



# Fish Passage Center

## Weekly Report #10 - 23

August 20, 2010

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 2% and 146% of average at individual sub-basins over August. Precipitation above The Dalles has been 97% of average over August. Over the 2010 water year, precipitation has ranged between 85% and 101% of average.

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

Location	Water Year 2010		Water Year 2010	
	August 1-16		October 1, 2009 to August 16, 2010	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.96	110	20.48	88
Snake River Above Ice Harbor	0.43	97	15.95	97
Columbia Above The Dalles	0.59	97	20.13	93
Kootenai	0.93	106	20.23	85
Clark Fork	0.98	146	15.02	93
Flathead	0.93	111	21.48	101
Pend Oreille/Spokane	0.32	49	27.49	94
Central Washington	0.03	15	8.65	101
Snake River Plain	0.24	81	9.51	91
Salmon/Boise/Payette	0.31	86	18.39	98
Clearwater	0.64	104	27.51	95
SW Washington Cascades/Cowlitz	0.15	19	61.81	91
Willamette Valley	0.01	2	53.26	93

Table 2 displays the June Final and July Final runoff volume forecasts for multiple reservoirs. The July Final Runoff Volume Forecasts remained similar to the June Final Forecasts at Upper Columbia locations; however increased between 11-18% relative to the June Final forecasts at Snake River locations. The current forecast at The Dalles between January and July is 81900 Kaf (76% 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)	69	74000	76	81900
Grand Coulee (Jan-July)	74	46400	76	47900
Libby Res. Inflow, MT (Apr-Aug)	71	4420	71	4440
Hungry Horse Res. Inflow, MT (Jan-July)	75	1660	81	1800
Lower Granite Res. Inflow (Apr- July)	68	14600	86	18600
Brownlee Res. Inflow (Apr-July)	58	3670	74	4680
Dworshak Res. Inflow (Apr-July)	63	1670	74	1950

\* Denotes COE Forecast

The Summer Biological Opinion flow period began on June 21 in the lower Snake River (Lower Granite). According to the June Final Water Supply Forecast, the summer flow objective this summer is 50 Kcfs at Lower Granite, flows at Lower Granite Dam have averaged 51.1 Kcfs from June 21-August 19. Flows at Lower Granite have averaged 30.3 Kcfs over the last week.

The Summer Biological Opinion flow period began on July 1<sup>st</sup> at McNary Dam with a flow objective of 200 Kcfs. Flows from July 1<sup>st</sup> to August 19<sup>th</sup> averaged 165.3 Kcfs and 128.9 Kcfs last week.

Grand Coulee Reservoir is at 1281.65 feet (8-19-10) and drafted 2.25 feet over the last week. The end of August draft elevation at Grand Coulee is 1277.3 feet. Outflows at Grand Coulee have ranged between 69.0 and 103.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2442.85 feet (8-19-10) and has drafted 0.02 feet last week. Outflows at Libby Dam have been 7.0 Kcfs. Hungry Horse is currently at an elevation of 3551.2 feet (8-19-10) and has drafted 1.62 ft last week. Outflows at Hungry Horse are currently 3.9-4.0 Kcfs.

Dworshak is currently at an elevation of 1548.48 feet (8-19-10) and has drafted approximately 7.75 feet last week. Outflows from Dworshak were reduced from 11 Kcfs to full powerhouse (10 Kcfs) on August 17<sup>th</sup>. Outflows from Dworshak are expected to remain at full powerhouse for the rest of August, or as long as possible, to reach the end of August draft elevation of 1535 feet.

The Brownlee Reservoir was at an elevation of 2055.5 feet on August 19<sup>th</sup>, 2010 drafting 1.3 feet last week. Over the last week, outflows at Brownlee have ranged between 7.4-13.4 Kcfs.

**Spill:**

On June 21<sup>st</sup> the Snake projects transitioned to the summer spill program. The following table shows the planned operations for summer 2010.

Project	Day/Night Spill
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	<b>June 21-July 13:</b> 30%/30% vs. 45 Kcfs/Gas Cap <b>July 13-August 31:</b> 45 Kcfs/Gas Cap (approximate Gas Cap range = 75-95 Kcfs)

Spill at Dworshak Dam was terminated on August 16<sup>th</sup>, as the outflow at the project was reduced to hydraulic capacity. On August 15<sup>th</sup>, spill levels at Lower Granite Dam were below the 18 Kcfs due to low flows and powerhouse minimums. Due to planned double testing, daytime spill levels at Lower Granite Dam exceeded the court ordered 18 Kcfs from August 16<sup>th</sup> through August 19<sup>th</sup>. Spill at Little Goose dam was managed to the 30% requirement. Spill levels were met at Lower Monumental Dam except during times when flows were too low to provide the 17 Kcfs and powerhouse minimum flow. The Ice Harbor simulated test of 30% spill versus 45 Kcfs during daytime hours and gas cap spill during nighttime hours ended July 13<sup>th</sup>. After that, spill at Ice Harbor reverted back to the 45Kcfs/gas cap level. However, due to low flows spill is presently occurring as all flow in excess of that needed to operate one turbine unit at this project.

Summer spill programs at McNary and Bonneville dams were initiated on June 21<sup>st</sup> and at John Day and The Dalles dams on July 1<sup>st</sup>. The following table shows the planned operations for summer 2010.

Project	Day/Night Spill
McNary	50%/50%
John Day	<b>Testing (July 1-July 22):</b> 30%/30% vs. 40%/40% <b>Post-Testing (July 23-August 31):</b> 30%/30%
The Dalles	40%/40%
Bonneville	<b>Testing (June 16-July 20):</b> 85 Kcfs/121 Kcfs vs. 95 Kcfs/95 Kcfs <b>Post-Testing (July 21-August 31):</b> 75 Kcfs/Gas Cap

The planned spill level of 50% of instantaneous flows was met at McNary Dam this week. At John Day Dam, the spill test ended and spill occurred as 30% of instantaneous flow. The planned spill levels of 40% were met at The Dalles Dam over the past week. Spill at Bonneville Dam occurred to the 75Kcfs/gas cap spill levels. However, gas cap spill levels were often limited by the low flows and powerhouse minimum flows.

The 12-hour average total dissolved has levels at the Lower Monumental tailrace monitor were high on August 17<sup>th</sup>. However, this was due to a faulty monitor, which was repaired by 14:00 that afternoon. Total dissolved gas levels at all other monitors were below the States' water quality waiver levels throughout the

lower Snake and lower Columbia hydrosystem over the past week.

At present, GBT monitoring is being implemented at Lower Monumental, McNary, Bonneville and Rock Island dams. No fish were observed with signs of GBT this past week.

#### **Smolt Monitoring:**

Subyearling Chinook continued to pass in small but steady numbers at Snake River projects as well as McNary Dam. Subyearling Chinook indices decreased Rock Island Dam where the average passage indices decreased for the first time in several weeks. High temperatures have caused sampling to be modified at both John Day and Bonneville dams this week.

