



Fish Passage Center

Weekly Report #18-16

June 22, 2018

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 69% and 167% of average at individual sub-basins over June. Precipitation above The Dalles has been 94% of average over June. Over the 2018 water year, precipitation has ranged between 89% and 115% of average.

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

Location	Water Year 2018 June 1-21, 2018		Water Year 2018 October 1, 2017 to June 21, 2018	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	2.02	87	31.7
Snake River Above Ice Harbor	1.42	115	19.0	96
Columbia Above The Dalles	1.41	94	22.8	98
Kootenai	1.72	69	30.6	100
Clark Fork	3.31	167	26.5	117
Flathead	1.98	77	32.8	111
Pend Oreille River Basin above Waneta Dam	2.42	108	29.8	109
Salmon River Basin	2.46	142	25.2	102
Upper Snake Tributaries	1.86	141	22.6	101
Clearwater	3.08	138	40.9	115
Willamette River above Portland	1.69	89	54.2	89

Table 2 displays the June 21st ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 21st ESP forecast at The Dalles between April and August is 104,637 Kaf (120% of average).

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

Location	June 21, 2018 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	120	104,637
Grand Coulee (Apr-Aug)	121	68,471
Libby Res. Inflow, MT (Apr-Aug)	111 123**	6,561 7,213**
Hungry Horse Res. Inflow, MT (Apr-Aug)	148	2,856
Lower Granite Res. Inflow (Apr- July)	118	23,513
Brownlee Res. Inflow (Apr-July)	109	5,984
Dworshak Res. Inflow (Apr-July)	126 122**	3,056 2,966**

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1284.6 feet (6-21-18) and has refilled 3.6 feet over the last week. Outflows at Grand Coulee have ranged between 114.1 Kcfs and 153.4 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2437.6 feet (6-21-18) and has refilled 1.4 feet over the past week. Daily average outflows at Libby Dam have been 15.0-17.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3556.2 feet (6-21-18) and has refilled 0.6 feet last week. Outflows at Hungry Horse have been 6.6-9.4 Kcfs over the last week.

Dworshak is currently at an elevation of 1598.8 feet (6-21-18) and continues to refill, filling 3.6 feet over last week. Dworshak outflows have been 2.2-4.3 Kcfs.

The Brownlee Reservoir was at an elevation of 2076.0 feet on June 21th, 2018 and has refilled 2.3 feet. Outflows at Hells Canyon have ranged between 9.8 and 22.0 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 is 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 60.7 Kcfs last week; over the spring season flows have averaged 111.3 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives is 260 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam (both began April 10th). Flows at McNary averaged 225.7 Kcfs last week at McNary and 354.4 Kcfs over the spring season. Flows averaged 158.2 Kcfs at Priest Rapids last week and 235.4 Kcfs over the spring season.

Spill

Flows in the Lower Snake River decreased from June 15th to Monday, June 18th but then increased from Monday, June 18th to Thursday, June 21st. Daily average flows at Lower Granite Dam ranged from 54.3 to 67.2 Kcfs this week. Flows in the Mid-Columbia and Upper Columbia rivers also decreased for the first portion of this week and increased in the latter portion of the week. Daily average flows at McNary and Rock Island dams ranged from 210.1 to 335.2 Kcfs and 124.8 to 173.3 Kcfs this week, respectively.

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 for spring spill operations at the Snake and Mid-Columbia river projects for the past week are summarized in Table 3. According to the FOP, 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 also provided in Table 3.

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

Project	Spring Spill Level (Day/Night)	Estimated Spill Caps (6/15-6/20)	Summer Spill Level (Day/Night)
Lower Granite	Gas Cap/Gas Cap	37-41 Kcfs	18 Kcfs/18 Kcfs
Little Goose	Gas Cap/Gas Cap	30-32 Kcfs	30%/30%
Lower Monumental	Gas Cap/Gas Cap	33-37 Kcfs	17 Kcfs/17 Kcfs
Ice Harbor	Gas Cap/Gas Cap	90 Kcfs	Jun. 21-Jul. 13: 45 Kcfs/ Gas Cap or 30%/30% Jul. 13-Aug. 31: 45 Kcfs/ Gas Cap
McNary	Gas Cap/Gas Cap	190 Kcfs	50%/50%
John Day	Gas Cap/Gas Cap	140 Kcfs	Jun. 16-Jul. 20: 30%/30% or 40%/40% Jul. 20-Aug. 31 – 30%/30%
The Dalles	Gas Cap/Gas Cap	105 Kcfs	40%/40%
Bonneville	Gas Cap/Gas Cap	121 Kcfs	95 Kcfs/95 Kcfs or 85 Kcfs/121 Kcfs

The estimated 115%/120% spill cap for Lower Granite Dam (LGR) was gradually increased from 37 Kcfs late

last week to 41 Kcfs on June 17th, but then decreased to 39.0 Kcfs on June 20th. Spill volumes through June 20th met or exceeded the daily prescribed 115%/120% spill caps. There was a period of approximately four hours on June 20th where spill at LGR was increased to 50 Kcfs in order to facilitate repairs to a transmission line. Total dissolved gas (TDG) in the LGR tailrace has been in the 117%-118% range this week, which is below the 120% waiver limit. Total dissolved gas in the Little Goose (LGS) forebay exceeded the 115% waiver limit on June 20th and 21st. It should be noted that the 12-hour average TDG on these two days (119%) was higher than any 12-hour average TDG that has been observed in the LGR tailrace all of this month. Summer spill of 18 Kcfs (24-hours) began at 0100 on June 21st. The daily average spill volume at LGR for June 21st was 19.2 Kcfs. The estimated spill cap for LGS started at 32 Kcfs this week but was decreased to 30 Kcfs on June 20th. Spill volumes through June 20th met or exceeded the daily prescribed 115%/120% spill caps. Total dissolved gas in the LGS tailrace has been in the 115%-117% range this week, which is well below the 120% waiver limit. Total dissolved gas in the Lower Monumental (LMN) forebay exceeded the 115% waiver limit on June 19th through June 21st. Summer spill of 30% of instantaneous flows (24-hours) began at 0100 on June 21st. The daily average spill volume at LGS on June 21st was 20.1 Kcfs (29.9%). The estimated spill cap for LMN started at 33 Kcfs, was increased to 35 Kcfs on June 16th, and was increased again to 37 Kcfs on June 17th where it remained until June 21st. Spill volumes through June 20th at LMN met the daily prescribed 115%/120% spill caps. Total dissolved gas in the LMN tailrace has been in the 115%-119% range this week, which is well below the 120% waiver limit. Total dissolved gas in the Ice Harbor (IHR) forebay exceeded the 115% waiver limit on June 20th and June 21st. Summer spill of 17 Kcfs (24-hours) began at 0100 on June 21st. The daily average spill volume at LMN on June 21st was 16.9 Kcfs. The estimated spill cap for IHR has been 90 Kcfs all of this week. Due to decreasing flows, spill volumes through June 20th were below the prescribed daily spill caps. Instead, spill was generally all flows in excess of powerhouse minimum requirements. Total dissolved gas in the IHR tailrace has been in the 115%-117% range this week, which is below the 120% waiver limit. Total dissolved gas in the McNary (MCN) forebay has been in the 111-113% range, which is below the 115% waiver limit.

