



Fish Passage Center

Weekly Report #11 - 19

July 22, 2011

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Summary of Events:

Water Supply:

Precipitation throughout the Columbia Basin has varied between 21% and 227% of average at individual sub-basins over July. Precipitation above The Dalles has been 81% of average over July. Over the 2011 water year, precipitation has ranged between 109% and 127% of average.

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

Location	Water Year 2011 July 1-18, 2011		Water Year 2011 October 1, 2010 to July 18, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.06	103	25.10
Snake River Above Ice Harbor	0.25	48	19.81	127
Columbia Above The Dalles	0.58	81	24.75	121
Kootenai	1.12	102	24.73	112
Clark Fork	0.53	77	18.38	123
Flathead	0.57	62	24.90	126
Pend Oreille/ Spokane	0.54	68	33.25	119
Central Washington	0.05	21	9.10	111
Snake River Plain	0.18	51	12.35	124
Salmon/Boise/ Payette	0.18	39	20.38	113
Clearwater	0.28	33	35.22	127
SW Washington Cascades/Cowlitz	0.99	123	72.21	109
Willamette Valley	1.09	227	61.85	110

Table 2 displays the June Final and July Final runoff volume forecasts for multiple reservoirs. The July Final forecast at The Dalles between January and July is 142000 Kaf (132% 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)	131	141000	132	142000
Grand Coulee (Jan-July)	124	78300	126	79500
Libby Res. Inflow, MT (Apr-Aug)	127	7930 8099*	129	8090
Hungry Horse Res. Inflow, MT (Jan-July)	153	3410	154	3430
Lower Granite Res. Inflow (Apr- July)	156	33700	159	34200
Brownlee Res. Inflow (Apr-July)	177	11200	173	10900
Dworshak Res. Inflow (Apr-July)	143	3770 3813*	149	3940

* Denotes COE Forecast

The flow objective at Lower Granite over the summer period (June 21st to August 31st) is 55 Kcfs; over the summer period flows at Lower Granite have averaged 129.6 Kcfs and 81.4 Kcfs over the last week.

The summer flow objective period began at McNary Dam on July 1st with a flow objective of 200 Kcfs. Over the summer flow period, flows at McNary have averaged 353.0 Kcfs and 296.8 Kcfs last week.

Grand Coulee Reservoir is at 1290.0 feet (7-21-11) and has refilled 0.2 feet over the last week. Grand Coulee is currently full (1290 feet). The August 31st draft elevation at Grand Coulee is 1280 feet. Outflows at Grand Coulee have ranged between 174.0 and 184.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2449.1 feet (7-21-11) and has refilled 4.4 feet last week. Libby is currently 9.9 feet from full (2459 feet). Outflows at Libby Dam have been 11.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3557.7 feet (7-21-11) and has refilled 2.2 feet last week. Hungry Horse is currently 2.3 feet from full (3560 feet). Outflows at Hungry Horse have been 6.1-7.0 Kcfs last week.

Dworshak is currently at an elevation of 1595.6 feet (7-21-11) and has drafted 3.3 feet last week. Dworshak is currently 4.4 feet from full (1600 feet). Outflows from Dworshak have ranged between 13.5-14.0 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2070.9 feet on July 21st, 2011 drafting 3.3 feet last week. Brownlee is currently 6.1 feet from full (2077 feet). Over the last week, outflows at Brownlee have ranged between 23.6-26.1 Kcfs.

Spill:

Spill levels transitioned from spring to summer levels for fish passage on June 21st at the lower Snake River projects. Flows have decreased steadily over the past week. By week's end Lower Snake River projects in the FCRPS were spilling to the Biological Opinion summer spill requirements.

Spill has occurred at Dworshak Dam this past week as the project is drafting to the end of August target elevation. Over the past week, daily average flows at Lower Granite Dam have ranged from 72.3 to 89.5 Kcfs, and spill has been a consistent 18.5 to 18.6 Kcfs. At Little Goose Dam, spill met the 30% of instantaneous flow Court Order through the week. At Lower Monumental Dam spill met the Court ordered 17 Kcfs over the past week.

Beginning April 28th, the Court Order spill

operations at Ice Harbor called for an alternating schedule of 45 Kcfs spill during the day and gas cap spill at night versus 30% if instantaneous flow, on 2-day alternating blocks until mid-July. Beginning July 13, spill levels were changed to the 45 Kcfs/gas cap levels, which will continue through the rest of the summer period. Over the past week spill levels have met the Court Order and spill has ranged from 51.1 to 62.0 Kcfs.

Project	Day/Night Spill
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	April 28-July 12: 45 Kcfs/gas cap vs. 30%/30% July 13 – August 31: 45 Kcfs / gas cap

Summer spill levels were initiated at McNary Dam on June 20th and at Bonneville Dam on June 16th. Summer spill season began at John Day and The Dalles dams on July 1st. Spill is also occurring at Grand Coulee Dam and Chief Joseph Dam. Chief Joseph is now being managed by BPA based on reserves and unit availability.

Spill at McNary Dam has been in excess of the Court Order as a result of flows in excess of hydraulic capacity and unit outages (two units are presently out of service). Spill at McNary Dam has ranged between 55% and 63.2% of daily average flow (daily average spill ranged from 151.2 to 207.4 Kcfs) at this project. The planned test at John Day Dam was designed to start on the evening of April 27th. Under this test, spill at John Day Dam alternates between 30% and 40% of instantaneous flow, roughly every two days. However, due to high flows the test conditions were not implementable and the test was not conducted. Spill levels at John Day have ranged from 29.9% to 40.2% of total river flow. At The Dalles Dam, spill met the Court Order over the past week. Finally, at Bonneville Dam, spill exceeded the summer test operations beginning June 16th, with spill ranging from a daily average of 95 Kcfs to 147 Kcfs.

Project	Day/Night Spill
McNary	50%/50%
John Day	Pre-test: 30%/30% Testing: 30%/30% vs. 40%/40%
The Dalles	40%/40%
Bonneville	June 16 to July 20: alternate between 95 Kcfs/95 Kcfs and 85 Kcfs/121 Kcfs. July 20th - August 31: 75 Kcfs day/GasCap night.

TDG levels this past week have decreased considerably at the FCRPS project tailraces and, with the exception of the McNary tailrace, have been less than the 115/120% criteria. Gas Bubble Trauma monitoring at Lower Monumental Dam showed GBT in 1% of the fish examined on July 20th, with Rank 1 signs. Incidence of GBT at Rock Island Dam showed nearly 20% of fish affected in the sample observed on the 19th of July, and only 1% in the sample taken on July 21st. The high incidence was inconsistent with samples taken before and after this occurrence, and was inconsistent with the existing environmental conditions. The project was contacted and the inconsistent sample was attributed to identifying bubbles that were exterior to fish fins and not internal fish bubbles. No other projects reported signs of GBT this past week.

Smolt Monitoring:

Smolt monitoring was ongoing at all SMP sites this past week. Subyearling Chinook predominated in the collections at all dams over the past week. The numbers of spring migrant salmonids and lamprey have continued to decline over the past few weeks. The largest numbers of subyearling Chinook are now passing the Lower Columbia dams in the reach from McNary Dam to Bonneville Dam as both wild Hanford subyearlings and large hatchery releases pass through the system.