At Lower Granite Dam passage indices for subyearling Chinook increased this past week due in no small part to a relatively large index of 1,195 on August 18. The site is doing double testing so spill has been increased in the past few days. Little Goose Dam also saw an increased the average subyearling passage index this past week. At Little Goose the index averaged 1,800 per day this week compared to 1,100 per day last week. The index spiked to 5,000 at Little Goose on August 16. Similarly, at Lower Monumental Dam passage indices were up this past week compared to the previous week.

At Rock Island Dam passage indices for subyearlings were lower than last week with the daily index averaging 78 this week compared to about 420 per day last week.

At McNary Dam subyearling Chinook predominated over the past week. Indices for subyearling Chinook averaged 12,000 per day this week compared to 13,261 per day average last week. John Day Dam and Bonneville Dam are on limited sampling due to temperatures in excess of 70 degrees F measured in the forebay of the dams.

#### **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 zone this week. Furthermore, there are no releases of juvenile salmonids scheduled for this zone over the next two weeks.

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. There were no releases of juvenile salmonids scheduled for this zone this week. Furthermore, there are no

releases of juvenile salmonids scheduled for 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. There were no releases of juvenile salmonids scheduled for this zone this week. There are also no releases of juvenile salmonids scheduled for this zone over the next two weeks.

#### **Adult Fish Passage:**

Fall Chinook began to pass Bonneville Dam on August 1<sup>st</sup>. Daily counts of fall Chinook at Bonneville Dam ranged from 674 to 1,408. The 2010 adult fall Chinook count of 11,644 is about 69.5% of the 2009 count and about 95.9% of the 10 average. The 2010 Bonneville Dam fall Chinook jack count of 1,725 is about 41.4% of the 2009 count and 88.4% of the 10 year average. The 2010 McNary Dam adult fall Chinook count of 1893 is about 69.6% of the 2009 count and about 72.1% of the 10 year average. The 2010 fall Chinook jack McNary Dam jack count of 306 is about 37.2% of the 2009 count and about 52.6% of the 10 year average.

Daily steelhead counts at Bonneville Dam for the past week ranged between 3,558 and 4,956. The Bonneville Dam 2010 steelhead count of 290,354 is about 82.5% of the 2009 count of 352,084. However, the 2010 steelhead count is about 1.3 times greater than of the 10 year average of 223,213. At Willamette Falls Dam, the 2010 count for steelhead was 28,596, as of August 5th. This year's steelhead count is about 1.7 times greater than the 2009 count of 16,796 at Willamette Falls Dam for the same date range.

During this time of year, there are times when there are higher steelhead counts at upstream projects compared to downstream projects.

The summer steelhead run is delineated according to dates of passage past Bonneville Dam and is made up of two components. A-run steelhead 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. As of August 18th, the 2010 A-run adult steelhead count at Bonneville was 282,706 which was about 80.3% of the 2009 count of 351,929 while being about 1.23 times greater than the 10 year average count of 229,592.

In the Snake River, this year's Lower Granite steelhead count of 29526 is about 1.47 times greater

than the 2009 count and about 1.89 times greater than the 10 year average count of 15,553. The 2010 LGR wild steelhead count as of August 19th was 11,968. The 2010 Rock Island Dam adult steelhead count of 10,781 is about 2.25 times greater than the 2009 count and 2.29 times greater than the 10 year average.

The 2010 adult sockeye count at Bonneville Dam of 386,506 is about 2.17 times greater than the 2009 count and about 4.1 times greater than the 10 year average. The 2010 adult sockeye count at McNary Dam of 278,791 is about 2.29 times greater than the 2009 count and 4 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 zone at Ice Harbor Dam, the 2010 adult sockeye count of 1,300 is about 1.50 times greater than the 2009 count of 867 and about 7.43 times greater than the 10 year average count of 175. The Lower Granite Dam 2010 adult sockeye count of 2,141 is about 1.76 times greater than the 2009 count of 1,214 and 8.85 times greater than the 10 year average of 242.

The 2010 adult coho count at Bonneville Dam is 403 adults and 54 jacks. The Bonneville 2010 adult coho count is about 21.2% of the 2009 count and about 87.4% of the 10 year average. The Bonneville 2010 coho jack count is about 9% of the 2009 count of 598 and about 48.6% of the 10 year average count of 111. As of August 18th at Bonneville Dam, the adult Shad count was 1,042,314 which was about 75.9% of the 2009 count of 1,373,660 and about 33.7% of the 10 year average count of 309,1732.

**Hatchery Releases Last Two Weeks**

**There were no hatchery releases from 08/06/10-8/19/10.**

**Hatchery Releases Next Two Weeks**

**There are no hatchery releases planned from 08/20/10-9/03/10.**

**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
08/06/2010	96.9	0.2	86.8	0.0	91.0	7.2	92.3	8.7	97.6	22.3	102.3	19.7	99.2	27.6
08/07/2010	59.8	0.2	62.5	0.0	74.1	5.6	77.4	6.3	79.6	15.6	96.6	19.2	99.7	26.9
08/08/2010	66.7	0.2	67.5	0.0	66.9	5.0	63.6	5.7	65.4	14.3	68.3	18.5	67.3	26.0
08/09/2010	85.3	0.2	89.0	0.0	90.8	6.5	91.7	8.2	94.2	20.7	103.0	19.5	98.3	26.3
08/10/2010	97.5	0.2	100.1	0.0	103.0	6.5	100.6	8.2	104.5	21.4	100.5	19.7	95.8	26.4
08/11/2010	89.8	0.2	87.2	0.0	93.0	7.6	92.2	8.0	95.3	22.9	101.7	18.9	101.2	25.5
08/12/2010	87.5	0.2	85.1	0.0	87.5	6.7	84.9	8.3	87.9	23.0	92.8	19.2	91.6	26.4
08/13/2010	82.8	0.2	88.9	0.0	94.5	7.3	94.5	8.1	95.1	20.3	101.4	19.2	99.0	26.8
08/14/2010	81.1	0.2	85.5	0.0	84.9	6.4	82.7	5.7	86.2	12.4	87.0	18.9	86.2	26.4
08/15/2010	69.0	0.2	61.2	0.0	66.2	5.1	68.9	6.7	71.4	14.4	73.2	19.4	73.6	26.8
08/16/2010	94.9	0.2	101.7	0.0	102.1	7.3	98.1	8.1	98.8	21.2	97.9	19.1	93.7	26.4
08/17/2010	103.6	0.2	103.6	0.0	107.6	8.3	108.4	8.0	112.2	21.0	111.3	19.6	109.2	25.6
08/18/2010	82.0	0.2	77.8	0.0	88.6	7.7	89.3	8.1	92.9	20.4	116.1	19.1	118.2	26.3
08/19/2010	80.1	0.2	79.2	0.0	78.3	5.9	76.5	7.5	77.6	19.7	73.7	18.4	71.8	25.1

