



Fish Passage Center

Weekly Report #17-25

August 25, 2017

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 7% and 33% of average at individual sub-basins over August. Precipitation above The Dalles has been 22% of average over August. Over the 2017 water year, precipitation has ranged between 99% and 130% of average.

Table 1. Summary of August precipitation and cumulative October through August precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2017 August 1-23, 2017		Water Year 2017 October 1, 2016 to August 23, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.27	19	37.6	107
SNAKE RIVER ABOVE ICE HARBOR	0.17	29	24.9	116
Columbia Above The Dalles	0.18	22	28.4	109
Kootenai	0.39	27	38.4	109
Clark Fork	0.08	7	25.7	99
Flathead	0.15	13	38.5	113
Pend Oreille River Basin above Waneta Dam	0.10	9	33.5	108
Salmon River Basin	0.18	22	33.2	121
Upper Snake Tributaries	0.32	33	29.4	117
Clearwater	0.10	10	41.0	106
Willamette River above Portland	0.10	15	82.7	130

Grand Coulee Reservoir is at 1,281.4 feet (8-23-17) and has drafted 1.5 feet over the last week. Outflows at Grand Coulee have ranged between 68.3 Kcfs and 90.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,446.5 feet (8-23-17) and has drafted 0.9 feet over the past week. Daily average outflows at Libby Dam have been 9.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,552.0 feet (8-23-17) and has drafted 0.8 feet last week. Outflows at Hungry Horse have been 2.0 Kcfs over the last week.

Dworshak is currently at an elevation of 1,546.7 feet (8-23-17) and has drafted 6.0 feet over the last week. Dworshak outflows have been 8.1-9.1 Kcfs.

The Brownlee Reservoir was at an elevation of 2,057.5 feet on August 23, 2017, and drafted 0.8 feet over the last week. Outflows at Hells Canyon have ranged between 9.2 and 19.7 Kcfs over the last four days.

The Biological Opinion flow period began on April 3rd and ended on June 20th in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5th, 2017), the flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 140.5 Kcfs over the spring season.

The Summer Flow period began on June 21st at Lower Granite Dam, the flow objective this year is 55 Kcfs. Over the summer period, flows have averaged 51.6 Kcfs and 28.0 Kcfs over the last week.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives were 260 Kcfs at McNary Dam (began April 10th and ended June 30) and 135 Kcfs at Priest Rapids Dam (began April 10th). Over the spring season, flows at McNary Dam have been 378.4 Kcfs and Priest Rapids Dam flows were 237.4 Kcfs.

The Summer Flow period began on July 1st at McNary Dam, the flow objective this year is 200 Kcfs. Over the summer period, flows have averaged 171.5 Kcfs and 126.7 Kcfs last week.

Spill

Flows in the Snake and Columbia rivers remained relatively steady this week. Dworshak Dam is currently in its summer draft operation, with an average discharge volume of 8.8 Kcfs and an average spill volume of 4.2 Kcfs over the last week. Dworshak operations are currently to discharge water to not drop below a 1535' elevation by the end of August while still maintaining tailrace temperatures at Lower Granite Dam of 68°F or below. Daily average tailrace temperatures at Lower Granite have been below 68°F since August 12th. Hells Canyon Complex flows have increased slightly over the last week, with daily average outflows at Hells Canyon Dam ranging from 12.4 to 14.0 Kcfs over the last four days. Current outflow projections show flow in the Snake River and in the middle Columbia remaining at these levels or decreasing slightly through the end of August.

The 2017 summer spill for fish passage began on June 21st and will continue through August 31st. Summer spill for fish passage at the Snake River projects is to occur at the following amounts described in the 2017 Fish Operations Plan (FOP).

Project	Spill Level Day/Night
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17Kcfs/17Kcfs
Ice Harbor	June 21-July 13: 30%/30% vs. 45 Kcfs/Gas Cap July 13-August 31: 45 Kcfs/Gas Cap

The summer spill operation at Lower Granite Dam is 18 Kcfs. At current flows, spill to this level was not always possible this week. In general, spill at Lower Granite was either 18 Kcfs or was limited to total flows minus powerhouse minimum requirements. Spill at Lower Granite Dam continued to occur through the traditional spillbays, instead of the Removable Spillway Weir, in an effort to reduce temperatures in the Lower Granite tailrace. Spill operations at Little Goose Dam have also been through traditional spillbays, instead of through the Temporary Spillway Weir. At Little Goose Dam, when flows drop below 32 Kcfs, spill operations switch from 30% to a fixed spill volume of 11 Kcfs, 9 Kcfs, or 7 Kcfs, depending on the total flows. Spill volumes at Little Goose Dam were fixed at

the 11 Kcfs and 9 Kcfs for most of this week, equating to daily average spill percentages of 31-36%. The spill operation at Lower Monumental Dam is 17 Kcfs. However, the current low flows have precluded this operation for most of this week. Instead, spill at Lower Monumental has mostly been limited to total flows minus powerhouse minimum requirements. Finally, at Ice Harbor, the spill operation for the remainder of the season is 45 Kcfs/gas cap. At current flows, spill to these levels is not always possible. Instead, spill volumes are often limited to total flows minus minimum generation requirements.

Summer spill for fish passage began on June 16th at the middle Columbia River projects. Spill for fish passage at the lower Columbia River projects at the following amounts described in the 2017 Fish Operations Plan.

Project	Spill Level Day/Night
McNary	June 16-Aug 31: 50%/50%
John Day	June 16-July 20: 30%/30% and 40%/40% July 20-August 31: 30%/30%
The Dalles	40%/40%
Bonneville	June 16 -Aug 31: 85Kcfs/121Kcfs and 95 Kcfs/95 Kcfs

The spring spill period ended on June 15th according to the COE's Fish Operation Plan. The original period for the spring spill to end in the Middle Columbia River was June 30th. Accommodations were made in past years to initiate summer spill earlier for testing purposes. This was done to assure adequate numbers of test fish were present to conduct the "performance tests". Since 2014 the earlier June 15th date has been included in the FOP as part of the roll-over operations associated with the FOP. The earlier start date for summer spill is also included in the 2014 Supplemental Biological Opinion.

At McNary Dam, spill averaged 50% of daily average flow over the past week. The spill operation at John Day Dam is 30%/30% for the remainder of the season. This spill operation was met over the past week. Spill at The Dalles Dam was 40% of average daily flow over the past week. Finally, at Bonneville Dam, the FOP calls for alternating spill levels of 85 Kcfs/121 Kcfs or 95 Kcfs/95 Kcfs. Under current flow conditions, these spill levels are not always possible, particularly at the 95 and 121 Kcfs levels. Instead, spill for much of

this week was limited to total flows minus powerhouse minimums.

At spill levels of 3.6 to 4.5 Kcfs over the last week, tailrace TDG levels at Dworshak Dam ranged from 114.1% to 116.7%. TDG supersaturation at the Lower Granite Dam forebay monitor has generally been 102% or below over the past week. Over the past week, the tailwater TDG supersaturation (average of 12 highest hourly levels in a calendar day) was generally below 115% at all the Snake and Mid-Columbia river projects. Similar to the federal hydrosystem, TDG supersaturation levels at the Upper Columbia River projects have been below 115% at the tailrace monitors.

