	26.3	146.4	20.2	143.3	22.8
07/02/2018	119.0	0.1	105.7	0.0	121.4	9.8	123.1	13.2	132.9	26.7	155.4	26.9	152.6	18.2
07/03/2018	111.4	0.1	113.1	0.0	116.6	9.8	114.7	11.5	122.3	23.6	122.1	18.8	120.3	12.1
07/04/2018	95.8	0.2	91.7	0.0	96.0	10.0	99.2	9.2	104.3	22.7	114.0	18.8	111.3	19.6
07/05/2018	89.2	0.1	95.9	0.0	102.6	9.9	104.7	9.1	114.0	22.8	121.1	18.7	117.6	19.7
07/06/2018	114.2	0.1	115.2	0.0	120.4	13.0	114.8	11.8	120.5	22.8	116.2	18.4	113.8	19.7
07/07/2018	108.5	0.1	109.2	0.0	119.1	14.0	118.8	11.7	127.7	22.8	128.3	20.0	124.0	20.0
07/08/2018	81.8	0.1	82.7	0.0	91.2	9.9	93.5	9.1	102.4	17.7	122.7	19.5	121.3	19.9
07/09/2018	126.0	0.1	125.6	0.0	131.9	15.3	125.0	13.5	128.4	28.5	109.9	20.2	103.1	21.5
07/10/2018	119.8	0.2	114.5	0.0	135.6	9.7	133.5	11.9	141.8	26.6	152.0	22.8	150.9	45.7
07/11/2018	126.8	0.2	130.3	0.0	117.8	14.7	119.5	12.3	126.0	25.8	149.8	18.9	146.3	18.8
07/12/2018	133.9	0.2	130.7	0.0	133.6	10.2	130.7	13.1	137.8	26.4	140.9	18.4	137.0	19.7

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

Date	Dworshak		Brownlee Inflow	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/29/2018	5.3	1.0	---	---	50.5	18.9	48.9	14.8	48.2	16.5	50.9	22.3
06/30/2018	4.9	0.6	---	---	46.0	17.5	42.8	12.8	41.5	17.0	42.2	12.6
07/01/2018	4.8	0.6	---	---	43.7	17.5	41.4	12.3	42.5	16.7	44.7	26.9
07/02/2018	4.9	0.6	---	---	39.7	17.5	39.6	12.0	40.6	17.0	43.1	33.4
07/03/2018	5.4	0.4	---	---	41.1	17.6	42.3	12.7	41.4	16.7	43.4	18.8
07/04/2018	5.3	0.0	---	---	42.0	17.5	41.4	12.5	42.7	17.1	44.9	13.4
07/05/2018	5.3	0.0	---	---	37.9	17.6	37.1	11.1	37.6	16.7	39.9	25.7
07/06/2018	8.3	0.6	---	---	42.6	17.6	42.3	12.7	43.1	17.1	46.5	34.1
07/07/2018	9.5	0.0	---	---	43.0	17.6	42.1	12.6	43.3	16.6	42.1	16.3
07/08/2018	9.5	0.0	---	---	42.5	17.6	43.8	13.1	42.9	17.5	46.7	13.9
07/09/2018	11.1	1.6	---	---	41.2	17.6	38.1	11.5	39.6	16.7	41.4	27.6
07/10/2018	12.8	3.2	---	---	44.9	17.6	45.4	13.6	45.1	17.0	48.1	33.5
07/11/2018	12.8	3.3	---	---	43.1	17.6	42.3	12.7	43.1	16.9	43.1	17.9
07/12/2018	12.8	3.3	---	---	43.4	17.7	43.6	13.1	44.6	17.1	45.8	13.7

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
06/29/2018	247.5	123.8	253.2	101.3	236.4	94.6	253.8	95.7	51.5	94.1
06/30/2018	243.2	121.7	228.0	88.4	213.2	85.6	243.5	90.3	37.1	103.7
07/01/2018	205.3	102.7	200.9	60.4	187.7	75.2	214.6	94.8	8.3	99.1
07/02/2018	189.4	94.7	178.3	55.6	159.7	63.6	175.7	100.3	0.0	63.0
07/03/2018	194.3	97.2	196.4	78.6	183.5	73.3	202.4	95.4	0.0	94.6
07/04/2018	170.8	85.6	158.8	62.1	147.7	59.0	170.7	89.8	0.0	68.4
07/05/2018	168.6	84.5	159.7	48.2	144.1	57.8	149.5	91.5	0.0	45.6
07/06/2018	181.5	90.8	168.7	52.6	158.4	63.3	176.8	99.7	0.0	64.7
07/07/2018	168.4	84.3	160.5	64.2	146.1	58.4	160.8	95.3	0.0	53.1
07/08/2018	175.0	87.5	169.6	65.6	153.5	61.6	166.4	90.0	0.1	63.9
07/09/2018	168.1	84.3	155.3	46.7	145.3	57.7	167.1	94.3	0.0	60.4
07/10/2018	185.0	92.7	174.4	55.0	159.1	63.7	165.2	100.0	0.0	52.8
07/11/2018	200.3	100.2	200.0	80.1	184.2	73.5	194.1	95.3	0.0	86.4
07/12/2018	206.8	103.5	194.8	76.1	178.1	70.9	198.0	89.6	3.8	92.2

