

# Fish Passage Center

## Weekly Report #19-29

September 27, 2019

Starting on September 13, the weekly report will be every two weeks.

### This Week's Highlights

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 103% and 241% of average at individual sub-basins over September. Precipitation above The Dalles has been 147% of average over September. Over the 2019 water year, precipitation has ranged between 69% and 87% of average.

**Table 1. Summary of September precipitation and cumulative October through September 26<sup>th</sup> precipitation with respect to average (1981-2010), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2019		Water Year 2019	
	September 1-26, 2019		October 1, 2018 to September 26, 2019	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.62	142	28.6	76
Snake River Above Ice Harbor	1.22	132	19.9	86
Columbia Above The Dalles	1.65	147	22.1	80
Kootenai	2.35	121	26.2	69
Clark Fork	2.34	153	24.4	87
Flathead	2.94	151	27.9	78
Pend Oreille River Basin above Waneta Dam	2.38	145	26.1	79
Salmon River Basin	1.27	113	23.7	81
Upper Snake Tributaries	1.96	137	22.8	84
Clearwater	1.69	103	33.0	81
Willamette River above Portland	4.19	241	54.3	81

Grand Coulee Reservoir is at 1281.7 feet (9-26-19) and has refilled 1.4 feet over the last week. Outflows at Grand Coulee have ranged between 36.4 Kcfs and 61.0 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2442.2 feet (9-26-19) and has held steady over the past week. Daily average outflows at Libby Dam have been 6.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3550.6 feet (9-26-19) and has drafted 0.8 feet last week. Outflows at Hungry Horse have been 2.4-2.5 Kcfs over the last week.

Dworshak is currently at an elevation of 1520.9 feet (9-26-19) and has drafted 2.5 feet over last week. Dworshak outflows have been 2.4-4.8 Kcfs.

The Brownlee Reservoir was at an elevation of 2047.0 feet on September 26<sup>th</sup>, 2019 and has drafted 1.5 feet over the last week. Outflows at Hells Canyon have ranged between 8.6 and 22.3 Kcfs over the last four days.

## Spill

Flows in the Snake River this week were similar to last week. The daily average flows for this week and last week at Lower Granite Dam were approximately 26 Kcfs. Flows in the Upper and Mid-Columbia decreased again this week, when compared to the previous week. The daily average flows for this week at Rock Island and McNary dams were approximately 48 Kcfs and 77 Kcfs, respectively. Last week's daily average flows were about 56 Kcfs at Rock Island Dam and 87 Kcfs at McNary Dam.

The summer fish spill program at the FCRPS projects ended on August 31, 2019 and only a small amount of adult attraction spill (0.9-1.3 Kcfs) has been provided at two projects, John Day and Bonneville dams. There has also been a small amount of spill at McNary over the two weeks.

## Temperature

With the termination of the summer spill program, the total dissolved gas (TDG) monitors in the forebays have been removed for the year. Therefore, temperature data from these TDG monitors are no longer be available. However, the forebay temperature strings at many of the FCRPS projects continue to collect data. Herein, we report the daily average temperatures for three index projects with forebay temperature strings. All temperatures reported here are from the string at the 3m depth. The daily average temperatures on September 25, 2019 were 65.8 °F at Lower Granite, 67.1 °F at Ice Harbor, and 66.8 °F at McNary. There is not a forebay temperature string at Bonneville Dam. However, the tailrace TDG monitor at Warrendale is still in operation. The daily average temperature for September 25, 2019 at this gauge was 67.0 °F.

## Smolt Monitoring

The Smolt Monitoring Program (SMP) is currently collecting and reporting data from five bypass facilities (Bonneville Dam, McNary Dam, Lower Granite Dam, Little Goose Dam, and Lower Monumental Dam). Sampling at John Day Dam ended on September 15<sup>th</sup>, although the last sample at John Day was actually September 13<sup>th</sup>, due to the high temperature sampling protocol. Subyearling Chinook dominated the collections of target species at all five bypass facilities this week. Subyearling Chinook passage decreased at all five SMP sites this week. Sampling at McNary and Lower Monumental is expected to end after the samples on September 30<sup>th</sup>.

Sampling at Bonneville (BON) continued under the high temperature sampling until September 18<sup>th</sup>, when normal, everyday, sampling resumed. However, due to an equipment malfunction, the first three samples under the normal sampling protocol (September 18-20) were limited to 15-23 hours per day. Normal, 24-hour samples resumed on September 21<sup>st</sup>. Subyearling Chinook were encountered in only two of this week's samples at BON (September 20<sup>th</sup> and 26<sup>th</sup>) and no other target species were encountered this week. While there were several days this week when zero target species were encountered at BON this week, it should be noted that this is at least partially due to the extremely low sample rates that are currently being used. These low sample rates have been necessitated by the large numbers of juvenile shad in the Bonneville pool, in order to minimize the number of shad juveniles that end up in the sample tanks at the juvenile fish facility. Even at the current 3% sample rate, the average sample count for shad juveniles at BON has been approximately 10,000 per day over the last week.

Sampling at McNary (MCN) also occurs every-other-day. This week's samples at MCN were again dominated by subyearling Chinook, with a daily average passage index of about 20 per day. This is slightly lower than the previous week's daily average passage index of about 30 subyearling Chinook per day. No spring migrants were encountered in this week's samples. Pacific lamprey macropthalmia were encountered in three of this week's four samples, with a daily average collection of 13 per day. No ammocoetes were encountered at MCN this week. Sampling at MCN is expected to end after the sample on September

30<sup>th</sup>.

With the implementation of every-other-day trucking, two days of SMP data from Lower Granite Dam (LGR) are submitted to the FPC every-other-day. Subyearling Chinook continued to dominate the samples at LGR this week. This week's daily average passage index for subyearling Chinook was about 40 per day, which is a decrease from the previous week's daily average passage index of about 100 per day. Very few spring migrants were encountered in this week's samples at LGR. In fact, the only spring migrants that were encountered this week at LGR were steelhead, which were encountered in three of this week's samples. No Pacific lamprey ammocoetes were encountered this week but macrophthalmia were encountered in three of this week's samples. Daily sample counts for lamprey macrophthalmia ranged from zero to three this week.