Summer spill at IHR alternates between 30% (24-hours) and 45 Kcfs during the day and spill to the gas cap at night. These two spill “treatments” are provided in two-day blocks. Summer spill began at 0100 on June 21st with the 30% “treatment”. The daily average spill volume at IHR on June 21st was 21.1 Kcfs (30.0%). Summer spill in the Mid-Columbia River began at 0100 on June 16th. Summer spill at McNary (MCN) is 50% (24-hours). This summer spill operation has been met since it began on June 16th and there were no exceedances of TDG waivers in the MCN tailrace or the John Day (JDA) forebay this week. The summer spill operation at JDA alternates between 30% (24-hours) and 40% (24-hours). These two “treatments” will alternate in two-day blocks. The summer spill operation at JDA has been met since it began on June 16th 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). This summer spill operation has been met since it began on June 16th. There were no exceedances in the TDA tailrace but the 12-hour average TDG in the Bonneville (BON) forebay exceeded the 115% waiver limit four days this week (June 17th, June 18th, June 20th, and June 21st). In all four of these occasions, the 12-hour average TDG was 117%. 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 since it began on June 16th. The tailrace monitor at Cascades Island has been out of service since May 13th, likely as a result of high flows and spill volumes. The 12-hour average TDG at the Warrendale gauge has been in the 117-118% range 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 Little Goose, Lower Monumental, Rock Island, McNary, and Bonneville dams this week. Due to continued decreases in yearling Chinook and steelhead collections, GBT monitoring at Lower Granite did not occur this week. Signs of GBT were observed in two of the eight GBT samples conducted this week (June 15-June 21). Bonneville observed zero signs of GBT in their sample on June 16th but one fish (1%) from the June 19th sample had Rank 1 signs of fin GBT. Samples at Rock Island this week did not meet the sample size requirements. In both samples, only 75 fish were examined for GBT. The sample on June 19th had three fish (4%) with signs of fin GBT. Of these, two had Rank 1 signs while one had Rank 2 signs. No signs of fin GBT were observed in the Rock Island sample on June 21st. McNary observed no signs of GBT in their two exams (June 18th and June 20th). Little Goose observed zero fish with signs of GBT in their sample on June 19th. Lower Monumental observed zero fish with signs of fin GBT in their sample on June 20th. 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 approximately 2.0 °F above the 10-year average for this time of year. The daily average temperature for June 21st at Bonneville was 63.6 °F. The current 10-year average for the Bonneville forebay at this time of year is 61.7 °F. The forebay temperature at McNary Dam is also about 2.0 °F above the current 10-year

average. The daily average temperature for June 21st in the McNary forebay was 63.0 °F, whereas the 10-year average is 61.0 °F. The forebay temperature at Ice Harbor Dam is about 3.0 °F above the current 10-year average. The daily average temperature for June 21st in the Ice Harbor forebay was 63.6 °F, whereas the 10-year average is 60.8 °F. The forebay temperature at Lower Granite Dam is about 1.0 °F above the current 10-year average. The daily average temperature for June 21st in the Lower Granite forebay was 59.7 °F, whereas the 10-year average is 58.9 °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) continued to decrease at all SMP bypass facilities this week and, in general, was very low.

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 8,800 per day, which is a decrease from last week's daily average passage index of about 18,700 per day. Passage of spring migrants (yearling Chinook, coho, sockeye, and steelhead) continued to decrease this week, when compared to the previous week. This week's daily average passage indices for spring migrants were all less than 600 per day. Pacific lamprey macrophthalmia were encountered in six of this week's samples while ammocoetes were encountered only two. This week's daily average collection for Pacific lamprey macrophthalmia was about 50 per day, which is a decrease from last week's daily average collection of about 170 per day.

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 23,250 per day. This is a slight increase over last week's daily average passage index of about 20,500 per day. Passage of spring migrants all decreased this week, when compared to last week. This week's daily average passage indices for spring migrants were all less than 400 per day. Pacific lamprey macrophthalmia were encountered in three of this week's

four samples while ammocoetes were encountered in only one of this week's samples. This week's daily average collection for Pacific lamprey macrophthalmia at JDA was about 130 per day, which is a decrease from last week's daily average collection of about 300 per day.

Similar to John Day, sampling at McNary (MCN) is every-other-day. Subyearling Chinook dominated this week's samples at MCN. This week's daily average passage index for subyearling Chinook was about 34,100 per day, which is an increase over last week's daily average passage index of about 27,000 per day. Passage of all spring migrants decreased this week, when compared to last week. This week's daily average passage indices for spring migrants were all less than 300 per day. Finally, Pacific lamprey macrophthalmia were encountered in two of this week's three samples while ammocoetes were not encountered at all this week. This week's daily average collection for Pacific macrophthalmia was about 80 per day, which is a decrease from last week's daily average collection of about 400 macrophthalmia per day.

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 13,000 per day, which is a decrease from last week's daily average passage index of nearly 14,700 per day. Passage of spring migrants all decreased this week. This week's daily average passage indices for spring migrants were all less than 200 per day. Finally, no Pacific lamprey macrophthalmia were encountered this week while Pacific lamprey ammocoetes were encountered in all of this week's samples. This week's daily sample counts for Pacific ammocoetes ranged from two to thirteen this week.

Similar to recent years, sampling at Little Goose Dam (LGS) was every-other-day until the start of transportation (April 23rd), at which time sampling changed to every day. Subyearling Chinook continued to dominate the samples at LGS this week. This week's daily average passage index for subyearling Chinook was about 34,700 per day, which is a large increase over last week's daily average passage index of about 15,000 per day. This large increase is mostly due to a very large spike in subyearling Chinook passage on June 20th. The passage index on this single day was nearly 182,000 subyearling Chinook. At this point, it is unclear as to what may have caused such a large spike

in subyearling Chinook passage. Passage of spring migrants all decreased this week, when compared to last week. This week's daily average passage indices for spring migrants were all less than 500 per day. Finally, Pacific lamprey macrophthalmia were encountered in only one of this week's samples while ammocoetes were encountered in three 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 5,800 per day, which is a decrease from last week's daily average passage index of about 7,700 per day. Passage of all spring migrants decreased this week, when compared to last week. In fact, yearling Chinook were encountered in only three of this week's samples, coho were encountered in only four of this week's samples, and no sockeye were encountered at LMN this week. This week's daily average passage indices for spring migrants were all less than 100 per day. Finally, Pacific lamprey macrophthalmia were encountered in only two 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 450 per day, which is a decrease from last week's daily average passage index of about 670 per day. Passage of spring migrants was very low this week. In fact, this week's daily average passage indices for spring migrants were all less than 50 per day. Pacific lamprey macrophthalmia were encountered in five of this week's samples while ammocoetes were encountered in only two. When encountered, collections for both Pacific macrophthalmia and ammocoetes were very low.

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 June 19th. Steelhead dominated the collections over the last week of available data (June 13-19). The daily average collection for steelhead during this period was about 25 per day, which is a decrease from the previous week's daily average collection of 45 steelhead per day (June

6-June 12). The daily average collection for yearling Chinook over the last week (June 13-19) was about 7 fish per day, which is also a decreased from the previous week's daily average collection of 17 yearling Chinook per day.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 06/22/18, 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 approximately 3.5 million fall Chinook subyearlings released into this zone. These consisted of two releases; 2.5 million from Ringold Springs Hatchery on the 18th, and another million from Priest Rapids Hatchery on the 20th.