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											
Little Goose Dam											
	07/02/18	Chinook + Steelhead	80*	0	0			0	0	0	0
	07/09/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	07/04/18	Chinook + Steelhead	75*	0	0			0	0	0	0
	07/11/18	Chinook + Steelhead	55*	0	0			0	0	0	0
McNary Dam											
	07/01/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/03/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/07/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/09/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	06/30/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/03/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/07/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/10/18	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Rock Island Dam											
	07/03/18	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	07/05/18	Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0	0
	07/10/18	Chinook + Steelhead	100	4	4	4.00%	0.00%	3	1	0	0
	07/12/18	Chinook + Steelhead	100	4	4	4.00%	0.00%	3	1	0	0

Samples marked with an asterisk indicate the sample size criteria of 100 fish was not met due to insufficient numbers of fish to sample that day. The inability to collect an adequate sample precludes the accurate estimation of the percentage of fish with GBT, and no estimate is provided.

The action criteria for interruption of the voluntary spill for fish program is defined as either 15% of examined fish showing signs of gas bubble trauma in their non-paired fins, or 5% of the fish examined showing severe signs of gas bubble trauma in their non-paired fins where severe signs constitute >25% of the surface area of the fin is occluded by gas bubbles, corresponding to ranks of 3 or 4.

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

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
06/28									117.9	118.2	118.4	24	116.4	116.7	116.9	24	116.2	116.6	116.7	24	113.5	113.8	114.5	24	06/28
06/29									117.0	117.5	117.4	24	115.5	116.2	116.1	24	115.1	115.9	115.4	24	114.2	114.3	114.5	24	06/29
06/30									115.8	117.0	116.5	24	114.6	115.5	115.1	24	114.5	115.2	114.8	24	113.9	114.1	114.2	24	06/30
07/01									114.7	115.6	115.3	24	114.7	115.1	115.9	24	114.3	114.7	115.1	24	113.7	114.1	114.5	24	07/01
07/02									113.5	114.4	113.9	24	114.0	114.4	115.2	24	113.5	114.3	114.0	24	112.9	113.7	113.6	24	07/02
07/03									112.9	113.6	113.5	24	113.0	113.6	114.4	24	113.4	113.8	114.3	24	112.6	113.2	113.6	24	07/03
07/04									109.9	112.5	111.7	24	113.1	114.1	115.3	24	112.5	113.6	113.3	24	112.1	112.8	112.9	24	07/04
07/05									109.3	109.6	110.6	24	112.8	113.8	116.3	24	113.5	113.9	114.4	24	112.7	112.9	113.2	24	07/05
07/06									110.8	111.2	111.6	24	112.5	113.2	115.2	24	113.2	113.9	113.8	24	112.6	113.0	113.7	24	07/06
07/07									109.5	111.1	110.6	24	112.0	112.6	114.1	24	113.2	113.4	113.8	24	112.6	112.7	113.1	24	07/07
07/08									109.0	109.8	109.9	24	112.6	113.8	115.6	24	112.7	113.4	113.6	24	112.1	112.6	112.8	24	07/08
07/09									109.7	110.0	110.4	24	111.5	112.4	114.5	24	112.0	113.0	113.3	24	111.7	112.4	112.4	24	07/09
07/10									108.8	109.9	109.5	24	110.8	111.2	112.1	24	111.8	112.7	112.4	24	111.3	112.1	112.1	24	07/10
07/11									109.0	109.3	109.5	23	110.0	110.5	113.1	23	110.9	111.8	111.4	23	110.5	111.4	111.5	23	07/11

