



Fish Passage Center

Weekly Report #16–20

July 29, 2016

Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 31% and 132% of average at individual sub-basins over July. Precipitation above The Dalles has been 90% of average over July. Over the 2016 water year, precipitation has ranged between 84% and 106% of average.

Table 1. Summary of July precipitation and cumulative October through July 27th precipitation with respect to average (1981–2010), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2016 July 1–27, 2016		Water Year 2016 October 1, 2015 to July 27, 2016	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	1.84	100	33.5	99
SNAKE RIVER above Ice Harbor	0.52	69	19.2	92
Columbia above The Dalles	0.97	90	24.6	98
Kootenai	1.65	85	33.0	98
Clark Fork	1.57	122	21.7	87
Flathead	1.74	105	34.3	105
Pend Oreille River Basin above Waneta Dam	1.57	111	28.9	97
Salmon River Basin	0.61	57	24.2	91
Upper Snake Tributaries	0.35	31	20.1	84
Clearwater	1.61	123	37.2	99
Willamette River above Portland	0.95	132	66.8	106

Table 2 displays the July 28th ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The July 28th ESP forecast at The Dalles between April and August is 78,990 Kaf (90% of average).

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

Location	July 28, 2016 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	90	78,990
Grand Coulee (Apr–Aug)	92	52,246
Libby Res. Inflow, MT (Apr–Aug)	92 110*	5,400 6,445*
Hungry Horse Res. Inflow, MT (Apr–Aug)	87	1,686
Lower Granite Res. Inflow (Apr–July)	83	16,482
Brownlee Res. Inflow (Apr–July)	72	3,960
Dworshak Res. Inflow (Apr–July)	85 86*	2,066 2,083*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,287.8 feet (7-28-16) and has held steady over the last week. Outflows at Grand Coulee have ranged between 87.8 and 116.1 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,446.6 feet (7-28-16) and has refilled 0.8 feet over the previous week. Daily average outflows at Libby Dam have been 7.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,557.9 feet (7-28-16) and has drafted 0.4 feet over the last week. Outflows at Hungry Horse have been 2.0 Kcfs over the last week.

Dworshak is currently at an elevation of 1,572.5 feet (7-28-16) and has drafted 8.0 feet over the last week. Dworshak has increased outflows over the last week from 9.6 Kcfs to 12.0 Kcfs.

The Brownlee Reservoir was at an elevation of 2,062.5 feet on July 27th, 2016, and has drafted 2.2 ft. over

the last week. Outflows at Hells Canyon have ranged between 8.0 and 16.3 Kcfs over the last week.

The Summer Biological Opinion flow period began on June 21st with a flow objective of 50.4 Kcfs at Lower Granite. Over the Summer Flow Period, flows at Lower Granite Dam have averaged 36.2 Kcfs and 31.8 Kcfs over the last week.

The Summer Biological Opinion Flow Objectives will be 200 Kcfs at McNary Dam (began July 1st). Over the Summer Flow Period, flows at McNary have averaged 161.2 Kcfs and 148.0 Kcfs last week.

Spill and River Temperature

Dworshak Dam discharge increased to near 12 Kcfs on 7/23 and has operated at this level since then, with about 2.2 Kcfs spill.

Summer spill for juvenile 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 2016 Fish Operations Plan (FOP).

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

At Lower Granite Dam the removable spillway weir was closed on June 29th to reduce the amount of surface warm water transferred from the forebay to the tailrace. The spill pattern was changed from a “bulk” spill pattern to a “uniform” spill pattern. Over the past week spill has ranged from 17.7 to 18.0 Kcfs. At Little Goose Dam spill was changed on July 6th from spilling 30% of instantaneous flow, to a fixed volume spill operation to maintain compatibility with Lower Granite and Lower Monumental operations. Presently, since daily flows are less than 32 Kcfs, spill occurred at a fixed volume pf 10.5 Kcfs. At the other Lower Snake River projects (Lower Monumental and Ice Harbor dams) spill has occurred at the 2016 FOP levels. At low flows, which have occurred at some Snake River projects this

week, BIOP spill levels are considered met if all flow in excess of that needed for the operation of one turbine unit at a project is provided as spill.

Summer spill for fish passage began on June 16th at the middle Columbia River projects. Spill for fish passage at the middle Columbia River projects is to occur at the following amounts described in the 2016 FOP.

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

This past week all Middle Columbia River projects (McNary, John Day and The Dalles dams) have spilled at the 2016 FOP levels. Spill at Bonneville Dam has been changed to 95 Kcfs to address erosion concerns below the project.

All sites were within TDG criteria over the past week.

Note: The State of Oregon TDG waiver requires compliance only 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.

Low fish numbers precluded sampling for GBT

at several sites this past week. Monitoring for signs of gas bubble trauma (GBT) occurred at McNary and Bonneville dams over the past week. Sampling for GBT at McNary Dam has been decreased to one time per week due to high river temperatures and increased mortality in the sample. No fish were observed with signs of GBT over the past week.

Temperature: At present, water temperatures are above the 68°F temperature standard at the forebays of Bonneville, McNary and Ice Harbor dams. The forebay temperatures at Lower Granite Dam have remained about the same this week. The daily average temperature in the Lower Granite forebay for July 28th was 65.1° F. It is warmer (69.4°F) downstream at the forebay of Ice Harbor Dam, where the temperature is about the same as last week. At McNary and Bonneville dams the forebay temperatures were 70.1°F and 71.0°F, respectively on July 28th. These forebay temperatures are equal to the levels measured at this time last year. High temperature sampling program protocols (to be implemented at temperatures above 70°F) have been initiated at both projects.

Smolt Monitoring

Smolt Monitoring Program (SMP) sampling was ongoing at all SMP bypass facilities this week. Due to excessive temperatures in the sample tanks ($\geq 70^\circ\text{F}$), the high temperature sampling protocols at Bonneville and John Day dams was initiated this week. Subyearling Chinook dominated this week's samples at all of the SMP bypass facilities. However, when compared to the previous week, subyearling Chinook passage decreased at nearly all SMP bypass facilities except Bonneville Dam. Finally, passage of spring migrants (i.e., yearling Chinook, steelhead, coho, and sockeye) was extremely low at all SMP bypass facilities.

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 47,800 per day, which is an increase from last week's daily average passage index of nearly 35,000 per day. No spring migrants were encountered in this week's samples at BON. Furthermore, the only lamprey juveniles that were encountered at BON this week were Pacific macropthalmia, which were only encountered one day this week (July 23rd). On July

27th, temperatures in the holding tank at the juvenile fish facility reached 70°F, which triggered the high temperature sampling protocol at BON. Under the high temperature sampling protocol, sampling at BON switches from a 24-hour sample every day to a 24-hour sample every-other-day. Furthermore, the target sample size is reduced from 300-500 fish to approximately 100 fish. This protocol will remain in place until temperatures in the Bonneville Forebay drop below 69.5°F.