In the next two weeks, there is one release of 2 million subyearling fall Chinook from Willard Hatchery on the Little White Salmon River scheduled to begin on July 1st, and run through the middle of the month.

Lower Columbia Zone:

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

Adult Passage

The summer Chinook adult passage count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 1,458 and 2,031 adult Chinook in the last week. The 2018 adult summer Chinook count of 31,033 is about 83% of the 2017 count of 37,434 and about 64.6% of the 10-year average count of 48,061. The 2018 Bonneville Dam summer Chinook jack count of 1,713 is about 33.4% of the 2017 count and 17% of the 10-year average count. At Willamette Falls, 19,186 adult spring Chinook have been counted so far this year. In 2017, 24,123 adult spring Chinook were counted at Willamette Falls. This year's count is about 79.5% of the 2017 count and is about 69.7% the 10-year average count of 27,517. A total of 730 summer chinook have been counted at Lower Granite Dam as of June 21st. The 2018 Lower Granite Dam adult summer Chinook count is about 40.1% of the 2017 count and about 21.4% of the 10-year average count.

The 2018 Bonneville Dam adult steelhead count of 5,766 is about 1.3 times greater than the 2017 count of 4,346, while being about 61% of the 10-year average count of 9,456. The 2018 Bonneville Dam adult unclipped steelhead count of 2,356 is about 1.7 times greater than the 2017 count of 1,392, while being about 83.7% of the 10-year average count of 2,813. This year's Lower Granite steelhead count of 4,547 is about 62.2% of the 2017 count of 7,312 and about 51.8% of the 10-year average count of 8,774. The 2018 Lower Granite Dam adult unclipped steelhead count of 1,266 is about 41.4% of the 2017 count of 3,056 and about 34.4% of the 10-year average count of 3,675. At Willamette Falls, the 2018 count for steelhead was 7,262 as of June 17th. This year's steelhead count is about 3.7 times greater than the 2017 count of 1,978, while being about 46.5% of the 10-year average count of 15,595.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 3,749 and 10,673 last week. The 2018 adult sockeye count at Bonneville Dam of 59,484 is about 2.2 times greater than the 2017 count, while being about 67.6% of the 10-year average count. A total of 12,394 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2018 lamprey count is about 61.9% of the 2017 count of 20,018, while being about 1.9 times greater than the 10-year average count of 6,432.

Hatchery Releases Last Two Weeks

Hatchery Release Summary
From: 6/9/2018 **to** 06/22/18

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2018	1,000,000	06-11-18	06-11-18	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2018	1,000,000	06-15-18	06-15-18	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2018	1,000,000	06-20-18	06-20-18	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2018	2,500,000	06-18-18	06-18-18	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife Total					5,500,000					
Grand Total					5,500,000					

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary
From: 6/23/2018 to 7/6/2018

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2018	2,000,000	07-01-18	07-15-18	Willard Hatchery	Little White Salmon Riv	MCOL
U.S. Fish and Wildlife Service Total					2,000,000					
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					9,830,000					

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
06/08/2018	165.2	0.0	170.3	0.0	187.2	35.2	189.3	51.4	193.5	49.6	206.4	73.6	207.3	99.1
06/09/2018	165.0	3.4	163.4	2.3	181.0	31.4	185.2	49.5	191.6	54.5	202.6	75.1	207.3	108.7
06/10/2018	160.9	0.0	154.1	0.0	166.5	24.0	169.1	32.4	173.7	40.4	203.2	70.0	204.6	113.1
06/11/2018	159.4	0.0	161.3	0.0	168.9	14.0	173.9	40.6	179.2	42.5	204.0	64.3	206.5	86.9
06/12/2018	160.3	0.0	165.5	0.0	172.7	18.7	176.5	42.8	181.2	37.1	181.7	46.2	178.3	44.1
06/13/2018	158.3	0.4	156.2	0.0	169.5	19.4	172.3	40.9	175.4	31.0	162.3	38.3	163.9	39.8
06/14/2018	136.5	0.2	144.8	0.0	158.3	21.9	160.5	25.5	164.0	29.9	168.6	43.1	164.8	47.2
06/15/2018	153.4	0.2	149.2	0.0	161.7	16.2	165.7	30.1	173.3	31.8	178.4	47.4	175.8	56.4
06/16/2018	114.1	0.1	113.4	0.0	120.7	10.6	133.1	14.2	141.4	28.2	160.7	24.7	163.5	49.0
06/17/2018	122.0	0.1	118.7	0.0	130.5	20.7	121.1	13.4	124.8	29.9	146.6	18.6	143.0	19.7
06/18/2018	138.7	0.1	141.8	0.0	148.2	12.2	152.1	16.4	159.5	33.4	155.2	25.6	153.9	27.6
06/19/2018	124.9	0.2	129.3	0.0	141.6	14.9	142.8	16.0	149.9	33.3	157.0	19.2	153.6	19.1
06/20/2018	134.6	0.2	135.3	0.0	137.9	10.6	140.5	14.9	150.3	30.6	156.6	19.8	152.6	18.6
06/21/2018	125.8	0.2	121.5	0.0	139.0	12.3	133.4	14.6	142.8	29.8	143.0	19.9	137.9	19.6

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	Flow	Spill
06/08/2018	2.2	0.0	---	---	95.8	33.7	91.2	25.2	88.5	27.0	96.3	79.9	
06/09/2018	2.2	0.2	---	---	95.0	35.5	93.1	25.2	91.9	26.9	97.2	80.1	
06/10/2018	2.2	0.0	---	---	87.1	35.5	83.4	25.2	82.5	27.0	89.2	79.1	
06/11/2018	2.2	0.0	---	---	87.7	35.4	84.4	28.0	82.7	26.7	89.7	79.6	
06/12/2018	2.2	0.0	---	---	82.9	35.9	80.7	27.7	79.1	29.5	85.2	74.7	
06/13/2018	2.2	0.0	---	---	72.3	37.0	71.2	29.0	68.8	31.1	73.4	63.3	
06/14/2018	2.2	0.0	---	---	68.0	37.2	66.4	29.1	63.6	33.0	70.2	60.0	
06/15/2018	2.2	0.0	---	---	62.1	37.1	61.5	30.3	61.6	32.3	65.6	55.5	
06/16/2018	2.2	0.0	---	---	58.1	37.7	54.9	32.8	54.7	33.5	59.7	49.6	
06/17/2018	2.2	0.0	---	---	55.8	39.7	52.7	32.9	50.5	34.0	53.6	43.6	
06/18/2018	2.2	0.0	---	---	54.3	40.9	52.7	32.9	50.9	37.0	57.5	47.4	
06/19/2018	4.3	0.0	---	---	63.1	40.9	61.6	33.0	60.7	35.9	64.4	54.2	
06/20/2018	4.3	0.0	---	---	63.2	41.5	66.0	31.6	65.2	37.2	71.0	60.1	
06/21/2018	4.3	0.0	---	---	67.2	19.2	67.3	20.1	65.8	16.9	70.4	21.1	