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, all Upper Columbia projects, and 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 monitoring in smolts took place over the past week at Bonneville and Little Goose dams. Low fish numbers in previous samples precluded sampling at Lower Monumental, McNary, and Rock Island dams. The one gas bubble trauma sample at Little Goose was conducted on Monday, August 21st. However, the GBT crew at Little Goose was only able to sample 18 fish over the span of three hours and, therefore, was unable to meet sample size requirements. Of the 18 fish that were examined, zero had signs of GBT. Due to continued low passage numbers, GBT sampling at Little Goose Dam has been

terminated for the remainder of the 2017 season. Bonneville Dam conducted a gas bubble trauma exam on Saturday, August 19th but was only able to collect 87 fish for examination. Of the 87 fish that were examined, zero had signs of GBT.

The action criteria for interruption of the voluntary spill for fish passage program is defined as either 15 percent of examined fish showing signs of gas bubble trauma in their non-paired fins, or five percent of the fish examined show signs of gas bubble trauma in their non-paired fins where more than 25 percent of the surface area of the fin is occluded by gas bubbles, corresponding to ranks greater than 2. The observed signs of GBT are presently below the action criteria that would be in place during the voluntary spill for fish passage program.

Temperature

Over the past week, forebay water temperatures at Bonneville, McNary, and Ice Harbor dams were above the 68°F temperature standard while those at Lower Granite Dam were both above and below the standard. At Lower Granite, the daily average temperature exceeded the 68°F temperature standard for two days this week (August 22nd and 23rd) but dropped below the standard on August 24th. The daily average temperature on August 24th was 67.3°F, which is approximately one degree warmer than the ten-year average for this date. The forebay temperature at Ice Harbor Dam has exceeded the 68°F standard since July 9th. The daily average temperature in the Ice Harbor forebay was 71.4°F on August 24th, which is about 1.3°F warmer than the ten-year average for this date. The forebay temperatures at McNary and Bonneville dams have exceeded the 68°F standard since July 12th. The daily average forebay temperature at McNary on August 24th was 70.1°F, which is less than one degree warmer than the ten-year average for this date. Finally, the daily average forebay temperature at Bonneville Dam for August 24th was 71.1°F, which is approximately one degree warmer than the current ten-year average for this date.

Smolt Monitoring

Sampling for the Smolt Monitoring Program (SMP) is underway at all bypass facilities except Lower Granite Dam (LGR). Sampling at Lower Granite Dam ended in early August this year in order to accommodate construction to the juvenile bypass facility and juvenile fish facility. This week's samples at the bypass facilities still operating were dominated by subyearling Chinook. Passage of subyearling Chinook increased at Bonneville and Lower Monumental dams and decreased at McNary, Rock Island, and Little Goose dams. Very few spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) were encountered in this week's samples.

Sampling for the SMP at Bonneville Dam (BON) continued this week under the high temperature sampling protocol. Under this protocol, sampling at BON occurs every-other-day (24-hour sample) until temperatures in the BON forebay drop below 69.5° F. This week's samples at Bonneville Dam (BON) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was approximately 1,360 per day, which is an increase from last week's daily average passage index of about 530. No spring migrants were collected in this week's samples at BON. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (August 24th) while no macrophthalmia were encountered this week.

Similar to last year, sampling at John Day Dam (JDA) occurs every-other-day this year. However, the SMP at JDA continued operating under the high temperature sampling protocol this week. Under this protocol, sampling at JDA occurs only twice per week for condition only. This condition only sample is processed on Tuesday's and Friday's and consists of a sample of approximately six hours. Because these are not 24-hour samples, it is not appropriate to compare this week's passage numbers to previous weeks. The high temperature sampling protocol will remain in place until temperatures in the JDA forebay drop below 69.5° F. This week's samples at JDA were again dominated by subyearling Chinook. No spring migrants were encountered at JDA this week. Finally, no Pacific lamprey juveniles were encountered in this week's samples.

Sampling at McNary Dam (MCN) is also every-other-

day. The MCN juvenile fish facility has been operating under the high temperature sampling protocol since about July 12th. Under this protocol, sampling at MCN remains every-other-day (24-hour sample) but the target sample size is reduced to 100 fish per day. This protocol will remain in place until temperatures in the McNary Forebay drop below 68.0°F. This week's samples were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 1,000 per day, which is a decrease compared to last week's daily average passage index of about 2,000 per day. The only spring migrants that were encountered in this week's samples were sockeye, which were encountered in the sample from August 19th. Finally, Pacific lamprey macrophthalmia were encountered in all three of this week's samples, with a daily average collection of about 15 fish per day. No Pacific ammocoetes were encountered this week.

Similar to recent years, sampling at Little Goose Dam (LGS) was every-other-day until the start of transportation, at which time sampling went to every day. This week's samples at LGS were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 100 per day, which is a decrease from last week's daily average passage index of about 620 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 steelhead. Finally, Pacific lamprey ammocoetes were encountered nearly every day this week, with a daily average collection of about 4 fish per day. In addition, Pacific lamprey macrophthalmia were encountered in two of this week's samples (August 20th and 21st).

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from April 1st to April 16th, every-other-day from April 16th until transportation began, at which time sampling switched to every day. Under the current every-other-day trucking operation, site personnel at LMN will transmit two days of sample data to the FPC every other day. This week's samples at LMN were again dominated by subyearling Chinook. Passage of subyearling Chinook at LMN increased slightly this week, when compared to the previous week. This week's daily average passage index for subyearling Chinook was only about 40 fish per day, whereas that for last week was about 20 per day. The only spring

migrants that were encountered in this week's samples were yearling Chinook and steelhead, both of which were encountered on only one sample day. Finally, Pacific lamprey ammocoetes were encountered in only one of this week's samples (August 22nd) while no macrophthalmia were encountered this week.

This week's collections at Rock Island Dam (RIS) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 100 per day, which is a decrease compared to last week's daily average passage index of about 180 per day. Passage of spring migrants remained low this week. Finally, one Pacific lamprey ammocoete was encountered in the sample from August 22nd and two macrophthalmia were encountered in the sample from August 19th. Sampling at RIS is scheduled to end after the sample on August 31st.

Hatchery Release

Effective 2017, the FPC has reorganized our hatchery release zones in an effort to more closely match the geographical regions used by NOAA in their ESU designations. The new river zones are: 1) Lower Columbia, 2) Middle Columbia, 3) Upper Columbia, and 4) Snake River. In addition, the FPC now provides a summary of hatchery releases below Bonneville Dam (i.e., Lower Columbia River Zone) in the weekly report.

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. No new releases were scheduled for this zone this week. Approximately 300,000 spring Chinook pre-smolts are scheduled to be released into the Selway River in early September. The Selway River is a tributary of the Clearwater River. These spring Chinook pre-smolts are 100% unmarked and are not expected to out-migrate until the spring of 2018.

Upper Columbia Zone: The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. No new releases were scheduled for this zone this week and no new releases are scheduled over the next two weeks.

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). No new releases were scheduled for this

zone this week and no new releases are scheduled over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. No new releases were scheduled for this zone this week and no new releases are scheduled over the next two weeks.

