



# Fish Passage Center

## Weekly Report #11 - 16

July 1, 2011

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 65% and 141% of average at individual sub-basins over June. Precipitation above The Dalles has been 111% of average over June. Over the 2011 water year, precipitation has ranged between 108% and 130% of average.

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

Location	Water Year 2011		Water Year 2011	
	June 1-27, 2011		October 1, 2010 to June 27, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.45	114	23.83	118
SNAKE RIVER ABOVE ICE HARBOR	1.57	120	19.29	129
Columbia Above The Dalles	1.78	111	23.94	123
Kootenai	2.23	101	23.50	113
Clark Fork	2.44	141	17.59	126
Flathead	3.26	137	24.15	130
Pend Oreille/Spokane	1.92	97	32.66	121
Central Washington	0.47	81	9.14	116
SNAKE RIVER PLAIN	0.87	101	12.18	128
Salmon/Boise/Payette	1.64	124	20.15	115
Clearwater	2.78	124	34.32	129
SW Washington Cascades/Cowlitz	1.84	69	70.84	109
Willamette Valley	1.32	65	60.34	108

Table 2 displays the June Final and July Early runoff volume forecasts for multiple reservoirs. The July Early forecast at The Dalles between January and July is 142000 Kaf (132% of average).

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

Location	June Final		July Early	
	% 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	8080
Hungry Horse Res. Inflow, MT (Jan-July)	153	3410	154	3430
Lower Granite Res. Inflow (Apr-July)	156	33700	157	33800
Brownlee Res. Inflow (Apr-July)	177	11200	181	11400
Dworshak Res. Inflow (Apr-July)	143	3770 3813*	145	3840

\* Denotes COE Forecast

The Biological Opinion flow period began on April 3<sup>rd</sup> and ended on June 20<sup>th</sup> in the lower Snake River (Lower Granite). The flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 137.8 Kcfs over the spring season. The flow objective at Lower Granite over the summer period (June 21<sup>st</sup> to August 31<sup>st</sup>) is 55 Kcfs, over the first ten days of the summer period flows at Lower Granite have averaged 171.1 Kcfs and 171.9 Kcfs over the last week.

The Spring Biological Opinion Flow Objectives were 260 Kcfs at McNary Dam (began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (began April 10<sup>th</sup>). The spring Flow period ended on June 30<sup>th</sup> at both McNary and Priest Rapids, over the spring period flows averaged 377.4 Kcfs at McNary and 231.4 Kcfs at Priest Rapids.

The summer flow objective period begins at McNary Dam on July 1<sup>st</sup> with a flow objective of 200 Kcfs.

Grand Coulee Reservoir is at 1280.2 feet (6-30-11) and has refilled 10.8 feet over the last week. Outflows at Grand Coulee have ranged between 199.2 and 208.1 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2425.5 feet (6-30-11) and has refilled 10.1 feet last week. Outflows at Libby Dam have been 15.0-17.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3543.0 feet (6-30-11) and has refilled 8.2 feet last week. Outflows at Hungry Horse have been 5.6-8.1 Kcfs last week.

Dworshak is currently at an elevation of 1595.2 feet (6-30-11) and has refilled 7.5 feet last week. Outflows from Dworshak have ranged between 6.9-9.6 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2076.7 feet on June 30<sup>th</sup>, 2011 refilling 2.3 feet last week. Over the last week, outflows at Brownlee have ranged between 36.2-37.9 Kcfs.

**Spill:** Spill levels transitioned from spring to summer levels for fish passage on June 21<sup>st</sup> at the lower Snake River projects. Continued high flows in the Snake and Columbia rivers have resulted in uncontrolled spill levels at the Snake River projects. Lower Snake River projects in the FCRPS are mostly spilling water in excess of hydraulic capacity.

