



# Fish Passage Center

## Weekly Report #09 - 25

August 28, 2009

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 40% and 231% of average at individual sub-basins through August. Precipitation above The Dalles has been 142% of average over August. Over the entire water year, precipitation has generally been near average.

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

Location	Water Year 2009 August 1-24		Water Year 2009 October 1, 2008 to August 1-24, 2009	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.70	130	21.73	92
Snake River Above Ice Harbor	1.09	164	19.17	115
Columbia Above The Dalles	1.31	142	21.98	101
Kootenai	1.58	120	21.38	88
Clark Fork	1.64	163	17.41	106
Flathead	1.89	152	20.30	94
Pend Oreille/Spokane	1.55	157	28.28	96
Central Washington	0.12	42	7.06	82
Snake River Plain	0.77	172	12.80	120
Salmon/Boise/Payette	1.25	231	18.75	99
Clearwater	1.98	213	31.58	108
SW Washington Cascades/Cowlitz	1.35	113	60.33	89
Willamette Valley	0.33	40	48.55	84

Table 2 displays the June Final and July Final runoff volume forecasts for multiple reservoirs. The most notable differences between the June Final and July Final forecasts came at Libby Dam and Lower Granite Dam. At Libby, the July Final forecast decreased 11% relative to the June Final Forecast. At Lower Granite Dam, the July Final forecast increased 7% relative to the June Final Forecast, it appears most of the increase at Lower Granite was due to an increase in water supply above Brownlee Dam (increased 14%). The Water Supply Forecast at The Dalles between January and July is 89300 Kaf (83% of average).

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

Location	June Final		July Final	
	% Average (1971- 2000)	Probable Runoff Volume (Kaf)	% Average (1971- 2000)	Probable Runoff Volume (Kaf)
The Dalles (Jan-July)	86	92000	83	89300
Grand Coulee (Jan-July)	85	53700	79	49600
Libby Res. Inflow, MT (Apr-Aug)	80	5000 5062*	69	4330
Hungry Horse Res. Inflow, MT (Jan-July)	93	2060	91	2020
Lower Granite Res. Inflow (Apr-July)	102	21900	109	23500
Brownlee Res. Inflow (Apr-July)	76	4780	90	5710
Dworshak Res. Inflow (Apr-July)	98	2590 2597*	97	2570

\*Denotes COE Forecast

The summer flow period began on 6-21-09 at Lower Granite Dam and the objective is 52.5 Kcfs. Flows at Lower Granite have average 49.5 Kcfs over the summer period and 32.2 Kcfs last week.

The summer flow period began on July 1 at McNary Dam and the objective is 200 Kcfs. Flows at McNary Dam have averaged 143.7 Kcfs over the summer period and 117.9 Kcfs last week.

Grand Coulee Reservoir is at 1278.7 feet (8-27-09) and drafted 2.2 feet over the last week. Outflows at Grand Coulee have ranged between 49.0 and 90.9 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2443.3 feet (8-27-09) and has held steady last week. Outflows at Libby are currently 7 Kcfs (minimum bull trout flow) and will remain at this level through August.

Hungry Horse is currently at an elevation of 3555.1 ft (8-27-09) and has drafted 1.0 foot last week. Outflows at Hungry Horse have been approximately 2.5 Kcfs last week. The BOR plans to draft Hungry Horse to elevation 3550 by the end of September.

Dworshak is currently at an elevation of 1538.0 feet (8-27-09) and has drafted 6.8 feet last week. Outflows at Dworshak were decreased to 8 Kcfs on 8-24-09.

The Brownlee Reservoir was at an elevation of 2054.7 feet on August 27<sup>th</sup>, 2009, drafting 3.3 feet last week. Outflows at Brownlee Dam have been 11.1 to 15.1 Kcfs over the last week.

**Spill:**

The 2009 planned summer spill program at the lower Snake River Projects began at 0001 hours on June 20, 2009. The following table shows the planned operations for 2009.

Project	Day/Night Spill
Lower Granite	18Kcfs/18Kcfs
Little Goose	30%/30%
Lower Monumental	17Kcfs/17Kcfs
Ice Harbor	45Kcfs/Gas Cap

Lower Granite Dam spilled at, or above, the Court Order, except on the 25<sup>th</sup>, 26<sup>th</sup>, and 27<sup>th</sup> when lower flows and powerhouse minimum flows precluded spilling 18 Kcfs. On August 18<sup>th</sup>, due to concerns over tailrace egress conditions at low flows, spill at Little Goose Dam was changed from 30% of instantaneous flow to a flat spill of 11.6 Kcfs. Flows continued to decrease over the past week so the 11.6 Kcfs spill

was reduced to 9.9 Kcfs on August 26<sup>th</sup>. However, these flat spill amounts at Little Goose have resulted in spill in excess of the 30% Court Order. At Lower Monumental dam the 17 Kcfs spill was met most days, except for August 25<sup>th</sup> through 27<sup>th</sup> due to low flows and powerhouse minimum requirements. At Ice Harbor Dam the court ordered levels of 45 Kcfs daytime spill and gas cap nighttime spill were often precluded due to low flows and required powerhouse minimum flows. The minimum spill of 15.2 Kcfs at Ice Harbor was met this week, except for a 14 hour period on the evening of August 25<sup>th</sup> and morning of August 26<sup>th</sup>. This was due to the Sacagawea substation coming back on line, Ice Harbor needing to run Unit 1 for four consecutive days, and the low flows at Ice Harbor during this time.

The following table shows the planned operations for summer spill levels in the lower Columbia River for 2009.

Project	Day/Night Spill
McNary	50%/50%* (beginning June 20)
John Day	30%/30%
The Dalles	40%/40%
Bonneville	75 Kcfs/gas cap

McNary Dam spill met the 50% Court Ordered spill level this week, except on the 23<sup>rd</sup> when lower flows and powerhouse minimum flows precluded spilling 50%. John Day Dam spilled an instantaneous 30% all week. At The Dalles Dam flows were high enough to meet the 40% spill requirement all week. Flows at Bonneville Dam were generally low this week. Therefore, all flow above the powerhouse minimum and miscellaneous flows of about 42 Kcfs were spilled this week. Daily average spill at Bonneville Dam ranged from 66.4 Kcfs to 83.4 Kcfs this week.

There were no exceedences of the 115%/120% TDG levels at the gages required for management of spill this past week. However, TDG registered slightly above 115% at the Camas/Washougal gage on August 27<sup>th</sup>. The total dissolved gas levels were due to the diel heating, and there is no water quality requirement to manage spill to this gage.

Gas bubble trauma (GBT) monitoring occurred at Little Goose and Lower Monumental dams in the Snake River, and at McNary and Bonneville dams in the lower Columbia. Over the past week no fish were detected with signs of GBT.

### **Smolt Monitoring:**

Subyearling Chinook smolts continue to decline in numbers throughout the system. Unclipped subyearlings predominate at all the sites at this time suggesting that many of the late season outmigrant fish are of wild origin. It should be noted however, that a good portion of hatchery origin fish were unmarked as well.