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
06/08/2018	301.1	145.1	295.1	91.7	279.9	95.0	299.2	120.2	66.2	100.4
06/09/2018	307.9	147.5	297.6	95.1	278.5	105.0	302.7	120.3	69.6	100.4
06/10/2018	295.1	145.1	292.1	96.7	270.5	105.0	293.1	120.2	61.6	98.9
06/11/2018	298.3	148.3	296.9	103.4	277.2	105.0	294.6	120.6	64.3	97.3
06/12/2018	303.0	156.5	308.5	114.7	284.5	105.0	301.0	120.9	66.5	101.2
06/13/2018	258.7	163.0	242.6	126.7	230.6	105.0	260.0	121.4	40.7	85.4
06/14/2018	230.3	173.5	234.2	133.4	218.5	105.0	242.4	120.6	15.2	94.3
06/15/2018	235.2	180.0	233.8	140.2	214.1	105.0	229.8	120.4	7.0	90.0
06/16/2018	224.2	112.1	215.1	86.3	201.6	80.6	221.3	95.8	8.2	104.9
06/17/2018	210.1	105.1	207.3	82.8	193.5	77.6	217.3	95.4	4.1	105.4
06/18/2018	222.1	110.9	214.7	82.8	197.3	78.8	211.2	90.7	0.7	107.3
06/19/2018	224.9	112.3	226.0	67.6	209.4	83.4	225.1	95.8	6.3	110.6
06/20/2018	233.2	116.5	224.3	70.4	207.1	82.6	231.3	99.6	9.8	109.6
06/21/2018	233.7	117.0	226.1	89.9	209.1	83.5	224.2	95.2	12.2	104.4

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
Little Goose Dam										
	06/11/18 Chinook + Steelhead	100	6	6	6.00%	0.00%	6	0	0	0
	06/18/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam										
	06/13/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/20/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam										
	06/09/18 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/11/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/19/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam										
	06/09/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/12/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/16/18 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/19/18 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
Rock Island Dam										
	06/12/18 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/14/18 Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	06/19/18 Chinook + Steelhead	75*	3	3			2	1	0	0
	06/21/18 Chinook + Steelhead	75*	0	0			0	0	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

**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				
06/08									122.7	123.0	123.4	24	120.7	121.2	121.2	24	119.9	120.7	120.4	24	118.8	119.0	119.1	24					06/08
06/09									123.1	123.3	123.4	24	120.8	121.0	121.2	24	120.0	120.1	120.2	15	118.3	119.1	119.3	24					06/09
06/10									122.6	123.2	123.1	24	120.3	120.8	120.7	24	119.1	119.9	119.3	12	118.0	118.3	118.4	24					06/10
06/11									121.9	122.6	122.8	24	119.7	120.3	120.2	24	118.1	118.9	118.6	11	117.0	117.6	117.3	24					06/11
06/12									120.6	121.5	121.5	24	118.9	119.4	119.4	24	118.5	118.8	119.4	16	117.2	117.7	118.2	24					06/12
06/13									120.8	121.1	121.5	24	119.7	120.2	122.7	24	119.2	120.0	120.0	13	118.3	118.6	118.9	24					06/13
06/14									120.1	121.2	121.3	24	119.2	119.9	119.6	24	118.4	119.0	118.9	15	116.9	117.9	117.3	24					06/14
06/15									120.1	120.2	120.5	24	118.8	119.1	119.2	24	118.1	118.6	119.0	24	116.9	117.3	117.9	24					06/15
06/16									119.9	120.4	120.5	24	118.9	119.2	119.5	24	118.2	118.5	118.5	24	117.2	117.4	117.8	24					06/16
06/17									119.1	119.7	119.5	24	118.3	118.9	119.1	24	117.8	118.3	118.6	24	116.5	116.9	117.2	24					06/17
06/18									119.0	119.3	119.6	24	117.8	118.3	118.6	24	117.8	118.3	118.9	24	116.5	117.0	117.3	24					06/18
06/19									117.6	119.1	118.5	24	117.4	117.6	118.0	24	117.7	118.3	118.9	24	116.4	116.9	117.1	24					06/19
06/20									117.9	118.0	118.6	24	117.7	118.0	118.5	24	117.7	118.4	118.8	24	116.2	116.9	117.1	24					06/20
06/21									117.5	118.1	119.1	23	117.7	118.1	119.1	23	118.0	118.5	118.9	23	116.9	117.4	117.9	23					06/21

Total Dissolved Gas Data at Upper Columbia Sites

Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr				Rock Island				Rock I. Tlwr				Date					
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date				
06/08	117.0	117.6	118.1	24	119.7	119.8	122.9	24	119.1	120.5	120.9	24	124.1	124.7	125.1	21	119.4	120.9	121.0	23	124.0	125.2	125.6	19					06/08
06/09	117.0	117.7	117.8	24	119.4	121.3	123.1	24	118.0	118.5	118.7	24	123.1	124.4	125.8	23	118.4	119.6	119.8	23	123.8	124.3	124.7	22					06/09
06/10	116.1	117.0	117.1	24	117.9	118.1	119.1	24	117.4	118.4	118.9	24	120.5	121.8	123.0	21	116.6	118.5	118.5	22	121.3	123.5	122.4	21					06/10
06/11	114.9	115.9	115.8	24	116.2	118.1	118.4	24	114.9	116.3	115.2	24	120.4	120.9	122.5	24	115.5	116.8	117.0	24	120.3	121.5	121.3	22					06/11
06/12	115.3	115.8	116.0	24	117.0	117.7	118.7	24	115.1	115.2	115.4	24	121.1	121.7	122.6	22	116.1	117.4	118.3	23	119.3	120.4	121.0	21					06/12
06/13	116.3	116.5	116.6	24	118.3	118.6	119.3	24	116.6	117.4	117.8	23	121.8	122.2	122.8	21	116.3	117.5	117.3	22	119.2	120.5	120.3	21					06/13
06/14	115.9	116.3	116.7	24	118.0	119.3	122.9	24	116.1	117.1	116.6	24	118.8	122.0	124.2	23	115.9	116.7	116.4	24	119.1	120.0	119.9	22					06/14
06/15	116.4	116.7	117.1	24	118.0	119.6	119.4	24	116.7	116.9	117.5	24	120.1	120.8	124.1	22	116.1	117.0	118.1	24	119.0	120.1	120.9	20					06/15
06/16	115.8	116.3	116.6	24	116.9	118.0	121.1	24	117.7	118.2	118.8	24	118.4	120.7	119.5	22	116.2	116.6	116.8	23	118.6	120.1	119.8	21					06/16
06/17	116.2	117.2	118.0	24	118.0	119.0	121.2	24	116.6	117.1	117.4	24	117.0	117.4	117.8	19	115.4	116.2	116.3	21	118.1	118.9	119.0	18					06/17
06/18	116.3	116.7	117.2	24	117.3	119.0	118.4	24	116.3	116.7	116.9	23	117.7	118.0	119.1	23	114.7	115.9	116.1	24	116.8	118.6	119.6	20					06/18
06/19	116.4	116.9	117.4	24	117.6	118.3	119.1	24	116.7	116.7	117.1	22	117.5	117.7	117.9	20	115.3	116.1	116.5	22	117.7	118.8	118.5	19					06/19
06/20	117.0	117.4	117.9	24	117.7	118.3	118.7	24	116.8	117.4	117.8	24	117.7	118.3	118.9	23	115.5	116.1	116.7	24	117.8	118.3	118.7	21					06/20
06/21	116.6	117.2	117.7	23	117.7	118.2	118.7	23	117.5	117.6	117.6	23	118.0	118.4	119.4	22	115.5	116.3	116.3	22	117.6	118.4	118.4	21					06/21