A small amount of spill occurred at Dworshak Dam on a few days this past week. Otherwise, the project has been refilling. All units are now operational at Lower Granite Dam. Over the past week, daily average flows at Lower Granite Dam have ranged from 159.1 to 191.6 Kcfs, and spill has ranged from 48.6 to 80.2 Kcfs. At Little Goose Dam, spill exceeded the 30% level as specified in the Court Order early in the week, met the Court Order on the 27<sup>th</sup>, but decreased below the Court Order on June 28<sup>th</sup>. Spill returned to Court Ordered levels on the 29<sup>th</sup>. Daily average spill at Little Goose dam has ranged from 40.9 Kcfs to 70.8 Kcfs. At Lower Monumental Dam spill was all flow in excess of hydraulic capacity and was in excess of the Court Order. A unit was taken out of service for annual maintenance beginning on June 28<sup>th</sup>. Spill ranged from 51 to 73 Kcfs over the past week.

Beginning April 28<sup>th</sup>, 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. Over the past week spill levels have met or exceeded the Court Order and, since May 22<sup>nd</sup> spill has occurred as all flow in excess of powerhouse or generation capacity. Spill has ranged from 80 to 112.1 Kcfs.

Project	Day/Night Spill
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	<b>April 28--mid-July:</b> 45 Kcfs/gas cap vs. 30%/30%

Summer spill levels were initiated at McNary Dam on June 20<sup>th</sup> and at Bonneville Dam on June 16<sup>th</sup>. Summer spill season will begin at John Day and The Dalles dams on July 1. However, due to high flows spill is in excess of the Court Ordered spill for fish passage in the lower Columbia. In addition, spill is occurring at Grand Coulee Dam and Chief Joseph Dam, which are being operated for refill, flood control and gas management.

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. Spill at McNary Dam has ranged between 60.5% and 66.4% of daily average flow (daily average spill ranged from 242.8 to 327.8 Kcfs) at this project. The planned test at John Day Dam was designed to start on the evening of April 27<sup>th</sup>. 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. Spill levels at John Day have ranged from 34.9% to 48.4% of total river flow. At The Dalles Dam, spill exceeded the 40% objective during the early part of the week, but has been less than the Court Order since June 27<sup>th</sup>, ranging from 36.2% to 49.1%). Assumably, this reduction is based on the COE's response to TDG levels in the Bonneville Dam forebay. Finally, at Bonneville Dam, spill exceeded the 100 Kcfs in the Court Order implemented until June 15<sup>th</sup> and exceeded the summer test operations beginning June 16<sup>th</sup>, with spill ranging from a daily average of 183.3 Kcfs to 294.8 Kcfs.

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

Most points of compliance, with the exception of the Lower Granite Dam forebay monitor, were exceeding the 115/120% TDG levels this week. Gas Bubble Trauma monitoring at Little Goose Dam showed GBT in 1% of the fish examined on June 27<sup>th</sup>, with no fish with Rank 3 and 4 signs. Incidences of GBT at Lower Monumental Dam showed 1 fish examined showing signs of GBT on the June 29<sup>th</sup> sample at this site. Gas Bubble Trauma examinations at McNary Dam showed no fish examined had signs of GBT. Incidence of GBT at Rock Island Dam decreased this week, compared to past weeks. The examination on June 28<sup>th</sup> revealed a 9.4 % incidence of GBT, while the sample on June 30<sup>th</sup> revealed a 6% incidence of GBT. Total dissolved gas levels in the Mid Columbia River have decreased, but have generally been higher than observed in the Snake and lower Columbia rivers over the past week.

The action criteria for GBT with Rank 1 signs of GBT is 15% of the population. However, with the present flows and spill levels the system is mostly in an uncontrolled state, and no action would be possible if the criteria were exceeded.