Subyearling Chinook smolts continued to predominate in the passage indices this week at Lower Granite Dam and numbers with passage indices staying relatively similar to last week. Subyearling indices averaged 6,000 per day over both of the past two weeks. Steelhead, the second most predominant species last week, had passage numbers continue to decline with indices averaging just over 50 per day this week compared to 500 last week; yearling Chinook average weekly indices dropped from 30 to near zero;

sockeye indices stayed near 50 per day this week as did coho. Little Goose and Lower Monumental dams showed similar patterns in passage with subyearling Chinook predominating, followed by steelhead, sockeye and coho. Yearling Chinook indices at both Little Goose and Lower Monumental dams were near zero.

Sampling at Rock Island Dam is ongoing. Subyearling Chinook predominated in the samples over the past week. Subyearling Chinook collections decreased this week with the index averaging 630 per day last week compared to 350 per day this week. All spring migrant indices averaged fewer than 10 fish per day last week.

Sampling at McNary Dam moved to every day sampling with the beginning of collections for transportation on July 20. The first barge load of smolts was shipped on July 21 this year. Subyearling Chinook were the predominate species passing the project this past week, with the average passage index at 164,000 per day this week compared to 150,000 last week. Indices for all spring migrants continued to go down over the past week with indices for all species less than 10 by July 20.

At John Day Dam passage indices declined for all spring migrant species except steelhead while subyearling Chinook indices remained relatively high. Subyearling Chinook passage indices averaged 76,000 per day this week compared to 68,000 per day last week. Lamprey collections decreased over the past week. Lamprey collection dropped from 500 per day last week to 310 per day this week.

At Bonneville Dam the COE completed reinstalling screens at Powerhouse 2 on July 20. Due to debris and high flows the COE was unable to keep the screens clean so that they removed the screens until flows subsided. It was anticipated that there might be an increase in subyearling collections once the screens are installed. But the subyearling index remained relatively flat with this week's average at just over 50,000 which was similar to the average for last week. So it is hard to determine at this point what impact the additions of screens may have had on collections. But it is likely the indices would have dropped off at Bonneville Dam this past week were it not for screen installation.

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 scheduled releases to this zone this week. In addition, there are no new releases of juvenile salmonids scheduled for 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 to this zone this week. In addition, there are no new releases of juvenile salmonids scheduled for 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 scheduled releases to this zone this week. Also, there are no new releases of juvenile salmonids scheduled for this zone over the next two weeks.

Adult Passage:

Daily passage numbers at Bonneville Dam ranged between 544 and 1,172 adult summer Chinook in the last week. The 2011 summer Chinook count of 101,249 is 1.08 times greater than the 2010 count and about 1.20 times greater than the 10 year average. The 2011 Bonneville Dam summer Chinook jack count of 47,699 is 3.21 times greater than the 2010 count and 3.77 times greater than the 10 year average count. At McNary Dam 64,071 adult summer Chinook have been counted. The 2011 McNary adult summer Chinook is about 1.04 times greater than the 2010 count and 1.06 times greater than the 10 average counts. The 2011 McNary Dam summer Chinook jack count of 25,233 is about 3.50 times greater than the 2010 count of 7,207 and about 3.15 times greater than the 10 year average count of 8,000. The 2011 adult summer Chinook count at Lower Granite Dam in the Snake River of 33,673 is about 1.22 times greater than the 2010 count and 2.41 times greater than the 10 year average count. The 2011 Lower Granite summer Chinook jack count of 15,101 is about 3.07 times greater than the 2010 count and 3.73 times greater than the 10 year average count.

The Bonneville Dam 2011 steelhead count of 47,248 is about 35.5% of the 2010 count of 132,969 and about 62.4% of the 10 year average count of 75,685. At Rock Island Dam, as of July 16th, 220 adult steelhead had been counted and at Rock Reach Dam 648 had been counted. In the Snake River, this year's Lower Granite steelhead count of 13,365 is about 81.0% of the 2010 count of 16,489, while being 1.12 times greater than the 10 year average of 11,885. The 2011 Lower

Granite wild steelhead count as of July 20th was 6,112. At Willamette Falls Dam, the 2011 count for steelhead was 25,370, as of July 16th. This year's steelhead count is about 82.9% of the 2010 count of 30,571 and about 93% of the 10 year average count of 27,262 at Willamette Falls Dam for the same date range. Daily adult sockeye passage numbers at Bonneville Dam ranged between 484 and 2,252 last week. The 2011 adult sockeye count at Bonneville Dam of 183,906 is about 47.7% of the 2010 count of 385,531, while being 1.49 times greater than the 10 year average count of 123,319. The 2011 McNary Dam adult sockeye count of 109,377 is about 39.5% of the 2010 count, while being 1.21 times greater than the 10 year average count. 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 Ice Harbor Dam, the 2011 adult sockeye count of 1,072 is 86.2% of the 2010 count, while being 3.71 times greater than the 10 year average count. The Lower Granite Dam 2011 adult sockeye count of 1,008 is about 56.9% of the 2010 count, while being 2.65 times greater than the 10 year average count.

As of July 21st at Bonneville Dam, the adult Shad count was 941,642. This year's shad count is about 90.7% of the 2010 count of 1,038,413 and about 30.7% of the 10 year average count of 3,063,330.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 7/8/2011 to 07/21/11

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game Total	Sawtooth Hatchery	SO	UN	2012	50,054	07-12-11	07-12-11	Redfish Lake	Salmon River (ID)
					50,054				
Nez Perce Tribe Nez Perce Tribe Total Grand Total	Nez Perce Tribal Hatchery	CH0	FA	2011	286,587	07-06-11	07-11-11	Nez Perce Tribal Hatchery	Clearwater River M F
					286,587				
					336,641				