**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
08/06/2010	13.1	3.2	8.6	9.4	34.8	18.6	31.9	9.6	32.1	12.8	32.4	22.4
08/07/2010	9.9	0.0	9.1	9.9	28.8	15.6	26.7	8.0	27.0	11.9	26.7	16.7
08/08/2010	9.9	0.0	9.3	8.6	29.5	16.9	26.5	7.9	26.8	11.4	27.3	17.2
08/09/2010	9.6	0.0	9.7	9.6	29.4	16.6	30.4	9.1	30.8	15.7	32.2	22.5
08/10/2010	9.9	0.0	9.4	8.7	27.2	14.6	24.8	7.4	25.4	10.1	26.0	16.2
08/11/2010	10.6	0.8	10.2	8.7	30.3	17.3	29.0	8.6	29.5	13.0	27.8	17.6
08/12/2010	10.9	0.9	9.9	8.7	31.6	18.7	30.2	9.1	30.7	12.7	32.8	22.8
08/13/2010	10.8	0.8	9.8	8.7	31.5	18.6	30.2	9.7	29.4	16.0	29.9	20.1
08/14/2010	10.9	0.8	10.2	9.9	31.3	18.6	28.6	8.4	28.2	15.9	29.2	19.0
08/15/2010	10.7	0.6	9.7	8.7	28.0	15.3	28.1	8.2	26.1	13.8	26.4	16.4
08/16/2010	10.4	0.4	10.3	10.6	29.5	20.1	29.4	8.6	28.2	16.0	27.2	17.2
08/17/2010	10.1	0.0	9.6	13.0	30.2	19.8	29.5	8.8	29.9	17.5	29.9	20.1
08/18/2010	10.1	0.0	9.3	12.7	30.2	20.3	30.9	9.3	30.5	17.4	32.5	22.2
08/19/2010	10.1	0.0	---	---	31.5	21.9	31.8	9.5	30.0	17.4	30.0	19.8

**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		
08/06/2010	138.7	69.6	124.4	37.0	116.5	46.5	130.3	82.5	0.0	35.4
08/07/2010	130.4	64.9	123.1	36.9	117.0	46.7	127.0	82.7	0.0	31.9
08/08/2010	122.8	61.8	121.0	36.4	113.5	45.4	128.9	82.2	0.0	34.2
08/09/2010	128.4	63.8	114.7	34.4	109.9	44.3	126.9	82.2	0.0	32.4
08/10/2010	112.8	56.6	107.3	32.2	110.3	44.3	126.7	82.0	0.2	32.1
08/11/2010	146.0	72.7	139.7	42.0	127.6	51.3	136.0	84.5	0.0	39.1
08/12/2010	130.5	65.3	121.5	36.6	115.1	45.8	130.9	86.3	0.0	32.2
08/13/2010	125.5	62.1	122.7	36.9	116.9	46.7	125.4	82.4	0.0	30.6
08/14/2010	125.1	62.7	117.7	35.2	116.5	46.6	132.0	87.3	0.0	32.3
08/15/2010	116.8	57.9	107.2	32.1	98.5	39.4	132.9	88.0	0.0	32.5
08/16/2010	123.5	62.0	122.2	36.7	118.8	47.7	132.5	88.0	0.0	32.1
08/17/2010	143.0	71.5	130.0	38.9	119.2	47.8	128.5	83.6	0.0	32.5
08/18/2010	144.7	72.6	122.6	36.9	119.5	47.9	131.3	83.7	0.0	35.2
08/19/2010	124.0	62.4	124.6	37.3	120.0	48.1	135.5	79.9	0.0	43.2