Sampling at John Day Dam (JDA) in 2016 is every-other-day for the entire SMP season. This is the first time every-other-day sampling has occurred at this site over the entire season. Subyearling Chinook continued to dominate the collections at JDA this week. This week's daily average passage index was only about 500 fish per day, which is a large decrease from last week's daily average passage index of nearly 4,500 subyearling Chinook per day. Very few spring migrants were encountered in this week's samples at JDA. In fact, the only species of spring migrant encountered this week was sockeye, which were observed in the sample from July 25th. Finally, Pacific lamprey ammocoetes were encountered in one of this week's three samples (July 25th) and Pacific macropthalmia were encountered in two samples (July 23rd and 27th). On July 27th, temperatures in the holding tank at the juvenile fish facility at JDA reached 70°F, which triggered the high temperature sampling protocol. Under the high temperature sampling protocol, sampling at JDA switches from a 24-hour sample every-other-day to a condition only sample twice per week. Condition only sampling will occur on Mondays and Thursdays (~0700-1300) and FPC will receive these data on Fridays and Tuesdays. This protocol will remain in place until temperatures in the John Day Forebay drop below 69.5°F.

As in recent years, sampling at McNary Dam (MCN) in 2016 will be every-other-day for the entire SMP season. Subyearling Chinook dominated the collections at MCN this week, with a daily average passage index of about 1,600 per day. This is a decrease over last week's daily average passage index of about 7,500 subyearling Chinook per day. The only spring migrants that were encountered in this week's samples were sockeye and steelhead, which were both encountered in the sample from July 26th. Pacific lamprey macropthalmia were encountered in two of this week's samples (July 24th

and July 26th). Finally, the MCN juvenile fish facility has been under the high temperature sampling protocol since about July 17th. 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 at Lower Granite Dam (LGR) were again dominated by subyearling Chinook, with a daily average passage index of about 945 per day. This is nearly identical to last week's daily average passage index of about 950 subyearling Chinook per day. Passage of spring migrants was extremely low this week. Among the spring migrants that were encountered this week were yearling Chinook (July 28th), coho (July 23rd), and steelhead (every day this week). Finally, Pacific lamprey ammocoetes were encountered in all of this week's samples. This week's daily average sample count for Pacific ammocoetes was two per day. No Pacific lamprey macrophthalmia were encountered in this week's samples at LGR.

Sampling at Little Goose Dam (LGS) was limited to a 24-hour sample every-other-day until transportation began, at which time sampling switched to daily. Subyearling Chinook dominated this week's collections at LGS. This week's daily average passage index for subyearling Chinook at LGS was about 650 per day, which is a decrease from last week's daily passage index of approximately 1,500. Yearling Chinook were observed on two sample days (July 22nd and July 27th). Finally, Pacific lamprey ammocoetes were also encountered on two days (July 24th and July 26th). No Pacific lamprey macrophthalmia were encountered.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every-third-day through the April 14th, every-other-day from April 16th to April 30th, and every day with the initiation of transportation. This week's samples at LMN were dominated by subyearling Chinook, with a daily average passage index of only about 50 per day. This is a decrease over last week's daily average passage index of about 180 subyearlings per day. Yearling Chinook and steelhead were each encountered in three of this week's samples. No lamprey were encountered in this week's samples.

Subyearling Chinook continued to dominate the samples at Rock Island Dam (RIS) this week. This week's daily average passage index for subyearling

Chinook at RIS was about 130 per day, which is similar to last week. Sockeye migrants were observed on one sample day (July 28th). No Pacific lamprey ammocoete were encountered this week's samples at RIS. Lastly, Pacific lamprey macrophthalmia were encountered in one of this week's samples (July 23rd).

Hatchery Release

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. Furthermore, no releases are scheduled for this zone over the next two weeks.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary 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.

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

Adult Passage

Daily passage numbers at Bonneville Dam ranged between 796 and 1,195 adult summer Chinook in the last week. The 2016 summer Chinook count of 117,567 is about 75% of the 2015 count, while being 1.2 times greater than the 10-year average. The 2016 summer Chinook jack count of 10,619 is about 61.8% of the 2015 count and 50.5% of the 10-year average count. At Willamette Falls, 28,990 adult spring Chinook have been counted so far this year. In 2015, 50,171 adult spring Chinook were counted at Willamette Falls. This year's count is about 57.8% of the 2015 count and 83% of the 10-year average count of 34,924. As of July 28th, a total of 79,151 adult summer Chinook have been counted at McNary Dam and 10,450 have been counted at Lower Granite Dam. The 2016 McNary Dam adult summer Chinook count has 7,954 fewer fish than the 2015 count, while being about 1.2 times greater than the 10-year average count. The 2016 Lower Granite Dam adult summer Chinook count has 2,984

fewer fish than the 2015 count and 5,394 fewer fish than the 10-year average count.

The 2016 Bonneville Dam adult steelhead count of 55,748 has 948 more fish than the 2015 count of 54,800, while being 63% of the 10-year average count of 88,542. The 2016 Bonneville Dam adult wild steelhead count of 22,029 has 8,313 fewer fish than the 2015 count of 30,342 and 18,639 fewer fish than the 10-year average count of 40,668. Daily adult steelhead counts at Lower Granite Dam ranged from 72 to 132 adults per day last week. This year's Lower Granite steelhead count of 7,597 is about 76% of the 2015 count of 9,989 and 63.2% of the 10-year average count of 12,029. The 2016 Lower Granite Dam adult wild steelhead count of 4,260 is 87.7% of the 2015 count of 4,858 and is about 92.2% of the 10-year average count of 4,622. At Willamette Falls, the 2016 count for steelhead was 25,494 as of July 27th. This year's steelhead count is about 3.7 times greater than the 2015 count of 6,847 and about 1.2 times greater than the 10-year average count of 21,519.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 251 and 437 last week. The 2016 adult sockeye count at Bonneville Dam of 340,948 is about 67.1% of the 2015 count and 1.2 times greater than the 10-year average count. The 2016 adult sockeye count at McNary Dam of 260,303 is about 95.1% of the 2015 count, while being about 1.3 times greater than the 10-year average count. The Lower Granite Dam 2016 adult sockeye count of 776 has 401 more fish than the 2015 count of 375 and 146 fewer fish than the 10-year average count. As of July 28th at Bonneville Dam, the adult shad count was 1,761,740. This year's shad count is about 97.2% of the 2015 count of 1,812,464 and 78% of the 10-year average count of 2,261,539.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 7/16/2016 to 7/29/2016