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 7/22/2011 to 8/4/2011

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
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Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>hr</u>	
7/8	105.9	106.3	106.9	24	129.8	130.1	130.5	22	123.3	123.5	123.7	24	121.7	122.2	122.9	22	120.8	121.2	121.6	24
7/9	105.4	105.8	106.0	23	129.7	130.3	130.9	21	123.1	123.3	123.4	24	120.8	121.1	121.4	21	121.2	121.6	121.9	24
7/10	105.2	105.4	105.6	24	128.0	129.0	129.7	21	122.4	122.6	123.0	24	120.8	121.3	122.0	21	120.6	120.8	121.1	24
7/11	105.7	105.9	106.0	24	124.5	125.5	126.9	22	121.7	122.2	122.5	24	121.3	123.2	123.7	22	120.0	120.5	120.8	24
7/12	105.7	106.1	106.5	24	124.7	125.0	125.3	24	121.9	122.2	122.4	23	122.1	122.5	122.8	24	119.4	119.8	120.5	24
7/13	106.1	106.3	106.6	23	123.3	124.0	125.2	20	122.2	122.4	122.7	24	122.9	123.5	125.1	20	119.5	119.7	119.8	24
7/14	106.7	107.2	107.5	23	123.0	123.8	124.1	20	122.1	122.4	122.7	24	121.5	121.8	122.1	20	119.4	120.0	120.3	24
7/15	106.6	106.7	106.9	23	123.2	124.0	124.9	20	122.1	122.3	122.4	24	120.7	121.1	121.5	20	119.2	119.6	120.2	24
7/16	106.3	106.7	107.1	23	121.4	121.8	122.4	17	121.9	122.3	122.7	24	120.6	120.8	121.1	17	118.2	118.4	118.8	24
7/17	106.7	107.3	107.5	24	121.3	122.0	122.6	22	121.5	121.8	122.3	24	120.3	120.7	121.6	23	117.8	118.0	118.3	24
7/18	106.9	107.3	107.4	24	121.7	122.8	123.5	23	121.4	121.7	122.0	24	119.9	120.2	120.6	23	117.8	118.2	118.3	24
7/19	107.2	107.6	108.1	24	121.1	121.5	122.1	20	121.6	121.9	122.1	24	119.7	119.9	120.4	20	117.8	118.2	118.3	24
7/20	106.1	106.3	106.5	24	121.9	122.6	123.1	23	121.0	121.3	121.8	24	119.1	119.5	120.0	23	117.0	117.3	117.6	24
7/21	105.5	105.6	105.8	24	120.9	121.2	121.5	22	121.4	121.6	121.8	24	120.3	120.8	123.2	22	117.2	117.4	117.5	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>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>hr</u>	
7/8	117.4	118.3	118.8	24	116.9	117.4	117.7	24	124.2	125.1	126.7	24	121.6	122.1	122.7	24	123.5	124.0	125.2	24
7/9	116.6	117.6	118.4	24	117.6	118.1	118.5	24	123.0	123.7	124.0	24	121.1	121.5	122.2	24	121.8	122.8	123.8	24
7/10	117.4	118.3	118.7	24	118.6	119.2	119.7	24	125.0	126.8	128.1	24	121.2	121.4	121.9	24	121.4	122.3	122.6	24
7/11	117.5	117.8	118.2	24	118.1	118.4	118.7	23	123.4	125.2	126.4	23	122.9	123.9	124.6	24	121.8	122.8	123.8	24
7/12	118.3	118.7	119.3	24	117.7	118.0	118.5	24	122.8	123.5	124.3	24	121.6	122.4	122.8	24	120.6	121.2	121.6	24
7/13	117.2	118.0	119.2	24	117.4	117.8	118.0	24	124.0	125.0	125.4	24	120.8	121.0	121.2	24	120.2	120.6	121.2	24
7/14	117.3	117.9	118.4	24	116.8	117.0	117.2	24	123.7	124.3	124.7	24	121.1	121.2	121.4	24	119.8	120.6	121.7	24
7/15	114.8	115.6	118.1	24	117.2	117.8	118.4	24	122.2	124.2	125.5	24	120.6	121.3	121.7	24	120.2	121.1	122.1	24
7/16	115.6	116.6	118.2	24	116.0	116.5	117.3	24	119.9	120.4	120.6	24	120.1	121.5	122.9	24	118.1	118.6	119.0	24
7/17	114.8	115.4	116.3	24	115.7	116.4	117.2	24	119.3	120.0	121.9	24	118.1	118.5	118.8	24	117.0	117.3	117.5	24
7/18	114.2	115.0	115.4	24	115.5	115.8	116.0	24	119.8	121.0	121.6	24	117.2	117.7	118.0	24	117.0	117.6	118.3	24
7/19	113.8	114.7	115.4	24	115.0	115.4	115.6	24	120.1	120.9	121.5	24	117.2	118.4	118.9	24	116.8	117.2	118.0	24
7/20	114.0	114.6	115.0	24	114.6	114.9	115.2	24	124.6	127.7	128.8	24	116.8	118.0	119.1	24	116.1	116.7	118.3	24
7/21	113.2	114.1	114.4	24	115.0	115.2	115.5	21	122.0	122.1	122.2	21	120.6	123.0	124.5	24	117.4	118.4	119.0	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>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>hr</u>	
7/8	121.2	121.6	122.5	24	124.3	124.6	125.5	24	118.4	118.7	118.9	24	125.7	126.8	127.8	24	123.9	124.9	126.2	24
7/9	120.9	121.4	122.1	24	123.6	124.0	124.4	24	120.6	121.8	122.9	24	123.4	124.7	126.1	24	124.1	125.1	126.0	24
7/10	120.4	121.4	122.0	24	123.2	124.1	124.5	24	121.2	122.6	123.5	24	124.1	124.6	125.0	24	122.1	123.8	125.0	24
7/11	122.0	123.4	124.3	24	125.5	127.4	128.3	24	121.2	122.1	122.8	24	122.9	123.7	124.8	24	123.2	123.9	124.5	24
7/12	120.4	121.4	122.2	24	123.0	123.8	124.4	24	120.5	121.6	122.2	24	123.2	123.8	124.6	24	120.9	121.6	122.3	24
7/13	120.0	120.5	120.8	24	122.2	122.6	123.0	24	120.2	120.6	121.6	24	123.5	123.9	124.7	24	121.0	121.4	122.0	24
7/14	119.9	120.9	121.8	24	122.5	123.4	123.9	24	119.0	119.4	119.8	24	123.6	125.4	126.3	24	121.8	123.3	124.0	24
7/15	120.3	121.6	122.6	24	122.6	123.6	124.3	24	119.9	121.1	121.6	24	120.8	122.6	123.3	24	120.9	122.3	122.9	24
7/16	118.8	119.4	120.0	24	121.3	121.9	122.4	24	120.8	121.3	121.7	24	118.3	118.5	118.6	24	117.7	118.5	121.0	24
7/17	117.0	117.6	118.5	24	120.3	121.4	122.1	24	120.2	120.9	122.1	24	118.3	118.5	118.6	24	117.2	118.1	118.6	24
7/18	116.8	117.8	118.5	24	120.3	121.2	121.8	24	117.2	117.5	118.2	24	117.7	118.0	118.1	24	116.3	117.2	117.7	24
7/19	116.0	116.6	117.0	24	119.0	119.4	119.7	24	115.2	115.8	116.7	24	116.8	117.4	117.9	24	114.3	115.0	116.2	24
7/20	116.0	117.1	118.4	24	119.7	120.9	121.6	24	114.1	114.6	115.0	24	115.7	116.0	116.2	24	113.9	114.5	115.1	24
7/21	118.7	120.7	121.9	24	121.7	123.3	124.5	24	114.9	115.1	115.3	24	117.1	117.4	117.4	24	114.3	114.8	115.1	24