Subyearling Chinook continued to dominate the samples at Little Goose Dam (LGS) this week. This week's daily average passage index for subyearling Chinook was about 20 per day, which is a decrease from the previous week's daily average passage index of about 80 per day. The only other salmonids that were encountered in this week's samples at LGS were sockeye and steelhead, which were each encountered in a few of this week's samples. Pacific lamprey macrophthalmia were encountered every day this week, with a daily average collection of four per day. No Pacific lamprey ammocoetes were encountered in this week's samples.

Similar to LGR, two days of SMP data from Lower Monumental Dam (LMN) are submitted to the FPC every-other-day. Subyearling Chinook continued to dominate the samples at LMN this week. This week's daily average passage index for subyearling Chinook was only eight per day, which is lower than the previous week's daily average passage index of about 20 per day. No spring migrants were encountered in this week's samples at LMN. One Pacific lamprey macrophthalmia was encountered this week (September 21<sup>st</sup>). Per the Fish Passage Plan, truck transport from LMN has been suspended since August 3<sup>rd</sup>, due to low collection numbers. Sampling at LMN is expected to end after the sample on September 30<sup>th</sup>.

## **Hatchery Releases**

FPC has not received preliminary data from some hatcheries as of 09/27/19, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a finalized record of hatchery releases.

### **Snake River Zone:**

The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. No releases were scheduled for this zone this week. However, two releases of spring Chinook parr are scheduled for October 3<sup>rd</sup> into the Yankee Fork of the Salmon River.

### **Upper Columbia Zone:**

The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. In the past week there were no scheduled releases into this zone, nor are there any scheduled for the next two.

### **Middle Columbia Zone:**

The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). In the past week there were no scheduled releases into this zone, nor are there any scheduled for the next two.

### **Lower Columbia Zone:**

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. In the past week, there were 400,000 juvenile fall Chinook released into this zone at Tanner Creek. In the next two weeks, there are 755,000 spring Chinook juveniles planned for release into the Lewis River, starting on October 1<sup>st</sup>, and running until the end of the month.

## Adults 9-27-2019

Adult Passage Daily passage numbers at Bonneville Dam ranged between 3,633 and 6,898 adult Chinook in the last week. The 2019 Bonneville Dam adult fall Chinook count of 236,208 is about 1.4 times greater than the 2018 count, while being about 50.6% of the 10-year average. At Willamette Falls, 890 adult fall Chinook have been counted so far this year. In 2018, 206 adult fall Chinook were counted at Willamette Falls. As of September 26th, a total of 84,713 adult fall Chinook have been counted at McNary Dam and 11,260 have been counted at Lower Granite Dam. The 2019 McNary Dam adult fall Chinook count is about 1.2 times greater than the 2018 count, while being about 47% of the 10-year average count. The 2019 Lower Granite Dam adult fall Chinook count is about 85.8% of the 2018 count and 41.3% of the 10-year average count.

The 2019 Bonneville Dam adult steelhead count of 69,053 is about 74.2% the 2018 count of 93,106 and about 25.5% of the 10-year average count of 270,308. The 2019 Bonneville Dam adult unclipped steelhead count of 34,529 is about 1.1 times greater than the 2018 count of 30,614, while being about 36.6% of the 10-year average count of 94,322. Daily adult steelhead counts at Lower Granite Dam ranged from 534 to 732 adults per day last week. This year's Lower Granite steelhead count of 10,700 is about 51.2% of the 2018 count of 20,889 and about 15.7% of the 10-year average count of 68,066. The 2019 Lower Granite Dam adult unclipped steelhead count of 4,696 is about 88% of the 2018 count of 5,338 and 23.2% of the 10-year average count of 20,276. At Willamette Falls, the 2019 count for steelhead was 8,315 as of September 23rd. This year's steelhead count is about 76.5% the 2018 count of 10,868 and 41.3% of the 10-year average count of 20,140.

The 2019 Bonneville Dam adult coho count of 50,621 is about 1.9 times greater than the 2018 count, while being about 77.8% of the 10-year average count. The Bonneville 2019 lamprey count of 19,390 is about 44.6% of the 2018 count of 43,423 and about 57.1% the 10-year average count of 33,350.

## Hatchery Releases Last Two Weeks

### Hatchery Release Summary

From: 9/28/2019 to 10/11/2019

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH0	SP	2019	4,995	10-03-19	10-03-19	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Springfield Hatchery	CH0	SP	2019	5,000	10-03-19	10-03-19	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
<b>Idaho Dept. of Fish and Game Total</b>					<b>9,995</b>					
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2019	775,000	10-01-19	11-01-19	Lewis River	Lewis River	LCOL
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>775,000</b>					
<b>Grand Total</b>					<b>784,995</b>					

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

## Hatchery Releases Next Two Weeks

### Hatchery Release Summary

From: 9/14/2019 to 09/27/19

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Nez Perce Tribe	Dworshak NFH	CH1	SP	2019	331,918	09-15-19	09-15-19	Selway River	Clearwater River M F	SNAK
<b>Nez Perce Tribe Total</b>					<b>331,918</b>					
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CH0	FA	2019	400,000	09-27-19	09-27-19	Tanner Creek	Tanner Creek	LCOL
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>400,000</b>					
<b>Grand Total</b>					<b>731,918</b>					