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

Hatchery Releases Next Two Weeks

From: Hatchery Release Summary
7/30/2016 to 8/12/2016

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

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

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/15/2016	118.9	0.1	117.4	0.0	122.5	10.2	119.8	28.1	120.7	23.0	125.2	37.1	120.3	26.1
07/16/2016	106.9	0.1	109.1	0.0	113.1	9.0	116.3	15.7	121.1	23.0	128.2	23.0	127.3	29.8
07/17/2016	112.0	0.1	107.9	0.0	111.6	8.4	108.3	9.7	112.5	20.1	118.4	20.4	115.5	29.7
07/18/2016	104.3	0.1	106.2	0.0	113.6	9.4	120.2	9.4	125.6	22.1	132.1	19.9	130.6	29.0
07/19/2016	103.6	0.1	105.9	0.0	108.3	8.6	108.4	9.8	111.2	22.4	114.9	19.6	113.3	27.0
07/20/2016	109.3	0.1	104.4	0.0	112.1	8.7	109.8	9.1	113.5	22.7	124.3	19.9	122.2	27.5
07/21/2016	102.0	0.1	110.1	0.0	116.2	9.0	114.0	21.7	115.2	22.1	123.7	19.4	118.3	28.3
07/22/2016	87.9	0.1	82.8	0.0	85.4	8.1	91.7	10.3	98.5	21.8	103.6	19.8	99.9	28.8
07/23/2016	95.5	0.1	96.5	0.0	99.3	8.8	96.8	8.6	101.4	19.4	98.7	20.1	93.6	29.2
07/24/2016	91.1	0.1	91.5	0.0	96.1	8.6	92.2	10.0	96.1	23.0	101.7	25.3	99.4	29.7
07/25/2016	101.0	0.1	101.2	0.0	108.0	9.5	107.3	10.6	111.0	22.2	114.3	20.4	111.5	29.8
07/26/2016	105.0	0.1	101.8	0.0	106.2	8.2	106.8	10.1	108.9	22.4	113.4	20.1	111.5	29.4
07/27/2016	113.5	0.1	113.8	0.0	117.8	11.1	114.9	11.6	116.7	21.5	127.3	21.2	127.1	29.1
07/28/2016	116.1	0.1	116.8	0.0	121.4	10.0	123.6	12.0	129.0	22.9	136.3	33.7	133.0	31.0

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

Date	Dworshak		Brownlee Inflow	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/15/2016	7.5	0.0	---	12.4	37.3	17.7	33.8	10.0	34.0	17.0	36.6	26.2
07/16/2016	7.5	0.0	---	10.8	33.6	17.7	33.5	10.1	31.6	16.5	31.8	21.1
07/17/2016	7.5	0.0	---	10.7	30.6	17.7	27.5	8.2	25.7	13.4	27.1	16.2
07/18/2016	9.6	0.0	---	13.5	31.4	17.6	30.6	8.8	30.7	16.7	33.0	22.1
07/19/2016	9.6	0.0	---	13.1	35.2	17.7	31.9	10.6	32.8	16.9	34.5	23.4
07/20/2016	9.7	0.0	---	12.7	34.9	17.8	32.0	10.6	31.5	16.5	31.4	20.1
07/21/2016	9.7	0.0	---	12.8	33.0	17.9	31.7	10.6	30.8	17.0	32.2	21.2
07/22/2016	9.6	0.0	---	10.1	33.5	17.9	31.4	10.5	31.1	16.3	32.6	21.3
07/23/2016	11.9	2.2	---	9.7	30.9	17.7	27.8	10.6	26.4	14.0	29.7	18.7
07/24/2016	11.9	2.2	---	10.4	30.5	17.9	30.0	9.0	28.7	15.5	28.8	18.2
07/25/2016	12.0	2.2	---	10.8	33.0	18.0	30.8	10.5	29.5	17.0	31.7	21.3
07/26/2016	12.0	2.2	---	9.4	33.1	17.9	30.2	10.5	30.4	16.5	32.0	21.3
07/27/2016	11.9	2.2	---	10.1	30.7	17.9	30.2	10.5	29.2	17.0	31.6	20.6
07/28/2016	12.0	2.2	---	10.1	30.7	18.0	28.6	10.5	27.4	13.9	28.9	18.1

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
07/15/2016	164.1	82.3	155.8	62.6	141.1	56.5	153.7	95.3	0.0	46.0
07/16/2016	167.5	83.9	157.9	60.6	143.5	57.7	158.7	95.0	0.0	51.2
07/17/2016	151.7	76.1	153.1	45.8	141.0	56.7	159.1	94.9	0.0	51.8
07/18/2016	172.0	86.1	160.1	50.8	145.8	58.4	159.0	94.9	8.0	43.8
07/19/2016	170.2	85.4	165.5	66.3	150.8	60.3	165.9	94.8	5.2	53.6
07/20/2016	151.3	75.9	146.0	55.6	129.8	52.2	145.3	94.6	0.0	38.4
07/21/2016	168.5	84.3	162.9	48.7	143.2	57.3	159.9	94.5	0.0	52.9
07/22/2016	137.9	69.2	122.9	37.0	111.3	44.4	140.7	94.4	1.0	33.0
07/23/2016	133.8	67.0	139.5	41.9	128.8	51.5	137.9	93.8	0.0	31.6
07/24/2016	143.2	71.9	131.2	39.2	119.3	47.7	138.0	93.8	0.0	31.9
07/25/2016	144.0	72.2	140.8	42.1	127.7	51.3	140.4	93.4	0.0	34.6
07/26/2016	150.3	75.4	141.9	42.6	132.9	53.1	146.0	93.6	0.4	39.6
07/27/2016	162.4	81.5	154.6	46.4	135.1	54.2	154.3	93.5	0.9	47.5
07/28/2016	164.2	82.4	157.6	47.3	144.8	57.9	153.8	93.8	0.9	46.7

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	07/18/16	Chinook + Steelhead	15*	0	0			0	0	0	0
Lower Monumental Dam											
McNary Dam	07/17/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/21/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/25/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam	07/16/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/19/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/23/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/26/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Rock Island Dam	07/19/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

* Sample size criteria not met, therefore no % fish with GBT estimated for this sample day.