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
06/28	113.9	114.0	114.3	18	112.4	118.8	119.8	24	118.6	119.6	120.3	24	122.3	123.8	125.8	24	117.6	119.9	119.9	24	122.0	123.1	124.5	23	06/28
06/29	113.3	114.0	113.8	24	117.7	118.9	120.5	24	116.8	117.8	117.4	24	119.3	120.9	124.4	21	116.6	117.4	120.3	23	120.6	121.6	123.5	20	06/29
06/30	112.8	113.6	113.7	24	115.4	117.0	121.1	24	116.4	117.0	117.5	24	118.4	119.4	122.4	22	115.7	117.1	118.5	23	118.8	121.2	120.9	21	06/30
07/01	112.8	113.2	113.7	24	115.9	118.0	127.8	24	114.8	116.0	116.0	24	116.7	117.8	117.9	22	114.0	117.0	115.2	24	117.9	120.0	119.3	22	07/01
07/02	112.0	112.5	113.0	21	111.0	117.7	113.8	24	111.9	114.7	113.0	24	115.3	116.8	116.3	24	111.9	113.9	114.1	24	116.5	117.9	118.1	23	07/02
07/03	111.8	112.3	112.7	24	113.3	113.6	114.1	24	113.4	114.0	114.5	24	115.4	115.9	116.7	21	112.3	113.7	114.2	23	115.7	117.1	117.6	19	07/03
07/04	112.5	113.2	113.5	24	114.0	115.0	117.3	24	111.8	112.8	112.0	23	113.3	115.8	114.7	20	111.8	113.7	113.1	21	115.8	117.1	117.0	17	07/04
07/05	113.0	113.6	114.1	24	114.4	115.0	115.7	24	113.0	113.6	114.2	24	114.1	115.3	116.2	22	111.5	112.6	113.4	23	115.4	116.0	116.6	21	07/05
07/06	112.8	113.4	113.9	24	114.5	115.6	118.2	24	113.9	114.4	114.6	24	115.2	116.6	117.0	21	112.6	113.5	114.8	21	116.0	116.5	117.4	21	07/06
07/07	111.9	112.9	113.0	24	114.2	115.7	116.9	24	113.1	114.3	113.7	24	115.1	116.4	116.4	23	113.0	113.9	113.9	23	116.4	116.9	117.1	21	07/07
07/08	112.6	113.7	114.5	24	113.9	114.9	115.5	24	113.7	114.7	115.3	24	114.7	115.6	116.0	23	112.5	113.3	114.0	23	116.2	116.9	117.1	23	07/08
07/09	112.8	113.7	114.4	24	114.7	116.3	119.3	24	114.3	114.9	115.2	24	116.0	117.4	117.7	20	113.6	114.2	115.2	22	117.5	118.4	119.0	20	07/09
07/10	111.3	113.2	111.9	24	112.6	116.1	113.5	24	112.9	114.6	114.1	24	115.9	117.3	116.9	22	111.6	114.2	113.4	23	116.8	118.7	118.5	19	07/10
07/11	110.9	111.9	112.3	23	112.8	114.6	115.9	23	113.0	113.4	113.9	23	115.0	116.3	116.7	19	112.0	113.3	114.3	22	116.3	117.1	117.7	15	07/11

FISH PASSAGE CENTER

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

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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	
06/28	114.9	115.9	115.7	24	122.0	122.8	125.8	24	116.2	117.6	118.3	24	117.9	118.6	119.0	24					06/28
06/29	113.7	114.3	114.3	24	115.7	121.5	125.3	24	115.6	117.4	116.8	24	116.4	118.3	117.4	24					06/29
06/30	114.3	114.5	114.7	24	117.1	120.1	129.3	24	114.0	116.3	120.7	24	115.1	116.4	116.8	24					06/30
07/01	112.7	114.3	113.7	24	113.1	114.0	113.8	24	112.6	117.7	120.3	24	112.9	116.4	116.6	24					07/01
07/02	110.6	112.1	111.5	24	111.6	112.8	113.3	24	109.5	111.3	110.8	24	110.7	111.8	111.3	24					07/02
07/03	112.4	113.8	114.7	24	112.0	112.5	113.4	24	108.0	108.9	110.0	24	109.1	110.7	110.6	24					07/03
07/04	113.6	114.3	115.3	24	113.4	113.9	114.9	24	111.0	111.5	111.9	24	111.3	111.6	111.8	24					07/04
07/05	114.4	115.5	117.1	24	113.4	113.9	114.5	24	112.6	113.1	114.0	24	112.1	112.8	113.0	24					07/05
07/06	112.6	115.4	113.3	24	113.1	113.6	113.9	24	111.7	113.1	112.5	24	111.8	112.7	112.2	24					07/06
07/07	112.5	113.1	114.0	24	113.3	113.7	114.0	24	110.9	111.7	112.4	24	111.2	111.7	111.8	24					07/07
07/08	113.6	115.5	116.6	24	113.1	113.3	113.7	24	112.4	112.9	113.5	24	111.6	111.9	112.1	24					07/08
07/09	114.0	115.5	115.5	24	114.2	114.6	115.3	24	112.6	113.1	113.1	24	111.8	112.0	112.3	24					07/09
07/10	110.6	114.6	113.6	24	112.0	114.5	114.2	24	110.8	112.4	111.6	24	112.3	113.5	114.9	24					07/10
07/11	111.8	114.1	115.6	24	112.2	112.8	113.2	24	110.0	110.9	111.9	24	109.9	111.0	110.8	24					07/11