**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 declined rapidly over the past week.

Subyearling Chinook smolts continued to predominate in the passage indices this week at Lower Granite Dam but the numbers decreased compared to last week. Subyearling indices averaged 14,000 per day this week compared to 29,000 per day last week. Steelhead, the second most predominant species, had passage numbers continue to decline with indices averaging 2,000 per day this week compared to

2,100 last week; yearling Chinook average weekly indices dropped from 800 to 500; sockeye indices also dropped from 230 per day last week to 200 this week. Little Goose and Lower Monumental dams showed similar patterns in passage with subyearling Chinook predominating, followed by steelhead, however, at both those sites subyearling Chinook indices were higher than the previous week.

Sampling at Rock Island Dam is ongoing. Subyearling Chinook predominated in the samples over the past week. Subyearling Chinook collections averaged just over 290 per day while Steelhead collections averaged 110 per day this week. Collections declined rapidly over the past week particularly for coho, while yearling Chinook numbers remained low. Sockeye collections also dropped over the past week with the average daily collection at nearly 50 this week compared to 120 last week.

Sampling at McNary Dam is every other day in the spring. Normal sampling began on April 13. Subyearling Chinook predominated in passage at the site this past week, with the average passage index for subs at 91,000 per day this week compared to 38,000 last week. Indices for all spring migrants continued to go down over the past week. Coho indices averaged 550 per day this week as did yearling Chinook, while sockeye averaged 420 per day and the average for steelhead was down to 230 per day this week.

At John Day Dam passage indices declined for all spring migrant species except sockeye while subyearling Chinook indices continued to increase. Subyearling Chinook predominated in the sample at this site as well, with the passage index for subyearlings averaging 26,000 per day this week compared to 16,000 per day last week. Lamprey collections have declined over the past week. The lamprey collection decreased from 4,500 per day last week to 880 per day this week.

At Bonneville Dam the screens have been removed at Powerhouse 2 so that collections are lower than normal. Due to debris and high flows the COE was unable to keep the screens clean so that they removed the screens until flows subside. Given the biased collections the largest indices over the past week have been for subyearling Chinook which averaged 30,000 per day this week compared to 10,000 per day last week.



### **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. Releases of subyearling fall Chinook surrogates to the Clearwater River continued this week. These releases are expected to continue through early to mid-July. In all, 98,000 fall Chinook surrogates are scheduled for release into the Clearwater River this year. The fall Chinook surrogates are 100% PIT-tagged, but otherwise unmarked. Approximately 550,000 spring Chinook parr were scheduled for release into the Selway River this week. These spring Chinook parr are not expected to out-migrate until spring 2012 and approximately 27% are unmarked. There are no other new releases 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. The release of nearly 3.5 million subyearling fall Chinook from Ringgold Hatchery that began last week was expected to end this week. 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:**

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 1,951 and 2,848 adult summer Chinook in the last week. The 2011 summer Chinook count of 73,466 is 1.01 times greater than the 2010 count and about 1.21 times greater than the 10 year average. The 2011 Bonneville Dam summer Chinook jack count of 33,886 is 3.30 times greater than the 2010 count and 3.85 times greater than the 10 year average count. At McNary Dam 35,774 adult summer Chinook have been counted. The 2011 McNary adult summer Chinook is about 94.5% of the 2010 and the 10 average counts. The 2011 McNary Dam summer Chinook jack count of 15,050 is about 3.87 times greater than the 2010 count of 3,882 and about 3.22 times greater than the 10 year average count of 4,668. The 2011

adult summer Chinook count at Lower Granite Dam in the Snake River of 20,481 is about 1.07 times greater than the 2010 count and 2.24 times greater than the 10 year average count. The 2011 Lower Granite summer Chinook jack count of 7,602 is about 3.36 times greater than the 2010 count and 3.65 times greater than the 10 year average count.