At Lower Granite Dam subyearling Chinook predominated with coho smolt numbers second in prevalence but at very low numbers. Average daily passage index for subyearling Chinook was at 100 per day this week compared to 190 per day last week. At Little Goose Dam the subyearling Chinook indices decreased this week with the daily average index at 80 per day this week compared to 126 last week.

At Rock Island dam subyearling Chinook predominated in the sample, with indices averaging over 13 per day this week compared to 30 per day last week.

In the lower Columbia River, at McNary Dam, the subyearling Chinook weekly average passage index remained steady this week thanks to the passage index of nearly 11,000 fish on August 21. Otherwise the smolt numbers declined rapidly over the week with the passage index on August 27 of 426. John Day and Bonneville Dam continue to limit sampling due to high temperatures at those projects. Subyearling Chinook weekly average passage indices dropped from nearly 1,500 per day last week to about 700 per day this week at Bonneville Dam.

### **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. There were no releases of juvenile salmonids scheduled for this week. Furthermore, no releases of juvenile salmonids are scheduled to begin 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. There were no scheduled releases of juvenile salmonids to this zone this week. There are no releases of juvenile salmonids to this zone 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 releases of juvenile salmonids were scheduled for this zone

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

### **Adult Passage:**

Chinook salmon passing Bonneville Dam on or after August 1<sup>st</sup> are counted as fall Chinook. Daily counts of adult fall Chinook ranged from 3564 to 10857. The 2009 adult fall Chinook count of 70920 was about 1.15 times greater than the 2008 count and about 1.66 times greater than the 10 year average. The fall Chinook jack count of 23712 was about 3.17 times greater than the 2008 count and about 5.30 times greater than the 10 year average. The adult fall Chinook count total at The Dalles Dam of 36318 is about 51.2% of the Bonneville passage to date.

Daily steelhead counts at Bonneville Dam for the past week ranged between 6568 and 19067. The daily adult steelhead count of 34053 on 8/13/09 was the highest recorded adult daily steelhead count at Bonneville Dam (date range searched was 1977 through 2009). Prior to this, the 2<sup>nd</sup> highest adult daily steelhead count at Bonneville Dam occurred on August 3<sup>rd</sup>, 2001 when a total of 14432 adult steelhead were counted. The Bonneville Dam 2009 steelhead count of 456886 is about 1.98 times greater than the 2008 count and 1.94 times greater than the 10 year average.

During this time of year, there are times when there are higher steelhead counts at upstream projects compared to downstream projects. The higher counts of steelhead at upstream sites compared to downstream sites in any particular year is because some steelhead spend the winter between sites, for instance between Ice Harbor and Lower Granite, and then start their migration upstream the following year. The summer steelhead run is delineated according to dates of passage past Bonneville Dam and is made up of two components. A-run steelhead are considered those that pass Bonneville Dam from the first of June through August 25th and B-run steelhead pass Bonneville from August 26th through October. A-run summer steelhead pass Bonneville Dam through August 25th. The 2009 A-run adult steelhead count at Bonneville was 439478 which was about 2 times greater than the 2008 count of 219576 and was about 2.10 times greater than the 10 year average count of 209104. The 2009 B-run steelhead began on August 26<sup>th</sup> at Bonneville Dam and was 12900 as of August 27<sup>th</sup>. The 2009 B-run steelhead count is about 1.96 times greater than the 2008 count of 6767 and is about 1.70 times greater than the 10 year average count of 7562.

In the Snake River, this year's Lower Granite total steelhead count of 22461 is about 94.1% of the 2008 count of 23867 and 1.36 times greater than the 10 year average of 16461. The 2009 wild steelhead count as of August 27th was 7616. At Rock Island Dam, as of August 26th, 8034 adult steelhead had been counted and at Rocky Reach Dam, 6029 adult steelhead had been counted so far this season. At Willamette Falls Dam, the 2009 count for steelhead was 17200, as of August 26th. This year's steelhead count is only about 91.9% of the 2008 count of 18718 at Willamette Falls Dam for the same date range.

The 2009 adult sockeye count at Bonneville Dam of 177820 is about 83.2% of the 2008 count of 213590 and about 2.26 times greater than the 10 year average of 78589. In the upper Columbia River at Priest Rapids Dam, the 2009 adult sockeye count of 153465 was about 77.9% of the 2008 count and 2.05 times greater than the 10 year average. Two of the major spawning sites for sockeye in the upper Columbia River zone are Lake Wenatchee and Lake Osoyoos (Okanogan basin). In the Snake River at Lower Granite Dam the 2009 adult sockeye count of 1215 was about 1.36 times greater than the 2008 count of 892 and 9.64 times greater than the 10 year average count of 126.

The 2009 adult coho count at Bonneville Dam is 24262 adults and 1904 jacks. The Bonneville 2009 adult coho count is about 8.51 times greater than the 2008 count of 2851 and is about 6.27 times greater than the 10 year average count of 3869. The 2009 coho jack count of 1904 is about 7.32 times greater than the 2008 count of 1904 and is about 6.35 times greater than the 10 year average count of 300 at Bonneville Dam.

The posting of the daily fish counts have been delayed a few days this week on the Corp of Engineers website due to computer problems. The COE is working on fixing the problems. FPC staff downloaded project station estimated count files and summarized the data. The data for 8/27 are preliminary data.

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
08/14/2009	64.5	0.2	59.7	0.0	58.3	5.0	60.6	4.9	59.3	11.7	55.0	19.7	50.7	22.7
08/15/2009	44.2	0.1	44.1	0.0	48.8	4.6	48.8	0.0	49.1	10.0	54.3	20.1	46.9	23.6
08/16/2009	49.9	0.2	52.0	0.0	49.2	3.9	46.7	0.0	47.6	9.4	52.5	20.2	47.2	22.9
08/17/2009	76.8	0.1	76.7	0.0	82.4	6.8	82.4	0.0	82.3	15.1	85.4	20.1	82.7	23.9
08/18/2009	90.9	0.1	89.2	0.0	88.4	6.3	87.3	0.0	87.7	0.0	91.1	20.0	82.3	23.6
08/19/2009	88.3	0.1	88.8	0.0	95.5	7.6	92.8	0.0	90.9	0.0	100.1	8.0	97.5	24.0
08/20/2009	80.2	0.2	85.8	0.0	85.0	5.8	85.3	7.1	86.9	0.0	93.8	2.0	90.2	9.1
08/21/2009	73.1	0.2	74.6	0.0	80.1	6.0	80.4	7.5	78.0	0.0	83.6	1.9	84.3	0.9
08/22/2009	63.7	0.2	58.8	0.0	61.9	4.9	63.2	5.0	64.5	0.0	71.8	1.8	65.4	1.0
08/23/2009	49.0	0.2	53.9	0.0	52.9	4.6	51.2	4.5	48.8	0.0	53.6	1.9	52.6	1.0
08/24/2009	90.9	0.1	89.2	0.0	90.9	7.2	88.5	7.7	86.3	0.0	94.9	1.8	94.2	1.0
08/25/2009	74.6	0.1	77.2	0.0	81.4	6.5	84.1	7.8	85.0	0.0	93.7	1.9	88.8	0.8
08/26/2009	79.1	0.2	77.7	0.0	80.8	7.0	82.9	7.3	82.4	0.0	86.2	2.1	83.2	0.8
08/27/2009	76.9	0.1	83.6	0.0	82.6	0.0	76.6	6.4	75.5	0.0	81.4	1.9	79.8	0.7