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

## Daily Average Flow and Spill (in Kcfs)

Date 9/27/2019 1:15:22 PM

Page 1 of 3

### Upper 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
09/13/2019	69.9	0.1	61.5	0.0	57.9	0.3	54.4	0.0	55.7	0.0	52.1	0.6	50.2	2.9
09/14/2019	58.6	0.1	60.2	0.0	64.0	0.6	63.6	0.0	65.9	0.0	58.1	1.1	56.1	2.9
09/15/2019	56.2	0.1	56.9	0.0	57.3	1.7	53.8	0.0	55.5	0.0	58.8	1.4	57.8	2.7
09/16/2019	47.4	0.1	45.2	0.0	61.3	0.0	65.2	0.1	70.9	0.0	85.5	1.5	83.7	2.5
09/17/2019	40.3	0.1	38.2	0.0	30.5	0.0	28.1	0.0	27.6	0.0	38.9	0.8	43.5	2.7
09/18/2019	40.6	0.1	42.6	0.0	48.0	0.0	48.5	0.0	50.9	0.3	53.1	0.7	45.1	1.8
09/19/2019	42.2	0.1	44.7	0.0	43.4	0.0	41.4	0.0	43.4	0.0	55.2	0.5	55.5	2.6
09/20/2019	43.6	0.1	37.5	0.0	40.9	0.0	43.7	0.0	44.8	0.0	59.0	0.2	53.9	4.1
09/21/2019	39.2	0.1	45.7	0.0	42.3	2.1	40.2	0.0	41.3	0.0	42.8	0.2	42.8	2.5
09/22/2019	45.1	0.1	44.0	0.0	43.9	1.0	51.9	0.3	53.4	0.0	42.9	0.4	42.9	2.4
09/23/2019	36.4	0.1	37.4	0.0	50.7	2.6	50.6	0.0	52.7	0.0	50.2	0.9	46.3	5.3
09/24/2019	51.2	0.1	43.8	0.0	39.1	0.0	34.4	0.0	34.6	0.2	38.0	0.8	44.2	3.0
09/25/2019	61.0	0.1	61.0	0.0	61.9	0.0	65.4	0.0	69.2	0.1	61.2	0.9	50.6	2.1
09/26/2019	47.2	0.1	39.2	0.0	46.0	0.0	47.8	0.0	49.1	0.0	65.6	1.3	66.9	2.7

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

## Daily Average Flow and Spill (in Kcfs)

Date 9/27/2019 1:15:22 PM

Page 2 of 3

### Snake Basin Projects

Date	Dworshak		Brownlee		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Inflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
09/13/2019	5.4	0.0			23.2	0.0	22.2	0.0	23.6	0.0	25.0	0.0		
09/14/2019	5.4	0.0			26.2	0.0	25.5	0.0	26.5	0.0	25.0	0.0		
09/15/2019	5.4	0.0			26.9	0.0	26.3	0.0	24.4	0.0	25.9	0.0		
09/16/2019	5.4	0.0			24.9	0.0	24.7	0.0	25.7	0.0	22.8	0.0		
09/17/2019	5.5	0.0			26.8	0.0	22.8	0.0	21.6	0.0	23.3	0.0		
09/18/2019	5.0	0.0			27.1	0.0	27.0	0.0	28.2	0.0	28.7	0.0		
09/19/2019	5.0	0.0			27.7	0.0	24.7	0.0	25.6	0.0	27.2	0.0		
09/20/2019	4.8	0.0			27.3	0.0	28.8	0.0	28.3	0.0	27.6	0.0		
09/21/2019	4.8	0.0			24.0	0.0	25.4	0.0	25.9	0.0	25.4	0.0		
09/22/2019	4.8	0.0			26.9	0.0	26.4	0.0	25.4	0.0	26.1	0.0		
09/23/2019	4.8	0.0			26.6	0.3	27.6	0.0	27.5	0.0	25.9	0.0		
09/24/2019	2.4	0.0			27.5	0.0	25.9	0.0	26.1	0.0	29.4	0.1		
09/25/2019	2.4	0.0			26.2	0.0	27.5	0.0	28.0	0.0	27.9	0.0		
09/26/2019	2.5	0.0			25.5	0.0	25.4	0.0	24.6	0.0	21.4	0.0		

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

## Daily Average Flow and Spill (in Kcfs)

Date 9/27/2019 1:15:22 PM

Page 3 of 3

### Mid - Columbia Projects

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
09/13/2019	90.6	0.0	79.9	1.0	79.1	0.0	82.9	1.3	0.9	73.7
09/14/2019	78.4	0.0	76.5	1.0	78.1	0.0	81.9	1.3	0.9	72.8
09/15/2019	73.5	3.8	71.7	1.2	73.0	0.0	84.8	1.3	0.9	75.6
09/16/2019	92.0	0.0	76.4	0.9	76.2	0.0	81.9	1.3	0.9	72.7
09/17/2019	101.1	6.7	95.6	0.8	96.8	0.0	103.1	1.3	9.1	85.7
09/18/2019	85.8	1.8	87.8	0.9	87.7	0.0	101.1	1.3	7.6	85.2
09/19/2019	81.9	1.3	81.1	0.9	82.2	0.0	78.8	1.2	0.9	69.7
09/20/2019	72.7	1.9	72.6	0.9	73.6	0.0	72.8	1.2	0.9	63.7
09/21/2019	77.1	1.3	72.6	0.9	72.8	0.0	75.4	1.2	0.9	66.3
09/22/2019	79.9	3.0	82.5	0.9	84.0	0.0	93.5	1.3	0.9	84.4
09/23/2019	70.6	0.0	69.3	0.9	71.4	0.0	80.7	1.2	0.9	71.6
09/24/2019	68.3	1.6	66.7	0.9	66.5	0.0	74.2	0.7	0.9	65.6
09/25/2019	78.9	0.9	79.8	0.9	81.8	0.0	88.5	1.2	0.8	79.4
09/26/2019	74.1	0.0	66.2	0.9	66.1	0.0	74.5	1.2	0.9	65.4

- Data not available or incorrect

These data were obtained from the Corps of Engineers...