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>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>			
	<u>Avg</u>	<u>Avg</u>		<u>#</u>	<u>Avg</u>		<u>Avg</u>	<u>#</u>		<u>Avg</u>	<u>Avg</u>			<u>#</u>	<u>Avg</u>			<u>Avg</u>	<u>#</u>	<u>Avg</u>
7/15	104.9	105.3	105.8	24	---	---	---	0	105.0	105.3	105.8	24	103.5	103.7	103.9	24	104.0	104.4	104.9	24
7/16	104.6	104.8	105.0	24	---	---	---	0	105.0	105.1	105.2	14	103.6	103.7	104.1	19	103.9	104.3	104.6	23
7/17	104.3	104.7	104.8	24	---	---	---	0	104.8	105.0	105.2	24	103.6	103.9	104.2	24	103.9	104.3	104.5	24
7/18	104.4	104.7	105.2	24	---	---	---	0	104.4	104.7	105.0	24	103.3	103.5	103.8	24	103.8	103.9	104.2	24
7/19	104.0	104.5	104.9	24	---	---	---	0	104.4	104.6	105.0	24	102.8	103.3	103.8	24	103.6	103.9	104.1	24
7/20	104.0	104.4	104.8	23	---	---	---	0	104.2	104.3	104.4	24	102.7	103.2	103.4	24	103.5	103.8	104.1	24
7/21	104.4	104.9	105.3	24	---	---	---	0	104.3	104.6	104.8	24	103.0	103.6	104.3	24	103.6	104.1	104.8	24
7/22	104.4	104.7	105.3	24	---	---	---	0	103.8	103.9	104.1	24	102.9	103.3	103.8	24	103.4	103.6	103.8	24
7/23	104.3	104.3	104.4	6	---	---	---	0	103.8	104.0	104.4	24	102.6	103.3	103.8	24	103.5	103.8	104.1	24
7/24	---	---	---	0	---	---	---	0	103.9	104.2	104.7	24	103.1	103.8	104.2	24	103.9	104.3	104.7	24
7/25	105.4	105.4	105.7	9	---	---	---	0	104.2	104.5	104.8	24	103.5	104.6	107.1	24	104.6	104.9	105.1	24
7/26	104.8	105.0	105.3	24	---	---	---	0	104.3	104.5	105.1	24	102.8	103.3	103.7	24	104.6	104.9	105.2	24
7/27	104.9	105.3	105.9	24	---	---	---	0	104.1	104.3	104.5	24	102.6	103.1	103.5	24	104.3	104.5	104.7	24
7/28	104.9	105.3	106.0	23	---	---	---	0	104.0	104.3	104.7	23	102.6	103.2	103.4	23	103.9	104.3	104.6	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>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>			
	<u>Avg</u>	<u>Avg</u>		<u>#</u>	<u>Avg</u>		<u>Avg</u>	<u>#</u>		<u>Avg</u>	<u>Avg</u>			<u>#</u>	<u>Avg</u>			<u>Avg</u>	<u>#</u>	<u>Avg</u>
7/15	104.0	104.3	104.7	24	104.2	104.2	105.0	11	106.2	106.2	109.8	11	106.6	106.9	107.2	24	114.9	118.7	127.5	24
7/16	104.1	104.4	104.9	24	104.1	104.1	104.9	13	105.9	106.0	107.1	13	106.3	106.4	106.8	24	114.5	116.2	123.9	24
7/17	104.2	104.5	104.8	24	104.1	104.1	105.0	14	105.9	106.2	107.3	14	106.5	106.7	106.8	24	111.8	112.6	114.5	24
7/18	104.0	104.4	104.9	24	103.6	103.7	103.9	13	105.7	105.8	106.2	13	106.1	106.3	106.5	24	111.9	112.7	113.6	24
7/19	103.6	103.9	104.3	24	103.2	103.7	104.2	22	105.1	105.6	106.0	22	105.7	105.9	106.1	24	111.4	112.3	112.8	24
7/20	103.5	103.7	103.8	24	103.6	104.2	104.6	24	105.0	105.7	106.1	24	105.7	105.9	106.2	24	111.1	112.2	112.4	24
7/21	103.6	103.9	104.5	24	104.1	104.9	105.7	24	105.3	106.2	107.2	24	105.9	106.2	106.5	24	114.1	116.7	118.9	24
7/22	103.6	103.9	104.3	24	103.6	103.9	104.6	24	106.2	106.6	108.6	24	105.6	105.7	105.8	24	111.5	112.4	116.6	24
7/23	103.4	103.6	103.9	24	103.3	103.8	104.5	24	106.0	106.3	106.6	24	105.6	106.0	106.6	24	110.7	111.9	112.2	24
7/24	104.1	104.4	104.5	24	104.2	105.2	105.9	24	106.3	106.7	107.1	24	106.1	106.6	107.4	24	111.1	112.7	113.2	24
7/25	104.1	104.3	104.8	24	105.0	105.9	106.7	24	107.2	107.9	108.7	24	106.6	106.8	107.2	24	112.0	113.1	113.7	24
7/26	104.2	104.3	104.6	24	105.0	105.7	106.7	24	107.4	107.9	109.2	24	106.8	107.2	107.7	24	112.1	113.5	114.1	24
7/27	103.9	104.0	104.4	24	104.9	105.7	106.3	24	107.7	108.8	110.4	24	107.2	107.6	108.0	24	112.6	113.9	116.2	24
7/28	103.7	103.9	104.3	23	105.2	105.8	106.3	23	107.5	108.3	108.8	23	107.3	107.6	108.1	23	113.4	114.3	116.6	23

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>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>hr</u>			
	<u>Avg</u>	<u>Avg</u>		<u>#</u>	<u>Avg</u>		<u>Avg</u>	<u>#</u>		<u>Avg</u>	<u>Avg</u>			<u>#</u>	<u>Avg</u>			<u>Avg</u>	<u>#</u>	<u>Avg</u>
7/15	107.0	107.6	108.0	24	112.6	113.3	114.7	24	108.0	108.5	109.1	24	---	---	---	0	109.1	109.3	109.5	24
7/16	110.7	113.3	116.4	24	115.2	117.0	119.2	24	108.9	109.9	110.5	24	---	---	---	0	110.2	111.5	112.2	24
7/17	107.0	107.5	107.8	24	111.9	112.8	114.2	24	109.0	109.7	110.4	24	---	---	---	0	110.8	110.9	111.1	24
7/18	106.6	107.0	107.5	24	111.7	112.3	113.2	24	109.1	109.5	109.9	24	---	---	---	0	110.4	110.7	110.9	24
7/19	106.4	107.0	107.5	24	111.8	112.8	113.4	23	109.5	109.9	110.2	24	111.9	112.0	112.2	17	109.8	110.0	110.1	24
7/20	106.7	107.3	107.8	24	112.4	113.1	113.4	24	109.7	110.7	111.7	24	111.1	111.4	112.1	24	109.8	109.9	110.0	24
7/21	107.5	108.8	112.2	24	112.6	113.8	115.7	23	110.5	111.8	113.0	24	110.9	112.3	113.7	24	110.2	110.4	110.7	24
7/22	107.0	107.5	108.6	24	111.7	113.1	114.7	24	107.7	108.3	109.1	24	111.5	112.0	112.9	24	109.4	109.6	110.2	24
7/23	106.3	106.7	107.2	24	111.4	112.0	112.4	24	106.8	107.8	108.9	24	111.1	111.7	113.0	24	108.9	109.1	109.4	24
7/24	106.8	107.4	108.3	24	113.0	114.0	114.4	24	109.0	110.4	111.0	24	112.7	113.5	116.1	24	110.0	110.5	112.1	24
7/25	107.7	108.3	108.7	24	113.2	114.1	115.3	24	111.9	113.7	115.3	24	112.5	112.9	113.4	24	112.2	112.4	112.5	24
7/26	107.3	108.0	108.2	24	112.6	113.4	114.7	24	109.6	110.7	112.3	24	111.8	112.3	113.4	24	111.1	111.4	111.9	24
7/27	107.7	108.4	109.0	24	112.6	114.0	114.6	24	---	---	---	0	---	---	---	0	---	---	---	0
7/28	108.4	109.1	109.5	23	113.0	114.2	114.7	23	---	---	---	0	---	---	---	0	---	---	---	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 and Snake River Sites