Adult Passage

The adult fall Chinook count of 18,870 is about 37.7% of the 2016 count of 50,059 and 50.5% of the 10-year average count of 37,334. The 2017 Bonneville Dam fall Chinook jack count of 2,685 is about 43.4% of the 2016 count of 6,187 and 42.5% of the 10-year average count of 6,313. The 2017 McNary fall Chinook adult count of 2,977 is about 28.2% of the 2016 count and 42.3% of the 10-year average count. The 2017 adult fall Chinook count of 745 at Ice Harbor Dam in the Snake River has 2,445 fewer fish than the 2016 count and has 1,165 fewer fish than the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 61,023 is about 58.4% of the 2016 count of 104,424 and 27.2% of the 10-year average count of 224,165. The 2017 Bonneville Dam adult unclipped steelhead count of 24,000 is about 68.4% of the 2016 count of 35,087 and 28.7% of the 10-year average count of 83,705. Daily adult steelhead counts at Lower Granite Dam ranged from 9 to 17 adults per day last week. This year's Lower Granite steelhead count of 7,852 has 2,590 fewer fish than the 2016 count of 10,442 and is 42.5% of the 10-year average count of 15,465. The 2017 Lower Granite Dam adult unclipped steelhead count of 3,401 has 1,918 fewer fish than the 2016 count of 5,319 and 4,051 fewer fish than the 10-year average count of 7,452. At Willamette Falls, the 2017 count for steelhead was 2,685 as of August 22nd. This year's steelhead count is about 10% of the 2016 count of 26,796 and 12% of the 10-year average count of 22,215.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 0 and 12 last week. The 2017 adult sockeye count at Bonneville Dam of 87,669 is about 25.6% of the 2016 count and 27.8% of the 10-year average count. The 2017 adult sockeye count at McNary Dam of 57,958 is about 22.2% of the 2016 count and 25.6% of the 10-year average count. The Lower Granite Dam 2017 adult sockeye count of 226 has 584 fewer fish than the 2016 count of 810 and 835 fewer fish than the 10-year average count of 1,061.

As of August 24th at Bonneville Dam, the adult shad count was 3,101,872. This year's shad count is about 1.8 times greater than the 2016 count of 1,769,918 and 1.5 times greater than the 10-year average count of 2,045,468. A total of 80,606 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 1.7 times greater than the 2016 count of 48,605 and 3.6 times greater than the 10-year average count of 22,533.

Hatchery Releases Last Two Weeks

Hatchery Release Summary
From: 8/12/2017 to 08/25/17

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary
From: 8/26/2017 to 9/8/2017

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Nez Perce Tribe	Dworshak NFH	CH0	SP	2018	300,000	09-04-17	09-04-17	Selway River	Clearwater River M F	SNAK
Nez Perce Tribe Total					300,000					
Grand Total					300,000					

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
08/11/2017	113.0	0.1	113.0	0.0	107.4	10.5	102.2	8.3	105.0	22.0	111.2	19.6	104.2	27.2
08/12/2017	85.3	0.1	86.2	0.0	94.3	8.2	95.0	6.4	101.2	17.9	116.5	27.2	109.1	33.4
08/13/2017	80.7	0.1	82.9	0.0	87.8	8.6	86.8	6.6	89.7	16.4	102.1	19.1	97.9	27.8
08/14/2017	92.8	0.1	92.3	0.0	96.0	8.3	95.3	8.1	99.1	20.1	100.7	18.9	99.4	25.7
08/15/2017	93.5	0.1	92.4	0.0	97.6	9.1	94.9	8.0	97.9	18.6	112.3	19.1	102.0	25.8
08/16/2017	87.8	0.1	88.6	0.0	93.9	8.9	91.7	7.9	96.8	18.2	104.5	18.8	98.4	26.9
08/17/2017	89.2	0.1	87.7	0.0	90.5	8.4	87.7	8.0	91.8	18.3	92.2	18.9	84.4	27.3
08/18/2017	78.3	0.1	75.4	0.0	89.6	7.6	85.7	9.8	88.3	17.9	84.5	21.8	76.5	27.9
08/19/2017	74.8	0.1	82.7	0.0	75.7	6.6	76.3	9.8	80.7	7.3	106.1	20.7	105.6	28.5
08/20/2017	68.3	0.1	64.6	0.0	68.5	0.0	64.2	6.6	65.3	7.3	80.5	18.3	76.1	25.9
08/21/2017	90.6	0.1	86.9	0.0	89.7	0.0	89.8	6.4	93.9	4.2	97.9	18.2	92.9	24.8
08/22/2017	82.2	0.1	87.5	0.0	91.9	0.0	89.9	7.9	94.3	2.1	103.1	18.2	97.2	24.4
08/23/2017	80.3	0.0	81.9	0.0	87.1	0.0	89.5	9.0	93.5	0.7	105.1	18.2	97.7	25.5
08/24/2017	68.5	0.1	66.1	0.0	65.7	0.0	64.4	6.4	64.1	0.0	71.6	17.9	67.3	25.2

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		
08/11/2017	11.0	6.5	---	11.9	30.3	18.1	29.3	10.8	28.7	15.9	27.3	17.3
08/12/2017	10.2	5.7	---	12.1	30.0	18.1	28.2	10.7	29.0	16.7	27.4	17.3
08/13/2017	10.2	5.6	---	11.1	29.9	18.1	29.1	10.7	28.7	16.3	29.1	19.0
08/14/2017	9.6	5.1	---	12.4	30.1	18.3	27.9	10.8	27.6	15.1	26.8	16.9
08/15/2017	9.2	4.6	---	11.8	30.5	18.3	29.9	9.6	27.8	15.5	28.6	18.7
08/16/2017	8.6	4.0	---	10.2	31.2	18.2	29.6	10.5	30.0	17.0	31.2	21.1
08/17/2017	8.1	3.6	---	9.8	28.4	16.5	26.8	10.4	25.9	13.1	27.3	17.5
08/18/2017	8.1	3.6	---	11.6	26.0	14.1	24.2	8.8	23.8	11.4	27.5	17.6
08/19/2017	8.1	3.6	---	9.9	27.2	15.4	26.6	8.7	24.9	12.3	26.1	16.0
08/20/2017	9.1	4.5	---	9.9	27.4	15.4	25.6	8.8	25.2	12.6	29.5	19.5
08/21/2017	9.1	4.5	---	13.4	26.7	14.7	25.0	8.8	24.8	11.1	27.6	18.0
08/22/2017	9.0	4.5	---	14.0	30.0	17.2	28.5	8.9	27.4	12.0	30.9	21.1
08/23/2017	9.0	4.4	---	13.5	30.0	16.4	29.2	10.4	28.1	12.8	30.0	20.3
08/24/2017	9.0	4.4	---	12.1	31.1	17.3	30.4	10.7	28.9	13.5	31.0	21.3

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
08/11/2017	146.4	73.4	137.6	41.3	125.8	50.2	148.1	100.5	1.5	33.7
08/12/2017	140.8	70.7	128.6	38.4	118.7	47.5	140.0	95.2	0.9	31.6
08/13/2017	139.3	69.9	126.2	37.8	116.9	46.8	134.5	89.8	0.8	31.6
08/14/2017	141.3	71.0	138.1	41.6	128.5	51.3	136.1	91.5	0.3	31.9
08/15/2017	144.8	72.5	138.8	41.8	127.1	51.0	141.8	97.4	0.9	31.1
08/16/2017	141.4	71.0	128.1	38.1	116.9	46.7	139.3	95.4	0.9	30.7
08/17/2017	126.7	63.6	117.9	35.7	108.3	43.5	128.1	84.0	0.9	30.7
08/18/2017	117.2	58.8	109.5	32.8	102.0	40.9	116.6	73.1	0.9	30.3
08/19/2017	125.5	63.0	120.8	36.2	113.5	45.4	117.2	74.0	0.9	29.9
08/20/2017	123.7	62.1	115.5	34.5	105.4	42.2	125.1	81.5	0.7	30.5
08/21/2017	129.2	64.8	121.1	36.3	114.6	45.9	123.1	79.7	0.4	30.6
08/22/2017	131.8	66.2	125.1	37.3	114.9	45.9	132.8	88.8	1.3	30.3
08/23/2017	132.8	66.6	126.8	38.0	116.0	46.2	131.4	87.1	0.9	31.1
08/24/2017	129.4	65.0	117.3	34.9	107.2	43.0	128.0	85.6	0.9	30.7

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

Site	Date	Species	Number of Fish	Number w/ GBT signs	Number w/ Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
Lower Granite Dam											
Little Goose Dam											
	08/14/17	Chinook + Steelhead	55*	1	1			0	1	0	0
	08/15/17	Chinook + Steelhead	45*	0	0			0	0	0	0
	08/21/17	Chinook + Steelhead	18*	0	0			0	0	0	0
Lower Monumental Dam											
McNary Dam											
Bonneville Dam											
	08/19/17	Chinook + Steelhead	87*	0	0			0	0	0	0
Rock Island Dam											
	08/15/17	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	08/17/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	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 ranks of 3 or 4.