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

Date 9/27/2019 1:15:09 PM

**Total Dissolved Gas Data at Upper Columbia Sites**

Date	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph				Chief J. Dnst				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13									101.8	102.0	102.9	24	103.4	104.3	104.8	24	103.6	104.2	104.5	15	102.9	103.4	104.3	24	09/13
09/14									102.4	103.1	103.3	24	104.3	105.5	115.0	24	103.3	104.1	103.5	3	102.5	102.9	102.8	24	09/14
09/15									101.7	102.8	103.6	24	108.0	113.7	115.0	24	104.4	105.5	115.4	15	102.8	103.0	103.3	24	09/15
09/16									100.5	100.9	101.1	24	104.0	104.4	104.9	24	103.5	104.9	103.8	14	102.7	103.1	103.4	24	09/16
09/17									100.2	100.4	100.6	24	103.8	105.1	106.7	24	102.9	103.5	103.2	18	102.1	102.6	103.4	24	09/17
09/18									99.7	100.2	100.3	24	103.7	104.6	105.2	24	105.3	112.8	153.9	15	101.6	102.2	102.4	24	09/18
09/19									99.4	99.5	99.6	24	103.5	104.1	104.6	24	101.8	102.5	102.4	18	100.8	101.5	102.0	24	09/19
09/20									99.4	99.5	99.9	24	103.4	103.9	104.4	24	101.7	102.0	102.4	21	100.4	101.1	101.5	24	09/20
09/21									100.5	101.2	101.6	24	103.7	104.8	105.7	24	101.8	102.4	102.9	20	100.5	101.3	101.9	24	09/21
09/22									99.6	99.7	99.9	24	102.7	104.2	103.8	24	102.4	102.7	103.1	21	101.1	101.6	102.1	24	09/22
09/23									99.0	99.7	99.7	24	102.8	103.4	103.8	24	101.9	102.6	102.3	24	100.9	101.6	102.2	24	09/23
09/24									98.8	99.1	101.1	24	102.9	103.4	104.2	24	102.0	102.4	102.7	22	101.6	102.3	103.5	24	09/24
09/25									100.7	101.1	101.5	24	102.0	102.9	103.1	24	101.8	102.4	102.5	24	101.3	101.7	102.0	24	09/25
09/26									100.2	100.4	101.5	23	103.8	104.8	105.5	23	102.7	102.8	103.2	23	102.6	103.1	104.0	23	09/26

**Total Dissolved Gas Data at Upper Columbia Sites**

Date	Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr				Rock Island				Rock I. Tlwr				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13	103.4	103.9	103.9	23	102.9	103.4	103.5	23	103.8	104.1	104.3	24	102.6	103.1	104.0	16	102.9	103.4	103.6	24	103.0	103.4	103.4	11	09/13
09/14	102.9	103.4	103.3	23	102.8	103.2	103.9	23	103.8	104.1	104.0	24	103.4	103.7	104.2	17	103.2	103.5	103.8	24	103.2	103.6	103.8	8	09/14
09/15	103.1	103.2	103.4	24	103.1	103.3	105.2	24	103.7	103.8	104.0	24	103.0	103.7	104.2	19	103.4	103.9	103.9	24	103.5	103.8	103.8	12	09/15
09/16	102.1	103.0	102.4	24	102.4	103.3	103.9	24	103.0	103.5	103.3	24	103.1	104.0	104.6	17	102.4	102.9	102.7	24	102.4	103.0	102.6	13	09/16
09/17	101.0	102.0	101.6	22	100.9	102.2	101.2	22	102.4	102.8	102.7	24	101.0	102.7	102.4	20	102.2	102.4	102.4	24	102.3	102.7	102.8	10	09/17
09/18	101.2	101.4	101.8	24	100.7	101.2	101.1	24	102.0	102.4	102.3	24	101.2	101.8	102.4	19	101.3	102.2	101.8	24	101.5	102.7	101.9	11	09/18
09/19	101.2	101.7	102.2	24	100.5	100.8	100.9	24	102.1	102.5	103.1	24	101.1	101.9	102.4	15	101.5	102.1	103.0	24	101.4	102.1	102.4	12	09/19
09/20	101.5	102.0	102.3	24	100.5	100.8	100.9	24	102.5	103.0	103.8	24	101.5	101.8	102.4	17	101.5	102.1	102.8	24	101.7	102.4	102.6	10	09/20
09/21	101.8	102.8	103.1	23	100.7	101.4	103.0	23	101.9	102.8	103.5	24	101.0	101.8	102.4	19	101.6	102.6	103.2	24	101.4	102.6	102.8	13	09/21
09/22	102.3	102.8	103.0	24	104.2	105.8	109.1	24	102.3	102.7	103.3	24	102.0	102.3	103.0	20	101.9	102.6	102.6	24	101.9	102.5	102.6	12	09/22
09/23	101.1	102.5	102.0	24	104.2	107.1	111.5	24	101.3	102.5	101.8	24	101.3	102.0	102.3	17	100.6	102.0	101.2	24	100.7	102.0	100.9	9	09/23
09/24	100.8	101.1	101.5	24	100.8	101.4	102.4	24	101.0	101.3	102.0	24	100.5	101.4	101.3	17	100.6	101.2	101.6	24	100.8	101.1	101.7	12	09/24
09/25	101.0	101.6	102.3	24	100.8	101.7	102.0	24	101.4	102.2	102.8	24	101.2	101.8	103.6	16	100.7	101.3	101.7	24	100.7	101.2	101.6	10	09/25
09/26	102.7	103.3	104.7	19	102.4	103.1	104.5	19	103.1	103.4	103.8	23	102.8	103.3	103.7	15	102.3	102.7	103.1	23	102.3	102.7	103.0	11	09/26

FISH PASSAGE CENTER

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

[INTERNAL PURPOSES ONLY]

Date 9/27/2019 1:15:09 PM

Page 2 of 4

**Total Dissolved Gas Data at Upper and Mid-Columbia Sites**

Date	Wanapum				Wanapum Tlwr				Priest Rapids				Priest R. Dnstr				Pasco				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13	101.1	103.3	102.1	24	102.8	103.5	103.5	24	97.8	99.5	102.0	24	102.7	103.3	104.5	24					09/13
09/14	100.9	102.2	103.0	24	102.6	103.3	103.4	24	101.2	101.6	101.9	24	102.6	103.2	103.8	24					09/14
09/15	101.2	102.1	103.0	24	103.0	103.4	103.6	24	101.5	101.6	101.9	24	102.3	103.0	102.8	24					09/15
09/16	101.5	102.3	103.0	24	102.6	103.3	103.1	24	101.4	101.6	101.9	24	101.8	102.1	103.8	24					09/16
09/17	97.0	101.8	101.1	15	101.9	102.7	102.7	24	101.0	101.6	101.3	24	101.7	102.4	104.7	24					09/17
09/18	96.9	100.4	101.5	20	101.7	102.2	102.8	24	100.6	101.1	101.2	24	101.5	102.3	104.6	24					09/18
09/19	100.9	101.9	103.1	24	101.5	102.0	102.3	24	100.3	100.8	101.1	24	101.4	102.1	104.2	24					09/19
09/20	98.5	101.7	102.2	24	101.0	101.7	101.9	24	100.5	100.8	101.3	24	101.5	101.9	103.6	24					09/20
09/21	96.5	100.0	101.9	22	101.3	102.4	104.4	24	100.0	100.7	100.8	24	101.2	101.8	102.5	24					09/21
09/22	96.9	99.3	101.9	24	101.5	102.3	102.6	24	100.9	101.1	101.8	24	101.6	102.1	102.8	24					09/22
09/23	95.2	99.1	99.6	24	100.9	102.1	101.9	24	100.0	100.8	100.5	24	101.7	102.6	105.4	24					09/23
09/24	95.1	97.4	98.6	24	100.5	101.1	101.6	24	99.6	100.1	100.5	24	140.4	149.7	150.3	24					09/24
09/25	97.2	99.0	100.1	24	100.4	101.0	101.3	24	99.5	100.1	100.9	24	150.7	153.6	159.6	22					09/25
09/26				0				0				0				0					09/26