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clwrtr-Peck</u>			<u>Anatone</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>				
7/15	111.6	112.1	112.8	24	---	---	---	0	99.5	100.0	100.4	24	---	---	---	0	100.4	101.2	102.2	24
7/16	112.9	114.0	114.6	24	---	---	---	0	99.5	99.8	100.3	24	101.3	102.5	103.8	22	98.1	98.9	99.3	24
7/17	113.6	114.5	116.8	24	---	---	---	0	99.5	99.9	100.3	24	101.1	102.0	102.8	24	96.6	97.7	98.3	24
7/18	112.3	112.6	113.1	24	---	---	---	0	99.6	100.0	100.5	24	101.5	102.8	103.8	24	96.5	97.7	98.7	24
7/19	112.3	112.8	113.6	24	---	---	---	0	99.1	99.4	100.0	24	101.5	102.7	104.0	24	97.3	98.0	98.9	24
7/20	112.6	112.9	113.5	24	---	---	---	0	99.1	99.5	99.8	24	101.8	103.0	103.9	24	101.0	103.9	105.5	23
7/21	113.2	113.6	116.3	24	---	---	---	0	99.6	100.1	100.4	24	102.1	103.6	104.6	24	102.9	104.5	106.0	24
7/22	112.6	113.2	115.3	24	---	---	---	0	99.2	99.5	99.7	24	101.6	102.6	103.4	24	102.0	103.2	104.4	24
7/23	113.0	113.6	115.9	24	---	---	---	0	103.5	103.8	104.1	24	103.8	105.2	106.1	24	102.1	103.9	105.6	24
7/24	113.2	113.7	115.0	24	---	---	---	0	103.9	104.2	104.6	24	104.3	105.4	106.4	24	102.4	104.3	105.9	24
7/25	114.0	114.3	114.5	24	---	---	---	0	104.0	104.4	104.8	24	104.4	105.6	106.5	24	102.5	104.5	106.6	24
7/26	113.1	113.6	114.2	24	---	---	---	0	104.3	104.7	105.0	24	104.7	105.9	107.0	24	102.2	104.1	105.9	24
7/27	---	---	---	0	---	---	---	0	104.1	104.4	104.7	24	104.5	105.6	106.6	24	102.0	104.0	105.8	24
7/28	---	---	---	0	---	---	---	0	104.2	104.5	104.9	23	104.5	105.6	106.5	23	102.1	104.1	105.9	23

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clwrtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose 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>				
7/15	103.7	106.2	108.0	24	100.8	101.5	101.8	24	110.0	110.6	111.1	24	106.0	106.5	107.4	24	108.4	108.9	109.3	24
7/16	103.4	105.8	107.5	24	101.6	102.0	102.4	24	110.4	110.8	111.2	24	106.6	107.0	107.7	24	108.6	109.2	109.7	24
7/17	103.2	105.4	106.7	24	102.8	103.3	104.1	24	110.8	111.1	111.3	24	107.0	107.8	109.5	24	108.3	108.9	109.4	24
7/18	103.4	105.8	107.4	24	103.5	103.7	104.0	24	110.3	110.6	111.1	24	107.4	107.7	108.3	24	108.4	108.8	108.9	24
7/19	103.4	105.7	107.3	24	101.7	102.0	102.7	24	109.8	110.2	110.5	24	108.1	108.4	108.9	24	108.9	109.3	109.6	24
7/20	103.8	106.3	107.9	24	101.4	101.7	102.1	24	110.6	111.4	111.8	24	107.7	107.9	108.1	24	109.0	109.5	109.8	24
7/21	104.2	106.9	108.6	24	101.7	102.2	102.8	24	112.0	112.4	112.7	24	107.9	108.3	109.2	24	109.4	110.0	110.2	24
7/22	103.5	105.5	106.9	24	101.2	101.5	102.0	24	111.5	111.6	111.8	24	108.0	108.2	108.4	24	108.7	109.1	109.4	24
7/23	104.0	106.8	108.7	24	101.4	101.8	102.2	24	111.9	112.3	112.7	24	106.9	107.3	107.7	24	108.8	109.3	109.7	24
7/24	104.8	107.2	108.8	24	102.5	102.9	103.0	24	112.2	112.6	112.9	24	106.6	107.1	107.4	24	108.5	109.0	109.4	24
7/25	104.9	107.4	109.1	24	103.0	103.2	103.4	24	112.2	112.4	112.7	24	106.5	106.7	107.1	24	108.6	109.3	109.7	24
7/26	105.0	107.5	109.3	24	102.0	102.2	102.8	24	112.1	112.3	112.7	24	107.0	107.3	107.6	24	108.6	109.1	109.6	24
7/27	105.1	107.4	109.1	24	101.1	101.4	101.6	24	112.1	112.4	112.7	24	106.7	106.9	107.1	24	108.5	108.9	109.4	24
7/28	105.1	107.5	109.2	23	102.3	102.7	102.9	23	112.2	112.6	112.9	23	106.3	106.5	106.9	23	108.9	109.5	110.0	23