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	
06/28	102.9	104.7	104.9	24	98.1	100.6	99.2	24	103.0	104.2	104.1	24	102.6	104.7	105.2	24	101.8	102.2	102.7	24	113.6	113.9	114.3	24	06/28
06/29	103.4	103.8	104.6	24	97.2	98.7	98.1	24	102.6	103.3	104.0	24	102.7	104.5	106.0	24	101.2	101.5	101.7	24	115.1	115.3	116.3	24	06/29
06/30	102.3	103.7	103.6	24	95.3	97.6	97.0	24	102.8	103.8	104.7	24	103.2	105.3	107.0	24	101.0	101.4	101.4	24	114.7	115.1	115.3	24	06/30
07/01	102.3	103.3	104.0	24	93.3	94.5	94.7	24	102.8	103.7	104.6	24	103.2	105.1	106.7	24	100.4	101.2	100.8	24	114.7	115.0	115.7	24	07/01
07/02	102.3	103.3	104.6	24	100.1	103.1	103.6	18	102.5	103.4	104.2	24	102.6	104.7	105.2	24	100.2	100.5	101.0	24	114.6	114.9	115.0	24	07/02
07/03	102.0	103.5	104.8	24	102.0	102.9	103.2	24	102.2	103.1	103.8	24	102.6	104.6	105.7	24	100.3	100.8	100.9	24	114.8	115.0	115.5	24	07/03
07/04	101.0	101.5	102.1	24	101.9	103.0	103.8	24	102.6	103.6	104.4	24	103.0	105.1	106.5	24	101.6	102.3	104.0	24	115.0	115.4	116.8	24	07/04
07/05	101.4	102.0	102.6	24	102.6	103.8	104.8	24	103.0	104.2	105.2	24	103.9	106.4	108.4	24	100.8	102.4	101.8	24	115.3	115.6	116.2	24	07/05
07/06	102.9	105.3	107.8	24	103.2	104.8	106.5	24	102.6	103.8	104.2	24	103.4	105.9	106.6	24	99.3	100.4	99.8	24	114.5	115.2	115.9	24	07/06
07/07	100.7	104.1	101.3	24	102.4	104.5	104.2	24	102.6	103.8	104.9	24	103.9	106.1	107.9	24	99.9	100.5	101.0	24	114.3	114.7	115.7	24	07/07
07/08	100.8	101.1	101.5	24	102.7	103.8	104.6	24	102.8	104.1	105.2	24	103.9	106.5	108.4	24	101.4	102.0	102.6	24	114.3	114.8	115.3	24	07/08
07/09	104.8	108.9	110.1	24	104.8	107.7	109.4	24	102.8	104.2	105.3	24	104.3	106.8	108.7	24	101.8	102.3	102.4	24	114.6	114.9	115.5	24	07/09
07/10	108.6	109.0	109.3	24	107.2	108.2	108.9	24	102.5	103.8	104.7	24	105.8	108.2	109.9	24	100.4	101.9	101.3	24	114.4	114.6	115.7	24	07/10
07/11	108.8	109.1	109.4	22	107.5	108.4	109.2	23	102.9	104.3	106.5	23	106.2	108.8	110.5	23	102.5	103.2	103.7	23	114.8	115.4	115.9	23	07/11

FISH PASSAGE CENTER

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

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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
06/28	110.4	111.0	114.5	23	114.2	116.6	118.5	23	111.3	111.8	112.0	19	116.3	116.8	117.3	19	113.4	113.6	113.9	24	115.2	115.8	116.2	24	06/28
06/29	109.1	110.3	110.5	24	111.6	114.2	111.9	24	111.2	111.8	111.7	24	115.8	116.5	116.6	24	112.7	113.5	113.1	24	112.5	114.8	115.3	24	06/29
06/30	109.1	109.6	109.6	24	111.8	112.1	112.2	24	110.1	111.0	110.8	24	116.0	116.2	116.7	24	111.7	112.8	112.3	24	111.5	111.9	112.2	24	06/30
07/01	108.9	109.2	109.4	24	112.1	112.3	112.5	24	110.9	111.3	112.2	24	116.3	116.5	116.9	24	111.6	111.8	112.0	24	112.7	113.7	114.2	24	07/01
07/02	108.0	109.0	108.4	24	112.1	112.3	112.4	24	109.8	110.8	110.4	24	116.2	116.4	116.8	24	111.7	111.9	112.0	24	112.8	113.7	113.7	24	07/02
07/03	107.7	108.2	108.4	24	112.2	112.3	112.4	24	108.9	109.5	109.5	24	115.8	116.3	116.7	24	110.6	111.7	111.1	24	111.7	112.4	113.3	24	07/03
07/04	107.7	108.1	108.3	24	112.5	112.8	112.9	24	109.2	109.5	109.8	24	115.7	116.1	116.7	24	111.3	111.8	112.2	24	111.1	111.5	112.1	24	07/04
07/05	108.1	108.2	108.4	24	112.7	112.8	113.1	24	109.5	109.6	110.0	24	115.9	116.3	116.8	24	111.1	111.8	111.5	24	112.0	113.1	114.0	24	07/05
07/06	107.9	108.2	108.9	24	112.3	112.8	112.6	24	109.5	109.9	110.2	24	116.1	116.5	117.0	24	111.1	111.3	111.7	24	113.0	114.2	115.3	24	07/06
07/07	107.9	108.4	108.8	24	112.2	112.5	112.8	24	110.4	110.7	111.3	24	115.8	116.3	116.7	24	111.1	111.4	111.6	24	111.7	113.3	113.0	24	07/07
07/08	110.5	111.8	113.4	24	113.1	113.5	113.7	24	111.2	111.4	111.7	24	115.8	116.4	116.7	24	112.6	113.0	113.5	24	111.5	112.1	112.6	24	07/08
07/09	111.9	112.1	112.3	24	113.4	113.7	113.9	24	111.3	111.4	112.0	24	116.1	116.4	117.3	24	112.9	113.3	113.6	24	112.5	113.6	114.4	24	07/09
07/10	110.5	111.9	111.3	24	112.5	113.7	113.1	24	111.0	111.4	111.5	24	116.4	117.3	118.4	24	112.5	113.3	113.2	24	112.9	114.1	114.7	24	07/10
07/11	109.9	110.3	110.3	23	113.0	113.4	113.6	23	111.4	111.6	111.9	23	116.3	116.9	117.1	23	112.5	112.7	112.8	23	111.7	113.8	112.6	23	07/11