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

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

Date	Priest R. Dnst			#	Pasco			#	Dworshak			#	Clrwr-Peck			#	Anatone			#
	24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/8	124.7	125.2	125.6	24	116.0	117.4	118.2	24	109.0	109.7	109.9	24	104.2	105.0	105.7	24	105.3	106.0	106.6	24
7/9	124.5	125.0	125.5	24	117.6	118.3	118.6	24	107.1	109.8	110.1	24	104.5	105.3	105.8	24	105.4	106.2	106.9	24
7/10	123.9	124.8	125.2	24	117.4	118.0	118.6	24	104.4	105.2	105.7	24	103.0	103.7	104.1	24	105.2	105.9	106.6	24
7/11	124.4	124.8	125.2	24	117.7	118.8	119.5	24	102.3	102.8	104.0	24	102.8	103.4	103.9	24	105.2	106.2	107.0	24
7/12	123.2	123.8	124.2	24	116.8	117.8	118.8	24	105.5	106.4	106.7	24	103.1	104.2	105.0	24	104.8	105.7	106.4	24
7/13	122.9	123.2	123.6	24	116.0	116.9	117.6	24	107.5	107.9	108.2	24	103.4	104.0	104.5	24	103.6	104.0	104.5	24
7/14	122.5	123.3	123.7	24	116.6	117.1	117.7	24	107.9	108.2	108.6	24	104.0	104.7	105.2	24	103.8	104.6	105.4	24
7/15	121.9	122.5	123.1	24	117.6	118.8	119.5	24	108.6	109.0	112.5	24	104.5	105.4	106.0	24	104.2	105.3	106.0	24
7/16	120.5	120.9	121.7	24	116.9	117.5	118.1	24	108.1	108.3	108.6	24	104.4	104.7	105.0	24	103.4	103.8	104.2	24
7/17	120.0	120.4	120.9	24	115.5	116.2	116.9	24	108.6	108.8	109.2	24	105.0	105.9	106.5	24	103.9	104.9	105.7	24
7/18	119.8	120.3	120.6	24	115.0	116.0	116.6	24	108.6	108.8	109.0	24	105.2	105.9	106.6	24	103.6	104.5	105.3	24
7/19	118.9	119.2	119.7	24	113.8	114.3	115.0	24	107.9	108.2	108.7	24	104.8	105.1	105.7	24	102.7	103.0	103.1	24
7/20	118.8	119.3	119.5	24	113.4	114.8	115.6	24	107.6	107.8	108.0	24	104.7	105.5	106.0	24	103.1	104.1	104.9	24
7/21	119.3	119.5	119.7	24	114.0	114.5	114.7	24	108.0	108.2	108.4	24	105.1	105.8	106.4	24	103.2	104.0	104.8	24

Total Dissolved Gas Saturation Data at Snake River Sites

Date	Clrwr-Lewiston			#	Lower Granite			#	L. Granite Tlwr			#	Little Goose			#	L. Goose Tlwr			#
	24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/8	103.2	104.3	105.3	24	105.7	106.2	107.7	24	117.2	118.8	119.8	24	115.0	115.4	116.4	24	116.5	117.0	117.3	24
7/9	103.6	104.8	105.6	24	104.8	105.0	105.5	24	115.0	117.9	119.5	24	112.8	113.1	113.8	24	115.6	115.9	116.5	24
7/10	102.9	103.7	104.5	24	105.3	105.4	105.5	24	114.8	117.5	120.2	24	112.7	112.9	113.3	24	115.6	116.6	119.0	24
7/11	102.7	104.0	104.9	24	105.6	105.8	105.9	24	113.2	114.5	119.8	24	112.5	112.6	112.8	24	114.3	115.0	116.7	24
7/12	102.5	103.8	104.9	24	105.0	105.2	105.3	24	111.7	112.1	113.3	24	113.2	114.0	114.4	24	114.2	114.7	115.3	24
7/13	102.4	103.1	103.9	24	104.5	104.6	104.7	24	111.9	112.4	112.7	24	112.0	112.5	113.2	24	113.9	114.3	115.4	24
7/14	102.8	103.9	105.0	24	103.7	103.8	104.2	24	111.2	111.5	112.3	24	110.4	110.7	111.0	24	112.9	113.2	115.4	24
7/15	103.6	105.2	106.3	24	103.0	103.2	103.4	24	111.4	111.8	112.1	24	110.0	110.5	110.8	24	113.0	113.4	113.5	24
7/16	103.1	103.9	104.4	24	103.4	103.6	103.7	24	112.1	112.7	118.0	24	110.6	110.9	111.2	24	113.4	113.8	115.3	24
7/17	104.0	105.7	106.9	24	103.8	104.0	104.3	24	111.5	112.0	112.8	24	110.6	111.0	111.3	24	113.5	113.7	113.8	24
7/18	104.1	105.8	106.9	24	103.0	103.2	103.6	24	111.6	112.1	112.8	24	110.2	110.4	110.8	24	113.6	114.0	114.2	24
7/19	103.2	104.1	104.6	24	103.0	103.3	103.5	24	111.7	112.1	112.7	24	110.0	110.4	110.6	24	113.3	113.5	113.8	24
7/20	103.8	105.6	106.9	24	102.9	103.2	103.3	24	113.1	114.1	114.9	24	108.6	109.1	109.4	24	113.5	113.8	114.2	24
7/21	104.0	105.5	106.5	24	103.1	103.2	103.6	24	113.3	113.6	113.9	24	108.5	108.7	109.0	24	113.5	114.0	114.1	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	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/8	116.0	116.2	116.7	24	119.5	120.1	120.6	24	116.9	117.4	118.0	24	118.4	119.8	120.8	24	---	---	---	0
7/9	116.0	116.5	116.8	24	119.3	120.1	121.0	24	115.7	115.8	116.1	24	118.1	118.9	120.0	24	---	---	---	0
7/10	116.9	117.1	117.3	24	119.5	120.2	121.2	24	115.9	116.2	116.4	24	117.5	117.9	118.3	24	---	---	---	0
7/11	117.2	118.0	118.4	24	119.1	119.5	120.3	24	116.6	116.9	117.3	24	117.2	117.9	118.9	24	---	---	---	0
7/12	116.4	116.9	117.9	24	118.3	118.8	119.4	24	116.3	116.5	117.0	24	116.0	116.4	116.9	24	---	---	---	0
7/13	114.5	115.1	115.9	24	117.7	117.9	118.5	24	115.3	115.6	116.1	24	116.5	117.2	118.2	24	---	---	---	0
7/14	113.7	113.8	114.0	24	117.6	118.1	119.8	24	113.6	114.0	114.6	24	117.0	117.5	118.3	24	---	---	---	0
7/15	113.7	114.0	114.2	24	117.7	118.0	118.4	24	113.3	113.6	113.8	24	117.0	117.2	117.5	24	---	---	---	0
7/16	113.6	113.8	114.0	24	117.7	118.1	120.2	24	113.8	114.0	114.1	24	116.8	117.1	117.5	24	---	---	---	0
7/17	113.6	113.8	113.9	24	117.6	118.2	118.8	23	114.0	114.1	114.3	24	116.3	116.6	117.0	24	---	---	---	0
7/18	113.4	113.4	113.5	24	117.1	117.6	118.1	21	113.5	113.7	113.9	24	116.3	116.7	117.0	24	---	---	---	0
7/19	113.0	113.4	113.5	24	117.0	117.0	117.9	12	113.0	113.5	114.0	24	116.0	116.1	116.4	24	---	---	---	0
7/20	111.6	111.8	111.9	24	117.0	117.4	117.9	24	111.6	111.7	111.9	24	116.2	116.5	116.7	24	---	---	---	0
7/21	111.8	111.9	112.0	24	117.5	117.7	118.1	20	111.7	111.9	112.0	24	116.0	116.2	116.4	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>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
7/8	115.0	115.3	115.6	24	125.5	125.7	125.9	24	116.6	117.3	118.7	24	119.1	119.2	119.3	24	114.1	115.1	115.6	24
7/9	115.3	116.3	117.6	24	125.4	125.6	126.0	24	115.3	115.5	115.8	24	118.9	119.0	119.3	24	114.4	114.9	115.4	24
7/10	117.6	118.0	118.3	24	124.5	124.8	125.1	24	113.8	114.4	115.0	24	118.8	119.0	119.4	24	113.3	113.9	114.4	24
7/11	117.5	117.8	118.1	24	124.6	125.2	125.4	24	117.2	118.2	118.6	24	118.8	119.3	119.8	24	114.5	115.4	116.2	24
7/12	116.5	116.8	117.1	24	123.4	123.8	125.0	24	117.6	117.8	117.9	24	117.9	118.3	119.0	24	114.9	115.2	115.5	24
7/13	114.3	114.6	115.7	24	123.7	123.9	124.0	24	115.7	116.1	116.6	24	116.5	117.2	118.2	24	113.9	114.1	114.4	24
7/14	113.2	113.6	113.8	24	124.9	125.1	125.2	24	113.5	113.8	114.5	24	117.4	117.8	118.7	24	113.1	113.5	114.1	24
7/15	114.5	115.6	116.7	24	124.5	124.7	124.9	24	112.1	112.5	112.9	24	118.7	118.9	119.3	24	114.1	115.2	115.6	24
7/16	116.3	116.7	117.1	24	123.4	123.9	124.7	24	111.7	111.9	112.0	24	117.8	118.1	118.9	24	113.7	114.1	115.1	24
7/17	116.0	116.4	117.0	24	122.9	123.3	123.7	24	111.8	112.5	112.8	24	115.3	116.3	116.7	24	112.2	112.9	113.5	24
7/18	114.8	115.2	115.9	24	123.3	124.0	125.0	24	113.0	113.7	114.1	24	115.7	117.0	119.1	24	111.5	112.5	113.0	24
7/19	112.7	113.2	114.3	24	123.4	123.8	125.0	24	112.9	113.7	114.2	24	117.4	117.7	118.8	24	112.4	113.2	113.6	24
7/20	111.2	111.8	112.6	24	122.7	123.1	123.6	24	110.7	110.9	111.2	24	117.1	117.8	118.7	24	111.7	112.6	113.1	24
7/21	111.7	112.0	112.2	24	120.5	121.9	122.1	24	109.6	109.8	110.2	24	114.5	115.5	116.4	24	110.5	111.7	112.7	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>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
7/8	117.5	118.2	118.6	24	113.6	113.9	114.4	24	118.3	118.5	118.8	24	117.1	117.8	118.3	24	---	---	---	0
7/9	117.9	118.3	118.4	24	114.6	115.0	115.3	24	118.5	118.7	118.8	24	117.2	118.0	118.7	24	---	---	---	0
7/10	117.2	117.7	118.1	24	115.5	115.7	115.9	24	118.8	119.2	119.7	24	117.6	118.5	119.3	24	---	---	---	0
7/11	119.0	119.7	120.0	24	114.5	114.9	115.5	24	120.5	121.3	123.0	24	117.7	118.8	119.6	24	---	---	---	0
7/12	119.0	119.4	120.2	24	114.8	115.4	115.7	24	118.8	119.1	119.7	24	118.5	118.9	119.3	24	---	---	---	0
7/13	118.5	118.8	118.9	24	115.2	115.5	115.7	24	118.3	118.6	118.8	24	117.1	117.8	118.2	24	---	---	---	0
7/14	118.4	118.9	119.6	24	115.1	115.3	115.7	24	118.5	118.8	120.0	24	116.7	117.6	118.4	24	---	---	---	0
7/15	118.7	119.4	119.7	24	116.9	117.4	117.7	24	119.4	119.6	120.0	24	117.8	118.9	120.0	24	---	---	---	0
7/16	118.3	118.6	119.5	24	116.3	116.5	117.1	24	117.6	118.2	119.2	24	116.8	117.3	117.7	24	---	---	---	0
7/17	117.0	117.6	117.9	24	115.3	115.9	116.0	24	116.5	116.8	117.0	24	114.3	114.7	115.4	24	---	---	---	0
7/18	116.6	117.1	117.5	24	113.3	113.6	114.2	24	115.4	115.7	115.9	24	113.9	114.3	114.7	24	---	---	---	0
7/19	116.9	117.2	117.8	24	112.3	112.9	113.5	24	116.0	116.5	117.0	24	112.9	113.4	113.9	24	---	---	---	0
7/20	117.0	117.9	118.5	24	112.5	112.8	113.0	24	115.1	115.5	115.7	24	113.5	114.4	115.2	24	---	---	---	0
7/21	117.0	117.4	118.5	24	112.5	112.7	113.2	24	114.3	114.9	115.7	24	112.6	113.2	113.9	24	---	---	---	0