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/11	---	---	---	0	---	---	---	0	107.9	108.2	108.5	24	107.1	107.6	108.1	24	108.1	108.7	109.3	24
8/12	---	---	---	0	---	---	---	0	108.0	108.1	108.3	24	107.5	108.1	109.0	24	108.0	108.4	108.7	24
8/13	---	---	---	0	---	---	---	0	107.8	107.9	108.2	24	107.9	108.6	109.3	24	107.5	107.8	108.0	24
8/14	---	---	---	0	---	---	---	0	107.1	107.4	107.6	24	106.9	107.6	108.3	24	106.7	107.1	107.3	24
8/15	---	---	---	0	---	---	---	0	106.9	107.2	107.6	24	106.7	107.2	108.3	24	107.0	107.5	107.8	24
8/16	---	---	---	0	---	---	---	0	107.0	107.1	107.3	23	106.5	106.9	107.8	23	107.5	108.2	108.6	23
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	---	---	---	0	---	---	---	0	106.5	106.6	106.8	24	106.4	107.1	107.9	24	106.9	107.2	107.6	24
8/19	---	---	---	0	---	---	---	0	106.0	106.2	106.6	24	106.2	106.9	108.3	24	106.8	107.3	108.0	24
8/20	---	---	---	0	---	---	---	0	105.7	105.8	105.9	24	106.4	107.3	108.8	24	106.7	107.3	107.9	24
8/21	---	---	---	0	---	---	---	0	105.2	105.4	105.6	24	105.5	106.1	107.4	24	106.7	107.2	108.0	24
8/22	---	---	---	0	---	---	---	0	105.4	105.6	105.9	24	105.4	106.2	107.7	24	107.3	107.7	108.1	24
8/23	---	---	---	0	---	---	---	0	105.6	105.8	106.1	24	105.9	106.6	108.3	24	107.5	108.1	108.7	24
8/24	---	---	---	0	---	---	---	0	105.8	105.9	106.2	23	106.4	107.1	108.5	23	107.5	107.9	108.6	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/11	107.6	108.1	108.5	24	109.0	109.7	110.3	24	111.3	111.6	111.9	24	110.8	111.0	111.4	24	112.9	114.2	114.7	23
8/12	107.4	107.8	108.3	24	108.2	108.9	109.3	24	110.6	111.0	111.2	24	111.3	111.4	111.4	24	112.7	113.9	118.6	22
8/13	107.0	107.5	108.1	24	107.3	107.6	108.2	24	109.3	109.9	110.7	24	110.3	110.6	110.9	24	111.3	112.2	113.6	22
8/14	106.0	106.6	106.9	24	106.3	106.8	107.1	24	108.4	108.7	108.9	24	108.7	109.0	109.6	24	111.2	112.4	113.5	20
8/15	106.5	106.9	107.3	24	106.1	107.1	107.6	24	108.6	109.3	109.7	24	107.6	108.0	108.5	23	110.9	112.0	112.6	21
8/16	106.7	107.2	107.5	23	106.4	107.1	107.9	23	108.7	109.0	109.3	23	107.7	108.0	108.4	23	110.9	111.8	112.4	21
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	106.3	107.0	107.5	24	106.9	107.7	108.3	24	109.0	109.3	109.5	24	107.3	107.6	107.8	24	109.9	111.3	116.2	22
8/19	106.1	106.8	107.4	24	106.5	107.1	107.7	24	108.0	108.5	109.1	24	107.5	108.2	109.3	23	110.4	111.6	113.9	22
8/20	106.0	106.6	107.2	24	106.1	106.8	107.3	24	106.4	107.0	107.4	24	107.4	107.6	108.0	24	108.9	109.4	110.0	20
8/21	105.7	106.1	106.4	24	106.7	107.3	108.0	24	106.4	107.1	107.5	24	107.6	108.1	108.8	24	109.9	110.9	111.2	22
8/22	106.5	106.9	107.1	24	107.0	107.8	108.3	24	107.1	107.7	107.9	24	107.3	107.5	107.6	24	109.8	110.8	111.4	23
8/23	106.9	107.5	108.0	24	107.4	108.4	108.9	24	107.7	108.2	108.5	24	107.3	107.7	108.0	24	110.2	111.9	112.9	24
8/24	106.9	107.4	108.1	23	107.3	107.7	108.0	23	107.4	107.7	108.0	23	107.2	107.4	107.6	23	107.7	108.4	109.1	20

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/11	110.9	111.5	112.0	24	115.4	116.1	117.0	22	113.2	114.6	115.9	24	113.3	113.6	113.8	24	111.8	112.2	112.7	24
8/12	110.8	111.4	112.4	22	114.8	115.6	116.5	22	112.0	112.8	113.8	24	114.0	115.3	122.2	24	111.8	112.5	114.3	24
8/13	109.5	109.9	110.4	23	113.6	114.0	115.0	20	108.3	109.2	109.7	24	110.7	111.0	111.8	24	109.9	110.7	113.7	24
8/14	108.7	109.2	109.6	21	112.5	113.9	115.1	20	107.2	109.3	110.0	24	110.1	110.5	111.6	24	107.0	107.6	108.2	24
8/15	108.1	108.5	109.4	22	113.3	113.8	115.0	21	109.1	109.9	110.7	24	110.8	111.1	112.2	24	107.8	108.1	108.4	19
8/16	107.8	108.4	108.7	22	112.8	113.2	113.7	20	107.9	108.4	109.2	24	110.0	110.2	110.9	24	108.0	108.2	108.6	24
8/17	---	---	---	0	---	---	---	0	106.2	107.3	107.8	24	109.2	109.6	111.1	24	106.9	107.3	107.6	24
8/18	107.4	107.7	108.2	22	113.0	113.6	114.3	21	105.8	106.8	107.2	24	110.1	110.8	114.7	24	107.5	108.2	109.1	24
8/19	107.7	108.7	111.0	22	109.2	110.1	112.5	21	105.8	106.5	107.8	24	108.7	109.3	110.7	24	106.5	106.8	107.2	24
8/20	107.8	108.2	108.7	22	109.7	110.3	111.1	20	106.2	107.0	107.6	24	109.3	109.8	110.7	24	106.5	106.7	107.4	24
8/21	107.3	107.8	109.0	22	108.0	108.5	109.3	20	107.8	109.8	110.8	24	109.3	109.8	110.6	24	107.0	107.5	108.8	24
8/22	107.7	108.5	108.7	24	107.8	108.6	110.6	21	108.3	109.5	111.0	24	109.4	109.8	110.8	24	108.4	108.8	109.2	24
8/23	107.5	108.0	108.6	24	107.0	107.6	108.6	24	106.9	107.7	108.2	24	109.1	109.4	110.3	24	107.7	108.1	109.1	24
8/24	107.1	107.5	108.4	21	106.2	106.5	107.3	19	104.9	105.9	106.8	24	108.7	109.2	109.8	24	106.7	107.2	107.9	24