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
06/28	111.6	112.0	112.3	24	117.7	119.5	118.6	24	108.6	110.4	110.1	24	114.1	117.0	117.3	24	108.7	110.1	110.7	24	114.4	114.9	115.2	24	06/28
06/29	111.5	112.1	112.2	24	117.5	117.9	118.7	24	107.1	108.0	107.6	24	116.5	117.3	117.5	24	108.2	109.6	110.4	24	114.1	114.9	115.4	24	06/29
06/30	111.7	112.0	112.2	24	117.3	117.7	118.1	24	107.1	107.4	107.7	24	115.0	116.7	116.5	24	109.2	109.8	109.6	24	114.5	115.0	115.5	24	06/30
07/01	111.2	111.7	111.9	24	116.6	117.2	117.1	24	106.6	107.3	107.2	24	113.7	115.4	114.2	24	108.0	109.2	108.8	24	113.9	114.7	114.7	24	07/01
07/02	110.1	111.2	111.3	23	116.4	116.6	117.1	23	105.5	106.8	106.5	24	113.6	113.9	114.2	24	105.7	107.5	106.4	24	112.1	113.3	112.5	24	07/02
07/03	109.4	109.8	110.0	24	116.0	117.0	117.5	24	105.3	106.0	107.4	24	114.8	116.0	117.2	24	106.6	107.9	110.0	24	113.2	114.2	114.6	24	07/03
07/04	110.0	110.6	112.0	24	115.3	116.3	116.8	24	106.8	106.9	107.3	24	113.6	115.0	115.1	24	111.0	111.3	111.7	24	115.2	116.2	116.8	24	07/04
07/05	108.1	109.2	109.3	24	115.4	116.0	116.5	24	106.2	106.8	106.8	24	113.8	114.2	114.5	24	110.1	110.9	110.8	24	114.5	115.8	115.8	24	07/05
07/06	109.0	109.6	110.1	24	115.3	116.8	118.1	24	105.5	106.3	106.2	24	113.7	114.4	114.9	24	108.1	110.1	108.8	24	113.9	114.8	114.7	24	07/06
07/07	108.1	109.1	109.8	24	114.5	115.9	116.3	24	105.1	105.6	105.7	24	113.0	113.8	113.5	24	107.5	107.8	108.2	24	113.1	114.1	114.8	24	07/07
07/08	110.6	110.9	112.0	24	115.3	115.9	116.2	24	105.8	106.5	106.8	24	113.0	114.0	114.6	24	109.5	110.3	110.6	24	114.3	115.0	115.5	24	07/08
07/09	110.6	111.3	111.9	24	114.8	115.7	116.1	24	106.4	106.8	107.3	24	113.8	114.1	114.4	24	109.2	110.3	109.9	24	113.9	115.0	114.6	24	07/09
07/10	108.4	110.4	109.3	24	114.3	115.7	116.1	24	105.8	106.7	106.6	24	113.7	114.3	114.7	24	106.1	108.5	107.0	24	112.6	113.4	113.6	24	07/10
07/11	108.7	108.9	110.3	23	115.5	116.3	116.8	23	106.2	106.6	107.0	23	113.6	115.0	116.4	23	107.9	109.4	110.8	23	113.5	114.7	115.2	23	07/11

FISH PASSAGE CENTER

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

[INTERNAL PURPOSES ONLY]

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Total Dissolved Gas Data at Mid-Columbia Sites