**Total Dissolved Gas Data at Snake and Clearwater Sites**

Date	Dworshak				Clrwr Peck				Anatone				Clrwr-Lewiston				Lower Granite				Lower G. Tlwr				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13	99.9	100.2	100.8	24					97.9	98.6	99.1	24					97.3	98.0	97.7	24					09/13
09/14	100.2	100.7	101.2	24					97.9	98.5	99.6	24					97.6	98.3	98.5	24					09/14
09/15	100.9	101.5	102.2	24					97.5	98.3	99.5	24					98.5	98.9	99.2	24					09/15
09/16	100.7	101.2	101.5	24					96.7	98.0	97.6	24					98.2	98.6	98.6	24					09/16
09/17	100.3	100.7	101.0	24					96.0	96.8	97.6	24					98.6	99.1	99.4	24					09/17
09/18	100.4	100.6	101.0	24					95.6	96.9	96.8	24					99.2	99.4	99.7	24					09/18
09/19	100.2	100.5	101.0	24					95.7	96.6	98.4	24					98.5	99.3	99.2	24					09/19
09/20	100.1	100.3	100.7	24					95.9	96.8	97.7	24					97.6	98.7	98.2	24					09/20
09/21	100.0	100.4	100.8	24					94.2	96.1	95.5	24					97.2	97.7	97.9	24					09/21
09/22	100.5	101.0	101.8	24					94.6	95.0	96.0	24					97.8	98.4	98.7	24					09/22
09/23	99.9	100.7	100.5	24					93.7	94.5	95.2	24					97.4	98.3	102.6	24					09/23
09/24	99.8	100.3	100.9	24					92.1	93.9	93.9	22					97.2	97.4	97.5	24					09/24
09/25	99.4	100.0	100.8	24					91.9	92.8	93.0	24					97.0	97.6	97.9	24					09/25
09/26	100.1	100.5	100.9	23					92.1	92.1	93.0	23					98.4	98.8	98.9	23					09/26

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

Date 9/27/2019 1:15:09 PM

Page 3 of 4

**Total Dissolved Gas Data at Lower Snake Sites**

Date	Little Goose				L. Goose Tlwr				Lower Mon.				Lwr. Mon. Tlwr				Ice Harbor				Tlwr Ice Harbor				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13					97.9	98.8	98.6	24					99.2	100.5	101.5	24					101.6	102.2	102.9	24	09/13
09/14					98.3	99.3	99.7	24					99.3	99.9	100.0	24					101.9	102.6	103.2	24	09/14
09/15					99.5	100.3	100.9	24					100.0	100.4	100.9	24					102.6	103.2	103.8	24	09/15
09/16					97.8	99.9	98.5	24					99.3	99.9	99.7	24					101.8	102.6	103.0	24	09/16
09/17					98.0	98.5	99.1	24					99.3	99.7	100.1	24					102.0	102.7	103.2	24	09/17
09/18					97.6	98.3	98.0	24					99.0	99.5	99.4	24					100.6	102.1	102.0	24	09/18
09/19					97.5	98.0	98.6	24					97.7	98.6	98.1	24					99.3	100.2	100.1	24	09/19
09/20					95.6	97.3	96.4	24					97.9	98.0	98.6	24					98.5	99.2	99.3	24	09/20
09/21					95.9	96.5	96.9	24					97.6	98.1	98.6	24					98.8	99.5	99.8	24	09/21
09/22					96.5	97.0	97.6	24					98.0	98.2	98.8	24					99.8	100.5	101.1	24	09/22
09/23					96.0	96.6	96.6	24					96.9	97.7	97.5	24					99.2	100.1	100.3	15	09/23
09/24					96.5	97.2	97.6	24					97.0	97.3	97.7	24					98.6	100.1	99.5	17	09/24
09/25					96.6	97.2	97.6	24					96.6	97.0	97.3	24					97.9	98.6	99.5	24	09/25
09/26					97.6	98.1	98.6	23					97.3	97.7	98.0	23					98.7	99.5	100.5	23	09/26