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</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>				
7/15	107.3	107.4	107.5	24	115.9	116.1	116.3	24	109.5	109.8	110.2	24	113.7	114.3	114.7	24	---	---	---	0
7/16	106.8	107.0	107.1	24	115.9	116.6	117.0	24	110.7	111.2	112.3	24	112.6	113.2	114.0	24	---	---	---	0
7/17	107.1	107.3	107.5	24	113.3	114.8	116.8	24	112.2	112.6	112.9	24	111.5	112.3	113.7	24	---	---	---	0
7/18	106.1	106.5	107.0	24	115.7	116.6	117.0	24	112.7	112.9	113.1	24	113.2	113.7	114.1	24	---	---	---	0
7/19	105.7	105.9	106.4	24	115.5	115.6	115.8	24	112.1	112.2	112.5	24	113.5	114.1	114.7	24	---	---	---	0
7/20	106.8	107.2	107.5	24	115.5	116.1	116.7	24	112.1	112.3	112.4	24	113.4	114.0	114.4	24	---	---	---	0
7/21	107.0	107.3	107.4	24	115.6	116.1	117.2	24	112.1	112.3	112.6	24	113.2	113.8	114.2	24	---	---	---	0
7/22	105.2	105.6	106.5	24	115.2	115.7	116.4	24	111.4	111.6	112.0	24	113.0	113.5	114.1	24	---	---	---	0
7/23	105.9	106.2	106.4	24	113.1	113.6	115.3	24	111.6	111.8	112.1	24	113.2	113.8	114.4	24	---	---	---	0
7/24	106.9	107.7	108.0	24	114.8	116.8	117.7	24	112.1	112.4	112.6	24	113.1	113.7	114.2	24	---	---	---	0
7/25	106.9	107.1	107.5	24	115.3	116.2	116.6	24	112.0	112.2	112.4	24	113.0	113.6	114.3	23	---	---	---	0
7/26	106.6	107.2	107.4	24	114.3	114.6	115.0	24	111.9	112.3	112.7	24	113.1	113.7	114.3	24	---	---	---	0
7/27	107.7	107.9	108.0	24	113.9	114.0	114.2	24	112.1	112.4	113.0	24	113.2	113.7	114.2	24	---	---	---	0
7/28	107.5	107.8	107.9	23	112.8	113.9	114.5	23	112.6	112.9	113.5	23	112.3	112.8	113.6	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	McNary-Wash				McNary Tlwr				John Day				John Day Tlwr				The Dalles			
	24 h		12 h	#	24 h		12 h	#	24h		12h	#	24h		12h	#	24h		12h	#
	Avg	Avg	High		hr	Avg	Avg		High	hr	Avg		Avg	High	hr		Avg	Avg	High	
7/15	106.7	107.2	107.8	24	115.5	116.2	116.5	24	102.8	103.0	103.2	24	112.5	112.7	113.1	24	105.0	105.4	105.8	24
7/16	108.2	108.7	109.1	24	115.9	116.3	116.7	24	102.7	103.1	103.3	24	112.7	113.0	113.1	22	104.9	105.2	105.3	22
7/17	109.0	109.2	109.4	24	115.6	115.9	116.1	24	103.4	104.0	104.9	24	114.1	114.5	114.8	24	106.8	107.3	107.6	24
7/18	108.1	108.4	108.9	24	115.5	116.6	117.2	24	104.2	104.4	105.2	24	112.8	113.1	113.4	24	106.2	106.7	107.0	24
7/19	107.3	107.6	107.9	24	115.8	116.3	116.7	24	104.5	105.0	105.3	24	112.5	112.7	112.8	24	106.0	106.4	107.1	24
7/20	107.5	107.8	108.0	24	115.0	115.5	115.8	24	105.1	105.5	105.8	24	113.1	113.5	113.8	24	107.9	108.3	108.5	24
7/21	108.0	108.3	108.6	24	115.7	116.3	116.7	24	106.0	106.6	107.2	24	113.5	113.9	114.6	24	109.1	109.8	110.2	24
7/22	107.4	107.5	108.1	24	114.8	115.1	115.4	24	105.3	105.6	106.1	24	112.4	112.5	113.1	24	106.2	107.1	107.9	24
7/23	107.4	107.8	108.3	24	114.9	115.4	116.1	24	104.9	105.4	105.7	24	113.5	114.0	114.5	24	104.2	104.8	105.1	24
7/24	108.2	108.4	108.5	24	115.0	115.4	115.8	24	105.5	105.9	106.2	24	113.3	114.0	114.4	24	106.7	107.4	107.8	24
7/25	108.4	108.6	108.8	24	115.0	115.6	116.2	24	105.7	105.9	106.0	24	113.4	114.0	114.5	24	108.3	108.9	109.4	24
7/26	109.7	110.9	111.2	24	115.9	116.7	117.4	24	105.8	106.1	106.4	24	113.3	113.9	114.4	24	106.6	107.1	107.5	24
7/27	110.7	111.1	111.4	24	116.5	117.0	117.4	24	105.7	106.2	106.6	24	113.6	114.2	114.9	24	106.0	106.5	107.0	24
7/28	110.2	110.5	111.0	23	116.8	117.2	117.8	23	106.3	106.9	107.3	23	113.9	114.2	114.6	23	108.2	108.7	108.9	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	The Dalles Dnst				Bonneville				Warrendale				CamasWashougal				Cascade Island			
	24 h		12 h	#	24 h		12 h	#	24h		12h	#	24h		12h	#	24h		12h	#
	Avg	Avg	High		hr	Avg	Avg		High	hr	Avg		Avg	High	hr		Avg	Avg	High	
7/15	111.4	111.7	111.9	24	106.1	106.3	106.7	24	115.2	115.7	116.0	24	110.4	111.6	112.7	24	116.7	116.8	116.9	24
7/16	111.2	111.7	112.0	24	105.2	105.5	106.2	24	115.3	115.5	115.8	24	111.7	112.7	113.5	24	116.8	116.9	117.1	24
7/17	112.4	113.0	113.5	24	105.7	105.8	105.9	24	115.3	115.6	115.9	24	111.6	112.2	112.6	24	116.9	117.0	117.0	24
7/18	111.9	112.3	112.8	24	105.8	105.9	106.4	24	115.7	116.5	117.1	24	111.6	112.3	113.1	24	116.6	116.8	117.0	24
7/19	111.7	112.1	112.3	24	107.1	107.6	107.9	24	115.0	115.8	116.1	24	112.2	112.7	113.4	24	116.6	116.8	116.9	24
7/20	112.4	113.3	113.8	24	108.0	108.6	108.9	23	116.4	117.2	117.7	24	112.5	114.0	115.1	24	116.8	117.2	117.5	24
7/21	113.9	114.9	115.2	24	108.8	109.3	109.5	24	116.1	116.7	117.1	24	114.1	115.0	115.9	24	117.1	117.4	117.5	24
7/22	111.3	111.9	112.7	24	106.7	107.2	108.0	24	115.3	115.9	116.1	24	110.8	111.6	112.6	24	116.9	117.0	117.2	24
7/23	111.1	111.5	111.6	24	106.0	106.2	106.4	24	115.7	116.0	116.3	24	112.9	113.7	114.4	24	116.7	116.8	116.9	24
7/24	112.1	113.5	113.8	24	106.1	106.7	107.0	24	116.3	116.8	117.1	24	114.0	115.5	116.3	24	116.9	117.0	117.1	24
7/25	113.3	114.1	114.6	24	107.4	107.9	108.0	24	115.8	116.1	116.3	24	114.0	114.8	115.5	24	116.9	117.1	117.3	24
7/26	112.7	113.1	113.4	24	106.1	106.4	106.8	24	114.9	115.4	116.0	24	111.9	113.0	113.6	24	117.0	117.2	117.5	24
7/27	112.3	113.1	113.3	24	105.7	106.3	106.6	24	114.9	115.4	115.9	24	112.1	113.1	113.9	24	116.8	117.0	117.2	24
7/28	113.8	114.4	114.7	23	107.2	108.0	108.6	23	115.3	116.5	117.1	23	112.2	113.0	113.4	23	117.0	117.3	117.7	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 7/29/2016 9:31

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/currentsmpsubmitdata.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)
07/15/2016	*	---	2	---	---	0	0	11	0	---	0
07/16/2016	*	---	---	---	---	0	0	0	0	---	0
07/17/2016	*	---	---	---	---	4	0	0	0	---	0
07/18/2016	*	---	3	---	---	0	0	0	0	---	0
07/19/2016	*	---	2	---	---	0	0	0	0	---	0
07/20/2016	*	---	0	---	---	0	0	9	0	---	0
07/21/2016	*	---	1	---	---	0	0	4	0	---	0
07/22/2016	*	---	---	---	---	0	3	0	0	---	0
07/23/2016	*	---	---	---	---	0	0	0	0	---	0
07/24/2016	*	---	---	---	---	0	0	0	0	---	0
07/25/2016	*	---	---	---	---	0	0	0	0	---	0
07/26/2016	*	---	---	---	---	0	0	5	0	---	0
07/27/2016	*	---	---	---	---	0	3	5	0	---	0
07/28/2016	*	---	---	---	---	5	0	4	0	---	---
07/29/2016	*	---	---	---	---	---	---	---	---	---	---
<hr/>											
Total:		0	8	0	0	9	6	38	0	0	0
# Days:		0	5	0	0	14	14	14	14	7	7
Average:		0	2	0	0	1	0	3	0	0	0
YTD		27,295	56,779	16,183	7,757	5,899,039	3,490,956	4,892,141	44,783	2,181,660	1,456,048