## 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>											
	08/16/10	Chinook + Steelhead	62	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	08/11/10	Chinook + Steelhead	10	0	0	0.00%	0.00%	0	0	0	0
	08/18/10	Chinook + Steelhead	16	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	08/12/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/16/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	08/11/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/15/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/17/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	08/10/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/12/10	Chinook + Steelhead	50	0	0	0.00%	0.00%	0	0	0	0
	08/18/10	Chinook + Steelhead	42	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>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</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>	
8/6	105.9	106.2	106.7	23	109.6	110.0	110.3	20	111.0	111.3	112.2	24	110.6	111.2	111.9	20	110.5	110.8	111.1	24
8/7	105.9	106.3	106.5	24	109.3	109.5	109.7	22	110.4	110.7	111.0	24	109.1	109.5	111.0	22	110.3	110.7	111.6	24
8/8	105.7	105.9	106.2	24	107.1	107.4	108.2	22	109.9	110.2	110.8	24	108.8	109.4	110.0	22	110.2	110.6	111.3	24
8/9	105.6	106.0	106.7	23	106.9	107.4	108.5	21	109.7	110.0	110.3	24	110.1	110.8	111.5	21	109.8	110.5	111.0	24
8/10	105.2	105.4	105.8	24	106.4	106.7	107.5	20	109.5	109.8	110.2	24	109.6	110.1	111.5	20	108.9	109.3	109.8	24
8/11	104.9	105.3	105.6	24	105.7	106.2	106.9	21	109.1	109.4	110.9	24	109.8	110.6	111.4	21	109.7	110.1	110.5	24
8/12	104.8	105.0	105.5	24	105.6	106.1	106.5	22	109.0	109.3	109.7	24	110.2	111.0	111.9	22	108.9	109.2	109.7	24
8/13	104.6	104.8	105.0	23	106.0	106.5	107.4	19	108.5	108.8	109.4	24	109.3	109.7	110.5	19	107.9	108.0	108.5	24
8/14	104.1	104.3	104.7	24	105.1	105.8	106.6	24	107.7	107.9	108.2	24	109.5	110.4	111.5	24	107.8	108.1	108.7	24
8/15	104.1	104.6	105.0	24	105.4	106.0	106.8	23	107.4	107.6	107.8	24	108.8	109.7	110.2	23	108.3	109.1	109.6	24
8/16	104.4	104.8	105.3	23	106.3	106.9	107.9	20	107.3	107.5	108.1	24	109.8	110.4	111.3	20	108.6	109.4	109.8	24
8/17	104.8	105.1	105.7	24	106.4	106.9	107.9	23	106.6	107.0	107.5	24	110.1	110.8	111.5	23	109.0	109.5	110.2	24
8/18	104.7	105.1	105.6	24	106.7	107.1	107.9	22	105.6	106.2	107.3	24	109.9	110.4	111.8	22	109.0	109.4	109.6	24
8/19	104.9	105.1	105.5	23	107.0	107.5	108.1	20	106.7	107.1	107.8	24	109.7	110.2	111.4	20	107.6	107.9	108.4	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>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</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>	
8/6	111.3	112.0	112.5	24	112.0	112.5	113.0	24	113.5	114.1	114.7	24	111.6	111.8	112.1	24	111.8	112.7	113.7	24
8/7	111.6	112.1	112.5	24	110.4	110.9	111.1	24	111.5	111.8	112.0	24	111.0	111.1	111.3	24	110.7	111.4	111.7	24
8/8	111.5	112.1	112.9	24	110.1	111.1	111.7	24	111.0	111.8	112.3	24	111.2	111.6	112.5	24	110.4	111.2	111.6	24
8/9	110.3	110.9	112.1	24	110.4	111.1	111.7	24	111.5	112.3	112.9	24	110.8	111.1	111.5	24	111.4	112.1	112.7	24
8/10	109.9	110.4	111.0	24	110.0	110.6	111.2	24	111.4	112.0	112.3	24	109.5	109.7	109.9	24	110.8	111.7	112.6	24
8/11	110.7	111.3	112.2	24	109.4	110.3	111.0	24	111.2	112.0	112.5	24	109.8	110.3	110.7	24	110.5	111.8	112.3	24
8/12	110.1	110.8	111.5	24	110.0	110.9	111.5	24	111.4	112.5	113.4	24	110.4	110.7	111.0	24	111.4	112.6	114.0	24
8/13	109.1	109.6	110.3	24	109.2	109.6	109.9	24	111.1	111.8	112.4	24	109.8	110.1	110.3	24	111.0	111.7	112.7	24
8/14	109.1	109.7	110.2	24	108.6	109.4	110.4	24	109.8	110.8	111.4	24	109.3	109.8	110.0	24	110.0	110.6	111.2	24
8/15	109.7	110.3	111.6	24	108.9	110.3	111.6	24	110.1	111.0	111.5	24	110.1	110.7	111.2	24	110.3	110.9	111.1	24
8/16	109.6	109.9	110.3	24	109.8	110.8	111.2	24	111.1	112.3	112.5	24	110.4	110.8	111.0	24	111.4	112.5	113.0	24
8/17	109.9	110.3	110.9	24	110.4	111.2	112.1	24	112.3	113.6	114.3	24	110.9	111.4	111.6	24	111.9	112.8	113.5	24
8/18	110.4	111.0	111.4	24	109.7	110.6	111.3	24	111.6	112.7	113.5	24	110.6	111.2	111.6	24	111.5	112.3	112.9	24
8/19	108.4	109.5	110.2	24	108.7	109.6	110.3	24	109.8	110.6	111.1	24	110.4	110.9	111.1	24	111.0	111.8	112.9	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>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</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>	
8/6	110.5	110.8	111.1	24	115.1	115.7	116.2	24	109.8	110.6	111.5	24	113.4	114.1	115.2	24	111.7	112.2	113.0	24
8/7	105.0	109.6	110.7	24	113.9	115.2	118.5	24	107.1	108.0	108.7	24	112.2	113.4	114.6	24	109.0	109.6	111.1	24
8/8	99.6	99.6	99.7	24	114.4	115.8	120.2	24	104.5	105.8	107.1	24	113.4	113.7	113.9	24	108.6	109.2	109.7	24
8/9	104.2	108.7	110.4	24	114.3	114.8	116.6	24	107.4	108.1	108.4	24	111.9	112.7	114.1	24	109.2	110.4	111.7	24
8/10	108.5	109.4	110.0	24	112.4	114.5	116.7	24	105.7	107.2	107.9	24	111.6	112.8	113.8	24	108.4	108.9	110.2	24
8/11	108.9	109.5	110.2	24	114.8	115.7	117.3	24	107.2	108.1	109.0	24	112.3	113.1	113.8	24	109.7	110.5	111.7	24
8/12	109.6	110.2	110.6	24	114.9	115.9	116.8	24	106.6	107.7	108.1	24	112.8	113.9	114.6	24	111.0	112.0	113.0	24
8/13	109.4	109.9	110.1	24	114.4	115.7	121.1	24	106.2	107.4	108.0	20	112.4	113.3	114.8	24	110.5	111.3	111.9	24
8/14	109.0	109.5	109.8	24	113.8	115.4	118.6	24	107.4	108.9	110.0	20	113.0	113.9	114.4	24	110.9	111.6	112.2	24
8/15	109.1	109.7	110.6	24	113.7	114.6	117.9	24	107.7	108.8	111.2	16	114.2	115.0	115.9	24	112.1	113.1	114.1	24
8/16	110.1	110.6	111.1	24	115.0	115.7	117.2	24	108.6	111.6	113.7	22	113.5	114.1	115.1	24	114.0	115.1	115.9	24
8/17	110.4	111.0	111.7	24	114.7	115.2	116.7	24	---	---	---	0	---	---	---	0	---	---	---	0
8/18	110.3	110.9	111.2	24	115.2	115.8	116.5	24	---	---	---	0	---	---	---	0	---	---	---	0
8/19	109.5	109.8	110.4	24	114.7	115.9	116.8	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	Priest R. Dnst				Pasco				Dworshak				Clrwtr-Peck				Anatone			
	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
8/6	113.2	113.9	114.5	24	110.0	110.7	111.3	24	108.4	108.8	109.2	24	107.2	108.1	109.1	24	102.1	103.5	104.7	24
8/7	111.4	111.8	112.3	24	108.4	109.1	109.5	24	99.9	100.2	100.8	24	102.2	103.5	105.6	23	101.7	103.2	104.5	24
8/8	110.5	111.0	111.5	24	107.4	108.1	108.4	24	99.7	100.0	100.3	24	101.4	102.7	103.8	23	101.6	103.1	104.5	24
8/9	110.9	112.0	112.6	24	107.6	108.3	109.5	24	99.0	99.4	100.1	24	100.9	101.8	102.7	21	101.5	102.9	104.0	24
8/10	110.4	110.8	111.3	24	106.2	107.3	107.7	24	98.2	98.5	98.8	24	100.4	101.6	102.7	23	101.1	102.4	103.6	24
8/11	111.3	111.8	112.3	24	106.3	107.0	107.3	24	99.4	100.6	106.2	24	101.0	102.5	105.0	22	100.8	101.8	103.2	24
8/12	111.9	113.0	113.6	24	107.2	108.4	109.1	24	99.2	99.7	100.0	24	101.3	102.7	103.9	23	101.1	102.3	102.7	24
8/13	111.9	112.8	113.2	24	107.2	108.0	108.3	24	99.2	99.4	99.8	24	101.4	102.4	103.4	23	101.2	102.2	103.5	24
8/14	112.2	113.1	113.5	24	107.1	107.1	107.3	3	99.0	99.3	99.6	24	101.1	102.3	103.3	24	100.7	102.0	103.4	24
8/15	112.0	113.7	114.5	24	---	---	---	0	135.6	172.5	980.0	24	101.1	102.2	103.2	23	100.3	101.5	102.7	24
8/16	113.3	115.1	115.5	24	---	---	---	0	98.6	99.4	105.0	24	101.1	102.3	103.3	24	99.7	100.8	101.9	24
8/17	---	---	---	0	111.1	111.2	112.2	13	97.7	98.1	98.4	24	100.4	101.8	102.8	23	99.8	100.9	102.3	24
8/18	---	---	---	0	108.6	109.3	110.1	24	98.0	98.2	98.5	24	100.6	101.7	102.8	23	99.0	99.6	100.3	24
8/19	---	---	---	0	107.0	107.9	108.6	24	98.0	98.3	98.5	24	100.5	101.7	102.8	23	98.6	99.5	100.4	24