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Islid.				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	
06/28	109.2	111.4	110.6	24	113.5	113.9	114.8	24	111.1	112.7	113.6	24				0	06/28
06/29	109.1	110.0	110.2	24	113.1	113.7	114.0	24	111.2	112.7	112.6	24				0	06/29
06/30	109.9	110.0	110.2	24	113.1	113.7	113.7	24	111.3	112.3	113.1	24				0	06/30
07/01	109.4	109.9	109.9	24	113.8	114.3	115.1	24	111.3	112.4	113.8	24				0	07/01
07/02	107.4	109.2	108.6	24	111.5	113.3	114.2	24	110.0	112.2	113.3	24				0	07/02
07/03	107.9	108.6	109.1	24	110.4	114.7	115.1	24	112.2	114.1	115.1	24				0	07/03
07/04	109.2	109.6	110.7	24	114.1	114.6	114.8	24	109.4	114.2	113.0	24				0	07/04
07/05	112.0	112.6	112.9	24	116.4	116.7	117.3	24	112.8	115.4	116.9	24				0	07/05
07/06	111.0	112.3	112.1	24	116.7	117.8	118.7	24	115.3	116.3	117.9	24				0	07/06
07/07	109.1	111.1	109.9	24	116.1	117.1	117.7	24	113.6	116.2	116.6	24				0	07/07
07/08	110.4	111.2	111.7	24	115.9	116.8	117.2	24	114.7	115.7	116.7	24				0	07/08
07/09	109.7	111.2	110.2	24	115.3	116.0	117.6	24	112.7	115.6	114.9	24				0	07/09
07/10	107.5	109.4	108.5	24	116.3	116.8	118.0	24	113.3	115.4	117.5	24				0	07/10
07/11	109.0	110.3	111.2	23	115.8	116.7	117.2	23	114.7	115.9	116.2	23	116.8	116.8	117.1	10	07/11

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)
06/28/2018		4			29	29	57	0	0		0
06/29/2018		7			15	0	90	0		0	0
06/30/2018					16	0	63	0	408		0
07/01/2018					17	14	18	0		0	0
07/02/2018		9			0	0	33	0	410		0
07/03/2018		5			0	1	0	0		0	0
07/04/2018					0	0	34	0	0		0
07/05/2018					0	0	17	0		0	0
07/06/2018		3			19	0	34	0	0		0
07/07/2018					0	0	0	0		0	63
07/08/2018					0	0	16	0	2		0
07/09/2018		0			0	0	0	0		0	0
07/10/2018					35	1	16	0	0		0
07/11/2018					0	0	0	0		0	0
07/12/2018					0	0	0	0	0		0
Total:	0	28	0	0	131	45	378	0	820	0	63
# Days:	0	6	0	0	15	15	15	15	8	7	15
Average:	0	5	0	0	9	3	25	0	103	0	4
YTD:	23,452	41,210	21,824	12,792	4,639,013	2,838,048	2,045,219	49,702	1,494,206	1,257,304	1,890,717

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 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)
06/28/2018		0			3,025	5,195	2,030	219	99,507		42,348
06/29/2018		0			3,964	8,453	1,935	210		41,826	26,889
06/30/2018					3,734	2,771	1,958	363	67,308		26,496
07/01/2018					4,152	3,879	2,767	497		30,692	18,114
07/02/2018		0			2,674	3,851	1,938	339	81,006		27,036
07/03/2018		0			2,579	3,558	2,232	210		36,968	14,443
07/04/2018					4,011	3,457	4,774	218	52,774		18,981
07/05/2018					3,263	4,484	6,271	240		21,013	25,561
07/06/2018		0			2,227	4,447	2,575	219	54,921		16,741
07/07/2018					1,304	2,851	2,465	307		21,345	10,865
07/08/2018					3,088	4,059	1,327	409	85,309		9,764
07/09/2018		0			4,541	4,233	1,852	636		37,314	10,836
07/10/2018					4,168	4,632	2,961	750	108,621		10,019
07/11/2018					1,898	4,745	2,416	793		48,565	7,818
07/12/2018					2,983	3,054	1,664	545	85,656		14,114
Total:	0	0	0	0	47,611	63,669	39,165	5,955	635,102	237,723	280,025
# Days:	0	6	0	0	15	15	15	15	8	7	15
Average:	0	0	0	0	3,174	4,245	2,611	397	79,388	33,960	18,668
YTD:	0	6	89	192	808,931	880,938	469,175	28,979	1,977,097	770,023	2,175,993

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)
06/28/2018		0			0	29	28	6	516		281
06/29/2018		0			15	38	30	6		0	180
06/30/2018					0	14	47	8	0		689
07/01/2018					0	0	0	8		0	334
07/02/2018		0			0	14	0	3	0		149
07/03/2018		0			0	0	34	4		0	0
07/04/2018					9	0	17	4	0		21
07/05/2018					0	14	52	9		0	0
07/06/2018		0			0	14	0	5	0		0
07/07/2018					0	0	0	3		0	63
07/08/2018					8	0	16	13	0		0
07/09/2018		0			9	7	0	8		0	0
07/10/2018					18	0	0	6	0		0
07/11/2018					0	0	0	10		0	0
07/12/2018					0	0	0	6	0		0
Total:	0	0	0	0	59	130	224	99	516	0	1,717
# Days:	0	6	0	0	15	15	15	15	8	7	15
Average:	0	0	0	0	4	9	15	7	65	0	114
YTD:	0	0	1,224	1,365	262,479	215,219	42,470	44,177	226,100	119,790	477,310