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)
07/15/2016	*	---	0	---	---	1,207	3,253	478	84	---	10,719
07/16/2016	*	---	---	---	---	673	2,770	352	100	14,762	---
07/17/2016	*	---	---	---	---	972	2,054	438	93	---	4,464
07/18/2016	*	---	0	---	---	1,236	2,080	95	68	5,721	---
07/19/2016	*	---	0	---	---	811	1,084	42	359	---	1,751
07/20/2016	*	---	0	---	---	777	514	181	171	2,070	---
07/21/2016	*	---	0	---	---	1,000	511	67	121	---	1,012
07/22/2016	*	---	---	---	---	1,383	1,020	87	91	2,935	---
07/23/2016	*	---	---	---	---	568	723	41	383	---	460
07/24/2016	*	---	---	---	---	672	1,340	65	125	811	---
07/25/2016	*	---	---	---	---	873	602	42	99	---	458
07/26/2016	*	---	---	---	---	1,155	558	39	97	1,439	---
07/27/2016	*	---	---	---	---	1,360	347	42	63	---	610
07/28/2016	*	---	---	---	---	608	389	45	79	1,220	---
07/29/2016	*	---	---	---	---	---	---	---	---	---	---
<hr/>											
Total:		0	0	0	0	13,295	17,245	2,014	1,933	28,958	19,474
# Days:		0	5	0	0	14	14	14	14	7	7
Average:		0	0	0	0	950	1,232	144	138	4,137	2,782
YTD		0	78	698	2,869	1,146,365	861,218	326,687	20,474	4,326,326	939,554

Two-Week Summary of Passage Indices

COMBINED COHO											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
07/15/2016 *	---	0	---	---	0	0	0	0	---	0	0
07/16/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/17/2016 *	---	---	---	---	0	0	0	1	---	0	0
07/18/2016 *	---	0	---	---	0	0	0	0	0	---	0
07/19/2016 *	---	0	---	---	0	0	0	1	---	0	0
07/20/2016 *	---	0	---	---	0	0	0	0	0	---	0
07/21/2016 *	---	0	---	---	0	0	0	0	---	0	0
07/22/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/23/2016 *	---	---	---	---	4	0	0	0	---	0	0
07/24/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/25/2016 *	---	---	---	---	0	0	0	0	---	0	0
07/26/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/27/2016 *	---	---	---	---	0	0	0	0	---	0	0
07/28/2016 *	---	---	---	---	0	0	0	0	0	---	---
07/29/2016 *	---	---	---	---	---	---	---	---	---	---	---
<hr/>											
Total:	0	0	0	0	4	0	0	2	0	0	0
# Days:	0	5	0	0	14	14	14	14	7	7	13
Average:	0	0	0	0	0	0	0	0	0	0	0
YTD	0	0	0	316	198,067	147,678	60,123	45,366	154,245	58,662	802,520

COMBINED STEELHEAD											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
07/15/2016 *	---	0	---	---	20	21	0	1	---	0	0
07/16/2016 *	---	---	---	---	20	22	0	1	0	---	0
07/17/2016 *	---	---	---	---	22	14	0	0	---	0	0
07/18/2016 *	---	0	---	---	88	29	0	0	0	---	0
07/19/2016 *	---	0	---	---	40	16	0	3	---	0	0
07/20/2016 *	---	0	---	---	8	0	0	1	0	---	0
07/21/2016 *	---	0	---	---	17	18	0	0	---	0	0
07/22/2016 *	---	---	---	---	31	27	5	0	0	---	0
07/23/2016 *	---	---	---	---	26	18	0	0	---	0	0
07/24/2016 *	---	---	---	---	10	16	0	0	0	---	0
07/25/2016 *	---	---	---	---	20	12	0	0	---	0	0
07/26/2016 *	---	---	---	---	54	22	5	0	10	---	0
07/27/2016 *	---	---	---	---	22	22	5	2	---	0	0
07/28/2016 *	---	---	---	---	15	25	4	0	0	---	---
07/29/2016 *	---	---	---	---	---	---	---	---	---	---	---
<hr/>											
Total:	0	0	0	0	393	262	19	8	10	0	0
# Days:	0	5	0	0	14	14	14	14	7	7	13
Average:	0	0	0	0	28	19	1	1	1	0	0
YTD	755	26,537	3,377	9,186	3,957,093	2,295,226	1,838,064	17,662	735,172	502,821	622,598

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)
07/15/2016 *	---	0	---	---	0	0	0	0	---	46	0
07/16/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/17/2016 *	---	---	---	---	0	0	0	0	---	0	0
07/18/2016 *	---	0	---	---	0	0	0	0	0	---	0
07/19/2016 *	---	0	---	---	0	0	0	4	---	0	0
07/20/2016 *	---	0	---	---	0	0	0	0	0	---	0
07/21/2016 *	---	0	---	---	0	0	0	4	---	0	0
07/22/2016 *	---	---	---	---	0	0	0	3	0	---	0
07/23/2016 *	---	---	---	---	0	0	0	1	---	0	0
07/24/2016 *	---	---	---	---	0	0	0	0	0	---	0
07/25/2016 *	---	---	---	---	0	0	0	0	---	7	0
07/26/2016 *	---	---	---	---	0	0	0	0	10	---	0
07/27/2016 *	---	---	---	---	0	0	0	0	---	0	0
07/28/2016 *	---	---	---	---	0	0	0	1	0	---	---
07/29/2016 *	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	0	0	0	13	10	53	0
# Days:	0	5	0	0	14	14	14	14	7	7	13
Average:	0	0	0	0	0	0	0	1	1	8	0
YTD	1	0	0	133	43,851	32,770	24,148	56,635	861,061	303,206	801,582

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)
07/15/2016 *	---	0	---	---	1	35	0	1	---	10	0
07/16/2016 *	---	---	---	---	0	5	0	0	0	---	0
07/17/2016 *	---	---	---	---	0	35	0	0	---	40	0
07/18/2016 *	---	0	---	---	5	0	5	1	0	---	0
07/19/2016 *	---	0	---	---	0	10	0	5	---	0	0
07/20/2016 *	---	0	---	---	1	4	0	0	0	---	0
07/21/2016 *	---	0	---	---	8	0	0	1	---	5	0
07/22/2016 *	---	---	---	---	3	12	0	0	0	---	0
07/23/2016 *	---	---	---	---	1	10	0	2	---	5	67
07/24/2016 *	---	---	---	---	2	6	0	0	10	---	0
07/25/2016 *	---	---	---	---	1	2	0	0	---	5	0
07/26/2016 *	---	---	---	---	1	6	0	0	10	---	0
07/27/2016 *	---	---	---	---	3	8	0	0	---	5	0
07/28/2016 *	---	---	---	---	1	4	0	0	0	---	---
07/29/2016 *	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	27	137	5	10	20	70	67
# Days:	0	5	0	0	14	14	14	14	7	7	13
Average:	0	0	0	0	2	10	0	1	3	10	5
YTD	0	5	1	0	197	34,621	29,675	109	34,413	26,193	10,095

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.