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

Date	Clrwtr-Lewiston				Lower Granite				L. Granite Tlwr				Little Goose				L. Goose Tlwr			
	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
8/6	104.5	106.0	106.9	24	102.1	102.3	102.6	24	114.9	115.2	115.5	24	113.1	113.4	114.0	24	109.1	109.7	109.9	24
8/7	103.4	104.8	105.7	24	101.5	101.8	102.2	24	113.8	114.8	115.5	24	113.3	113.5	113.8	24	108.8	109.3	109.9	24
8/8	102.2	104.0	105.6	23	101.5	101.9	102.3	24	114.5	115.4	116.0	24	112.0	112.4	112.9	24	108.7	109.2	109.6	24
8/9	101.9	103.7	105.0	24	99.9	100.6	101.0	24	114.2	114.9	115.2	24	111.5	111.7	111.8	24	108.6	109.0	109.6	24
8/10	101.8	103.3	104.8	22	100.4	101.1	101.5	24	113.7	114.6	115.1	24	111.6	111.9	112.4	24	108.2	108.7	108.9	24
8/11	101.8	103.3	104.0	23	101.0	101.3	101.6	24	114.4	114.8	115.0	24	110.1	110.4	111.1	24	108.2	108.6	109.4	24
8/12	102.6	104.4	105.7	23	101.2	101.7	102.0	24	114.9	115.2	115.5	24	109.5	109.7	109.9	24	107.7	108.5	109.1	24
8/13	102.7	104.4	105.7	24	100.7	101.1	101.8	24	115.1	115.3	115.5	24	109.4	109.9	111.1	24	107.8	108.4	110.2	24
8/14	102.7	104.6	106.1	23	99.7	99.8	100.1	24	114.7	115.0	115.3	24	109.9	110.4	110.8	24	107.2	107.6	108.1	24
8/15	102.7	104.7	106.1	24	99.6	99.7	99.9	24	113.7	114.1	114.5	24	108.5	108.8	109.5	24	106.9	107.6	108.2	24
8/16	102.8	104.9	106.4	24	100.2	100.7	101.0	24	116.5	118.7	119.7	24	108.8	109.0	109.4	24	107.0	107.7	108.2	24
8/17	102.7	104.6	106.0	24	101.0	101.3	101.8	24	115.6	117.4	118.0	24	110.2	110.6	111.1	24	107.4	107.8	108.2	24
8/18	102.5	103.7	105.0	22	101.1	101.3	101.5	24	116.0	117.5	118.2	24	110.4	110.7	111.1	24	107.4	107.8	108.2	24
8/19	102.5	104.4	105.7	24	101.4	101.8	102.1	24	117.0	118.8	119.4	24	109.9	110.1	110.3	24	107.4	107.9	108.5	24

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

Date	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	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
8/6	112.8	112.9	113.2	24	114.8	115.9	116.7	24	114.2	114.3	114.6	24	111.8	112.7	113.5	24	---	---	---	0
8/7	112.0	112.2	112.4	24	114.6	115.5	116.7	24	113.6	113.8	113.8	24	112.4	113.3	114.0	24	---	---	---	0
8/8	111.4	111.5	111.6	24	114.3	115.0	116.9	24	113.1	113.2	113.3	24	111.8	112.6	113.3	24	---	---	---	0
8/9	110.5	110.9	111.1	24	115.5	116.7	116.9	24	112.6	112.8	112.9	24	113.6	114.2	114.7	24	---	---	---	0
8/10	108.2	108.6	109.7	24	112.6	113.0	113.3	24	111.1	111.5	112.0	24	111.5	112.2	112.9	24	---	---	---	0
8/11	107.9	108.2	108.8	24	113.8	115.0	116.5	24	110.2	110.4	110.8	24	110.9	111.5	112.1	24	---	---	---	0
8/12	107.4	107.6	107.8	24	113.7	114.7	116.2	24	109.9	110.2	110.5	24	112.3	113.1	113.6	24	---	---	---	0
8/13	107.2	107.4	107.9	24	114.1	115.2	115.9	24	109.6	109.8	110.0	24	113.3	113.8	114.2	24	---	---	---	0
8/14	105.8	106.1	106.9	24	114.4	115.3	115.7	24	109.2	109.3	109.4	24	113.0	113.9	114.3	24	---	---	---	0
8/15	105.6	106.0	106.4	24	113.0	114.1	114.6	24	109.0	109.1	109.3	24	110.6	111.1	111.9	24	---	---	---	0
8/16	105.9	106.2	106.4	24	114.4	115.1	115.7	24	109.1	109.3	109.5	24	111.1	112.0	112.7	24	---	---	---	0
8/17	106.5	107.1	107.9	24	122.2	129.8	140.6	24	109.5	109.7	110.1	24	113.2	113.7	114.3	24	---	---	---	0
8/18	106.3	106.6	107.0	24	115.5	115.9	116.3	24	109.6	109.8	110.3	24	113.3	113.7	114.0	24	---	---	---	0
8/19	105.5	105.6	105.9	24	115.1	115.6	116.1	24	109.2	109.3	109.4	24	113.3	113.8	114.3	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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>AVG</u>	<u>High</u>	
8/6	108.2	108.9	109.8	24	115.5	115.9	116.4	24	105.6	105.9	106.3	24	114.4	114.7	115.3	24	107.1	107.6	107.7	24
8/7	109.3	109.5	109.6	24	115.9	116.8	117.2	24	104.7	104.8	104.9	24	113.8	114.3	114.5	24	104.6	104.9	105.0	24
8/8	108.5	108.8	109.2	24	116.2	117.1	117.6	24	104.5	104.8	105.1	24	114.0	114.4	114.7	24	104.3	104.8	105.1	24
8/9	106.9	107.4	107.9	24	114.8	115.5	116.5	24	104.1	104.3	104.5	24	113.6	114.0	115.0	24	104.2	104.5	104.8	24
8/10	105.7	106.0	106.3	24	114.4	114.7	114.9	24	103.3	103.5	103.7	24	113.7	114.4	114.8	24	103.2	103.5	103.7	24
8/11	105.4	105.7	105.9	24	115.2	116.4	117.2	24	103.0	103.1	103.3	24	114.7	115.2	116.3	24	103.9	104.7	104.9	24
8/12	104.8	105.2	105.5	24	114.6	115.4	117.0	24	102.6	102.8	103.1	24	114.4	114.9	115.8	24	105.7	106.1	106.5	24
8/13	104.9	105.6	107.4	24	114.4	115.2	116.0	24	102.3	102.7	102.9	24	114.5	114.7	114.9	24	105.5	105.8	106.1	24
8/14	104.7	105.2	106.3	24	115.0	115.8	116.4	24	102.0	102.5	103.1	24	114.0	114.5	114.7	24	106.0	106.5	107.0	24
8/15	105.1	105.4	105.8	24	114.4	114.7	115.1	24	101.8	102.0	102.3	24	113.8	114.6	114.9	24	106.3	106.9	107.2	24
8/16	106.0	106.7	107.4	24	115.3	116.4	117.1	24	102.2	102.4	102.9	24	114.3	114.9	115.2	24	106.9	107.5	107.8	24
8/17	107.5	108.2	109.1	24	115.9	116.8	117.5	24	103.5	103.8	104.0	24	114.6	115.2	115.7	24	107.8	108.3	109.0	24
8/18	108.7	108.9	109.5	24	116.2	116.6	116.8	24	103.8	104.4	107.6	24	113.7	114.5	115.3	24	105.7	106.3	106.9	24
8/19	107.7	108.1	108.7	24	114.8	115.3	116.1	24	103.7	103.9	104.1	24	114.0	114.5	115.0	24	104.1	104.5	105.6	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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
8/6	113.5	114.0	114.2	24	106.7	106.9	107.0	24	115.0	115.6	116.2	24	111.3	112.5	113.4	24	114.9	115.9	117.4	24
8/7	112.1	112.5	113.0	24	105.1	105.3	105.8	24	115.6	116.0	116.5	24	112.5	114.0	114.9	24	114.7	115.7	117.1	24
8/8	111.7	112.1	112.6	24	104.7	105.0	105.3	24	115.9	116.1	116.6	24	113.2	114.2	115.0	24	114.3	115.5	116.7	24
8/9	111.3	111.5	111.8	24	103.8	104.0	104.3	24	114.9	115.2	115.4	24	111.7	112.6	113.5	24	114.3	115.5	116.7	24
8/10	110.9	111.2	111.3	24	102.8	103.0	103.3	24	115.1	115.5	115.8	24	111.7	112.8	113.4	24	114.2	115.4	116.8	24
8/11	111.5	112.2	112.5	24	103.0	103.2	103.3	24	115.4	115.8	116.0	24	112.7	114.0	115.0	24	114.4	115.7	117.2	24
8/12	112.5	112.9	113.2	24	104.0	104.6	104.9	24	116.0	116.5	117.1	24	112.7	114.3	115.2	24	114.4	115.8	117.6	24
8/13	112.4	112.7	113.3	24	105.1	105.6	106.0	24	116.0	116.3	116.5	24	113.6	114.6	115.3	24	114.4	115.7	117.0	24
8/14	112.8	113.6	114.4	24	105.9	106.3	106.7	24	115.3	115.9	116.9	24	111.1	111.9	113.5	24	114.7	116.1	117.7	24
8/15	112.4	112.7	113.5	24	107.5	108.1	108.5	24	116.6	117.0	117.4	24	112.2	114.9	116.2	24	115.1	116.4	118.0	24
8/16	113.5	114.5	115.4	24	109.9	110.9	111.3	24	116.9	117.3	117.9	24	115.4	117.1	118.0	24	115.3	116.7	118.3	24
8/17	114.2	114.8	115.6	24	111.2	111.6	111.8	24	116.7	117.4	117.6	24	115.6	116.6	117.4	24	115.1	116.1	116.9	24
8/18	112.5	113.0	113.8	24	106.8	107.6	109.4	24	115.0	115.3	116.1	24	112.4	113.6	115.0	24	114.9	115.9	117.0	24
8/19	111.6	112.1	112.7	24	104.2	104.6	105.4	24	113.5	113.9	114.6	24	110.9	111.6	112.9	24	114.3	115.2	117.5	24