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)
06/28/2018		0			117	160	28	13	0		281
06/29/2018		2			15	210	15	8		0	180
06/30/2018					32	86	0	3	0		0
07/01/2018					17	86	0	3		0	0
07/02/2018		2			34	57	33	8	0		149
07/03/2018		0			36	3	0	1		0	0
07/04/2018					0	14	0	1	0		0
07/05/2018					37	72	17	5		0	0
07/06/2018		1			0	43	0	2	0		0
07/07/2018					0	29	34	1		0	0
07/08/2018					0	29	0	1	0		0
07/09/2018		0			9	29	76	3		0	0
07/10/2018					0	59	0	9	0		0
07/11/2018					16	0	0	3		0	5
07/12/2018					0	0	0	3	0		0
Total:	0	5	0	0	313	877	203	64	0	0	615
# Days:	0	6	0	0	15	15	15	15	8	7	15
Average:	0	1	0	0	21	58	14	4	0	0	41
YTD:	723	27,447	3,888	5,328	3,924,703	3,004,167	1,942,657	24,894	240,966	681,267	356,557

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)
06/28/2018		0			0	0	0	2	0		141
06/29/2018		0			0	2	0	3		0	0
06/30/2018					0	0	0	6	0		0
07/01/2018					0	0	0	2		0	0
07/02/2018		0			0	0	0	1	0		0
07/03/2018		0			18	0	0	3		0	0
07/04/2018					0	0	0	4	0		0
07/05/2018					0	0	0	0		0	0
07/06/2018		0			0	0	0	2	0		0
07/07/2018					0	1	0	3		0	0
07/08/2018					0	0	0	0	411		0
07/09/2018		0			0	0	0	0		0	0
07/10/2018					0	0	16	0	414		0
07/11/2018					0	0	0	1		0	0
07/12/2018					0	0	0	1	0		0
Total:	0	0	0	0	18	3	16	28	825	0	141
# Days:	0	0	0	0	1	0	1	2	103	0	9
Average:	0	0	0	0	1	0	1	2	103	0	9
YTD:	0	0	4	115	260,629	120,845	58,616	76,223	1,527,701	383,702	741,292

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)
06/28/2018		0			11	0	20	1	200		50
06/29/2018		0			3	0	20	0		500	0
06/30/2018					1	0	30	0	0		0
07/01/2018					3	50	0	1		200	67
07/02/2018		0			2	50	10	1	200		133
07/03/2018		0			1	0	10	0		250	134
07/04/2018					1	0	20	0	200		0
07/05/2018					2	0	0	1		150	67
07/06/2018		0			3	0	60	0	0		0
07/07/2018					3	0	0	0		0	25
07/08/2018					1	5	20	0	200		0
07/09/2018		0			1	15	0	1		0	0
07/10/2018					0	20	0	1	200		0
07/11/2018					1	10	10	0		0	77
07/12/2018					1	20	0	1	0		0
Total:	0	0	0	0	34	170	200	7	1,000	1,100	553
# Days:	0	6	0	0	15	16	18	15	8	7	16
Average:	0	0	0	0	2	11	11	0	125	157	35
YTD:		1	3		440	35,679	56,750	364	219,162	227,128	26,890

- 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

6/28/2018 12:00:00 AM TO 7/12/2018 12:00:00 AM

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	28,231	80	35	10	195	28,746
Sum of Number Barged	25,362	80	35	9	194	25,874
Sum of Number Bypassed	956	0	0	1	0	957
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	38	0	0	0	0	38
Sum of Facility Morts	110	0	0	0	1	112
Sum of Reseach Morts	14	0	0	0	0	14
Sum of Total Project Mort	162	0	0	0	1	164

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	42,802	32	85	2	573	44,067
Sum of Number Barged	40,512	32	85	0	568	41,765
Sum of Number Bypassed	2	0	0	0	0	2
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	25	0	0	0	0	25
Sum of Facility Morts	163	0	0	2	5	175
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	188	0	0	2	5	200

FISH PASSAGE CENTER

Two Week Transportation Summary Report

6/28/2018 12:00:00 AM TO 7/12/2018 12:00:00 AM

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	23,440	240	140	10	120	24,070
Sum of Number Barged	22,397	240	139	10	120	23,026
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	1	0	0	0	0	1
Sum of Facility Morts	36	0	1	0	0	37
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	37	0	1	0	0	38

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	94,473	352	260	22	888	96,883
Sum of Number Barged	88,271	352	259	19	882	90,665
Sum of Number Bypassed	958	0	0	1	0	959
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	64	0	0	0	0	64
Sum of Facility Morts	309	0	1	2	6	324
Sum of Reseach Morts	14	0	0	0	0	14
Sum of Total Project Mort	387	0	1	2	6	402

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	498339	3041143	182801	188701	2522913	8956810
Sum of Number Barged	481023	2429167	179198	184065	1811292	6896037
Sum of Number Bypassed	14636	610813	3539	4465	711353	2056159
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	94	58	0	9	44	249
Sum of Facility Morts	810	1063	64	162	189	2477
Sum of Reseach Morts	25	42	0	0	35	137
Sum of Total Project Mort	929	1163	64	171	268	2863