The Bonneville Dam 2011 steelhead count of 10,667 is about 34.4% of the 2010 count of 30,968 and about 57.1% of the 10 year average count of 18,681. At Rock Island Dam, as of June 29th, 80 adult steelhead had been counted and at Rock Reach Dam 567 had been counted. In the Snake River, this year's Lower Granite steelhead count of 12,363 is about 1.13 times greater than the 2010 count of 10,952 and 1.27 times greater than the 10 year average of 9,719. The 2011 Lower Granite wild steelhead count as of June 30th was 5,795. At Willamette Falls Dam, the 2011 count for steelhead was 22,452, as of June 29th. This year's steelhead count is about 79.3% of the 2010 count of 28,311 and about 88.5% of the 10 year average count of 25,380 at Willamette Falls Dam for the same date range.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 6,589 and 9,078 last week. The 2011 adult sockeye count at Bonneville Dam of 87,803 is about 29.5% of the 2010 count of 297,948 and about 89.7% of the 10 year average count of 97,842. The 2011 McNary Dam adult sockeye count of 20,773 is about 12.5% of the 2010 count and 38.8% of 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 49 is 17.9% of the 2010 count and 71.0% of the 10 year average count. The Lower Granite Dam 2011 adult sockeye count of 3 is about 3.7% of the 2010 count and 13% of the 10 year average count.

As of June 30<sup>th</sup> at Bonneville Dam, the adult Shad count was 767,992. This year's shad count is about 77.7% of the 2010 count of 988,370 and about 26% of the 10 year average count of 2,949,256.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2011	230,000	05-16-11	06-06-11	Couse Creek	Snake River
<b>National Marine Fisheries Service Total</b>					<b>230,000</b>				
Nez Perce Tribe	Kooskia NFH	CO	UN	2012	50,000	05-25-11	06-07-11	Clear Creek	Clearwater River M F
Nez Perce Tribe	Kooskia NFH	CO	UN	2012	50,000	05-25-11	06-07-11	Lapwai Creek	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	200,000	06-01-11	06-15-11	Cedar Flats Acclim.	Selway River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	200,000	06-01-11	06-15-11	Lukes Gulch Acclim.	S Fk Clearwater River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	300,000	05-20-11	06-15-11	Clearwater River	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	500,000	06-01-11	06-15-11	Nez Perce Tribal Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>1,300,000</b>				
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2011	263,877	04-04-11	06-10-11	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>263,877</b>				
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2011	2,000,000	06-16-11	06-16-11	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2011	2,500,000	06-16-11	06-16-11	Little White Salmon Hatchery	Little White Salmon River
<b>U.S. Fish and Wildlife Service Total</b>					<b>4,500,000</b>				
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2011	6,785,432	06-05-11	06-20-11	Priest Rapids Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2011	3,450,000	06-15-11	06-30-11	Ringold Springs Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,235,432</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,223	05-07-11	06-16-11	Coulter Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,322	05-07-11	06-12-11	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,331	05-07-11	06-07-11	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,339	04-29-11	06-07-11	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	27,365	05-07-11	06-12-11	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	29,279	04-29-11	06-07-11	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	49,379	04-29-11	06-14-11	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2011	60,901	05-07-11	06-07-11	Butcher Creek Acclim. Pond	Wenatchee River
<b>Yakama Tribe Total</b>					<b>444,139</b>				
<b>Grand Total</b>					<b>16,973,448</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:		7/1/2011		to		7/14/2011			
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2011	98,000	06-20-11	07-08-11	Big Canyon (Clearwater River)	Clearwater River M F
<b>National Marine Fisheries Service Total</b>					<b>98,000</b>				
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	SP	2012	550,000	06-28-11	06-29-11	Meadow Creek - SELW	Selway River
<b>Nez Perce Tribe Total</b>					<b>550,000</b>				
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2011	6,785,432	06-05-11	06-20-11	Priest Rapids Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2011	3,450,000	06-15-11	06-30-11	Ringold Springs Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,235,432</b>				
<b>Grand Total</b>					<b>10,883,432</b>				