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
08/14/2009	10.1	0.0	10.6	8.4	28.7	19.8	26.6	8.1	26.5	14.4	28.0	18.3
08/15/2009	10.1	0.0	9.4	8.3	29.6	16.7	28.6	8.6	27.3	15.3	27.5	20.5
08/16/2009	10.1	0.0	9.1	9.5	29.8	16.8	29.3	8.7	28.4	15.9	30.7	23.8
08/17/2009	10.1	0.0	10.7	11.5	30.5	17.6	28.5	8.9	28.8	16.6	29.4	22.4
08/18/2009	11.1	0.9	9.8	13.1	34.5	18.8	33.9	11.3	31.6	17.2	33.6	26.6
08/19/2009	12.1	1.9	9.9	14.0	35.0	18.6	34.6	11.6	33.2	17.4	34.5	27.8
08/20/2009	12.1	1.9	10.5	17.0	36.3	18.5	35.7	11.6	33.5	17.4	35.7	28.9
08/21/2009	11.2	0.9	9.8	16.2	38.8	18.6	37.6	11.6	36.2	17.5	36.4	29.6
08/22/2009	10.2	0.0	9.3	14.3	35.3	18.6	34.5	11.6	32.9	17.5	35.5	28.2
08/23/2009	10.3	0.0	9.2	12.2	33.1	18.7	32.2	11.6	31.4	17.5	34.2	26.7
08/24/2009	8.6	0.0	10.2	11.2	30.8	17.9	30.9	11.6	30.8	17.5	32.2	24.8
08/25/2009	8.0	0.0	10.3	13.3	26.5	16.2	25.5	11.6	24.3	12.2	25.4	15.6
08/26/2009	8.0	0.0	10.7	14.4	29.8	16.8	28.4	10.6	26.5	14.0	26.2	16.5
08/27/2009	8.1	0.0	---	---	30.9	18.0	29.7	9.7	28.9	16.6	30.1	21.2

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
08/14/2009	97.8	41.9	97.2	29.5	96.9	38.7	110.4	67.8	0.0	30.6
08/15/2009	91.8	36.4	91.3	27.3	90.0	32.4	102.6	60.0	0.0	30.5
08/16/2009	92.8	37.4	87.6	26.2	87.9	31.1	100.2	57.5	0.0	30.7
08/17/2009	85.8	30.0	80.6	24.2	81.3	24.8	93.1	50.5	0.0	30.5
08/18/2009	107.9	52.2	98.4	29.7	90.2	33.7	93.3	50.5	0.0	30.7
08/19/2009	130.5	65.4	119.7	36.1	114.3	45.8	120.3	72.3	0.0	35.9
08/20/2009	142.4	71.1	135.9	40.8	132.7	53.0	142.3	80.2	0.0	50.0
08/21/2009	119.8	59.9	108.9	32.6	106.8	42.8	124.5	80.4	0.0	32.0
08/22/2009	119.3	59.7	119.3	35.7	112.2	45.0	126.5	83.4	0.0	31.0
08/23/2009	116.2	57.9	109.9	33.1	114.1	45.5	123.2	79.9	0.0	31.1
08/24/2009	110.6	55.5	104.5	31.3	99.8	40.0	110.5	67.8	0.0	30.6
08/25/2009	109.5	54.8	97.6	29.3	97.7	39.0	103.6	60.7	0.0	30.8
08/26/2009	130.8	65.6	114.8	34.4	104.4	41.8	109.2	66.4	0.0	30.7
08/27/2009	119.3	59.6	108.9	32.7	107.1	42.7	118.1	75.1	0.0	30.9

## 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
<b>Little Goose Dam</b>											
	08/25/09	Chinook + Steelhead	7	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	08/18/09	Chinook + Steelhead	1	0	0	0.00%	0.00%	0	0	0	0
	08/25/09	Chinook + Steelhead	9	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	08/18/09	Chinook + Steelhead	83	0	0	0.00%	0.00%	0	0	0	0
	08/25/09	Chinook + Steelhead	43	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	08/24/09	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/27/09	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	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 Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/14	103.1	103.4	103.6	24	105.4	105.9	106.3	22	105.8	106.0	106.3	24	104.1	105.1	108.0	22	106.7	106.7	106.9	4
8/15	103.6	103.8	103.9	24	104.1	104.4	104.8	23	105.6	105.8	106.1	24	103.6	104.5	106.4	23	106.3	106.6	107.1	24
8/16	103.2	103.4	103.8	24	103.7	104.1	104.8	23	105.2	105.4	105.8	24	104.7	105.3	106.1	23	106.7	107.3	107.7	24
8/17	103.1	103.4	103.6	24	103.6	104.4	105.0	23	105.0	105.5	106.1	24	104.3	105.1	106.5	23	106.8	107.3	107.6	24
8/18	103.6	104.1	104.5	24	104.3	105.1	106.1	23	104.7	104.9	105.4	24	104.7	105.8	108.3	23	107.4	107.9	108.5	24
8/19	103.7	104.2	104.8	24	104.8	105.5	106.8	22	104.7	105.2	106.0	24	104.2	105.0	106.3	22	108.4	109.2	109.7	24
8/20	103.7	104.2	104.7	24	104.8	105.4	106.7	22	105.0	105.5	106.2	24	103.7	104.6	106.7	22	107.9	108.2	108.7	24
8/21	104.3	104.9	105.3	24	104.9	105.2	105.3	21	104.6	104.8	105.0	24	103.6	104.7	107.5	21	106.5	107.0	107.6	24
8/22	104.2	104.7	105.4	24	104.7	105.2	105.5	22	104.3	104.6	104.7	24	104.0	104.9	106.5	22	105.7	106.2	106.7	24
8/23	104.6	105.2	105.8	24	104.1	104.6	104.9	23	104.0	104.3	104.6	24	103.0	103.9	105.9	23	105.6	106.3	106.7	24
8/24	104.2	104.8	105.4	24	103.8	104.4	105.1	21	104.2	104.4	104.7	24	103.6	104.5	106.4	21	105.7	106.0	106.1	24
8/25	103.3	103.3	103.6	8	104.1	104.9	105.5	22	104.0	104.1	104.6	24	102.9	103.7	104.8	22	105.6	105.8	106.1	24
8/26	103.4	103.8	104.4	19	104.3	105.0	105.5	22	103.8	104.3	104.7	24	102.8	103.7	105.7	22	105.3	105.8	106.2	24
8/27	103.2	103.9	105.1	24	105.0	106.1	106.9	22	103.6	103.9	104.3	24	102.1	103.4	104.1	22	104.7	105.2	105.4	24

### Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/14	106.2	106.2	106.3	4	107.3	107.8	108.4	24	108.9	109.6	110.2	24	106.9	107.3	107.7	24	107.1	107.3	107.5	24
8/15	106.5	107.2	108.1	24	107.7	108.8	109.5	24	109.6	110.5	111.1	24	106.6	107.0	107.6	24	105.0	105.2	105.8	24
8/16	106.7	107.2	108.1	24	106.9	107.9	108.7	24	108.6	109.6	110.9	24	106.8	107.6	108.1	24	103.7	104.0	104.4	24
8/17	106.7	107.5	108.3	24	107.3	108.3	109.1	24	109.1	110.1	110.8	24	107.6	108.3	109.0	22	104.7	105.3	105.9	22
8/18	107.1	107.5	108.4	24	108.0	109.1	109.6	24	110.0	111.0	111.4	24	109.4	110.1	110.9	24	106.4	107.6	108.1	24
8/19	108.0	109.1	109.6	24	108.5	109.4	110.3	24	110.7	111.7	112.2	24	109.5	110.1	110.5	24	107.1	107.9	108.2	24
8/20	108.1	108.5	109.0	24	109.2	110.7	111.2	24	111.1	112.3	112.8	24	109.7	110.4	111.2	24	109.0	110.2	110.6	24
8/21	106.6	107.2	108.2	24	109.2	109.6	110.0	24	110.8	111.2	111.5	24	109.2	109.9	110.6	24	109.1	109.9	110.7	24
8/22	105.0	106.0	106.7	24	107.8	108.7	109.3	24	109.9	111.1	111.7	24	109.1	109.3	109.6	24	108.7	109.5	110.6	24
8/23	105.0	106.6	107.3	24	107.1	107.5	107.7	24	108.9	110.0	111.0	24	109.3	109.6	110.2	24	108.6	109.1	109.6	24
8/24	105.1	105.5	105.7	24	106.3	107.0	107.4	24	108.4	109.5	110.1	24	108.2	108.9	109.2	24	109.2	110.0	110.7	24
8/25	105.8	106.3	107.1	24	105.8	106.5	106.8	24	108.0	108.7	109.3	24	108.6	108.9	109.2	24	109.6	110.2	110.4	24
8/26	106.3	107.3	108.5	24	104.9	105.4	105.6	23	107.3	108.0	108.7	23	107.0	107.2	107.4	24	108.8	109.6	110.8	24
8/27	105.5	106.1	106.6	24	105.1	106.1	106.5	24	105.9	106.6	107.1	24	106.0	106.4	106.7	24	107.9	108.5	109.6	24

### Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/14	107.5	107.7	107.9	24	113.1	114.5	116.8	24	104.8	105.4	105.6	24	114.9	115.2	115.6	24	106.9	107.4	108.1	24
8/15	106.8	107.3	107.8	24	111.7	113.6	116.6	24	104.7	105.6	106.1	24	114.9	115.8	116.4	24	106.2	107.0	107.9	24
8/16	106.6	107.3	108.1	24	111.9	113.7	115.6	24	105.2	105.2	105.4	3	113.8	113.8	115.2	3	106.3	106.3	106.5	3
8/17	107.1	107.5	107.9	22	112.5	113.5	117.4	22	108.7	111.0	111.5	24	113.4	114.1	115.4	22	112.9	114.4	115.6	24
8/18	108.6	109.5	110.4	24	108.8	109.9	112.4	24	109.5	110.5	110.9	24	---	---	---	0	114.1	114.4	115.0	24
8/19	109.8	110.1	110.4	24	109.5	109.9	110.2	24	109.4	111.3	112.3	24	109.7	109.8	110.2	14	113.4	113.9	114.3	24
8/20	109.8	110.4	111.0	24	109.6	110.1	110.7	24	110.9	112.9	115.8	24	110.5	111.1	111.5	24	111.1	112.1	113.8	24
8/21	109.7	110.0	110.7	24	109.6	109.9	110.6	24	107.8	108.6	110.0	24	107.9	108.7	109.6	24	108.6	109.3	109.9	24
8/22	109.7	110.2	110.6	24	109.5	110.0	110.3	24	105.8	106.2	106.8	24	106.2	106.6	106.9	24	106.0	106.5	106.8	24
8/23	108.6	109.2	109.9	24	108.7	109.3	110.0	24	105.4	106.1	106.9	24	105.8	106.3	106.8	24	104.9	105.4	106.6	24
8/24	108.4	109.0	109.9	24	108.1	108.9	109.9	24	---	---	---	0	---	---	---	0	---	---	---	0
8/25	109.1	109.5	109.9	24	109.1	109.4	110.0	24	---	---	---	0	---	---	---	0	---	---	---	0
8/26	108.4	108.5	109.3	24	108.3	108.5	109.2	24	---	---	---	0	---	---	---	0	---	---	---	0
8/27	107.5	107.9	108.1	24	107.5	107.8	108.1	24	---	---	---	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>Clrwtr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>						
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	hr			
8/14	109.7	110.2	111.0	24	105.4	105.9	106.5	24	99.9	100.1	100.2	24	101.5	102.2	102.9	24	100.6	101.3	102.3	24
8/15	109.6	110.4	111.0	24	104.5	105.1	105.6	24	99.8	99.9	100.1	24	101.5	102.3	102.8	24	101.0	102.2	103.1	24
8/16	109.1	109.1	109.2	3	105.1	105.7	106.2	24	99.8	100.1	100.5	24	101.7	102.7	103.8	24	101.3	102.4	103.4	24
8/17	112.5	114.2	115.0	24	106.1	107.1	107.6	24	99.9	100.1	100.4	24	101.8	102.9	103.9	23	101.6	103.0	104.2	24
8/18	113.8	114.6	115.4	24	107.8	109.4	110.2	24	101.9	103.9	104.7	24	102.9	104.7	106.3	24	102.2	103.5	104.7	24
8/19	114.1	114.7	115.3	24	109.7	110.5	110.9	24	104.0	104.3	104.6	24	104.5	105.6	106.6	24	102.3	103.6	105.0	24
8/20	112.0	113.2	114.0	24	109.8	110.7	111.2	24	104.1	104.3	104.6	24	104.7	105.8	106.8	24	102.2	103.5	104.7	24
8/21	108.5	109.1	109.4	24	108.2	109.0	109.7	24	102.4	103.8	104.3	24	103.8	104.8	106.1	24	101.7	102.8	104.0	24
8/22	106.3	106.9	107.4	24	105.3	106.0	106.3	24	100.4	100.8	101.1	24	102.2	103.3	104.5	24	101.6	102.8	104.1	24
8/23	105.4	105.9	106.3	24	104.9	105.5	105.9	24	100.6	100.9	101.2	24	102.2	103.3	104.5	24	101.2	102.2	103.3	24
8/24	---	---	---	0	104.0	104.6	104.9	24	100.5	100.9	101.3	24	102.2	103.7	105.3	24	101.1	102.7	104.2	24
8/25	---	---	---	0	103.2	103.9	104.2	24	100.6	100.9	101.3	24	102.3	103.7	105.2	24	101.3	102.6	104.5	24
8/26	---	---	---	0	103.5	104.4	104.8	24	100.2	100.6	101.0	24	102.0	103.4	104.6	24	101.7	103.0	104.4	24
8/27	---	---	---	0	103.6	104.5	105.0	24	100.0	100.4	100.7	24	102.1	103.4	104.6	24	101.9	103.3	104.7	24

### Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwtr-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>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>						
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	hr			
8/14	101.7	103.0	104.0	24	100.7	101.0	102.0	24	112.5	114.2	114.7	24	107.2	107.3	107.5	24	111.0	111.2	111.3	24
8/15	102.0	103.7	105.1	24	100.3	100.5	100.6	24	110.7	110.9	111.3	24	106.4	106.8	107.2	24	109.3	110.9	111.3	24
8/16	102.7	104.5	106.3	22	100.1	100.2	100.7	24	110.6	110.8	110.9	24	105.7	105.8	105.9	24	107.2	107.6	107.8	24
8/17	102.7	104.8	106.4	24	99.4	99.5	99.6	24	110.7	110.9	111.2	24	105.3	105.4	105.5	24	107.5	108.4	110.8	24
8/18	103.0	105.0	106.5	23	99.5	99.7	99.7	24	110.7	111.1	111.6	24	105.6	105.9	106.4	24	110.2	112.5	113.1	24
8/19	103.8	105.9	107.5	24	100.0	100.3	100.6	24	110.8	111.1	111.3	24	105.9	106.2	106.4	24	112.7	113.0	113.3	24
8/20	104.2	106.3	107.8	24	100.8	101.1	101.6	24	110.4	110.9	111.6	24	105.9	106.2	106.9	24	112.3	112.8	113.2	24
8/21	103.8	105.7	107.3	24	101.4	101.8	102.2	24	110.1	110.2	110.7	24	107.1	107.4	107.9	24	112.2	112.6	113.0	24
8/22	102.8	104.8	106.5	24	102.3	102.8	103.5	24	110.8	111.1	111.4	24	108.0	108.2	108.5	24	112.8	113.5	114.4	24
8/23	102.5	104.1	105.6	23	103.0	103.2	103.4	24	111.0	111.1	111.3	24	108.0	108.4	108.9	24	112.7	113.3	113.8	24
8/24	102.5	104.8	106.7	24	102.8	103.0	103.3	24	111.0	111.4	112.0	24	108.3	108.7	109.2	24	112.6	113.2	113.6	24
8/25	102.5	104.5	106.3	23	103.0	103.2	103.6	24	112.0	113.6	115.8	24	107.5	107.7	108.4	24	112.4	112.7	113.1	24
8/26	102.5	104.5	106.2	23	101.4	101.7	102.3	24	111.5	112.2	112.5	24	106.7	107.0	107.2	24	112.1	112.7	113.5	24
8/27	102.7	105.0	106.7	24	100.6	101.0	102.0	24	111.7	112.0	112.3	24	106.7	106.9	107.1	24	111.5	111.7	111.9	24

### 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>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>		<u>24 h</u>	<u>12 h</u>						
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	hr			
8/14	105.7	106.2	106.5	24	114.3	115.6	115.7	24	108.4	108.9	109.4	24	111.7	112.8	113.3	24	---	---	---	0
8/15	105.3	105.7	106.2	24	114.4	115.7	116.0	24	107.6	108.0	108.3	24	111.4	112.0	112.7	24	---	---	---	0
8/16	105.0	105.2	105.3	24	114.9	115.9	116.1	24	107.5	107.8	108.1	24	112.3	112.5	112.8	24	---	---	---	0
8/17	104.7	105.0	105.1	24	115.1	115.9	116.1	24	107.8	108.0	108.1	24	112.0	112.5	112.9	24	---	---	---	0
8/18	105.6	106.1	106.7	24	115.6	115.9	116.1	24	108.7	108.9	109.4	24	113.1	113.7	114.1	24	---	---	---	0
8/19	106.7	107.4	108.0	24	115.8	116.0	116.2	24	110.0	110.6	111.6	24	113.3	114.0	114.8	24	---	---	---	0
8/20	107.2	107.4	107.8	24	115.2	115.6	115.9	24	111.7	112.0	112.5	24	113.6	114.4	115.0	24	---	---	---	0
8/21	105.7	106.1	106.6	24	115.2	115.6	116.2	24	111.7	112.2	112.6	24	113.3	114.2	114.8	24	---	---	---	0
8/22	107.2	108.0	108.4	24	115.6	116.0	116.4	24	112.6	113.0	113.3	24	113.4	114.2	115.1	24	---	---	---	0
8/23	108.8	109.2	109.5	24	115.6	115.9	116.2	24	113.0	113.2	113.6	24	113.3	114.1	114.7	24	---	---	---	0
8/24	108.6	108.7	109.0	24	115.7	115.9	116.3	24	112.2	112.5	112.7	24	112.4	112.8	113.4	24	---	---	---	0
8/25	108.5	108.7	109.0	24	113.1	113.5	114.7	24	111.5	111.7	112.1	24	111.0	111.6	111.9	24	---	---	---	0
8/26	108.6	108.8	109.3	24	113.9	114.9	115.7	24	111.3	111.5	111.7	24	111.0	111.7	112.1	24	---	---	---	0
8/27	108.7	109.2	109.6	24	115.1	116.0	116.3	24	111.2	111.4	111.9	24	112.5	113.3	113.9	24	---	---	---	0

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

### Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>				
8/14	104.2	104.6	105.1	24	115.1	116.0	116.0	24	99.3	99.4	99.5	24	112.5	112.8	113.3	24	103.0	103.3	103.7	24
8/15	103.4	103.5	103.7	24	114.6	115.3	115.7	24	99.2	99.4	99.6	24	111.7	112.2	112.9	24	102.5	102.8	103.0	24
8/16	103.3	103.5	103.9	24	114.7	115.3	115.6	24	99.3	99.6	100.0	24	111.5	111.9	112.4	24	103.0	103.4	103.8	24
8/17	103.6	103.8	104.2	24	114.2	114.4	114.6	24	99.6	100.1	100.7	24	111.0	111.5	112.0	24	104.6	105.5	105.9	24
8/18	104.4	105.0	105.9	24	114.8	115.7	116.2	24	100.8	101.3	101.6	24	113.0	114.1	114.5	24	107.0	107.5	107.7	24
8/19	106.0	107.2	109.8	24	116.5	117.0	117.5	24	101.8	102.1	102.7	24	113.4	113.9	114.3	24	107.9	108.4	108.8	24
8/20	107.9	108.4	109.1	24	116.0	116.7	117.8	24	104.6	105.8	106.7	24	113.7	114.5	116.6	24	108.0	108.4	108.7	24
8/21	107.9	108.1	108.2	24	116.5	117.0	117.3	24	102.2	102.5	102.8	24	112.3	112.8	113.0	24	105.5	105.9	106.3	24
8/22	108.4	108.8	109.0	24	117.0	117.5	117.9	24	102.4	102.9	103.2	24	112.7	113.0	113.4	24	103.9	104.6	104.9	24
8/23	108.7	109.2	109.8	24	116.8	117.2	117.4	24	102.1	102.4	102.5	24	112.0	112.8	113.0	24	104.8	105.0	105.3	24
8/24	107.3	107.4	107.8	24	116.2	116.4	116.6	24	102.4	103.0	103.2	24	112.4	113.0	113.8	24	103.6	104.2	104.7	24
8/25	106.8	107.4	108.3	24	116.5	117.0	117.2	24	102.1	102.3	102.9	24	110.8	111.3	111.5	24	105.4	106.1	106.3	24
8/26	105.3	105.5	107.6	24	117.0	117.5	117.8	24	102.0	102.5	103.2	24	112.4	113.7	114.8	24	105.1	105.4	105.8	24
8/27	105.7	106.1	107.1	24	116.0	116.7	117.0	24	102.2	102.4	102.5	24	114.0	114.5	114.7	24	106.5	107.6	108.1	24

### Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Camas\Washougal</u>			<u>Cascade Island</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/14	110.4	110.6	110.9	24	103.5	103.8	104.2	24	---	---	---	0	111.4	111.9	112.7	24	112.2	112.5	112.8	24
8/15	109.1	109.7	110.2	24	102.6	102.7	102.9	24	---	---	---	0	111.5	111.9	112.4	24	113.4	114.1	115.2	24
8/16	108.8	109.3	109.5	24	102.2	102.3	102.5	24	---	---	---	0	112.0	113.1	113.6	24	113.3	113.7	115.2	24
8/17	110.0	110.7	111.1	24	102.8	103.2	103.7	24	---	---	---	0	113.2	114.2	114.8	24	112.1	112.4	113.1	24
8/18	112.4	113.6	114.1	24	104.7	105.4	106.0	24	---	---	---	0	115.7	116.8	117.4	24	112.1	112.4	113.0	24
8/19	114.5	114.8	115.2	24	107.2	108.1	108.5	24	---	---	---	0	116.7	117.5	117.9	24	113.9	114.9	117.2	24
8/20	114.0	114.5	114.7	24	108.4	108.7	109.0	24	---	---	---	0	115.3	116.1	117.6	24	114.5	115.3	117.0	24
8/21	112.2	112.6	112.8	24	106.8	107.3	108.3	24	---	---	---	0	110.6	111.5	113.0	24	113.7	114.6	116.6	24
8/22	111.8	112.3	112.6	24	105.0	105.3	106.0	24	---	---	---	0	112.7	114.4	115.7	24	114.4	115.7	116.7	24
8/23	111.2	111.5	111.8	24	103.8	104.1	104.7	24	---	---	---	0	111.3	112.6	113.3	24	114.1	114.8	116.8	24
8/24	111.5	112.1	112.2	24	103.6	103.8	104.1	24	---	---	---	0	112.5	114.3	115.4	24	112.7	113.0	113.3	24
8/25	111.6	112.0	112.3	24	103.0	103.1	103.6	24	---	---	---	0	112.8	113.7	114.6	24	112.3	112.4	112.8	24
8/26	112.4	112.7	113.1	24	103.7	104.5	105.1	24	---	---	---	0	113.3	114.6	115.4	24	112.4	112.7	113.1	24
8/27	113.2	114.1	114.3	24	105.3	105.6	105.8	24	---	---	---	0	114.1	115.2	115.7	24	112.9	113.0	113.1	24

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 8/28/2009 9:35

### Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/14/2009	*	---	---	---	---	0	0	7	0	0	0	
08/15/2009	*	---	---	---	---	0	0	0	0	0	---	
08/16/2009	*	---	---	---	---	0	0	0	0	0	0	
08/17/2009	*	---	---	---	---	0	0	0	0	0	---	
08/18/2009	*	---	---	---	---	0	0	0	0	0	0	
08/19/2009	*	---	---	---	---	0	0	0	0	0	---	
08/20/2009	*	---	---	---	---	0	0	0	0	0	0	
08/21/2009	*	---	---	---	---	0	0	0	0	0	---	
08/22/2009	*	---	---	---	---	0	0	0	0	0	0	
08/23/2009	*	---	---	---	---	0	0	0	0	0	---	
08/24/2009	*	---	---	---	---	0	0	2	0	0	14	
08/25/2009	*	---	---	---	---	0	0	0	0	0	---	
08/26/2009	*	---	---	---	---	0	0	0	0	0	0	
08/27/2009	*	---	---	---	---	---	0	---	0	0	0	
08/28/2009	*	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>14</b>	
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>4</b>	
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	
<b>YTD</b>		<b>37,667</b>	<b>44,693</b>	<b>20,207</b>	<b>29,713</b>	<b>3,081,413</b>	<b>2,432,949</b>	<b>449,037</b>	<b>9,225</b>	<b>2,251,664</b>	<b>1,032,260</b>	<b>1,717,102</b>

COMBINED SUBYEARLING CHINOOK												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/14/2009	*	---	---	---	---	279	414	72	16	7,582	938	2,065
08/15/2009	*	---	---	---	---	258	170	14	9	1,774	---	---
08/16/2009	*	---	---	---	---	159	81	52	11	2,012	---	1,559
08/17/2009	*	---	---	---	---	136	96	37	20	2,233	---	---
08/18/2009	*	---	---	---	---	140	59	37	15	2,318	836	880
08/19/2009	*	---	---	---	---	170	46	18	19	6,411	---	1,278
08/20/2009	*	---	---	---	---	194	13	73	15	7,581	---	1,288
08/21/2009	*	---	---	---	---	139	49	37	18	10,823	158	---
08/22/2009	*	---	---	---	---	128	82	34	26	7,983	---	585
08/23/2009	*	---	---	---	---	102	50	22	11	5,223	---	---
08/24/2009	*	---	---	---	---	74	81	34	6	3,686	---	618
08/25/2009	*	---	---	---	---	106	123	57	4	1,003	1,531	---
08/26/2009	*	---	---	---	---	78	127	35	11	648	---	815
08/27/2009	*	---	---	---	---	---	43	---	13	426	---	663
08/28/2009	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,963</b>	<b>1,434</b>	<b>522</b>	<b>194</b>	<b>59,703</b>	<b>3,463</b>	<b>9,751</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>9</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>151</b>	<b>102</b>	<b>40</b>	<b>14</b>	<b>4,265</b>	<b>866</b>	<b>1,083</b>
<b>YTD</b>		<b>0</b>	<b>18</b>	<b>15</b>	<b>545</b>	<b>995,237</b>	<b>1,179,835</b>	<b>433,002</b>	<b>8,144</b>	<b>3,647,455</b>	<b>1,505,588</b>	<b>4,298,618</b>