### Two-Week Summary of Passage Indices

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)
08/06/2010	*	---	---	---	---	0	3	0	1	0	0
08/07/2010	*	---	---	---	---	0	6	0	0	0	---
08/08/2010	*	---	---	---	---	4	3	0	0	0	0
08/09/2010	*	---	---	---	---	0	13	0	0	0	---
08/10/2010	*	---	---	---	---	0	1	0	0	0	0
08/11/2010	*	---	---	---	---	0	0	0	0	0	---
08/12/2010	*	---	---	---	---	0	0	15	0	0	0
08/13/2010	*	---	---	---	---	0	6	8	0	0	---
08/14/2010	*	---	---	---	---	0	0	0	0	0	0
08/15/2010	*	---	---	---	---	0	0	9	0	0	---
08/16/2010	*	---	---	---	---	0	0	0	0	0	0
08/17/2010	*	---	---	---	---	0	0	0	0	0	---
08/18/2010	*	---	---	---	---	0	0	0	0	0	0
08/19/2010	*	---	---	---	---	---	1	---	0	0	---
08/20/2010		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>33</b>	<b>32</b>	<b>1</b>	<b>0</b>	<b>0</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>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YTD</b>	<b>56,130</b>	<b>80,004</b>	<b>27,916</b>	<b>7,995</b>	<b>2,452,568</b>	<b>1,260,514</b>	<b>452,089</b>	<b>11,800</b>	<b>2,093,842</b>	<b>1,034,554</b>	<b>2,302,148</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)
08/06/2010	*	---	---	---	---	1,038	885	372	1,461	15,991	1,187
08/07/2010	*	---	---	---	---	707	1,031	122	484	13,429	---
08/08/2010	*	---	---	---	---	296	798	167	268	7,660	2,591
08/09/2010	*	---	---	---	---	414	892	91	263	5,468	---
08/10/2010	*	---	---	---	---	492	1,130	101	188	12,388	1,435
08/11/2010	*	---	---	---	---	648	1,423	148	128	13,685	---
08/12/2010	*	---	---	---	---	939	1,293	311	158	24,204	---
08/13/2010	*	---	---	---	---	852	1,690	221	96	14,381	725
08/14/2010	*	---	---	---	---	1,037	1,140	173	113	11,033	---
08/15/2010	*	---	---	---	---	691	1,080	190	101	11,980	---
08/16/2010	*	---	---	---	---	388	5,210	177	69	12,779	---
08/17/2010	*	---	---	---	---	758	2,036	138	82	14,830	1,225
08/18/2010	*	---	---	---	---	1,195	1,086	524	58	12,873	---
08/19/2010	*	---	---	---	---	---	727	---	26	6,292	---
08/20/2010		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,455</b>	<b>20,421</b>	<b>2,735</b>	<b>3,495</b>	<b>176,993</b>	<b>4,572</b>	<b>34,249</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>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>727</b>	<b>1,459</b>	<b>210</b>	<b>250</b>	<b>12,642</b>	<b>1,143</b>	<b>4,893</b>
<b>YTD</b>	<b>0</b>	<b>42</b>	<b>28</b>	<b>1,275</b>	<b>1,017,487</b>	<b>1,304,672</b>	<b>769,000</b>	<b>22,819</b>	<b>3,731,588</b>	<b>2,203,280</b>	<b>5,081,423</b>