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
Little Goose Dam											
	07/11/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	07/18/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	07/13/11	Chinook + Steelhead	44	0	0	0.00%	0.00%	0	0	0	0
	07/20/11	Chinook + Steelhead	46	1	1	2.17%	0.00%	1	0	0	0
McNary Dam											
	07/11/11	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	07/15/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	07/09/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/12/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/16/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/19/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Rock Island Dam											
	07/12/11	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	07/14/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	07/19/11	Chinook + Steelhead*	Sample invalid removed from database								
	07/21/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0

* Examiner reported that after further consideration the bubbles reported were exterior to fish fins and not internal fin bubbles.

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/08/2011	218.1	48.6	218.8	91.3	253.0	80.7	247.0	100.8	254.1	69.1	274.4	155.5	279.0	143.1
07/09/2011	210.9	41.8	205.9	79.5	244.9	72.4	234.6	70.7	239.5	70.0	252.6	131.1	256.9	125.4
07/10/2011	211.3	42.6	215.9	100.8	249.0	78.9	245.1	72.8	244.5	70.0	254.8	135.1	255.6	136.9
07/11/2011	208.3	40.5	204.2	93.4	233.0	65.5	233.6	75.4	233.1	76.2	250.5	126.0	255.5	136.1
07/12/2011	205.9	37.9	198.8	78.6	226.3	63.4	220.4	50.3	221.5	52.8	236.1	123.9	241.8	129.8
07/13/2011	202.9	46.3	208.0	96.5	233.7	74.2	228.6	50.2	230.1	44.7	243.6	128.8	247.0	139.4
07/14/2011	202.2	31.7	198.3	84.7	223.8	64.6	222.3	62.2	225.2	46.8	247.7	140.5	248.1	130.9
07/15/2011	197.0	25.0	189.7	55.8	211.4	46.6	219.2	62.2	223.6	46.7	231.9	102.4	235.2	102.4
07/16/2011	184.7	13.0	179.0	59.0	196.7	39.5	202.0	31.7	203.9	44.6	213.2	73.7	211.3	101.1
07/17/2011	174.0	2.8	173.6	58.8	186.5	33.3	191.7	28.0	196.3	43.8	207.3	84.3	209.9	89.0
07/18/2011	176.2	12.9	179.5	49.2	192.0	35.1	199.9	46.2	203.5	41.3	222.5	87.4	226.3	106.2
07/19/2011	183.9	20.0	178.4	50.5	198.2	45.0	205.1	41.8	208.7	39.2	206.4	81.1	207.4	105.4
07/20/2011	178.3	15.7	170.6	53.5	184.1	49.3	191.3	33.1	198.5	45.6	221.2	81.1	224.9	113.0
07/21/2011	177.6	17.1	175.5	50.6	187.1	21.4	190.5	17.9	193.0	44.6	198.5	80.5	198.8	110.7