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

Wanapum				Wanapum Tlwr				Priest Rapids				Priest R. Dnstr				Pasco				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
06/08	121.6	123.6	123.3	24	120.8	122.3	125.5	24	118.8	121.8	122.8	24	119.5	120.8	120.8	24	119.5	120.8	120.8	24	06/08
06/09	118.7	122.2	121.2	24	119.4	121.0	126.9	24	117.5	121.1	118.7	24	119.7	120.5	120.5	24	119.7	120.5	120.5	24	06/09
06/10	116.5	117.3	117.2	24	117.3	118.7	118.5	24	115.4	117.9	118.9	24	118.4	119.3	118.9	24	118.4	119.3	118.9	24	06/10
06/11	116.3	116.8	117.2	24	116.5	118.3	121.2	24	115.4	115.9	117.2	24	117.8	118.5	119.5	24	117.8	118.5	119.5	24	06/11
06/12	116.8	117.5	117.7	24	116.2	116.9	118.8	24	116.0	117.4	118.0	24	116.2	118.1	117.0	24	116.2	118.1	117.0	24	06/12
06/13	117.5	118.1	118.5	24	115.9	116.3	117.5	24	115.6	117.7	117.4	24	115.3	116.2	116.6	24	115.3	116.2	116.6	24	06/13
06/14	115.0	116.6	116.6	24	114.4	115.8	116.0	24	112.7	114.8	114.0	24	113.8	114.3	114.8	24	113.8	114.3	114.8	24	06/14
06/15	115.7	117.0	118.3	24	115.8	117.2	120.6	24	113.1	113.4	113.9	24	114.7	115.2	116.4	24	114.7	115.2	116.4	24	06/15
06/16	115.7	117.1	116.6	24	115.4	117.4	117.0	24	113.9	114.3	114.5	24	115.3	116.5	116.7	24	115.3	116.5	116.7	24	06/16
06/17	116.1	116.4	116.6	24	115.3	115.4	115.5	24	114.2	114.4	114.7	24	113.2	113.9	113.6	24	113.2	113.9	113.6	24	06/17
06/18	115.9	116.2	116.7	24	115.3	115.8	119.3	24	114.3	114.7	114.9	24	113.8	114.2	114.7	24	113.8	114.2	114.7	24	06/18
06/19	117.1	118.3	119.7	24	115.1	115.4	115.7	24	114.3	114.7	115.1	24	113.4	113.8	113.9	24	113.4	113.8	113.9	24	06/19
06/20	106.1	118.5	118.3	24	115.8	116.2	116.4	24	115.4	115.7	115.9	24	114.2	114.5	114.7	24	114.2	114.5	114.7	24	06/20
06/21	108.4	117.0	117.9	24	115.9	116.3	116.5	24	114.6	115.8	115.8	24	113.6	114.5	114.5	24	113.6	114.5	114.5	24	06/21

Total Dissolved Gas Data at Snake and Clearwater Sites

Dworshak				Clrwr Peck				Anatone				Clrwr-Lewiston				Lower Granite				Lower G. Tlwr				Date	
Date	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	Date
06/08	102.2	103.4	104.2	24	102.6	103.9	104.6	24	105.1	106.0	106.6	24	102.2	103.5	104.4	24	104.1	104.5	105.5	24	116.0	116.5	117.1	24	06/08
06/09	103.3	105.3	107.1	24	101.7	103.9	102.8	24	103.8	105.9	104.5	24	100.8	103.3	101.5	24	103.2	104.1	103.5	24	116.6	116.8	117.0	24	06/09
06/10	101.4	104.4	102.9	24	101.3	101.9	102.3	24	103.8	104.4	104.9	24	100.7	101.5	102.3	24	102.1	103.2	103.4	24	116.3	116.5	116.6	24	06/10
06/11	101.3	102.2	103.2	24	101.8	102.4	103.0	24	104.2	104.8	105.4	24	101.7	103.0	103.9	24	101.3	102.1	101.9	24	116.4	116.5	116.7	24	06/11
06/12	101.5	102.5	103.2	24	102.4	103.5	104.0	24	104.2	105.3	105.7	18	102.7	104.3	105.4	24	102.0	102.6	103.1	24	116.7	117.0	117.4	24	06/12
06/13	102.3	103.4	104.2	24	102.6	103.4	104.0	24	104.8	105.5	106.2	24	103.2	104.5	105.7	24	103.7	103.9	104.1	24	117.4	117.6	117.8	24	06/13
06/14	101.8	102.9	103.8	24	101.6	103.2	103.1	24	103.9	105.1	105.1	24	102.0	104.0	104.2	24	103.8	103.9	104.3	24	117.3	117.4	117.5	24	06/14
06/15	102.3	103.6	104.6	24	101.8	102.9	103.7	24	103.8	104.5	105.1	24	102.3	103.9	105.0	24	104.6	104.7	105.0	24	117.5	117.7	117.9	24	06/15
06/16	101.5	102.8	102.1	24	100.6	102.9	101.6	24	102.8	104.3	103.3	24	101.0	103.5	102.0	24	103.7	104.7	104.5	24	117.2	117.6	117.5	24	06/16
06/17	101.7	102.3	103.2	24	101.1	101.6	102.0	24	102.9	103.3	103.6	24	101.4	102.4	102.9	24	103.2	103.8	103.9	24	117.2	117.5	118.8	24	06/17
06/18	101.4	101.9	102.3	24	100.9	101.5	101.3	24	102.9	103.1	103.4	24	101.2	102.0	102.2	24	102.0	102.9	103.3	24	116.6	117.0	116.9	24	06/18
06/19	100.9	101.5	101.8	24	101.6	102.3	102.9	24	103.7	104.6	105.1	24	102.4	103.9	105.1	24	100.2	101.2	100.6	24	117.1	117.6	117.7	24	06/19
06/20	101.3	102.1	102.6	24	102.1	103.1	103.7	24	104.5	105.4	106.1	24	103.0	104.6	105.6	24	100.9	101.3	101.5	24	117.6	117.8	118.7	24	06/20
06/21	101.3	101.8	102.4	23	101.5	103.0	103.0	23	103.7	105.2	104.5	23	102.0	104.2	104.2	23	101.7	102.2	102.9	23	112.7	117.4	114.8	23	06/21