## Two-Week Summary of Passage Indices

<b>COMBINED COHO</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/14/2009	*	---	---	---	---	75	1	0	0	10	10	0
08/15/2009	*	---	---	---	---	48	1	2	0	0	---	---
08/16/2009	*	---	---	---	---	19	1	7	0	0	---	0
08/17/2009	*	---	---	---	---	9	6	0	0	0	---	---
08/18/2009	*	---	---	---	---	21	6	3	0	0	0	0
08/19/2009	*	---	---	---	---	38	11	0	0	0	---	0
08/20/2009	*	---	---	---	---	12	12	0	0	0	---	0
08/21/2009	*	---	---	---	---	33	12	0	0	0	0	---
08/22/2009	*	---	---	---	---	14	29	0	0	0	---	0
08/23/2009	*	---	---	---	---	46	36	0	0	0	---	---
08/24/2009	*	---	---	---	---	9	24	2	0	10	---	0
08/25/2009	*	---	---	---	---	21	29	0	0	0	0	---
08/26/2009	*	---	---	---	---	36	23	2	0	0	---	0
08/27/2009	*	---	---	---	---	---	19	---	0	0	---	0
08/28/2009		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>381</b>	<b>210</b>	<b>16</b>	<b>0</b>	<b>20</b>	<b>10</b>	<b>0</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>9</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>332</b>	<b>92,224</b>	<b>81,140</b>	<b>18,944</b>	<b>37,588</b>	<b>127,110</b>	<b>240,419</b>	<b>503,265</b>

<b>COMBINED STEELHEAD</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/14/2009	*	---	---	---	---	0	0	0	0	0	0	0
08/15/2009	*	---	---	---	---	0	0	0	0	0	---	---
08/16/2009	*	---	---	---	---	2	0	2	0	0	---	0
08/17/2009	*	---	---	---	---	0	0	0	0	0	---	---
08/18/2009	*	---	---	---	---	0	0	0	0	0	0	0
08/19/2009	*	---	---	---	---	0	2	0	0	0	---	0
08/20/2009	*	---	---	---	---	0	0	0	0	0	---	0
08/21/2009	*	---	---	---	---	0	0	0	0	0	7	---
08/22/2009	*	---	---	---	---	0	0	0	0	10	---	0
08/23/2009	*	---	---	---	---	0	0	0	0	0	---	---
08/24/2009	*	---	---	---	---	0	0	2	0	0	---	0
08/25/2009	*	---	---	---	---	0	0	0	0	0	0	---
08/26/2009	*	---	---	---	---	3	0	0	0	0	---	0
08/27/2009	*	---	---	---	---	---	0	---	0	0	---	0
08/28/2009		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>10</b>	<b>7</b>	<b>0</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>9</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>
<b>YTD</b>		<b>1,833</b>	<b>24,360</b>	<b>9,611</b>	<b>8,297</b>	<b>4,510,913</b>	<b>3,563,510</b>	<b>727,833</b>	<b>17,612</b>	<b>803,737</b>	<b>940,639</b>	<b>677,051</b>

## Two-Week Summary of Passage Indices

Date	COMBINED SOCKEYE											
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/14/2009	*	---	---	---	---	0	1	0	0	0	0	0
08/15/2009	*	---	---	---	---	0	0	0	0	0	---	---
08/16/2009	*	---	---	---	---	0	0	0	0	9	---	0
08/17/2009	*	---	---	---	---	0	0	0	0	0	---	---
08/18/2009	*	---	---	---	---	0	0	0	1	0	7	0
08/19/2009	*	---	---	---	---	0	0	0	1	0	---	0
08/20/2009	*	---	---	---	---	0	0	0	2	0	---	0
08/21/2009	*	---	---	---	---	0	1	0	0	10	0	---
08/22/2009	*	---	---	---	---	0	0	0	1	21	---	0
08/23/2009	*	---	---	---	---	0	0	0	1	0	---	---
08/24/2009	*	---	---	---	---	0	0	0	0	10	---	0
08/25/2009	*	---	---	---	---	0	0	0	0	0	14	---
08/26/2009	*	---	---	---	---	0	0	0	0	0	---	0
08/27/2009	*	---	---	---	---	---	0	---	0	0	---	0
08/28/2009		---	---	---	---	---	---	---	---	---	---	---
<hr/>												
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>6</b>	<b>50</b>	<b>21</b>	<b>0</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>9</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>5</b>	<b>0</b>
<b>YTD</b>		<b>170</b>	<b>0</b>	<b>0</b>	<b>177</b>	<b>46,501</b>	<b>46,361</b>	<b>21,692</b>	<b>4,922</b>	<b>190,847</b>	<b>111,954</b>	<b>74,945</b>

\* 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, and sockeye. Two classes of fish counts are shown in these tables: collection counts, which account for sample rates but are not adjusted for flow; and passage indices, 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.

### Definitions for Smolt Index Counts

- WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts
- IMN (Collection) = Imnaha River Trap : Collection Counts
- GRN (Collection) = Grande Ronde River Trap : Collection Counts
- LEW (Collection) = Snake River Trap at Lewiston : Collection Counts
- LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
- LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
- LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
- RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}
- MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
- JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
- BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.  
 RIS data collected for the FPC by Chelan Co. PUD/Washington Dept. of Fish and Wildlife.  
 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.

## Two Week Transportation Summary

Source: Fish Passage Center

Updated:

8/28/09 9:36 AM

**08/14/09 TO 08/28/09**

		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
<b>LGR</b>	Sum of NumberCollected	787			148	2	937	
	Sum of NumberBarged	141			44	0	185	
	Sum of NumberBypassed	0			0	1	1	
	Sum of Numbertrucked	707			124	1	832	
	Sum of SampleMorts	6			4	0	10	
	Sum of FacilityMorts	2			0	0	2	
	Sum of ResearchMorts	0			0	0	0	
	Sum of TotalProjectMorts	8			4	0	12	
<b>LGS</b>	Sum of NumberCollected	948			134	1	2	1,085
	Sum of NumberBarged	536			5	1	1	543
	Sum of NumberBypassed	0			0	0	0	0
	Sum of Numbertrucked	612			115	0	0	727
	Sum of SampleMorts	22			8	1	1	32
	Sum of FacilityMorts	4			0	0	0	4
	Sum of ResearchMorts	0			0	0	0	0
	Sum of TotalProjectMorts	26			8	1	1	36
<b>LMN</b>	Sum of NumberCollected	232		4	7	2		245
	Sum of NumberBarged	103		3	18	0		124
	Sum of NumberBypassed	10		0	0	0		10
	Sum of Numbertrucked	182		1	7	2		192
	Sum of SampleMorts	10		0	0	0		10
	Sum of FacilityMorts	0		0	0	0		0
	Sum of ResearchMorts	0		0	0	0		0
	Sum of TotalProjectMorts	10		0	0	0		10
<b>MCN</b>	Sum of NumberCollected	29,660			10	5	25	29,700
	Sum of NumberBarged	4,741			5	0	0	4,746
	Sum of NumberBypassed	0			0	0	0	0
	Sum of Numbertrucked	24,430			5	4	24	24,463
	Sum of SampleMorts	50			0	0	0	50
	Sum of FacilityMorts	235			0	1	1	237
	Sum of ResearchMorts	0			0	0	0	0
	Sum of TotalProjectMorts	285			0	1	1	287
Total Sum of NumberCollected		31,627		4	299	10	27	31,967
Total Sum of NumberBarged		5,521		3	72	1	1	5,598
Total Sum of NumberBypassed		10		0	0	1	0	11
Total Sum of Numbertrucked		25,931		1	251	7	24	26,214
Total Sum of SampleMorts		88		0	12	1	1	102
Total Sum of FacilityMorts		241		0	0	1	1	243
Total Sum of ResearchMorts		0		0	0	0	0	0
Total Sum of TotalProjectMorts		329		0	12	2	2	345