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	527409	1857031	137065	74659	1969420	6535004
Sum of Number Barged	520688	1546147	136346	66127	1357357	4984022
Sum of Number Bypassed	854	306206	407	7716	611659	1538501
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	79	40	3	12	14	162
Sum of Facility Morts	3688	4638	309	804	390	10219
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	3767	4678	312	816	404	10381

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Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	283978	1218048	24940	35300	1178477	3919220
Sum of Number Barged	282794	1018153	24837	33654	926162	3211762
Sum of Number Bypassed	0	199433	100	1598	252167	705465
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	7	7	0	3	7	31
Sum of Facility Morts	171	455	3	45	141	956
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	178	462	3	48	148	987

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	1309726	6116222	344806	298660	5670810	19411034
Sum of Number Barged	1284505	4993467	340381	283846	4094811	15091821
Sum of Number Bypassed	15490	1116452	4046	13779	1575179	4300125
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	180	105	3	24	65	442
Sum of Facility Morts	4669	6156	376	1011	720	13652
Sum of Reseach Morts	25	42	0	0	35	137
Sum of Total Project Mort	4874	6303	379	1035	820	14231

Cumulative Adult Passage at Mainstem Dams Through: 07/12

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	07/12	87894	6456	83624	18110	152393	25835	54004	3547	77008	9211	87005	18584	0	0	0	0	0	0
TDA	07/12	57935	4793	58310	12497	119227	21697	43245	3030	60371	7792	70623	14306	0	0	0	0	0	0
JDA	07/12	50572	5053	46675	12475	103731	20380	37247	3519	52672	5980	62202	13409	0	0	0	0	0	0
MCN	07/12	44427	3472	44292	7020	94405	16297	35726	1943	48201	3865	56471	9775	0	0	0	0	0	0
IHR	07/12	32600	2197	28306	6949	68113	11204	5479	474	8128	1901	16882	4353	0	0	0	0	0	0
LMN	07/11	35398	3020	28545	8270	68100	11017	5349	586	6954	2841	17001	5011	0	0	0	0	0	0
LGS	07/12	31834	2486	26598	8335	63992	12109	6453	502	7493	3091	16397	5401	0	0	0	0	0	0
LGR	07/12	31161	2948	27357	8256	62850	13009	6183	683	7089	2950	14405	5503	0	0	0	0	0	0
PRD	07/10	7067	949	7268	783	18018	1858	28032	1064	35349	833	36216	1359	0	0	0	0	0	0
WAN	07/10	8071	964	6612	484	17542	2163	24685	585	32745	687	32533	1125	0	0	0	0	0	0
RIS	07/11	7894	997	8080	564	18255	2598	25277	531	35104	474	32092	1782	0	0	0	0	0	0
RRH	07/11	5919	807	5864	406	8195	1153	19157	260	22986	268	20799	986	0	0	0	0	0	0
WEL	07/11	7500	976	6589	820	8670	1609	9643	295	11366	184	12279	656	0	0	0	0	0	0
WFA	07/10	23906	1944	32638	2244	34279	1513	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey				
		2018		2017		10-Yr Avg.		10-Yr		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.	2018	2017
BON	07/12	1	-1	0	0	0	0	186367	83824	307335	14662	7519	31086	6930	3082	13744	28823	54122	15011		
TDA	07/12	4	0	0	0	0	0	144905	60356	256898	4905	2544	14843	2386	1087	7021	5932	15058	3501		
JDA	07/12	0	0	0	0	0	1	159573	62030	245464	3042	1466	13290	1842	985	5866	3869	9788	2348		
MCN	07/12	-4	0	0	0	1	0	145165	53574	207478	1990	2860	9340	1068	937	3548	552	386	169		
IHR	07/12	-1	0	0	0	0	0	509	329	691	1877	1315	6909	697	593	2248	462	186	66		
LMN	07/11	0	0	0	0	0	0	187	223	684	1822	1620	10294	672	801	3410	199	30	6		
LGS	07/12	0	0	0	0	0	0	143	159	609	1589	1576	6069	502	702	2894	47	36	5		
LGR	07/12	0	0	0	0	0	0	118	135	535	4901	7361	9514	1461	3082	3938	23	1	0		
PRD	07/10	0	0	0	0	0	0	151544	51136	199529	287	182	636	0	0	0	1963	640	305		
WAN	07/10	0	0	0	0	0	0	146708	58146	175876	256	163	634	0	0	0	1099	496	165		
RIS	07/11	0	0	0	0	0	0	128901	51338	171261	236	137	424	141	64	225	373	99	20		
RRH	07/11	0	0	0	0	0	0	115656	28982	127008	163	163	503	70	45	292	179	37	8		
WEL	07/11	0	0	0	0	0	0	95369	20949	99259	175	86	166	65	62	100	115	8	0		
WFA	07/10	0	2	117	117	0	0	0	0	0	10174	2557	19276	2094	730	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.