FISH PASSAGE CENTER

**Total Dissolved Gas Saturation(%) - Average of
12 Highest Hours, 24 Hours Average and 24 Hours High
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Total Dissolved Gas Data at 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
06/08	112.3	113.1	113.6	24	113.9	114.4	114.6	24	113.3	114.0	113.8	24	113.8	114.4	114.4	24	113.6	114.8	114.5	24	117.3	117.7	117.6	24	06/08
06/09	111.4	112.9	112.5	24	113.6	114.2	113.8	24	113.2	113.6	113.6	24	114.0	114.2	115.1	24	112.8	113.8	113.5	24	117.3	117.5	117.8	24	06/09
06/10	110.2	111.0	110.9	24	113.4	113.5	113.7	24	111.2	113.0	112.7	24	113.5	114.1	114.0	24	110.6	112.5	112.0	24	116.6	117.3	117.6	24	06/10
06/11	108.9	110.1	109.6	24	113.4	114.1	115.0	24	110.0	110.7	110.7	24	113.3	113.7	114.0	24	109.1	110.2	109.7	24	116.7	117.4	117.9	24	06/11
06/12	109.4	110.2	111.1	24	112.9	113.4	113.5	24	111.5	112.2	112.6	24	113.8	114.2	114.8	24	110.4	111.3	111.8	24	116.7	117.5	119.0	24	06/12
06/13	112.8	113.7	114.3	24	113.8	114.0	114.1	24	113.8	114.2	114.7	24	114.0	114.3	114.3	10	113.0	113.3	113.7	24	116.0	117.6	118.0	24	06/13
06/14	112.3	113.5	112.9	24	114.2	114.5	114.7	24	112.0	113.6	112.6	24	114.4	114.6	114.6	12	112.9	113.2	113.2	24	115.8	116.2	116.7	24	06/14
06/15	113.2	113.6	114.3	24	114.8	115.3	115.6	24	112.4	112.6	112.9	24	114.7	115.0	115.3	24	113.1	113.2	113.7	24	116.1	116.6	117.0	24	06/15
06/16	113.9	114.0	114.3	24	116.2	116.4	116.8	24	113.8	114.1	114.5	24	114.5	114.7	115.0	24	113.9	114.2	114.7	24	114.9	116.5	116.1	24	06/16
06/17	114.2	114.6	115.0	24	116.9	117.2	117.8	24	114.3	114.7	114.9	24	114.8	115.4	116.7	24	114.6	114.9	115.2	24	113.7	115.2	115.0	16	06/17
06/18	114.8	114.8	115.1	24	116.8	116.9	117.3	24	114.2	114.7	114.7	24	115.1	115.4	116.1	24	113.7	114.9	114.8	24	114.3	114.9	114.9	9	06/18
06/19	115.0	115.1	115.8	24	116.4	116.8	117.0	24	115.0	115.5	116.4	24	115.8	116.2	117.0	24	113.1	113.5	113.9	24	115.4	116.3	117.3	24	06/19
06/20	117.7	118.7	119.3	24	115.8	116.4	116.7	24	116.8	117.2	117.5	24	116.0	116.2	116.3	24	115.2	116.0	116.4	24	115.8	116.2	116.6	24	06/20
06/21	117.6	119.0	119.5	23	113.2	115.5	114.4	23	117.9	118.0	118.4	23	117.1	118.7	120.3	23	116.5	116.7	117.0	23	116.2	116.4	116.9	23	06/21

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
06/08	116.1	118.0	117.3	24	117.8	118.5	118.3	24	114.3	114.8	115.5	24	116.5	116.8	117.2	24	112.1	113.3	113.6	24	114.8	115.7	116.8	24	06/08
06/09	113.5	116.3	115.2	24	117.8	118.0	118.7	24	113.3	114.8	114.4	24	116.8	117.0	117.2	24	112.0	113.5	113.6	24	115.9	116.6	116.9	24	06/09
06/10	110.3	113.3	112.1	24	117.2	117.7	117.5	24	110.1	112.5	111.3	24	116.7	117.0	117.2	24	110.8	111.2	111.5	24	115.4	115.8	116.1	24	06/10
06/11	109.0	109.9	110.2	24	117.5	117.7	118.0	24	108.4	109.7	109.0	24	117.2	117.5	117.9	24	110.4	111.2	111.1	24	115.3	115.7	116.2	24	06/11
06/12	112.2	113.6	114.2	24	118.1	118.4	118.5	24	108.3	108.9	109.2	24	118.0	118.2	118.5	24	111.9	113.0	113.4	24	115.8	116.4	116.9	24	06/12
06/13	114.2	114.6	115.1	24	118.3	118.4	118.5	24	108.7	109.1	109.1	24	116.8	118.2	117.8	24	112.0	113.1	112.9	24	117.4	117.8	118.1	24	06/13
06/14	112.6	114.6	113.7	24	119.0	119.3	119.5	24	108.4	108.8	109.0	24	116.5	116.9	117.2	24	111.9	112.9	113.4	24	118.3	118.9	119.9	24	06/14
06/15	111.6	112.5	113.0	24	119.4	119.6	119.8	24	109.9	110.6	111.0	24	117.2	117.5	117.8	24	114.3	115.1	116.4	24	120.0	120.8	121.9	24	06/15
06/16	111.9	112.5	112.8	24	115.0	119.4	118.0	24	110.0	110.6	110.5	24	114.5	117.3	116.2	24	113.9	115.7	115.7	24	117.3	119.5	120.1	24	06/16
06/17	111.9	112.7	113.8	24	114.4	115.0	114.8	24	110.0	110.3	110.8	24	113.6	114.8	114.9	24	112.8	113.4	113.4	24	116.4	117.0	116.9	24	06/17
06/18	111.1	112.9	112.7	24	116.9	118.4	118.9	24	110.1	110.4	111.1	24	113.7	114.9	116.0	24	112.2	113.2	113.1	24	116.2	116.5	116.6	24	06/18
06/19	111.1	111.2	112.5	24	118.3	118.8	119.3	24	111.7	112.7	114.1	24	114.4	114.8	115.1	24	112.7	113.4	113.5	24	116.5	117.3	118.1	24	06/19
06/20	111.6	112.0	113.3	24	118.7	119.2	119.9	24	114.5	114.9	115.3	24	114.6	114.7	115.9	24	114.0	114.2	114.5	24	117.3	117.9	118.4	24	06/20
06/21	113.2	113.3	113.4	23	119.0	119.4	119.8	23	112.7	114.8	114.4	23	114.5	116.4	116.8	23	111.7	114.2	114.0	23	116.1	117.9	117.6	23	06/21

FISH PASSAGE CENTER

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

[INTERNAL PURPOSES ONLY]

Date 6/22/2018 7:15:10 AM

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Total Dissolved Gas Data at Mid-Columbia Sites

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Isld.				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
06/08	112.7	114.6	113.4	24	115.7	116.8	116.0	24	114.8	116.3	115.9	24					06/08
06/09	112.2	112.5	112.7	24	115.0	115.6	115.4	24	112.9	115.0	113.9	24					06/09
06/10	112.4	112.6	112.9	24	115.3	115.6	116.0	24	112.6	113.1	113.4	24					06/10
06/11	113.2	113.4	113.5	24	116.0	116.2	116.5	24	114.2	115.5	116.2	24					06/11
06/12	114.3	114.9	116.0	24	116.6	116.9	117.1	24	114.7	115.5	115.8	24					06/12
06/13	115.0	115.9	116.1	24	117.6	117.8	118.1	24	114.8	115.4	116.0	24					06/13
06/14	112.2	114.0	112.9	24	116.8	117.5	117.6	24	114.4	115.4	115.6	24					06/14
06/15	113.4	113.9	114.1	24	117.4	117.9	118.2	24	114.4	115.3	116.2	24					06/15
06/16	114.2	115.2	115.8	24	116.3	117.7	117.0	24	114.3	115.4	115.9	24					06/16
06/17	116.0	116.9	117.5	24	117.3	117.8	118.4	24	115.0	116.5	117.7	24					06/17
06/18	114.9	116.8	116.0	24	116.0	117.5	116.8	24	115.6	116.5	117.2	24					06/18
06/19	113.9	114.8	115.5	24	116.3	116.4	117.3	24	115.3	116.9	118.3	24					06/19
06/20	116.5	116.9	117.5	24	117.7	118.0	118.6	24	115.8	117.5	119.1	24					06/20
06/21	114.0	116.9	116.3	23	116.0	117.4	116.3	23	114.5	117.5	115.6	23					06/21