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

Date	Dworshak		Brownlee Canyon		Hells Granite		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/08/2011	14.2	4.7	23.9	25.0	122.8	34.0	118.0	36.3	120.1	23.8	125.6	57.0		
07/09/2011	14.5	4.9	22.4	26.4	114.7	27.6	109.9	34.9	111.6	21.0	118.3	58.5		
07/10/2011	12.4	2.9	22.1	25.7	106.3	26.3	103.7	34.8	105.6	21.7	110.1	62.3		
07/11/2011	11.1	1.5	23.2	25.2	96.9	21.3	95.3	29.9	96.0	19.5	102.3	48.7		
07/12/2011	10.4	0.9	22.3	22.2	93.8	18.5	91.3	27.3	90.8	16.9	92.8	37.8		
07/13/2011	13.3	3.8	25.6	23.0	94.1	18.6	91.8	27.4	89.8	17.0	93.9	53.0		
07/14/2011	13.7	4.2	24.3	23.1	89.5	18.6	88.8	26.5	89.4	17.2	93.6	62.1		
07/15/2011	13.5	4.2	24.6	25.4	89.5	18.5	87.2	26.1	86.8	17.0	92.2	61.3		
07/16/2011	13.9	4.4	22.8	25.9	86.8	19.8	85.7	26.3	84.8	17.4	89.5	62.0		
07/17/2011	14.0	4.5	22.7	25.5	83.8	18.5	82.7	24.9	81.3	17.0	85.3	58.5		
07/18/2011	14.0	4.5	21.8	25.3	81.2	18.5	79.4	23.7	80.2	17.0	84.4	56.8		
07/19/2011	14.0	4.5	19.9	25.6	80.0	18.5	79.0	23.6	78.5	16.9	83.0	56.5		
07/20/2011	13.9	4.4	19.6	24.4	72.3	18.6	70.6	21.0	69.4	16.9	74.5	51.1		
07/21/2011	14.0	4.5	---	---	75.9	18.6	76.4	23.0	74.5	16.9	78.7	53.8		

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		
07/08/2011	395.2	254.3	397.2	134.2	376.3	132.0	398.1	181.9	93.5	110.2
07/09/2011	386.0	243.0	387.8	119.3	376.3	129.7	391.9	176.4	93.1	110.0
07/10/2011	363.2	213.4	378.6	122.8	365.4	129.4	382.4	167.3	94.1	108.6
07/11/2011	358.8	217.8	357.0	133.5	343.2	135.8	369.7	193.7	71.3	92.3
07/12/2011	319.7	182.6	313.8	120.1	306.3	121.6	333.2	165.0	75.4	80.4
07/13/2011	314.6	189.7	314.9	94.6	295.0	118.3	321.4	149.6	76.0	83.4
07/14/2011	336.3	218.1	332.8	106.3	321.0	128.3	328.3	152.7	74.1	89.1
07/15/2011	334.4	207.4	350.1	139.1	331.7	129.8	344.2	147.0	75.6	109.2
07/16/2011	295.9	171.8	299.1	115.6	289.7	116.6	304.0	106.6	75.9	109.1
07/17/2011	288.4	165.1	281.0	84.1	269.5	107.4	291.0	95.6	75.0	108.0
07/18/2011	295.9	179.6	298.7	96.1	289.2	114.1	301.6	99.9	76.4	112.9
07/19/2011	298.0	188.4	295.8	118.9	279.2	111.6	301.1	123.4	58.2	107.1
07/20/2011	290.3	173.5	296.1	113.1	283.7	113.1	294.9	104.2	68.5	109.8
07/21/2011	274.8	151.2	267.9	80.6	262.3	105.1	278.4	95.0	82.6	88.4

Two-Week Summary of Passage Indices

COMBINED YEARLING CHINOOK												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
07/08/2011	*	---	1	---	---	43	43	13	2	14	0	240
07/09/2011	*	---	---	---	---	69	44	150	4	---	0	0
07/10/2011	*	---	---	---	---	0	45	6	0	0	0	0
07/11/2011	*	---	---	---	---	38	44	30	0	---	0	0
07/12/2011	*	---	---	---	---	37	19	15	0	3	229	0
07/13/2011	*	---	---	---	---	13	43	45	0	---	0	0
07/14/2011	*	---	---	---	---	12	41	15	2	6	0	0
07/15/2011	*	---	---	---	---	0	0	0	0	---	0	0
07/16/2011	*	---	---	---	---	26	0	30	0	5	0	0
07/17/2011	*	---	---	---	---	0	29	15	2	---	0	263
07/18/2011	*	---	---	---	---	0	14	15	0	0	204	0
07/19/2011	*	---	---	---	---	0	0	8	0	---	0	0
07/20/2011	*	---	---	---	---	0	0	14	0	0	0	0
07/21/2011	*	---	---	---	---	0	0	13	0	0	0	0
07/22/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		0	1	0	0	238	322	369	10	28	433	503
# Days:		0	1	0	0	14	14	14	14	8	14	14
Average:		0	1	0	0	17	23	26	1	4	31	36
YTD		31,090	30,210	12,492	18,836	3,831,066	2,528,579	1,236,508	26,457	1,979,315	2,936,420	1,322,250

COMBINED SUBYEARLING CHINOOK												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
07/08/2011	*	---	0	---	---	2,198	3,297	984	403	85,064	42,385	52,845
07/09/2011	*	---	---	---	---	4,542	4,959	3,641	785	---	78,155	52,983
07/10/2011	*	---	---	---	---	6,758	3,966	76	725	199,427	62,426	45,234
07/11/2011	*	---	---	---	---	7,547	5,038	1,131	641	---	75,175	53,339
07/12/2011	*	---	---	---	---	5,696	3,694	1,384	447	169,865	89,524	71,563
07/13/2011	*	---	---	---	---	4,677	3,248	2,719	631	---	62,001	48,032
07/14/2011	*	---	---	---	---	9,808	9,768	3,017	751	140,838	65,165	49,748
07/15/2011	*	---	---	---	---	8,585	8,268	2,412	472	---	76,287	51,908
07/16/2011	*	---	---	---	---	6,312	11,266	3,215	467	167,169	61,873	70,025
07/17/2011	*	---	---	---	---	6,082	7,147	2,407	319	---	62,861	48,814
07/18/2011	*	---	---	---	---	6,481	4,886	3,482	335	201,581	70,271	39,115
07/19/2011	*	---	---	---	---	4,100	6,251	4,437	177	---	110,433	54,974
07/20/2011	*	---	---	---	---	3,942	3,432	3,605	309	150,391	73,606	59,448
07/21/2011	*	---	---	---	---	6,604	5,916	5,517	396	137,693	86,226	96,614
07/22/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	83,332	81,136	38,027	6,858	1,252,028	1,016,388	794,642
# Days:		0	1	0	0	14	14	14	14	8	14	14
Average:		0	0	0	0	5,952	5,795	2,716	490	156,504	72,599	56,760
YTD		9	38	12	163	1,103,642	1,269,842	323,847	22,662	2,895,946	2,301,101	4,419,084