Two 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 = $\text{Collection Counts} / \{ \text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}) \}$

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

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

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

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

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

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

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

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

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

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

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

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

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:

7/29/16 9:31 AM

07/15/16 TO 07/29/16

		Species				
Site	Data	CH0	CH1	CO	ST	Grand Total
LGR	Sum of NumberCollected	6,005	4	2	174	6,185
	Sum of NumberBarged	5,951	4	1	172	6,128
	Sum of NumberBypassed	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	35	0	0	1	36
	Sum of FacilityMorts	19	0	1	1	21
	Sum of ResearchMorts	0	0	0	0	0
	Sum of TotalProjectMorts	54	0	1	2	57
LGS	Sum of NumberCollected	11,707	4		175	11,886
	Sum of NumberBarged	11,570	3		175	11,748
	Sum of NumberBypassed	0	0		0	0
	Sum of Numbertrucked	0	0		0	0
	Sum of SampleMorts	34	0		0	34
	Sum of FacilityMorts	103	1		0	104
	Sum of ResearchMorts	0	0		0	0
	Sum of TotalProjectMorts	137	1		0	138
LMN	Sum of NumberCollected	925	17		8	950
	Sum of NumberBarged	908	17		7	932
	Sum of NumberBypassed	0	0		0	0
	Sum of Numbertrucked	0	0		0	0
	Sum of SampleMorts	2	0		0	2
	Sum of FacilityMorts	3	0		1	4
	Sum of ResearchMorts	0	0		0	0
	Sum of TotalProjectMorts	5	0		1	6
Total Sum of NumberCollected		18,637	25	2	357	19,021
Total Sum of NumberBarged		18,429	24	1	354	18,808
Total Sum of NumberBypassed		0	0	0	0	0
Total Sum of Numbertrucked		0	0	0	0	0
Total Sum of SampleMorts		71	0	0	1	72
Total Sum of FacilityMorts		125	1	1	2	129
Total Sum of ResearchMorts		0	0	0	0	0
Total Sum of TotalProjectMorts		196	1	1	3	201

YTD Transportation Summary

Source: Fish Passage Center

Updated:

7/29/16 9:31 AM

TO: 07/29/16

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	740,448	4,509,996	150,412	33,350	2,986,031	8,420,237
	Sum of NumberBarged	706,218	1,403,205	117,276	31,849	1,109,958	3,368,506
	Sum of NumberBypassed	31,770	3,104,914	33,069	650	1,875,866	5,046,269
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	117	94	1	16	36	264
	Sum of FacilityMorts	2,141	1,361	66	830	103	4,501
	Sum of ResearchMorts	202	422	0	5	68	697
	Sum of TotalProjectMorts	2,460	1,877	67	851	207	5,462
LGS	Sum of NumberCollected	598,999	2,438,124	104,356	22,898	1,600,599	4,764,976
	Sum of NumberBarged	595,087	1,022,201	90,698	22,682	670,744	2,401,412
	Sum of NumberBypassed	2,872	1,415,436	13,600	7	929,747	2,361,662
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	105	23	1	22	12	163
	Sum of FacilityMorts	935	464	57	187	96	1,739
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1,040	487	58	209	108	1,902
LMN	Sum of NumberCollected	183,047	3,510,225	40,585	11,370	1,285,396	5,030,623
	Sum of NumberBarged	179,729	1,897,394	34,346	11,348	630,489	2,753,306
	Sum of NumberBypassed	2,568	1,612,351	6,238	0	654,785	2,275,942
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	45	127	0	5	23	200
	Sum of FacilityMorts	143	353	1	18	99	614
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	188	480	1	23	122	814
Total Sum of NumberCollected		1,522,494	10,458,345	295,353	67,618	5,872,026	18,215,836
Total Sum of NumberBarged		1,481,034	4,322,800	242,320	65,879	2,411,191	8,523,224
Total Sum of NumberBypassed		37,210	6,132,701	52,907	657	3,460,398	9,683,873
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		267	244	2	43	71	627
Total Sum of FacilityMorts		3,219	2,178	124	1,035	298	6,854
Total Sum of ResearchMorts		202	422	0	5	68	697
Total Sum of TotalProjectMorts		3,688	2,844	126	1,083	437	8,178

Cumulative Adult Passage at Mainstem Dams Through: 07/28

DAM	ENDDATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	07/28	137215	11145	220480	13314	146704	24884	117567	10619	156569	17175	93775	21031	0	0	0	0	0	0
TDA	07/28	105504	9999	194116	12307	114381	21222	92458	8374	117880	14693	77568	16539	0	0	0	0	0	0
JDA	07/28	93659	8262	166015	11514	99110	19896	86996	7324	101041	10090	68572	15944	0	0	0	0	0	0
MCN	07/28	82626	7237	156151	8767	89797	16347	79151	6043	87105	7916	63096	11831	0	0	0	0	0	0
IHR	07/28	67484	5029	116462	5745	63912	10829	12665	1403	20281	2708	17735	4667	0	0	0	0	0	0
LMN	07/28	66115	6268	111511	8697	63840	10328	11090	2155	16485	4543	18969	5457	0	0	0	0	0	0
LGS	07/28	62597	6365	105124	8553	59587	11445	11032	1811	14143	4220	17877	6011	0	0	0	0	0	0
LGR	07/28	62050	5480	104873	8379	58449	12640	10450	1877	13434	3812	15844	6398	0	0	0	0	0	0
PRD	07/26	16843	1003	27716	1570	17080	1731	72605	3998	63936	2791	47995	1568	0	0	0	0	0	0
WAN	07/26	17164	919	25982	1077	16645	2069	70801	3239	61471	1608	45162	1265	0	0	0	0	0	0
RIS	07/27	18646	715	31748	1092	17101	2726	69086	2235	67778	1808	45877	3673	0	0	0	0	0	0
RRH	07/27	9449	351	15244	609	7441	1202	48099	1647	54719	1277	33653	2392	0	0	0	0	0	0
WEL	07/27	11789	833	19971	1520	7481	1542	33115	1496	36340	2015	23106	1889	0	0	0	0	0	0
WFA	07/27	28990	2071	50171	2006	34924	1231	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2016		2015		10-Yr Avg.		2016	2015	10-Yr Avg.	2016	2015	10-Yr Avg.	Wild	Wild	10-Yr Avg.	2016	2015	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	07/28	0	0	0	0	0	0	340948	507988	284358	55748	54800	88542	22029	30342	40668	35052	26927	16093
TDA	07/28	0	0	0	0	0	0	286923	425630	242476	19594	19264	47047	9325	11664	22680	6605	8996	3854
JDA	07/28	0	0	0	0	0	1	288164	359825	233817	11955	9468	35228	6348	5513	15614	5429	5889	2822
MCN	07/28	-1	0	13	5	1	0	260303	273639	201918	9851	7340	24002	4910	3882	9395	673	1051	431
IHR	07/28	0	0	0	0	0	0	884	957	820	6004	4497	14064	2736	2136	4242	491	445	83
LMN	07/28	-2	0	0	0	0	0	992	834	962	5574	5971	15963	3059	3107	5359	96	105	18
LGS	07/28	0	0	0	0	0	0	913	540	889	6099	2526	6702	3417	1636	2836	80	93	8
LGR	07/28	0	0	0	0	0	0	776	375	922	7597	9989	12029	4260	4858	4622	34	26	0
PRD	07/26	0	1	0	0	0	0	308802	290938	234086	1421	1567	1797	0	0	0	2306	3110	628
WAN	07/26	0	0	0	0	0	0	318811	283221	198625	1322	1227	1779	0	0	0	916	1901	328
RIS	07/27	0	0	0	0	0	0	305784	253405	225696	921	983	1272	431	613	685	237	533	71
RRH	07/27	0	0	0	0	0	0	231715	206178	190125	612	555	1022	245	337	535	149	437	42
WEL	07/27	0	0	0	0	0	0	210274	178143	177456	435	296	417	178	185	220	1	0	0
WFA	07/27	0	0	1	0	0	0	0	0	0	25494	6847	21519	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.

Columbia/Snake Project Forebay Temperatures