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

Total Dissolved Gas Saturation Data at Lower Columbia and Snake River Sites

Date	<u>Priest R. Dnst</u>			# hr	<u>Pasco</u>			# hr	<u>Dworshak</u>			# hr	<u>Clwrtr-Peck</u>			# hr	<u>Anatone</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
8/11	---	---	---	0	---	---	---	0	119.2	119.5	119.8	24	115.4	116.4	117.3	24	100.3	101.5	103.0	24
8/12	---	---	---	0	---	---	---	0	118.1	118.4	118.7	24	113.9	114.6	115.5	24	99.9	101.0	102.5	23
8/13	---	---	---	0	---	---	---	0	117.9	118.0	118.3	24	113.2	113.8	114.4	24	100.2	101.2	102.3	24
8/14	---	---	---	0	---	---	---	0	117.1	117.6	118.1	24	113.0	113.9	114.8	24	101.4	102.8	104.3	24
8/15	---	---	---	0	---	---	---	0	116.4	116.8	117.3	24	111.4	112.6	114.4	24	101.7	103.1	105.0	22
8/16	---	---	---	0	---	---	---	0	115.0	115.7	116.2	23	110.7	111.9	113.4	23	101.8	103.4	105.3	22
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	---	---	---	0	---	---	---	0	113.9	114.3	114.8	24	110.9	112.2	113.6	24	101.7	103.5	105.4	24
8/19	---	---	---	0	---	---	---	0	113.7	114.1	114.6	24	110.6	111.8	112.8	24	101.4	102.8	104.3	24
8/20	---	---	---	0	---	---	---	0	115.8	116.2	116.6	24	111.7	113.0	114.1	24	101.3	102.8	104.2	23
8/21	---	---	---	0	---	---	---	0	115.8	116.1	116.5	24	111.9	112.9	114.3	24	101.1	102.5	104.3	23
8/22	---	---	---	0	---	---	---	0	116.1	116.4	116.7	24	112.2	113.3	114.3	24	101.5	102.8	104.5	23
8/23	---	---	---	0	---	---	---	0	116.1	116.4	116.8	24	111.9	112.8	113.4	24	101.0	102.0	103.1	24
8/24	---	---	---	0	---	---	---	0	116.4	116.7	117.2	23	112.2	113.2	114.0	23	101.0	102.1	103.1	22

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clwrtr-Lewiston</u>			# hr	<u>Lower Granite</u>			# hr	<u>L. Granite Tlwr</u>			# hr	<u>Little Goose</u>			# hr	<u>L. Goose Tlwr</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
8/11	107.5	109.6	111.2	24	102.9	103.2	103.6	24	112.4	112.7	113.1	24	108.8	109.1	109.6	24	109.9	110.3	110.7	24
8/12	106.3	107.5	108.7	24	103.6	103.8	104.0	24	112.3	112.5	112.8	24	109.0	109.3	109.8	24	109.7	110.0	110.2	24
8/13	105.8	107.3	108.8	24	103.4	103.5	103.8	24	112.1	112.4	112.7	24	108.5	108.8	109.6	24	109.0	109.3	109.7	24
8/14	106.8	109.0	110.8	24	103.2	103.3	103.4	24	112.5	113.2	114.6	24	106.8	107.1	108.1	22	109.0	109.3	109.6	22
8/15	106.1	108.1	110.0	23	103.3	103.5	103.6	24	112.3	112.5	112.7	24	106.2	106.4	106.5	24	108.7	109.0	109.3	24
8/16	105.8	108.1	109.8	23	102.4	102.7	102.9	23	112.1	112.3	112.7	23	106.2	106.4	106.6	23	108.6	108.9	109.1	23
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	105.3	107.6	109.5	24	101.6	101.9	102.1	24	109.5	110.0	110.5	24	105.8	106.2	106.7	24	108.7	109.0	109.3	24
8/19	105.0	107.0	108.7	24	101.2	101.4	101.6	24	109.8	111.0	112.5	24	106.6	106.9	108.1	24	108.6	109.0	109.3	24
8/20	104.8	107.0	108.6	24	100.8	101.1	101.5	24	109.9	110.9	111.8	24	106.3	106.8	107.6	24	108.8	109.2	109.5	24
8/21	105.0	106.9	109.1	23	100.9	101.3	101.9	24	109.2	109.5	110.0	24	106.3	106.5	106.7	24	108.7	109.0	109.3	24
8/22	105.5	107.5	109.1	23	101.9	102.5	102.9	24	111.6	112.7	113.2	24	107.0	107.4	107.7	24	108.8	109.1	109.4	24
8/23	104.6	105.8	107.1	20	101.8	102.0	102.4	24	111.1	112.4	112.9	24	106.9	107.0	107.3	24	108.7	109.0	109.1	24
8/24	105.6	106.8	109.3	18	101.5	101.7	102.0	23	111.6	112.4	112.7	23	105.6	106.0	106.6	23	108.3	108.5	108.7	23