Hours used in calculating values:

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

Smolt Monitoring Program Two Week Passage Index Report

Date 6/22/2018 7:17:16 AM

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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)
06/08/2018		20			624	336	254	5	1,253		1,038
06/09/2018		11			157	139	311	0		876	343
06/10/2018		21			652	348	294	0	1,241		241
06/11/2018		16			425	178	382	0		0	391
06/12/2018		18			169	194	189	5	837		232
06/13/2018		7			137	197	369	0		338	235
06/14/2018		7			54	0	127	0	608		338
06/15/2018		9			91	45	293	0		381	446
06/16/2018		3			161	0	98	0	0		232
06/17/2018		8			60	0	0	0		293	202
06/18/2018		6			36	54	0	0	515		28
06/19/2018		10			41	3	0	0		39	110
06/20/2018					26	0	32	0	2		0
06/21/2018					23	0	0	0		136	0
06/22/2018											
Total:	0	136	0	0	2,656	1,494	2,349	10	4,456	2,063	3,836
# Days:	0	12	0	0	14	14	14	14	7	7	14
Average:	0	11	0	0	190	107	168	1	637	295	274
YTD:	23,452	41,150	21,824	12,792	4,638,711	2,837,855	2,044,563	49,702	1,492,565	1,257,228	1,890,463

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)
06/08/2018		1			9,653	8,135	5,142	623	26,447		33,345
06/09/2018		0			10,967	16,917	8,053	738		28,320	22,864
06/10/2018		0			25,316	15,387	11,102	864	18,024		16,598
06/11/2018		1			19,113	14,592	8,963	779		17,035	15,786
06/12/2018		0			18,109	13,527	6,376	707	43,058		16,377
06/13/2018		1			14,625	26,845	8,886	466		16,228	16,050
06/14/2018		0			5,003	11,119	5,317	508	20,380		9,850
06/15/2018		0			6,431	7,927	5,198	620		15,865	7,786
06/16/2018		0			5,268	6,200	3,949	712	17,619		7,690
06/17/2018		0			12,144	5,794	4,936	450		16,187	8,156
06/18/2018		0			25,946	6,755	5,306	375	23,880		7,501
06/19/2018		0			16,515	11,165	1,265	497		17,182	11,073
06/20/2018					11,610	181,993	7,457	212	60,849		9,611
06/21/2018					13,205	22,931	12,499	310		43,740	9,678
06/22/2018											
Total:	0	3	0	0	193,905	349,287	94,449	7,861	210,257	154,557	192,365
# Days:	0	12	0	0	14	14	14	14	7	7	14
Average:	0	0	0	0	13,850	24,949	6,746	562	30,037	22,080	13,740
YTD:	0	6	89	192	709,474	898,825	395,374	20,695	1,018,103	400,946	1,757,425

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)
06/08/2018		0			587	235	198	119	809		908
06/09/2018		0			590	624	283	135		438	686
06/10/2018		0			326	487	648	168	1,181		1,221
06/11/2018		0			255	463	411	131		754	394
06/12/2018		0			846	228	284	69	1,026		581
06/13/2018		0			137	236	67	73		592	823
06/14/2018		0			0	0	84	35	304		1,182
06/15/2018		0			0	134	126	35		508	942
06/16/2018		0			0	133	49	34	0		531
06/17/2018		0			153	102	0	28		293	628
06/18/2018		0			36	107	0	15	102		407
06/19/2018		0			124	80	0	47		377	966
06/20/2018					51	101	46	6	102		333
06/21/2018					92	140	49	8		212	458
06/22/2018											
Total:	0	0	0	0	3,197	3,070	2,245	903	3,524	3,174	10,060
# Days:	0	12	0	0	14	14	14	14	7	7	14
Average:	0	0	0	0	228	219	160	65	503	453	719
YTD:	0	0	1,224	1,365	261,944	214,744	42,111	44,018	225,584	119,638	471,161

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)
06/08/2018		31			2,033	840	226	248	24		259
06/09/2018		64			1,651	971	283	224		1,022	340
06/10/2018		68			1,958	661	530	151	821		429
06/11/2018		64			1,614	747	470	160		603	294
06/12/2018		36			1,015	899	505	126	827		116
06/13/2018		18			729	1,103	302	78		423	147
06/14/2018		38			430	356	84	58	0		113
06/15/2018		19			317	134	168	74		381	149
06/16/2018		22			269	133	98	44	0		167
06/17/2018		20			120	0	0	40		209	210
06/18/2018		33			145	0	64	37	519		350
06/19/2018		15			124	83	31	26		165	220
06/20/2018					103	2,526	57	37	318		216
06/21/2018					162	70	147	23		61	102
06/22/2018											
Total:	0	428	0	0	10,670	8,523	2,965	1,326	2,509	2,864	3,112
# Days:	0	12	0	0	14	14	14	14	7	7	14
Average:	0	36	0	0	762	609	212	95	358	409	222
YTD:	723	27,404	3,888	5,328	3,923,546	3,004,298	1,942,180	24,723	240,331	681,115	355,477

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)
06/08/2018		0			0	0	85	2	405		389
06/09/2018		0			157	0	28	14		292	440
06/10/2018		0			0	104	29	15	591		97
06/11/2018		0			0	36	0	10		754	0
06/12/2018		0			0	38	63	10	615		290
06/13/2018		0			0	80	0	2		169	147
06/14/2018		0			0	89	0	5	0		169
06/15/2018		0			0	45	0	2		0	149
06/16/2018		0			0	0	0	6	0		0
06/17/2018		0			0	0	0	4		0	28
06/18/2018		0			0	0	0	4	204		57
06/19/2018		0			41	0	0	3		102	56
06/20/2018					0	0	0	2	0		0
06/21/2018					23	0	0	6		0	0
06/22/2018											
Total:	0	0	0	0	221	392	205	85	1,815	1,317	1,822
# Days:	0	0	0	0	16	28	15	6	259	188	130
Average:	0	0	0	0	16	28	15	6	259	188	130
YTD:	0	0	4	115	260,611	120,828	58,600	76,187	1,526,876	383,626	741,100

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)
06/08/2018		0			12	325	140	3	600		450
06/09/2018		0			8	250	180	0		200	317
06/10/2018		0			21	50	40	0	500		175
06/11/2018		0			0	0	20	0		400	100
06/12/2018		0			5	75	20	2	300		20
06/13/2018		0			6	50	340	3		400	100
06/14/2018		0			2	200	100	2	200		60
06/15/2018		0			2	25	0	1		350	100
06/16/2018		0			2	0	0	2	0		29
06/17/2018		0			2	60	0	0		125	119
06/18/2018		0			2	0	0	1	200		43
06/19/2018		0			3	20	10	1		80	0
06/20/2018					13	0	0	2	50		50
06/21/2018					13	0	20	3		0	50
06/22/2018											
Total:	0	0	0	0	91	1,055	870	20	1,850	1,555	1,613
# Days:	0	12	0	0	14	19	19	16	7	9	17
Average:	0	0	0	0	7	56	46	1	264	173	95
YTD:		1	3		370	35,089	56,170	352	218,162	225,578	26,132