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)
07/08/2011	*	---	0	---	0	0	0	8	0	0	0
07/09/2011	*	---	---	---	14	0	0	9	---	0	0
07/10/2011	*	---	---	---	13	0	0	2	0	291	262
07/11/2011	*	---	---	---	13	15	0	15	---	152	0
07/12/2011	*	---	---	---	50	14	7	0	0	0	0
07/13/2011	*	---	---	---	75	0	7	8	---	0	0
07/14/2011	*	---	---	---	37	57	0	4	0	144	0
07/15/2011	*	---	---	---	38	43	7	2	---	0	0
07/16/2011	*	---	---	---	0	43	0	8	0	241	0
07/17/2011	*	---	---	---	154	14	0	0	---	0	0
07/18/2011	*	---	---	---	0	57	8	0	0	0	0
07/19/2011	*	---	---	---	26	43	8	0	---	0	0
07/20/2011	*	---	---	---	105	43	0	0	0	0	0
07/21/2011	*	---	---	---	67	29	13	2	0	0	0
07/22/2011	*	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	592	358	50	58	0	828	262
# Days:		0	1	0	14	14	14	14	8	14	14
Average:		0	0	0	42	26	4	4	0	59	19
YTD		0	0	0	218	81,014	80,358	19,000	46,374	187,254	476,659

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)
07/08/2011	*	---	3	---	159	362	13	29	0	0	0
07/09/2011	*	---	---	---	468	160	69	28	---	0	0
07/10/2011	*	---	---	---	188	151	25	12	0	0	0
07/11/2011	*	---	---	---	115	44	15	15	---	152	0
07/12/2011	*	---	---	---	199	59	22	16	3	0	0
07/13/2011	*	---	---	---	163	43	31	8	---	0	0
07/14/2011	*	---	---	---	112	46	22	8	0	0	0
07/15/2011	*	---	---	---	89	43	15	4	---	0	0
07/16/2011	*	---	---	---	103	130	8	13	3	0	0
07/17/2011	*	---	---	---	26	0	15	4	---	0	0
07/18/2011	*	---	---	---	51	14	15	10	0	0	0
07/19/2011	*	---	---	---	26	31	8	5	---	0	0
07/20/2011	*	---	---	---	53	14	55	2	3	238	0
07/21/2011	*	---	---	---	27	43	39	3	0	0	0
07/22/2011	*	---	---	---	---	---	---	---	---	---	---
Total:		0	3	0	1,779	1,140	352	157	9	390	0
# Days:		0	1	0	14	14	14	14	8	14	14
Average:		0	3	0	127	81	25	11	1	28	0
YTD		1,080	13,882	4,071	2,934	4,118,317	2,032,885	838,110	28,436	607,753	2,619,951

Two-Week Summary of Passage Indices

COMBINED SOCKEYE												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
07/08/2011	*	---	0	---	---	72	29	13	10	3	218	0
07/09/2011	*	---	---	---	---	83	73	19	13	---	0	0
07/10/2011	*	---	---	---	---	54	30	13	14	0	291	0
07/11/2011	*	---	---	---	---	51	59	7	22	---	152	0
07/12/2011	*	---	---	---	---	37	57	7	10	5	458	268
07/13/2011	*	---	---	---	---	50	43	7	32	---	0	282
07/14/2011	*	---	---	---	---	25	19	15	19	281	0	0
07/15/2011	*	---	---	---	---	89	43	22	9	---	0	0
07/16/2011	*	---	---	---	---	0	43	23	15	530	241	0
07/17/2011	*	---	---	---	---	103	29	8	9	---	0	263
07/18/2011	*	---	---	---	---	77	72	23	8	726	204	261
07/19/2011	*	---	---	---	---	26	72	23	3	---	221	0
07/20/2011	*	---	---	---	---	26	72	0	10	8	238	0
07/21/2011	*	---	---	---	---	67	29	52	14	983	224	0
07/22/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	760	670	232	188	2,536	2,247	1,074
# Days:		0	1	0	0	14	14	14	14	8	14	14
Average:		0	0	0	0	54	48	17	13	317	161	77
YTD		0	0	1	0	118,854	43,922	31,085	18,530	318,498	362,373	112,305

COMBINED LAMPREY JUVENILES												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR ⁺ (Coll)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)	
07/08/2011	*	---	0	---	---	490	60	0	1	500	286	67
07/09/2011	*	---	---	---	---	20	30	0	0	---	571	0
07/10/2011	*	---	---	---	---	90	70	0	0	250	1,100	67
07/11/2011	*	---	---	---	---	240	70	0	0	---	100	67
07/12/2011	*	---	---	---	---	140	80	0	0	577	1,143	0
07/13/2011	*	---	---	---	---	320	50	0	1	---	286	8
07/14/2011	*	---	---	---	---	50	35	0	2	600	0	67
07/15/2011	*	---	---	---	---	330	50	0	0	---	1,143	0
07/16/2011	*	---	---	---	---	820	60	0	0	200	0	67
07/17/2011	*	---	---	---	---	180	50	0	0	---	143	104
07/18/2011	*	---	---	---	---	260	90	0	0	100	286	0
07/19/2011	*	---	---	---	---	100	40	0	0	---	143	0
07/20/2011	*	---	---	---	---	0	100	0	1	500	143	0
07/21/2011	*	---	---	---	---	20	70	0	1	200	0	0
07/22/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	3,060	855	0	6	2,927	5,344	447
# Days:		0	1	0	0	14	14	14	14	8	14	14
Average:		0	0	0	0	219	61	0	0	366	382	32
YTD		0	0	0	0	10,332	15,261	746	318	159,742	488,105	25,902

Two-Week Summary of Passage Indices

* See sampling comments <http://www.fpc.org/currentDaily/smpcomments.htm>

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's,) subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles. Two classes of fish counts are shown in these tables:
Two classes of fish counts are shown in these tables:

Collection counts (Coll), which account for sample rates but are not adjusted for flow;

Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.

Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations.

The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, and pacific lamprey macrophthalmia.

† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts

IMN (Collection) = Imnaha River Trap : Collection Counts

GRN (Collection) = Grande Ronde River Trap : Collection Counts

LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7/22/11 10:44 AM

07/08/11 TO 07/22/11

		Species					
Site	Data	CHO	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	64,490	180	460	1,350	580	67,060
	Sum of NumberBarged	61,882	204	408	1,554	559	64,607
	Sum of NumberBypassed	51	0	1	0	0	52
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	41	0	0	0	1	42
	Sum of FacilityMorts	124	5	1	7	10	147
	Sum of ResearchMorts	15	0	0	0	0	15
	Sum of TotalProjectMorts	180	5	1	7	11	204
LGS	Sum of NumberCollected	56,305	222	250	785	463	58,025
	Sum of NumberBarged	55,253	329	260	843	471	57,156
	Sum of NumberBypassed	16	0	0	0	0	16
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	31	2	0	1	0	34
	Sum of FacilityMorts	138	1	0	2	2	143
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	169	3	0	3	2	177
LMN	Sum of NumberCollected	30,025	294	40	278	183	30,820
	Sum of NumberBarged	26,496	293	29	283	142	27,243
	Sum of NumberBypassed	86	1	0	3	0	90
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	15	0	0	0	0	15
	Sum of FacilityMorts	100	0	1	2	1	104
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	115	0	1	2	1	119
MCN	Sum of NumberCollected	478,704				1,010	479,714
	Sum of NumberBarged	52,376				396	52,772
	Sum of NumberBypassed	413,384				600	413,984
	Sum of Numbertrucked	0				0	0
	Sum of SampleMorts	138				0	138
	Sum of FacilityMorts	12,806				14	12,820
	Sum of ResearchMorts	0				0	0
	Sum of TotalProjectMorts	12,944				14	12,958
Total Sum of NumberCollected		629,524	696	750	2,413	2,236	635,619
Total Sum of NumberBarged		196,007	826	697	2,680	1,568	201,778
Total Sum of NumberBypassed		413,537	1	1	3	600	414,142
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		225	2	0	1	1	229
Total Sum of FacilityMorts		13,168	6	2	11	27	13,214
Total Sum of ResearchMorts		15	0	0	0	0	15
Total Sum of TotalProjectMorts		13,408	8	2	12	28	13,458

YTD Transportation Summary

Source: Fish Passage Center

Updated:

7/22/11 10:44 AM

TO: 07/22/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	698,100	2,716,894	53,174	77,719	2,713,128	6,259,015
	Sum of NumberBarged	609,262	1,705,101	38,596	35,040	1,436,827	3,824,826
	Sum of NumberBypassed	81,880	1,009,672	14,509	42,055	1,275,909	2,424,025
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	166	101	1	72	41	381
	Sum of FacilityMorts	1,867	1,779	18	502	269	4,435
	Sum of ResearchMorts	15	241	0	0	58	314
	Sum of TotalProjectMorts	2,048	2,121	19	574	368	5,130
LGS	Sum of NumberCollected	672,540	1,449,314	40,540	23,934	1,132,264	3,318,592
	Sum of NumberBarged	665,308	1,344,359	40,118	18,551	893,189	2,961,525
	Sum of NumberBypassed	92	103,168	401	5,227	238,633	347,521
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	140	52	0	9	10	211
	Sum of FacilityMorts	2,876	1,735	1	127	403	5,142
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3,016	1,787	1	136	413	5,353
LMN	Sum of NumberCollected	217,971	853,916	12,625	20,879	565,734	1,671,125
	Sum of NumberBarged	204,248	636,503	11,452	18,623	459,592	1,330,418
	Sum of NumberBypassed	8,409	215,898	1,254	1,964	103,436	330,961
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	23	3	0	0	5	31
	Sum of FacilityMorts	1,055	1,499	11	252	871	3,688
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1,078	1,502	11	252	876	3,719
MCN	Sum of NumberCollected	1,047,262	952,647	71,455	133,259	295,879	2,500,502
	Sum of NumberBarged	52,376	0	0	396	0	52,772
	Sum of NumberBypassed	975,593	949,771	71,257	132,464	295,663	2,424,748
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	453	187	8	40	13	701
	Sum of FacilityMorts	18,840	2,689	170	359	203	22,261
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	19,293	2,876	178	399	216	22,962
Total Sum of NumberCollected		2,635,873	5,972,771	177,794	255,791	4,707,005	13,749,234
Total Sum of NumberBarged		1,531,194	3,685,963	90,166	72,610	2,789,608	8,169,541
Total Sum of NumberBypassed		1,065,974	2,278,509	87,421	181,710	1,913,641	5,527,255
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		782	343	9	121	69	1,324
Total Sum of FacilityMorts		24,638	7,702	200	1,240	1,746	35,526
Total Sum of ResearchMorts		15	241	0	0	58	314
Total Sum of TotalProjectMorts		25,435	8,286	209	1,361	1,873	37,164

Cumulative Adult Passage at Mainstem Dams Through: 07/21

DAM	EndDat	Spring Chinook						Summer Chinook						Fall Chinook					
		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	07/21	167097	50945	244384	12612	174444	16431	101249	47699	93395	14838	84107	12634	0	0	0	0	0	0
TDA	07/21	124164	40146	189839	11546	130174	13470	73372	35585	76951	11740	72759	9631	0	0	0	0	0	0
JDA	07/21	103401	39823	179446	11794	110572	12004	67403	31056	67022	11574	65407	10288	0	0	0	0	0	0
MCN	07/21	101245	31750	153500	9185	102003	11175	64071	25233	61752	7207	60281	8000	0	0	0	0	0	0
IHR	07/21	69306	18161	101188	6047	70295	6879	25205	11818	28410	3359	17119	3308	0	0	0	0	0	0
LMN	07/21	69832	18094	97334	5898	69566	5561	29607	13086	34135	4182	17963	2870	0	0	0	0	0	0
LGS	07/21	67321	23492	92985	5461	64800	6145	38929	17155	30939	3708	14924	3316	0	0	0	0	0	0
LGR	07/20	59342	22063	94203	6409	65342	7745	33673	15101	27642	4913	13951	4044	0	0	0	0	0	0
PRD	07/19	15246	6030	30539	932	20141	818	32489	2233	40276	601	45586	1458	0	0	0	0	0	0
RIS	07/16	13089	8394	29684	1513	17327	1572	19292	7523	31058	1900	36482	2751	0	0	0	0	0	0
RRH	07/16	6989	3491	8660	523	6536	525	13247	3414	18849	604	23226	1727	0	0	0	0	0	0
WEL	07/17	4153	3969	7596	661	5414	510	6784	1533	13969	426	14871	594	0	0	0	0	0	0
WFA	07/16	41333	1243	63969	1517	50985	1025	-	-	-	-	-	-	0	0	0	0	-	-

DAM	Coho						Sockeye			Steelhead			
	2011		2010		10-Yr Avg.		2011	2010	10-Yr Avg.	2011	2010	10-Yr Avg.	Wild 2011
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	0	0	0	0	0	0	183906	385531	123319	47248	132969	75685	23269
TDA	0	0	0	0	0	0	135924	324036	105178	20903	82073	39274	10528
JDA	0	0	1	0	1	0	139895	322646	109250	13764	55305	30232	6896
MCN	0	0	0	0	0	0	109377	276919	90629	10147	33339	18573	4374
IHR	0	0	0	0	0	0	1027	1244	277	6993	19729	10237	2255
LMN	0	0	0	0	0	0	1189	1552	340	6943	17830	9996	3067
LGS	0	0	0	0	0	0	1143	1443	314	8031	9878	6309	3942
LGR	0	0	0	0	0	0	1008	1770	380	13365	16489	11885	6112
PRD	0	0	0	2	0	0	122803	347359	110872	449	2805	1399	0
RIS	0	0	0	0	0	0	77560	299513	98525	220	1231	773	148
RRH	0	0	0	0	1	0	61926	252541	75026	648	994	690	546
WEL	0	0	0	0	0	0	39879	239759	71014	145	453	259	112
WFA	0	0	0	0	-	-	-	-	-	25370	30571	27262	-

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: 07/22/11

BON counts from January 1, 2011 to March 14, 2011 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2011	49	1	1,419	600
2010	39	0	2,318	657