Total Dissolved Gas Saturation Data at Snake and Lower Columbia River Sites

Date	<u>Lower Mon.</u>			# hr	<u>L. Mon. Tlwr</u>			# hr	<u>Ice Harbor</u>			# hr	<u>Ice Harbor Tlwr</u>			# hr	<u>McNary-Oregon</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
8/11	108.0	108.2	108.6	24	114.6	115.2	115.9	24	112.5	112.7	113.1	24	110.0	110.9	112.1	24	---	---	---	0
8/12	107.6	107.8	107.9	24	115.4	115.6	115.8	24	112.5	112.7	113.3	24	109.4	111.2	112.6	24	---	---	---	0
8/13	106.6	106.9	107.4	24	115.2	115.8	116.3	24	111.7	111.8	112.3	24	110.8	111.6	112.4	24	---	---	---	0
8/14	106.5	106.6	106.8	24	114.5	115.1	115.3	24	110.0	110.5	111.3	24	110.5	111.2	112.3	24	---	---	---	0
8/15	106.3	106.5	106.7	24	114.6	115.0	115.5	24	109.4	109.6	109.7	24	110.9	111.8	112.4	24	---	---	---	0
8/16	105.3	105.6	105.8	23	115.4	115.9	117.8	23	108.6	108.9	109.3	23	111.6	112.2	112.8	23	---	---	---	0
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	104.8	105.0	105.1	24	112.4	113.2	113.6	24	108.6	108.8	109.3	24	99.1	102.3	103.9	24	---	---	---	0
8/19	104.6	104.7	104.8	24	111.6	113.4	114.7	24	108.9	109.0	109.2	24	93.3	93.3	95.3	10	---	---	---	0
8/20	104.6	104.8	104.9	24	112.8	113.1	113.3	24	109.5	109.9	110.3	24	---	---	---	0	---	---	---	0
8/21	104.5	104.9	105.2	24	111.8	112.7	113.2	24	109.8	110.1	110.3	24	---	---	---	0	---	---	---	0
8/22	105.0	105.3	105.6	24	111.5	112.9	114.6	24	109.9	110.1	110.3	24	112.4	112.8	114.3	14	---	---	---	0
8/23	105.7	106.2	106.4	24	111.1	112.1	112.7	24	109.3	109.5	109.8	24	111.1	113.5	114.5	24	---	---	---	0
8/24	106.3	106.5	106.8	23	111.1	112.0	113.1	23	109.0	109.1	109.3	23	111.1	112.7	114.5	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			#	<u>McNary Tlwr</u>			#	<u>John Day</u>			#	<u>John Day Tlwr</u>			#	<u>The Dalles</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
8/11	110.7	111.2	111.8	24	113.9	115.0	115.5	24	109.7	110.0	110.7	24	114.7	115.2	115.6	24	109.8	110.3	111.1	24
8/12	110.7	111.0	111.4	24	113.4	113.8	114.1	24	109.1	109.6	110.2	24	114.3	114.8	115.6	24	107.2	107.9	108.5	24
8/13	109.3	109.7	110.6	24	112.9	113.5	114.1	24	107.0	107.3	108.3	24	113.7	114.0	114.2	24	105.6	105.9	106.1	24
8/14	107.3	107.8	108.4	24	113.4	113.8	114.0	24	105.9	106.1	106.4	24	113.8	114.2	114.5	24	105.7	106.0	106.2	24
8/15	106.5	106.8	107.0	24	113.1	113.7	114.3	24	105.4	105.7	105.9	24	113.1	113.6	113.9	24	107.3	108.0	108.2	24
8/16	106.7	107.3	107.6	23	113.0	113.5	114.0	21	104.3	104.6	104.7	23	112.1	112.5	112.9	23	106.8	107.2	107.4	23
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	108.2	108.3	108.7	24	113.8	114.4	114.9	24	102.6	102.8	102.9	24	111.3	111.7	112.3	24	105.1	105.8	106.1	24
8/19	107.7	108.0	108.5	24	113.9	114.4	114.8	24	101.8	102.1	102.4	24	111.1	112.2	112.9	24	104.8	105.2	105.5	24
8/20	108.8	109.2	109.9	24	113.7	114.1	114.5	24	101.8	102.1	102.4	24	110.8	111.1	111.7	24	106.3	107.4	107.9	24
8/21	107.4	107.7	108.3	24	113.7	114.2	114.5	24	101.9	102.4	103.2	24	111.3	112.3	112.8	24	106.3	107.0	107.4	24
8/22	107.9	108.3	109.0	24	114.1	114.5	114.9	24	103.2	103.7	104.1	24	111.7	112.1	112.5	24	108.1	108.8	109.4	24
8/23	107.9	108.3	108.8	24	113.4	113.7	113.9	24	103.9	104.7	105.2	24	111.6	112.1	112.6	24	106.9	107.4	107.7	24
8/24	107.4	107.8	108.4	23	113.3	113.6	113.9	23	103.9	104.2	104.4	23	111.3	111.5	111.7	23	105.9	106.3	106.5	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			#	<u>Bonneville</u>			#	<u>Warrendale</u>			#	<u>Camas\Washougal</u>			#	<u>Cascade Island</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
8/11	113.1	113.7	114.4	24	109.3	109.6	110.4	24	117.1	117.5	118.2	24	115.1	116.4	117.3	24	116.8	116.9	117.2	24
8/12	110.7	111.1	111.5	24	106.2	106.7	108.2	24	115.7	116.1	116.6	24	113.4	114.3	115.3	24	116.6	116.6	116.8	24
8/13	109.3	109.9	110.3	24	104.5	104.8	105.7	24	114.8	115.2	115.7	24	112.1	112.8	113.7	24	114.6	115.5	116.6	24
8/14	110.1	111.2	111.6	24	104.0	104.3	104.6	24	115.2	115.8	116.5	24	111.8	113.5	114.6	24	114.5	115.6	116.8	24
8/15	110.8	111.6	111.9	24	104.8	105.0	105.3	24	116.1	116.5	116.8	24	112.9	114.5	115.5	24	116.6	116.7	116.8	24
8/16	111.0	111.4	111.7	23	105.2	105.5	105.9	23	115.6	116.1	116.8	23	113.0	114.3	115.3	23	116.5	116.6	116.8	23
8/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/18	109.1	109.4	109.7	24	104.7	104.9	105.0	24	113.6	114.0	114.6	24	112.5	113.3	113.9	24	112.5	112.6	112.7	24
8/19	109.5	110.3	110.9	24	103.7	104.1	104.2	24	113.4	114.1	114.4	24	110.9	112.0	112.8	24	112.5	112.6	112.7	24
8/20	110.2	110.5	111.0	24	104.2	104.7	105.0	24	114.7	115.6	116.0	24	111.4	112.7	113.4	24	113.6	114.6	116.0	24
8/21	110.1	111.0	111.7	24	105.1	105.8	106.5	24	115.5	116.3	116.8	24	113.4	114.7	115.7	24	113.6	114.3	116.6	24
8/22	110.9	111.6	112.2	24	107.6	108.5	109.0	24	116.1	116.5	116.8	24	114.4	116.0	117.1	24	114.6	115.7	116.6	24
8/23	110.6	111.1	111.3	24	108.2	108.4	108.8	24	115.3	115.7	116.1	24	113.5	114.2	115.6	24	114.0	114.4	116.3	24
8/24	109.5	109.8	110.5	23	105.7	106.3	107.6	23	113.9	114.4	114.8	23	111.1	111.9	112.6	23	113.4	113.5	113.7	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 8/25/2017 11:38

Two-Week Summary of Passage Indices

* One or more of the sites on this date had an incomplete or biased sample.

See Sampling Comments: <http://www.fpc.org/currentDaily/smpcomments.htm>

For clip information see: <http://www.fpc.org/CurrentDaily/catch.htm>

For sockeye and yearling chinook (Snake only) race information see: <http://www.fpc.org/smoltqueries/currentsmppsubmitdata.asp>

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)	
08/11/2017	*	---	---	---	---	0	0	0	0	0	---	
08/12/2017		---	---	---	---	0	0	0	---	---	0	
08/13/2017		---	---	---	---	0	0	0	0	---	---	
08/14/2017		---	---	---	---	0	0	0	---	---	0	
08/15/2017	*	---	---	---	---	0	0	0	0	0	---	
08/16/2017		---	---	---	---	0	0	0	---	---	0	
08/17/2017		---	---	---	---	0	0	0	0	---	---	
08/18/2017	*	---	---	---	---	0	0	0	---	0	0	
08/19/2017		---	---	---	---	0	0	0	0	---	---	
08/20/2017		---	---	---	---	0	0	0	---	---	0	
08/21/2017		---	---	---	---	0	2	0	0	---	---	
08/22/2017	*	---	---	---	---	0	0	0	---	0	0	
08/23/2017		---	---	---	---	0	0	0	0	---	---	
08/24/2017		---	---	---	---	0	0	0	---	---	0	
08/25/2017	*	---	---	---	---	0	---	0	0	0	---	
Total:		0	0	0	0	0	2	0	0	0	0	
# Days:		0	0	0	0	15	14	15	8	5	7	
Average:		0	0	0	0	0	0	0	0	0	0	
YTD		33,704	22,233	21,106	8	3,998,337	2,400,545	2,885,791	50,596	1,583,272	1,720,241	1,947,910