Two-Week Summary of Passage Indices

COMBINED COHO											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
08/06/2010 *	---	---	---	---	0	0	0	9	21	10	0
08/07/2010 *	---	---	---	---	0	0	0	3	0	---	---
08/08/2010 *	---	---	---	---	0	0	0	0	0	---	0
08/09/2010 *	---	---	---	---	0	0	0	1	0	---	---
08/10/2010 *	---	---	---	---	0	0	0	3	0	0	0
08/11/2010 *	---	---	---	---	0	0	0	0	0	---	---
08/12/2010 *	---	---	---	---	0	0	0	2	41	---	0
08/13/2010 *	---	---	---	---	5	0	0	2	0	0	---
08/14/2010 *	---	---	---	---	0	0	0	0	21	---	0
08/15/2010 *	---	---	---	---	5	0	0	1	21	---	---
08/16/2010 *	---	---	---	---	5	0	0	0	0	---	0
08/17/2010 *	---	---	---	---	0	0	0	1	0	0	---
08/18/2010 *	---	---	---	---	6	7	0	0	0	---	0
08/19/2010 *	---	---	---	---	---	0	---	0	0	---	---
08/20/2010	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>7</b>	<b>0</b>	<b>22</b>	<b>104</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>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>3</b>	<b>0</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>104</b>	<b>40,167</b>	<b>53,901</b>	<b>13,604</b>	<b>41,441</b>	<b>85,780</b>	<b>111,156</b>	<b>524,764</b>

COMBINED STEELHEAD											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
08/06/2010 *	---	---	---	---	4	6	0	1	0	0	0
08/07/2010 *	---	---	---	---	4	6	0	0	0	---	---
08/08/2010 *	---	---	---	---	4	3	0	0	0	---	0
08/09/2010 *	---	---	---	---	0	0	8	0	0	---	---
08/10/2010 *	---	---	---	---	0	3	0	0	0	0	0
08/11/2010 *	---	---	---	---	0	6	0	0	0	---	---
08/12/2010 *	---	---	---	---	5	0	0	0	0	---	0
08/13/2010 *	---	---	---	---	0	0	8	0	21	0	---
08/14/2010 *	---	---	---	---	0	6	0	0	0	---	0
08/15/2010 *	---	---	---	---	0	0	9	0	0	---	---
08/16/2010 *	---	---	---	---	5	34	0	0	0	---	0
08/17/2010 *	---	---	---	---	0	7	0	1	0	0	---
08/18/2010 *	---	---	---	---	3	0	0	1	0	---	0
08/19/2010 *	---	---	---	---	---	4	---	0	0	---	---
08/20/2010	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>75</b>	<b>25</b>	<b>3</b>	<b>21</b>	<b>0</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>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>YTD</b>	<b>4,385</b>	<b>27,688</b>	<b>4,051</b>	<b>11,795</b>	<b>2,045,791</b>	<b>1,594,175</b>	<b>427,854</b>	<b>17,302</b>	<b>448,224</b>	<b>594,800</b>	<b>942,451</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)	
08/06/2010	*	---	---	---	---	0	6	0	1	21	0	0
08/07/2010	*	---	---	---	---	0	0	0	0	21	---	---
08/08/2010	*	---	---	---	---	0	0	0	0	0	---	19
08/09/2010	*	---	---	---	---	0	0	0	4	0	---	---
08/10/2010	*	---	---	---	---	0	0	0	0	0	0	0
08/11/2010	*	---	---	---	---	0	0	0	2	21	---	---
08/12/2010	*	---	---	---	---	0	0	0	2	21	---	0
08/13/2010	*	---	---	---	---	0	0	0	0	0	11	---
08/14/2010	*	---	---	---	---	0	0	0	0	0	---	0
08/15/2010	*	---	---	---	---	0	0	0	0	0	---	---
08/16/2010	*	---	---	---	---	0	0	0	0	21	---	0
08/17/2010	*	---	---	---	---	3	0	0	0	21	29	---
08/18/2010	*	---	---	---	---	0	0	0	0	21	---	0
08/19/2010	*	---	---	---	---	---	0	---	0	0	---	---
08/20/2010		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>9</b>	<b>147</b>	<b>40</b>	<b>19</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>7</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>1</b>	<b>11</b>	<b>10</b>	<b>3</b>
<b>YTD</b>		<b>80</b>	<b>0</b>	<b>0</b>	<b>188</b>	<b>8,760</b>	<b>12,821</b>	<b>2,202</b>	<b>36,506</b>	<b>1,469,099</b>	<b>656,055</b>	<b>803,520</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:

8/20/10 10:23 AM

		08/06/10	TO	08/20/10			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	3,878	2	8	11	1	3,900
	Sum of NumberBarged	3,803	2	6	10	2	3,823
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	614	0	2	1	1	618
	Sum of SampleMorts	32	0	0	0	0	32
	Sum of FacilityMorts	24	0	0	0	0	24
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	56	0	0	0	0	56
<b>LGS</b>	Sum of NumberCollected	14,206	23	5	52	4	14,290
	Sum of NumberBarged	12,174	22	0	43	4	12,243
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	2,095	0	4	3	0	2,102
	Sum of SampleMorts	67	0	1	0	0	68
	Sum of FacilityMorts	117	0	0	3	0	120
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	184	0	1	3	0	188
<b>LMN</b>	Sum of NumberCollected	1,354	16		12		1,382
	Sum of NumberBarged	1,187	16		16		1,219
	Sum of NumberBypassed	10	0		0		10
	Sum of Numbertrucked	262	0		0		262
	Sum of SampleMorts	5	0		0		5
	Sum of FacilityMorts	11	0		0		11
	Sum of ResearchMorts	0	0		0		0
	Sum of TotalProjectMorts	16	0		0		16
<b>MCN</b>	Sum of NumberCollected	85,270		50	10	70	85,400
	Sum of NumberBarged	36,167		10	7	30	36,214
	Sum of NumberBypassed	0		0	0	0	0
	Sum of Numbertrucked	45,311		40	0	40	45,391
	Sum of SampleMorts	98		0	1	0	99
	Sum of FacilityMorts	689		0	2	0	691
	Sum of ResearchMorts	0		0	0	0	0
	Sum of TotalProjectMorts	787		0	3	0	790
Total Sum of NumberCollected		104,708	41	63	85	75	104,972
Total Sum of NumberBarged		53,331	40	16	76	36	53,499
Total Sum of NumberBypassed		10	0	0	0	0	10
Total Sum of Numbertrucked		48,282	0	46	4	41	48,373
Total Sum of SampleMorts		202	0	1	1	0	204
Total Sum of FacilityMorts		841	0	0	5	0	846
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		1,043	0	1	6	0	1,050