**Total Dissolved Gas Data at Mid-Columbia Sites**

Date	McNary-Wash.				Tlwr McNary				John Day				Tlwr John Day				The Dalles				Dnstr T. Dalles				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13					100.3	101.3	101.0	24	101.3	102.4	102.1	24	101.4	102.1	101.8	24	101.6	102.0	101.8	24	103.3	103.6	103.9	24	09/13
09/14					100.9	101.6	102.0	24	100.8	101.1	101.3	24	101.3	101.7	102.3	24	101.2	101.6	101.6	24	103.8	104.4	104.5	24	09/14
09/15					104.7	107.9	109.6	24	100.8	101.1	101.1	24	101.3	101.5	101.7	24	101.1	101.4	101.3	24	103.0	104.0	103.3	24	09/15
09/16					101.7	105.5	103.7	24	100.3	100.6	100.4	17	100.0	101.2	100.9	24	100.1	100.8	100.5	24	102.7	103.1	103.1	24	09/16
09/17					104.2	107.3	109.8	24				0	100.6	101.3	101.5	24	99.1	99.9	99.3	10	101.4	102.4	101.6	24	09/17
09/18					101.4	102.3	106.9	24				0	100.6	101.3	101.5	24				0	101.3	101.5	101.6	24	09/18
09/19					101.7	105.3	107.4	24				0	100.0	100.5	100.8	24				0	101.2	101.4	101.8	24	09/19
09/20					100.1	101.2	106.9	24				0	99.2	100.1	99.7	24				0	101.4	101.6	102.0	24	09/20
09/21					101.2	105.1	107.7	24				0	99.1	99.6	99.9	24				0	101.4	101.9	102.2	24	09/21
09/22					102.6	105.8	108.3	24				0	99.3	99.6	100.0	24				0	101.5	101.8	101.7	24	09/22
09/23					98.9	102.9	99.6	24				0	98.6	99.3	99.1	24				0	100.8	101.3	101.4	24	09/23
09/24					101.0	103.3	107.5	24				0	98.5	99.0	99.1	24				0	100.6	101.0	101.2	24	09/24
09/25					99.3	100.6	104.8	24				0	98.7	99.0	99.9	24				0	101.2	101.5	101.7	24	09/25
09/26					101.0	102.4	106.5	23				0	99.0	99.5	99.7	23				0	101.9	102.2	102.5	23	09/26

FISH PASSAGE CENTER

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

[INTERNAL PURPOSES ONLY]

Date 9/27/2019 1:15:09 PM

Page 4 of 4

**Total Dissolved Gas Data at Mid-Columbia Sites**

Date	Bonneville				Warrendale				Camas\Washug.				Cascade Isld.				Date
	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	24 h Avg	12 h Avg	High	# Hr	
09/13	100.9	101.3	101.4	24	102.2	102.6	103.0	24	102.0	102.3	102.6	24	110.5	114.4	116.9	24	09/13
09/14	101.3	101.7	102.1	24	102.6	103.1	103.6	24	102.7	103.2	103.3	24	109.6	112.4	114.7	24	09/14
09/15	101.5	101.9	102.1	24	102.7	103.0	103.2	24	102.0	103.2	102.6	24	109.3	110.8	115.1	24	09/15
09/16	100.5	101.2	100.9	24	102.6	103.2	105.7	24	101.0	101.5	101.3	11	109.9	112.3	116.8	24	09/16
09/17	100.3	100.7	100.7	13	101.7	103.1	102.5	24				0	110.0	113.3	116.8	16	09/17
09/18				0	101.6	102.1	102.6	24				0				0	09/18
09/19				0	100.9	101.5	101.4	24				0				0	09/19
09/20				0	101.0	101.2	101.4	24				0				0	09/20
09/21				0	100.8	101.2	101.6	24				0				0	09/21
09/22				0	100.8	101.2	101.4	24				0				0	09/22
09/23				0	99.9	100.5	100.8	24				0				0	09/23
09/24				0	100.0	100.5	101.0	24				0				0	09/24
09/25				0	100.6	101.3	101.6	24				0				0	09/25
09/26				0	101.3	101.5	102.0	23				0				0	09/26

Hours used in calculating values:

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

FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 1 of 7

### 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)
09/13/2019					0	0	0			0	
09/14/2019					0	0	0		0		0
09/15/2019					1	0	0				
09/16/2019					0	1	0		0		0
09/17/2019					0	0	0				
09/18/2019					0	0	0		0		0
09/19/2019					0	0	0				0
09/20/2019					0	0	0		0		0
09/21/2019					0	0	0				0
09/22/2019					0	0	0		0		0
09/23/2019					0	0	0				0
09/24/2019					0	0	0		0		0
09/25/2019					0	0	0				0
09/26/2019					0	0	0		0		0
09/27/2019						0					0
<b>Total:</b>	0	0	0	0	1	1	0	0	0	0	0
<b># Days:</b>	0	0	0	0	14	15	14	0	7	1	12
<b>Average:</b>	0	0	0	0	0	0	0	0	0	0	0
<b>YTD:</b>	16,130	22,180	12,656	5,063	2,955,573	2,007,538	1,697,396	18,809	825,244	701,920	1,764,794

Number of hours sampled:

- No data available or no sample conducted

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

FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 2 of 7

### 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)
09/13/2019					165	73	30			5	
09/14/2019					113	62	17		13		34
09/15/2019					97	58	49				
09/16/2019					107	215	22		42		34
09/17/2019					74	40	17				
09/18/2019					80	53	15		31		112
09/19/2019					74	50	11				0
09/20/2019					71	25	11		10		69
09/21/2019					65	27	10				0
09/22/2019					27	20	10		30		0
09/23/2019					26	17	4				0
09/24/2019					34	19	9		10		0
09/25/2019					18	12	5				0
09/26/2019					24	6	6		20		69
09/27/2019						16					34
<b>Total:</b>	0	0	0	0	975	693	216	0	156	5	352
<b># Days:</b>	0	0	0	0	14	15	14	0	7	1	12
<b>Average:</b>	0	0	0	0	70	46	15	0	22	5	29
<b>YTD:</b>	1	4	9	1,070	680,666	533,567	354,762	14,978	531,551	506,745	3,463,904

Number of hours sampled:

- No data available or no sample conducted

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

FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 3 of 7

### 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)
09/13/2019					1	0	0			0	
09/14/2019					0	0	0		0		0
09/15/2019					0	0	0				
09/16/2019					0	0	0		0		0
09/17/2019					0	0	0				
09/18/2019					0	0	0		0		0
09/19/2019					0	0	0				0
09/20/2019					0	0	0		0		0
09/21/2019					0	0	0				0
09/22/2019					0	0	0		0		0
09/23/2019					0	0	0				0
09/24/2019					0	0	0		0		0
09/25/2019					0	0	0				0
09/26/2019					0	0	0		0		0
09/27/2019						0					0
<b>Total:</b>	0	0	0	0	1	0	0	0	0	0	0
<b># Days:</b>	0	0	0	0	14	15	14	0	7	1	12
<b>Average:</b>	0	0	0	0	0	0	0	0	0	0	0
<b>YTD:</b>	0	0	1,565	87	119,647	95,249	46,021	46,937	57,824	71,452	535,732