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)	
08/11/2017	*	---	---	---	---	393	23	153	2,008	60	---	
08/12/2017		---	---	---	---	575	34	192	---	---	490	
08/13/2017		---	---	---	---	961	0	204	1,436	---	---	
08/14/2017		---	---	---	---	912	9	117	---	---	449	
08/15/2017	*	---	---	---	---	823	11	229	1,573	118	---	
08/16/2017		---	---	---	---	429	38	195	---	---	642	
08/17/2017		---	---	---	---	230	22	184	2,846	---	---	
08/18/2017	*	---	---	---	---	125	69	160	---	125	1,277	
08/19/2017		---	---	---	---	83	23	160	1,455	---	---	
08/20/2017		---	---	---	---	110	19	76	---	---	2,246	
08/21/2017		---	---	---	---	91	63	91	639	---	---	
08/22/2017	*	---	---	---	---	103	35	78	---	105	891	
08/23/2017		---	---	---	---	76	22	71	875	---	---	
08/24/2017		---	---	---	---	63	30	55	---	---	1,020	
08/25/2017	*	---	---	---	---	85	---	53	635	124	---	
Total:		0	0	0	0	5,059	398	2,018	11,467	532	7,015	
# Days:		0	0	0	0	15	14	15	8	5	7	
Average:		0	0	0	0	337	28	135	1,433	106	1,002	
YTD		0	11	40	0	1,020,549	1,064,440	655,035	74,081	2,473,132	1,067,542	4,044,876

Two-Week Summary of Passage Indices

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)	
08/11/2017	*	---	---	---	---	0	0	1	0	0	---	
08/12/2017		---	---	---	---	0	0	0	---	---	8	
08/13/2017		---	---	---	---	0	0	0	0	---	---	
08/14/2017		---	---	---	---	0	0	0	---	---	0	
08/15/2017	*	---	---	---	---	0	0	0	0	0	---	
08/16/2017		---	---	---	---	0	0	0	---	---	0	
08/17/2017		---	---	---	---	0	0	0	0	---	---	
08/18/2017	*	---	---	---	---	0	0	0	---	0	0	
08/19/2017		---	---	---	---	0	0	0	0	---	---	
08/20/2017		---	---	---	---	0	0	0	---	---	0	
08/21/2017		---	---	---	---	0	0	0	0	---	---	
08/22/2017	*	---	---	---	---	0	0	0	---	0	0	
08/23/2017		---	---	---	---	0	0	0	0	---	---	
08/24/2017		---	---	---	---	0	0	0	---	---	0	
08/25/2017	*	---	---	---	---	0	---	0	0	0	---	
Total:		0	0	0	0	0	0	1	0	0	8	
# Days:		0	0	0	0	15	14	15	8	5	7	
Average:		0	0	0	0	0	0	0	0	0	1	
YTD		0	0	2,232	0	128,502	86,636	69,601	35,300	86,630	96,620	356,050

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)	
08/11/2017	*	---	---	---	---	0	0	0	0	0	---	
08/12/2017		---	---	---	---	3	0	0	---	---	0	
08/13/2017		---	---	---	---	3	0	0	0	---	---	
08/14/2017		---	---	---	---	0	0	0	---	---	0	
08/15/2017	*	---	---	---	---	2	0	0	0	0	---	
08/16/2017		---	---	---	---	1	0	0	---	---	0	
08/17/2017		---	---	---	---	0	0	0	0	---	---	
08/18/2017	*	---	---	---	---	0	0	1	---	0	0	
08/19/2017		---	---	---	---	0	0	0	0	---	---	
08/20/2017		---	---	---	---	0	0	0	---	---	0	
08/21/2017		---	---	---	---	2	0	0	0	---	---	
08/22/2017	*	---	---	---	---	0	2	1	---	0	0	
08/23/2017		---	---	---	---	1	0	0	0	---	---	
08/24/2017		---	---	---	---	0	0	0	---	---	0	
08/25/2017	*	---	---	---	---	0	---	0	0	0	---	
Total:		0	0	0	0	12	2	2	0	0	0	
# Days:		0	0	0	0	15	14	15	8	5	7	
Average:		0	0	0	0	1	0	0	0	0	0	
YTD		7,117	15,916	7,614	1	4,065,200	1,853,166	2,517,517	32,133	442,841	1,317,075	264,513

Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
08/11/2017	*	---	---	---	---	0	0	1	0	0	---
08/12/2017		---	---	---	---	0	0	3	---	---	0
08/13/2017		---	---	---	---	0	0	0	0	---	---
08/14/2017		---	---	---	---	0	0	0	---	---	0
08/15/2017	*	---	---	---	---	2	0	0	0	0	---
08/16/2017		---	---	---	---	0	0	1	---	---	0
08/17/2017		---	---	---	---	0	0	1	0	---	---
08/18/2017	*	---	---	---	---	0	0	0	---	0	0
08/19/2017		---	---	---	---	0	0	1	10	---	---
08/20/2017		---	---	---	---	0	0	5	---	---	0
08/21/2017		---	---	---	---	0	0	4	0	---	---
08/22/2017	*	---	---	---	---	0	0	2	---	0	0
08/23/2017		---	---	---	---	0	0	1	0	---	---
08/24/2017		---	---	---	---	0	0	0	---	---	0
08/25/2017	*	---	---	---	---	2	---	3	0	0	---
<hr/>											
Total:		0	0	0	0	4	0	22	10	0	0
# Days:		0	0	0	0	15	14	15	8	5	7
Average:		0	0	0	0	0	0	1	1	0	0
YTD		6	0	0	0	61,191	24,470	34,028	11,194	156,380	117,049

COMBINED LAMPREY JUVENILES											
	WTB	IMN	GRN	LEW	LGR†	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(Samp)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
08/11/2017	*	---	---	---	---	4	2	0	0	0	---
08/12/2017		---	---	---	---	8	0	0	---	---	0
08/13/2017		---	---	---	---	22	0	1	5	---	---
08/14/2017		---	---	---	---	4	0	0	---	---	0
08/15/2017	*	---	---	---	---	4	0	0	30	0	---
08/16/2017		---	---	---	---	2	0	0	---	---	0
08/17/2017		---	---	---	---	5	0	0	10	---	---
08/18/2017	*	---	---	---	---	5	0	0	---	0	0
08/19/2017		---	---	---	---	5	0	2	10	---	---
08/20/2017		---	---	---	---	7	0	0	---	---	0
08/21/2017		---	---	---	---	4	0	0	25	---	---
08/22/2017	*	---	---	---	---	0	1	1	---	0	0
08/23/2017		---	---	---	---	5	0	0	12	---	---
08/24/2017		---	---	---	---	4	0	0	---	---	4
08/25/2017	*	---	---	---	---	1	---	0	40	0	---
<hr/>											
Total:		0	0	0	0	80	3	4	132	0	4
# Days:		0	0	0	0	15	14	15	8	5	7
Average:		0	0	0	0	5	0	0	17	0	1
YTD		0	3	4	0	287	7,259	2,985	62	32,937	62,483

Two-Week Summary of Passage Indices

* See sampling comments

<http://www.fpc.org/currentDaily/smpcomments.htm>

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's,) subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles.

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.

The classes of counts presented in the report are defined below for each site. 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.

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.

† In 2013 it was confirmed that 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.

Definitions for Smolt Index Counts

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

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.

RIS data collected for the FPC by Chelan Co. PUD.

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.

IMN data collected for the FPC by the Nez Perce Tribe.