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

8/28/09 9:36 AM

TO: 08/28/09

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	701,176	2,352,637	65,823	33,451	3,430,196	6,583,283
	Sum of NumberBarged	680,280	1,500,926	63,607	26,169	1,841,961	4,112,943
	Sum of NumberBypassed	15,858	847,954	1,951	7,068	1,587,773	2,460,604
	Sum of NumberTrucked	707	0	124	0	1	832
	Sum of SampleMorts	255	118	10	22	33	438
	Sum of FacilityMorts	4,057	2,734	131	192	409	7,523
	Sum of ResearchMorts	19	1,035	0	0	19	1,073
	Sum of TotalProjectMorts	4,331	3,887	141	214	461	9,034
<b>LGS</b>	Sum of NumberCollected	850,164	1,720,161	59,360	33,651	2,517,669	5,181,005
	Sum of NumberBarged	833,736	966,563	56,372	27,768	1,057,254	2,941,693
	Sum of NumberBypassed	9,300	751,923	2,825	5,826	1,460,071	2,229,945
	Sum of NumberTrucked	612	0	115	0	0	727
	Sum of SampleMorts	425	49	35	10	21	540
	Sum of FacilityMorts	6,052	1,622	3	47	323	8,047
	Sum of ResearchMorts	12	4	0	0	0	16
	Sum of TotalProjectMorts	6,489	1,675	38	57	344	8,603
<b>LMN</b>	Sum of NumberCollected	325,233	321,112	13,977	16,048	518,662	1,195,032
	Sum of NumberBarged	318,442	312,082	13,950	15,870	506,287	1,166,631
	Sum of NumberBypassed	5,826	8,790	9	114	12,089	26,828
	Sum of NumberTrucked	182	1	7	0	2	192
	Sum of SampleMorts	98	15	2	3	9	127
	Sum of FacilityMorts	583	237	8	7	258	1,093
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	681	252	10	10	267	1,220
<b>MCN</b>	Sum of NumberCollected	1,828,649	1,303,737	69,876	106,365	467,741	3,776,368
	Sum of NumberBarged	414,822	196	448	425	74	415,965
	Sum of NumberBypassed	1,353,698	1,301,926	69,356	105,852	467,487	3,298,319
	Sum of NumberTrucked	24,430	0	5	24	4	24,463
	Sum of SampleMorts	798	149	1	2	14	964
	Sum of FacilityMorts	34,178	1,441	65	60	158	35,902
	Sum of ResearchMorts	518	25	0	1	3	547
	Sum of TotalProjectMorts	35,494	1,615	66	63	175	37,413
Total Sum of NumberCollected		3,705,222	5,697,647	209,036	189,515	6,934,268	16,735,688
Total Sum of NumberBarged		2,247,280	2,779,767	134,377	70,232	3,405,576	8,637,232
Total Sum of NumberBypassed		1,384,682	2,910,593	74,141	118,860	3,527,420	8,015,696
Total Sum of NumberTrucked		25,931	1	251	24	7	26,214
Total Sum of SampleMorts		1,576	331	48	37	77	2,069
Total Sum of FacilityMorts		44,870	6,034	207	306	1,148	52,565
Total Sum of ResearchMorts		549	1,064	0	1	22	1,636
Total Sum of TotalProjectMorts		46,995	7,429	255	344	1,247	56,270

Cumulative Adult Passage at Mainstem Dams Through: 08/27

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2009		2008		10-Yr Avg.		2009		2008		10-Yr Avg.		2009		2008		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	08/27	114525	66631	125543	17554	160243	11507	81936	37416	78271	11621	76947	10024	70920	23712	61840	7466	42784	4472
TDA	08/27	93908	53646	95438	15801	113852	9048	79916	27878	65073	12206	66821	7950	36318	10839	23635	5600	19126	2544
JDA	08/26	76806	49733	81772	14925	95147	7579	65989	33147	63649	13680	61980	8146	20484	6961	8071	3600	9052	1805
MCN	08/26	70413	43328	68090	12133	86998	7409	57137	21182	54735	11239	59015	7256	10963	2798	3885	1265	5487	943
IHR	08/27	55435	28223	53142	7757	59050	4663	23856	9400	23693	4964	13243	2568	3686	1035	1341	187	695	94
LMN	08/27	66931	20009	54512	6885	57079	4270	23353	11733	27343	2890	13719	1912	1859	1112	1118	347	533	123
LGS	08/27	52642	24331	50396	7805	54016	4453	20340	11207	21748	4811	11241	2521	1274	322	793	101	366	49
LGR	08/27	49667	31064	50146	10946	54673	5280	14482	16367	22612	5072	11171	2757	604	349	570	127	242	54
PRD	08/24	13469	2910	12178	620	18164	621	49417	2117	39174	3442	53065	2394	2156	350	1440	3034	2523	608
RIS	08/26	12634	6003	12490	1119	14914	1069	44295	7727	38171	3096	50031	5515	1488	610	975	355	1486	403
RRH	08/26	6090	1086	4065	371	5734	430	34961	5231	29675	2127	37679	3897	1109	339	923	266	1135	334
WEL	08/26	6307	1867	2708	426	4250	321	25562	3709	20767	1288	27360	1937	0	0	0	0	0	0
WFA	08/26	25067	2670	14151	521	-	-	-	-	-	-	-	-	168	69	14	43	-	-

DAM	Coho						Sockeye			Steelhead			Wild 2009
	2009		2008		10-Yr Avg.		10-Yr Avg.			10-Yr Avg.			
	Adult	Jack	Adult	Jack	Adult	Jack	2009	2008	Avg.	2009	2008	Avg.	
BON	24262	1904	2851	260	3869	300	177820	213590	78589	456886	230117	234825	138361
TDA	3136	1116	204	45	279	44	155575	177983	66379	194167	109040	94124	63704
JDA	1123	665	66	47	62	5	157390	193402	72407	168973	83734	63916	56829
MCN	135	58	3	0	6	0	121663	146922	58760	74404	55992	45951	24955
IHR	2	0	0	0	0	0	867	539	90	41977	37459	24771	11901
LMN	0	0	0	0	0	0	1162	722	103	32377	37638	21689	11040
LGS	0	0	0	0	0	0	1065	593	96	20260	22179	14073	7055
LGR	0	0	0	0	0	0	1215	892	126	22461	23867	16461	7616
PRD	161	10	7	-1	8	0	153465	196833	74869	8700	8869	6295	0
RIS	1	17	0	2	1	0	162811	193724	70992	8034	8487	5503	3318
RRH	0	2	1	4	1	0	133052	161312	52397	6029	6485	3943	2509
WEL	0	0	0	0	0	0	134858	165295	52835	3245	3192	2257	1400
WFA	27	16	34	44	-	-	-	-	-	17200	18718	-	-

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.

Page last updated on: 08/28/09

BON counts from January 1, 2009 to March 14, 2009 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2009	19	-1	321	109
2008	42	0	561	270