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

8/20/10 10:23 AM

TO: 08/20/10

Site	Data	Species					Grand Total
		CH0	CH1	CO	SO	ST	
<b>LGR</b>	Sum of NumberCollected	608,194	1,622,344	28,350	5,788	1,358,149	3,622,825
	Sum of NumberBarged	605,631	1,428,784	28,337	5,772	1,309,483	3,378,007
	Sum of NumberBypassed	700	191,860	0	10	48,344	240,914
	Sum of NumberTrucked	614	0	2	1	1	618
	Sum of SampleMorts	213	54	1	0	19	287
	Sum of FacilityMorts	1,036	1,231	10	5	285	2,567
	Sum of ResearchMorts	0	415	0	0	17	432
	Sum of TotalProjectMorts	1,249	1,700	11	5	321	3,286
<b>LGS</b>	Sum of NumberCollected	858,141	873,194	36,902	8,874	1,085,607	2,862,718
	Sum of NumberBarged	849,625	791,515	36,896	8,872	1,025,889	2,712,797
	Sum of NumberBypassed	68	81,373	0	0	59,473	140,914
	Sum of NumberTrucked	2,095	0	4	0	3	2,102
	Sum of SampleMorts	212	29	2	1	10	254
	Sum of FacilityMorts	5,649	276	0	1	229	6,155
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	5,861	305	2	2	239	6,409
<b>LMN</b>	Sum of NumberCollected	508,668	305,750	8,789	1,524	239,910	1,064,641
	Sum of NumberBarged	507,240	304,265	8,789	1,421	234,687	1,056,402
	Sum of NumberBypassed	518	1,473	0	0	5,000	6,991
	Sum of NumberTrucked	262	0	0	0	0	262
	Sum of SampleMorts	50	9	0	0	10	69
	Sum of FacilityMorts	617	201	0	3	314	1,135
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	667	210	0	3	324	1,204
<b>MCN</b>	Sum of NumberCollected	1,845,738	1,224,094	47,445	848,880	260,030	4,226,187
	Sum of NumberBarged	299,909	173	70	190	86	300,428
	Sum of NumberBypassed	1,490,588	1,222,563	47,275	847,904	259,728	3,868,058
	Sum of NumberTrucked	45,311	0	40	40	0	45,391
	Sum of SampleMorts	431	121	5	96	17	670
	Sum of FacilityMorts	6,444	1,237	55	650	199	8,585
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	6,875	1,358	60	746	216	9,255
Total Sum of NumberCollected		3,820,741	4,025,382	121,486	865,066	2,943,696	11,776,371
Total Sum of NumberBarged		2,262,405	2,524,737	74,092	16,255	2,570,145	7,447,634
Total Sum of NumberBypassed		1,491,874	1,497,269	47,275	847,914	372,545	4,256,877
Total Sum of NumberTrucked		48,282	0	46	41	4	48,373
Total Sum of SampleMorts		906	213	8	97	56	1,280
Total Sum of FacilityMorts		13,746	2,945	65	659	1,027	18,442
Total Sum of ResearchMorts		0	415	0	0	17	432
Total Sum of TotalProjectMorts		14,652	3,573	73	756	1,100	20,154

Cumulative Adult Passage at Mainstem Dams Through: 08/19

DAM	EndDate	Spring Chinook						Summer Chinook					
		2010		2009		10-Yr Avg.		2010		2009		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	08/18	244384	12612	114525	66631	167834	17301	97604	15603	81936	37416	82525	13362
TDA	08/19	189839	11546	93908	53646	121486	13792	81292	12528	79916	27878	72634	10423
JDA	08/19	179446	11794	76806	49733	101283	12037	70955	12475	65989	33147	66361	11207
MCN	08/19	153246	9178	70413	43328	93119	11340	66526	8063	57137	21182	62804	9141
IHR	08/19	101188	6047	55435	28223	64058	7222	29583	3503	23856	9400	15236	3378
LMN	08/19	97334	5898	66931	20009	63381	6004	35097	4362	23353	11733	15714	2947
LGS	08/19	92985	5461	52642	24331	58937	6617	32410	3968	20340	11207	12950	3477
LGR	08/19	94203	6409	49667	31064	59309	8137	28778	5294	14482	16367	12293	4233
PRD	08/18	30539	932	13469	2910	19097	834	49265	1217	49417	2117	55919	2554
RIS	08/18	29684	1513	12634	6003	15841	1581	47220	4018	44295	7727	52600	6133
RRH	08/18	8660	523	6090	1086	6208	510	34049	1704	34778	5193	39920	4260
WEL	08/18	7555	661	6307	1867	4866	487	25445	1518	24465	3433	27766	1966
WFA	08/05	64112	1597	25673	2581	-	-	-	-	-	-	-	-

DAM	EndDate	Fall Chinook					
		2010		2009		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack
BON	08/18	11644	1725	16746	4167	12142	1952
TDA	08/19	5206	1034	12746	2643	7508	1407
JDA	08/19	2515	593	4241	1751	3973	1229
MCN	08/19	1893	306	2720	822	2624	582
IHR	08/19	411	48	536	158	263	41
LMN	08/19	222	43	270	178	165	52
LGS	08/19	119	25	196	44	101	17
LGR	08/19	94	17	36	59	26	14
PRD	08/18	751	121	1017	110	1183	327
RIS	08/18	142	65	168	53	177	55
RRH	08/18	0	0	0	0	0	0
WEL	08/18	0	0	0	0	0	0
WFA	08/05	0	0	0	0	-	-

DAM	Coho						Sockeye			Steelhead			
	2010		2009		10-Yr Avg.		2010	2009	10-Yr Avg.	2010	2009	10-Yr Avg.	Wild 2010
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	403	54	1897	598	461	111	386506	177804	94582	290354	352084	223213	120846
TDA	13	5	355	160	52	16	325119	155556	80569	140264	126501	85451	66849
JDA	8	4	30	45	12	1	324107	157364	86654	99131	102959	61019	46452
MCN	2	0	19	16	0	0	278791	121660	69737	83772	40697	41931	36228
IHR	0	0	0	0	0	0	1300	867	175	53596	24959	21500	17891
LMN	0	0	0	0	0	0	1652	1161	220	46984	25261	19692	18273
LGS	0	0	0	0	0	0	1652	1065	197	28412	16566	12263	11459
LGR	0	0	0	0	0	0	2141	1214	242	29526	20030	15553	11968
PRD	0	0	18	1	3	0	357056	153436	88569	14824	6118	5832	-
RIS	0	0	0	3	1	0	338252	162782	85419	10781	4781	4694	5572
RRH	0	0	0	0	1	0	295547	132994	64255	7341	3821	3340	3341
WEL	0	0	0	0	0	0	291170	134740	65013	3981	2010	1755	1799
WFA	1	0	0	0	-	-	-	-	-	28596	16796	-	-

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: 08/20/2010

BON counts from January 1, 2009 to March 14, 2010 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2010	39	0	2,318	657
2009	19	-1	321	109