- 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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FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

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Smolt Monitoring Program Sites and Agency Collaborations:

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

- No data available or no sample conducted

Number of hours sampled:

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

Important Information About this Report:

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

FISH PASSAGE CENTER

Two Week Transportation Summary Report 6/8/2018 12:00:00 AM TO 6/22/2018 12:00:00 AM

Date 6/22/2018 7:17:50 AM

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Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	91,603	1,535	1,851	120	6,246	107,601
Sum of Number Barged	90,386	1,528	1,845	117	5,363	104,602
Sum of Number Bypassed	1,044	0	0	0	866	2,776
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	18	0	0	1	0	19
Sum of Facility Morts	146	7	6	2	17	195
Sum of Reseach Morts	9	0	0	0	0	9
Sum of Total Project Mort	173	7	6	3	17	223

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	191,098	1,024	1,975	251	5,273	204,894
Sum of Number Barged	190,804	1,022	1,972	239	5,265	204,567
Sum of Number Bypassed	31	0	0	0	0	31
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	14	0	0	1	0	15
Sum of Facility Morts	249	2	3	11	8	281
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	263	2	3	12	8	296

FISH PASSAGE CENTER

Two Week Transportation Summary Report 6/8/2018 12:00:00 AM TO 6/22/2018 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	53,529	1,455	1,450	140	1,846	60,266
Sum of Number Barged	53,506	1,452	1,450	140	1,844	60,236
Sum of Number Bypassed	0	0	0	0	0	0
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	3	0	0	0	0	3
Sum of Facility Morts	20	3	0	0	2	27
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	23	3	0	0	2	30

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	336,230	4,014	5,276	511	13,365	372,761
Sum of Number Barged	334,696	4,002	5,267	496	12,472	369,405
Sum of Number Bypassed	1,075	0	0	0	866	2,807
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	35	0	0	2	0	37
Sum of Facility Morts	415	12	9	13	27	503
Sum of Reseach Morts	9	0	0	0	0	9
Sum of Total Project Mort	459	12	9	15	27	549

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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	433303	3040943	182426	188691	2522118	8889599
Sum of Number Barged	419402	2428967	178823	184056	1810498	6832244
Sum of Number Bypassed	13220	610813	3539	4464	711353	2054742
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	47	58	0	9	44	202
Sum of Facility Morts	623	1063	64	162	188	2288
Sum of Reseach Morts	11	42	0	0	35	123
Sum of Total Project Mort	681	1163	64	171	267	2613

Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	511257	1856896	136740	74647	1969070	6517680
Sum of Number Barged	506881	1546013	136022	66118	1357013	4969060
Sum of Number Bypassed	848	306206	407	7716	611659	1538495
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	43	40	3	12	13	124
Sum of Facility Morts	3485	4637	308	801	385	10001
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	3528	4677	311	813	398	10125

FISH PASSAGE CENTER

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	234920	1217605	24700	35290	1178155	3868825
Sum of Number Barged	234810	1017714	24598	33644	925840	3162446
Sum of Number Bypassed	0	199433	100	1598	252167	705465
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	6	7	0	3	7	30
Sum of Facility Morts	104	451	2	45	141	884
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	110	458	2	48	148	914

Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	1179480	6115444	343866	298628	5669343	19276104
Sum of Number Barged	1161093	4992694	339443	283818	4093351	14963750
Sum of Number Bypassed	14068	1116452	4046	13778	1575179	4298702
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	96	105	3	24	64	356
Sum of Facility Morts	4212	6151	374	1008	714	13173
Sum of Reseach Morts	11	42	0	0	35	123
Sum of Total Project Mort	4319	6298	377	1032	813	13652

Cumulative Adult Passage at Mainstem Dams Through: 06/21

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	06/21	87894	6456	83624	18110	152393	25835	31033	1713	37434	5120	48061	10069	0	0	0	0	0	0
TDA	06/21	57935	4793	58310	12497	119227	21697	23146	1358	25797	3835	34513	6827	0	0	0	0	0	0
JDA	06/21	50572	5053	46675	12475	103731	20380	18414	1295	20397	2610	27713	5703	0	0	0	0	0	0
MCN	06/20	44427	3472	44292	7020	94405	16297	12807	600	13741	1635	19213	3517	0	0	0	0	0	0
IHR	06/21	32600	2197	28306	6949	68113	11204	2993	219	4525	1069	8494	1885	0	0	0	0	0	0
LMN	06/21	35398	3020	28545	8270	68100	11017	2475	230	3715	1180	8059	1763	0	0	0	0	0	0
LGS	06/20	31834	2486	26598	8335	63992	12109	1047	95	2923	887	4754	1134	0	0	0	0	0	0
LGR	06/21	31161	2948	27357	8256	62850	13009	730	108	1820	655	3412	928	0	0	0	0	0	0
PRD	06/20	7067	949	7268	783	18018	1858	4371	196	3620	135	4900	262	0	0	0	0	0	0
WAN	06/20	8071	964	6612	484	17542	2163	3306	64	2361	110	4060	341	0	0	0	0	0	0
RIS	06/19	7894	997	8080	564	18255	2598	1150	28	643	19	1091	112	0	0	0	0	0	0
RRH	06/19	5919	807	5864	406	8195	1153	0	0	0	0	0	0	0	0	0	0	0	0
WEL	06/20	4473	905	3958	764	5678	1441	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/17	19186	1616	24123	1647	27517	1192	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	Avg.
BON	06/21	1	-1	0	0	0	0	59484	27597	88002	5766	4346	9456	2356	1392	2813	12394	20018	6432			
TDA	06/21	4	0	0	0	0	0	34025	15339	53571	610	1611	3385	288	565	1273	561	331	612			
JDA	06/21	0	0	0	0	0	1	32942	13372	41172	658	576	5152	343	372	2100	442	475	362			
MCN	06/20	-4	0	0	0	1	0	15169	4378	16758	456	2544	4698	222	751	1772	120	26	14			
IHR	06/21	-1	0	0	0	0	0	20	47	23	1372	1090	4516	459	508	1549	52	16	3			
LMN	06/21	0	0	0	0	0	0	7	1	6	1238	1460	8432	337	702	2835	36	8	0			
LGS	06/20	0	0	0	0	0	0	3	0	2	1236	1505	5080	320	659	2548	7	0	0			
LGR	06/21	0	0	0	0	0	0	1	0	1	4547	7312	8774	1266	3056	3675	0	0	0			
PRD	06/20	0	1	0	0	0	0	4315	522	5364	53	88	93	0	0	0	554	202	57			
WAN	06/20	0	0	0	0	0	0	2592	320	3135	65	58	150	0	0	0	364	96	30			
RIS	06/19	0	0	0	0	0	0	676	71	1150	73	73	136	29	24	66	6	0	0			
RRH	06/19	0	0	0	0	0	0	351	40	673	92	132	343	30	32	222	0	0	0			
WEL	06/20	0	0	0	0	0	0	171	23	358	136	48	89	51	32	58	80	1	0			
WFA	06/17	0	2	117	117	0	0	0	0	0	7262	1978	15595	1871	712	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.