Number of hours sampled:

- No data available or no sample conducted

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

FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 4 of 7

### 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)
09/13/2019					0	0	0			0	
09/14/2019					0	2	0		0		0
09/15/2019					1	0	0				
09/16/2019					0	1	0		0		0
09/17/2019					0	0	1				
09/18/2019					0	0	0		0		0
09/19/2019					0	0	0				0
09/20/2019					0	0	0		0		0
09/21/2019					1	1	0				0
09/22/2019					2	2	0		0		0
09/23/2019					1	0	0				0
09/24/2019					0	1	0		0		0
09/25/2019					0	0	0				0
09/26/2019					0	0	0		0		0
09/27/2019						0					0
<b>Total:</b>	0	0	0	0	5	7	1	0	0	0	0
<b># Days:</b>	0	0	0	0	14	15	14	0	7	1	12
<b>Average:</b>	0	0	0	0	0	0	0	0	0	0	0
<b>YTD:</b>	884	15,707	4,137	1,155	4,386,503	2,941,418	2,461,591	9,870	431,131	824,766	473,503

Number of hours sampled:

- No data available or no sample conducted

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



FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 5 of 7

### COMBINED SOCKEYE

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (Index)	LGS (Index)	LMN (Index)	RIS (Index)	MCN (Index)	JDA (Index)	BO2 (Index)
09/13/2019					0	2	0			0	
09/14/2019					1	1	0		0		0
09/15/2019					0	0	0				
09/16/2019					0	1	0		0		0
09/17/2019					0	0	0				
09/18/2019					0	0	0		0		0
09/19/2019					0	0	0				0
09/20/2019					0	0	0		0		0
09/21/2019					0	0	0				0
09/22/2019					0	1	0		0		0
09/23/2019					0	0	0				0
09/24/2019					0	0	0		0		0
09/25/2019					0	0	0				0
09/26/2019					0	0	0		0		0
09/27/2019						0					0
<b>Total:</b>	0	0	0	0	1	5	0	0	0	0	0
<b># Days:</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Average:</b>	0	0	0	0	0	0	0	0	0	0	0
<b>YTD:</b>	1	0	0	506	73,727	52,413	63,511	7,401	166,189	89,744	158,595

Number of hours sampled:

- No data available or no sample conducted

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

FISH PASSAGE CENTER

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 6 of 7

### COMBINED LAMPREY JUVENILES

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR* (Sample)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
09/13/2019					5	15	0			0	
09/14/2019					1	15	2		20		0
09/15/2019					6	6	1				
09/16/2019					0	14	0		20		0
09/17/2019					1	3	0				
09/18/2019					0	1	0		10		0
09/19/2019					4	6	0				0
09/20/2019					0	4	0		20		0
09/21/2019					3	5	1				0
09/22/2019					0	4	0		20		0
09/23/2019					1	6	0				0
09/24/2019					0	6	0		0		0
09/25/2019					1	4	0				0
09/26/2019					0	2	0		10		0
09/27/2019						13					0
<b>Total:</b>	0	0	0	0	22	104	4	0	100	0	0
<b># Days:</b>	0	0	0	0	16	16	14	0	7	1	12
<b>Average:</b>	0	0	0	0	1	7	0	0	14	0	0
<b>YTD:</b>	2	67	98		635	24,639	67,373	509	189,619	178,367	104,802

- No data available or no sample conducted

- Juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection. Therefore, only sample counts are provided in this report.

Number of hours sampled:

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

## Smolt Monitoring Program Two Week Passage Index Report

Date 9/27/2019 11:16:04 AM

Page 7 of 7

**Smolt Monitoring Program Sites and Agency Collaborations:**

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

- No data available or no sample conducted

**Number of hours sampled:**



**Important Information About this Report:**

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

FISH PASSAGE CENTER

## Two Week Transportation Summary Report

### 9/13/2019 12:00:00 AM TO 9/27/2019 12:00:00 AM

Date 9/27/2019 11:18:49 AM

Page 1 of 2

#### Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	975	1	1	1	5	983
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	0	0	0	0	5	5
Sum of Number Trucked	970	1	0	1	0	972
Sum of Sample Morts	5	0	1	0	0	6
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	5	0	1	0	0	6

#### Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	693	1	0	5	7	706
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	6	0	0	0	0	6
Sum of Number Trucked	611	1	0	1	7	620
Sum of Sample Morts	49	0	0	2	0	51
Sum of Facility Morts	12	0	0	2	0	14
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	61	0	0	4	0	65

FISH PASSAGE CENTER

## Two Week Transportation Summary Report

### 9/13/2019 12:00:00 AM TO 9/27/2019 12:00:00 AM

Date 9/27/2019 11:18:49 AM

Page 2 of 2

#### Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	216	0	0	0	1	217
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	214	0	0	0	1	215
Sum of Number Trucked	0	0	0	0	0	0
Sum of Sample Morts	2	0	0	0	0	2
Sum of Facility Morts	0	0	0	0	0	0
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	2	0	0	0	0	2

#### Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	1,884	2	1	6	13	1,919
Sum of Number Barged	0	0	0	0	0	0
Sum of Number Bypassed	220	0	0	0	6	232
Sum of Number Trucked	1,581	2	0	2	7	1,599
Sum of Sample Morts	56	0	1	2	0	59
Sum of Facility Morts	12	0	0	2	0	14
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	68	0	1	4	0	73

FISH PASSAGE CENTER

## YTD Transportation Summary Report

Date 9/27/2019 11:17:32 AM

Page 1 of 2

### Lower Granite Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	433632	1866558	77393	49631	2730587	5157801
Sum of Number Barged	375240	1258040	56679	49346	1360137	3099442
Sum of Number Bypassed	44318	606527	20623	150	1370171	2041789
Sum of Number Trucked	12985	226	5	4	5	13225
Sum of Sample Morts	202	44	2	1	24	273
Sum of Facility Morts	887	1706	84	130	225	3032
Sum of Reseach Morts	0	15	0	0	25	40
Sum of Total Project Mort	1089	1765	86	131	274	3345