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)

WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

8/25/17 11:38 AM

08/11/17 TO 08/25/17

		Species				
Site	Data	CH0	CH1	ST	SO	Grand Total
LGS	Sum of NumberCollected	3,125		8	2	3,135
	Sum of NumberBarged	1,709		4	0	1,713
	Sum of NumberBypassed	1		0	1	2
	Sum of Numbertrucked	1,330		4	0	1,334
	Sum of SampleMorts	19		0	0	19
	Sum of FacilityMorts	13		0	1	14
	Sum of ResearchMorts	0		0	0	0
	Sum of TotalProjectMorts	32		0	1	33
LMN	Sum of NumberCollected	193	1	1		195
	Sum of NumberBarged	49	0	0		49
	Sum of NumberBypassed	0	0	0		0
	Sum of Numbertrucked	144	1	1		146
	Sum of SampleMorts	0	0	0		0
	Sum of FacilityMorts	0	0	0		0
	Sum of ResearchMorts	0	0	0		0
	Sum of TotalProjectMorts	0	0	0		0
Total Sum of NumberCollected		3,318	1	9	2	3,330
Total Sum of NumberBarged		1,758	0	4	0	1,762
Total Sum of NumberBypassed		1	0	0	1	2
Total Sum of Numbertrucked		1,474	1	5	0	1,480
Total Sum of SampleMorts		19	0	0	0	19
Total Sum of FacilityMorts		13	0	0	1	14
Total Sum of ResearchMorts		0	0	0	0	0
Total Sum of TotalProjectMorts		32	0	0	1	33

YTD Transportation Summary

Source: Fish Passage Center

Updated:

8/25/17 11:38 AM

TO: 08/25/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	628,393	2,362,698	74,225	35,589	2,329,514	5,430,419
	Sum of NumberBarged	601,027	978,688	63,247	19,699	949,358	2,612,019
	Sum of NumberBypassed	21,922	1,381,285	10,900	15,670	1,379,888	2,809,665
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	252	90	5	11	53	411
	Sum of FacilityMorts	5,180	2,609	73	209	193	8,264
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	5,444	2,725	78	220	268	8,735
LGS	Sum of NumberCollected	617,326	1,337,946	43,198	13,726	1,065,066	3,077,262
	Sum of NumberBarged	595,712	495,706	39,956	10,029	313,270	1,454,673
	Sum of NumberBypassed	17,362	837,161	3,201	3,319	751,538	1,612,581
	Sum of NumberTrucked	1,330	0	0	0	4	1,334
	Sum of SampleMorts	147	29	1	11	10	198
	Sum of FacilityMorts	2,722	5,050	40	367	244	8,423
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,869	5,079	41	378	254	8,621
LMN	Sum of NumberCollected	330,248	1,459,191	33,440	17,200	1,293,665	3,133,744
	Sum of NumberBarged	339,179	931,886	32,959	12,568	710,514	2,027,106
	Sum of NumberBypassed	5,516	489,562	800	4,597	560,085	1,060,560
	Sum of NumberTrucked	144	1	0	0	1	146
	Sum of SampleMorts	48	37	2	5	31	123
	Sum of FacilityMorts	308	1,089	39	120	387	1,943
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	356	1,126	41	125	418	2,066
Total Sum of NumberCollected		1,575,967	5,159,835	150,863	66,515	4,688,245	11,641,425
Total Sum of NumberBarged		1,535,918	2,406,280	136,162	42,296	1,973,142	6,093,798
Total Sum of NumberBypassed		44,800	2,708,008	14,901	23,586	2,691,511	5,482,806
Total Sum of NumberTrucked		1,474	1	0	0	5	1,480
Total Sum of SampleMorts		447	156	8	27	94	732
Total Sum of FacilityMorts		8,210	8,748	152	696	824	18,630
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		8,669	8,930	160	723	940	19,422

Cumulative Adult Passage at Mainstem Dams Through: 08/24

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	08/24	83624	18110	137215	11145	150783	25708	88044	10648	119591	10834	97732	22097	18870	2685	50059	6187	37334	6313
TDA	08/24	58308	12497	105504	9999	118766	22002	69246	9277	95764	8800	81626	17772	7809	993	25330	3210	18094	3642
JDA	08/24	46675	12475	93659	8262	103450	20515	60416	7363	90259	7715	73088	17197	3919	626	13997	1730	10048	2388
MCN	08/24	44292	7020	87191	7374	93925	16835	56982	4616	83894	6501	69220	12937	2977	285	10553	1148	7036	1299
IHR	08/24	28306	6949	67484	5029	68114	11248	9284	2087	13980	1538	18950	4865	745	61	3190	471	1910	264
LMN	08/24	28545	8270	66115	6266	68087	10905	8216	3388	12460	2344	19984	5812	476	67	2736	424	1406	268
LGS	08/24	26598	8335	62597	6365	63765	12007	9086	3754	12480	1919	19272	6335	268	62	2003	204	1044	131
LGR	08/24	27357	8256	62050	5480	62403	13092	8952	3627	12110	2113	17232	6836	193	38	1104	158	605	108
PRD	08/23	7268	783	16843	1003	17901	1826	52981	1760	80288	5126	57783	3021	1016	150	2376	355	2419	997
WAN	08/23	6612	484	17164	919	17602	2161	49392	1355	79255	4110	55377	2415	770	113	1766	285	2075	735
RIS	08/23	8080	564	18646	715	18006	2748	56265	1333	79253	3434	56857	5479	635	110	1317	297	1399	678
RRH	08/23	5864	406	9449	351	7849	1209	42608	1060	58559	2827	45767	3863	281	41	794	181	909	407
WEL	08/23	6589	820	11789	833	8215	1601	29756	1056	43955	2425	35268	3587	0	0	0	0	0	0
WFA	08/22	34186	2442	30317	2161	34636	1490	0	0	0	0	0	0	223	34	14	5	54	16

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.		2017	2016	10-Yr Avg.	10-Yr Unclipped		10-Yr Unclipped	10-Yr Unclipped	2017	2016	10-Yr Avg.		
		Adult	Jack	Adult	Jack	Adult	Jack				2017	2016						2017	2016
BON	08/24	552	90	497	162	2480	295	87669	342477	315594	61023	104424	224165	24000	35087	83705	80606	48605	22533
TDA	08/24	16	4	52	35	343	95	63967	288294	269147	13110	32685	102607	6291	14115	43773	28008	9940	6155
JDA	08/24	6	-1	17	23	159	63	65888	289872	260472	5763	18191	73577	3577	9010	30604	20327	8302	4762
MCN	08/24	5	1	103	40	27	7	57958	261648	226341	6216	15866	55771	2939	7320	21988	2030	1299	1105
IHR	08/24	1	0	5	0	0	0	392	898	922	2492	9776	30154	1288	3963	9105	1096	752	291
LMN	08/24	0	0	0	1	0	0	345	1024	1091	2916	9244	29597	1617	4512	10367	347	220	82
LGS	08/24	0	0	1	0	0	0	285	942	1024	2188	9008	17225	1126	4525	7212	456	188	40
LGR	08/24	1	0	1	0	0	0	226	810	1061	7852	10442	18465	3401	5319	7452	304	92	15
PRD	08/23	0	0	0	1	13	0	66663	311053	266823	932	2673	7227	0	0	0	21277	5931	2988
WAN	08/23	0	0	1	0	0	0	76072	322433	235844	796	2421	7188	0	0	0	18871	4250	1588
RIS	08/23	0	0	0	0	0	0	73139	310213	259009	842	2224	5621	516	997	2769	13267	1682	624
RRH	08/23	0	0	0	0	0	0	46644	235794	218106	556	1627	4039	273	671	1845	15686	1451	579
WEL	08/23	0	0	0	0	0	0	42247	215840	207315	464	1178	2230	276	512	1055	74	1	0
WFA	08/22	1	1	0	0	15	22	0	0	0	2685	26796	22215	0	0	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.