### Little Goose Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	321834	1158141	55910	30937	1702666	3269488
Sum of Number Barged	283249	943186	52730	30724	1027508	2337397
Sum of Number Bypassed	16244	212682	3062	40	674797	906825
Sum of Number Trucked	21572	2	12	10	134	21730
Sum of Sample Morts	249	40	10	8	11	318
Sum of Facility Morts	505	2231	96	155	216	3203
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	754	2271	106	163	227	3521

FISH PASSAGE CENTER

## YTD Transportation Summary Report

Date 9/27/2019 11:17:32 AM

Page 2 of 2

### Lower Monumental Dam

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	223337	1176566	30700	44108	1655433	3130144
Sum of Number Barged	218639	818457	27126	43977	1027465	2135664
Sum of Number Bypassed	4373	357066	3570	128	627716	992853
Sum of Number Trucked	72	0	0	0	2	74
Sum of Sample Morts	46	15	1	0	14	76
Sum of Facility Morts	207	1028	3	3	236	1477
Sum of Reseach Morts	0	0	0	0	0	0
Sum of Total Project Mort	253	1043	4	3	250	1553

### Total

Data	Chinook Subyearlings	Chinook Yearlings	Coho	Sockeye	Steelhead	Grand Total
Sum of Number Collected	978803	4201265	164003	124676	6088686	11557433
Sum of Number Barged	877128	3019683	136535	124047	3415110	7572503
Sum of Number Bypassed	64935	1176275	27255	318	2672684	3941467
Sum of Number Trucked	34629	228	17	14	141	35029
Sum of Sample Morts	497	99	13	9	49	667
Sum of Facility Morts	1599	4965	183	288	677	7712
Sum of Reseach Morts	0	15	0	0	25	40
Sum of Total Project Mort	2096	5079	196	297	751	8419

Cumulative Adult Passage at Mainstem Dams Through: 09/26

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2019		2018		10-Yr Avg.		2019		2018		10-Yr Avg.		2019		2018		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	09/26	54657	6728	87894	6456	148623	24719	51050	8885	61057	4349	100070	21076	236208	37272	163875	26201	466710	71071
TDA	09/26	38008	5796	57935	4793	115472	20593	42648	7497	49296	3787	82960	16728	140516	20532	103638	15713	277923	54914
JDA	09/26	35134	6000	50572	5053	100594	19392	39000	8116	42835	4293	73478	15838	101821	17026	81170	12626	211774	45251
MCN	09/26	31650	5142	44427	3472	92034	15431	37911	6393	42649	2513	70498	11599	84713	12156	69782	7905	180096	28699
IHR	09/26	21594	3619	32600	2197	66058	10645	4243	1606	5808	560	17319	4380	13970	3598	13899	2480	34257	12115
LMN	09/26	21790	4404	35398	3020	66187	10631	3408	1984	6143	717	17533	5796	12796	4857	14418	4557	29914	13930
LGS	09/26	20732	3850	31834	2486	62132	11577	5112	1661	7458	589	17998	6006	12522	3193	13756	2423	29065	10256
LGR	09/26	19155	3870	31161	2948	60949	12208	4461	2131	7304	819	15867	6443	11260	3620	13120	2645	27250	10778
PRD	09/25	8109	633	7067	949	17545	1894	37960	3103	40076	2269	60094	3002	14808	1755	11127	1409	38911	4297
WAN	09/25	8117	525	8071	964	16932	2151	40169	2650	37808	1450	56803	2320	7490	1041	7073	1145	15640	2236
RIS	09/25	8788	783	7894	997	17793	2585	41090	1705	38816	1646	59723	4848	6567	405	4969	772	9499	3003
RRH	09/25	6533	387	5919	807	8380	1199	38090	1142	33110	1106	48203	3356	4472	275	3634	598	7064	1940
WEL	09/25	8059	677	7499	977	9149	1660	23290	1798	22141	1101	37862	3542	2123	183	1224	214	2842	781
WFA	09/23	18882	1735	24543	1999	36870	1858	0	0	0	0	0	0	890	206	1392	213	926	209

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey			
		2019		2018		10-Yr Avg.		2019	2018	10-Yr Avg.	10-Yr Unclipped		10-Yr Unclipped	10-Yr Unclipped	2019	2018	10-Yr Avg.	2019	2018	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack				2019	2018								
BON	09/26	50621	4114	27191	5249	65035	4329	63046	193816	319966	69053	93106	270308	34529	30614	94322	19390	43423	33350	
TDA	09/26	20084	2675	17290	1863	32147	3181	50686	152095	271094	44183	63473	197611	20923	18673	67307	4210	10503	9977	
JDA	09/26	13697	2339	12545	1952	23647	2734	52525	168469	262253	30620	49825	162467	15091	15797	54751	4595	8549	7563	
MCN	09/26	8879	930	8177	866	15630	2155	51558	155479	231288	26043	41486	132429	12245	13179	42623	998	1550	1323	
IHR	09/26	973	134	527	191	2009	227	320	382	943	15300	23813	92061	5762	5374	24057	268	1002	543	
LMN	09/26	557	144	455	181	1342	282	195	398	1082	13738	24018	87557	5449	6007	24619	175	422	146	
LGS	09/26	150	40	253	59	1075	240	82	280	1017	9847	19751	71357	3937	4867	20350	47	58	92	
LGR	09/26	112	9	207	79	612	58	81	275	1022	10700	20889	68066	4696	5338	20276	94	205	55	
PRD	09/25	817	85	3038	181	3605	343	45228	189884	270337	2705	4005	14480	0	0	0	3213	11452	7392	
WAN	09/25	323	26	2669	163	1496	191	53893	196183	241470	2531	3441	12881	0	0	0	2904	8645	6608	
RIS	09/25	306	46	4244	110	2623	190	58550	171989	261771	2934	3954	12409	1841	1726	5263	1056	4893	3732	
RRH	09/25	130	26	1574	50	558	29	50445	162657	220961	1992	3007	9272	1176	1214	3719	898	5113	4032	
WEL	09/25	50	27	729	27	201	3	49843	153612	208340	1620	2401	6837	1046	1098	2776	14	174	9	
WFA	09/23	1149	550	659	1298	3058	1152	0	0	0	8315	10868	20140	3395	2196	191	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.