**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
06/17/2011	239.0	79.1	237.8	119.7	258.6	120.0	277.5	91.8	275.6	94.6	285.5	177.0	291.1	184.1
06/18/2011	232.3	79.4	242.4	133.9	263.3	119.4	272.8	139.5	277.8	96.4	297.9	180.1	303.6	182.2
06/19/2011	230.9	75.5	233.9	114.2	258.5	117.8	265.0	134.3	271.1	89.8	297.8	178.9	307.8	195.8
06/20/2011	222.8	63.4	223.5	98.0	252.8	114.3	260.3	113.1	264.4	93.2	272.4	151.9	275.2	161.1
06/21/2011	219.6	60.4	221.8	88.8	242.2	87.8	254.9	91.1	257.1	97.9	282.3	160.6	286.9	165.0
06/22/2011	220.7	60.7	221.0	92.2	250.2	92.8	253.8	88.9	261.5	75.6	273.3	158.0	276.3	174.5
06/23/2011	220.0	58.8	232.2	124.8	254.4	104.9	267.3	99.4	271.9	80.9	287.7	166.4	291.2	180.9
06/24/2011	208.1	46.4	206.0	86.7	233.0	74.4	250.9	77.5	261.8	84.3	274.1	150.7	284.8	163.9
06/25/2011	198.7	29.9	206.6	76.4	232.1	66.4	227.6	45.2	205.7	65.3	251.7	129.3	254.4	147.4
06/26/2011	199.3	30.1	207.3	99.4	232.8	77.8	247.0	59.7	234.2	65.4	256.3	130.4	262.5	146.9
06/27/2011	200.6	30.2	209.1	102.7	242.7	77.5	225.3	43.7	228.2	65.3	239.6	117.9	239.2	133.4
06/28/2011	199.8	30.4	204.9	85.3	237.2	78.1	230.7	88.5	234.2	62.9	246.4	126.2	248.4	117.7
06/29/2011	199.2	32.4	200.2	86.2	234.3	83.9	230.3	97.1	235.4	64.0	260.5	140.0	267.7	130.9
06/30/2011	200.7	33.8	207.0	100.6	237.2	65.3	231.3	94.9	234.6	73.5	237.3	114.0	238.1	101.0

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

Date	Dworshak		Brownlee Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/17/2011	6.6	0.0	49.6	47.5	173.4	63.3	166.2	75.8	172.6	56.3	178.9	96.4
06/18/2011	2.6	0.3	44.7	44.1	158.7	50.3	149.2	59.0	154.4	40.6	161.0	80.0
06/19/2011	2.5	0.3	42.1	42.2	154.2	44.7	144.7	53.8	150.2	37.6	155.5	75.9
06/20/2011	7.7	0.1	41.5	40.4	161.8	51.7	153.7	62.2	159.2	44.5	165.1	82.4
06/21/2011	9.7	0.4	43.8	36.9	158.6	48.0	152.3	74.3	155.9	41.1	162.8	85.4
06/22/2011	9.7	0.0	42.3	37.6	167.4	56.5	154.7	47.5	162.5	45.8	168.5	85.9
06/23/2011	9.6	1.0	45.9	38.4	181.6	70.2	170.5	61.9	178.2	61.2	183.0	99.0
06/24/2011	9.6	0.5	41.9	38.5	191.6	80.2	179.5	70.8	189.9	73.0	195.0	112.1
06/25/2011	9.6	0.7	42.0	38.5	182.8	71.7	173.3	63.8	182.7	66.0	191.1	108.0
06/26/2011	9.6	0.8	41.1	38.5	172.6	62.5	159.4	50.5	167.5	51.0	173.4	91.4
06/27/2011	9.6	0.5	39.7	38.1	163.6	53.3	154.4	46.8	161.7	54.8	168.4	86.9
06/28/2011	9.0	0.0	39.8	37.8	159.1	48.6	148.2	40.9	157.1	55.0	163.3	80.9
06/29/2011	6.9	0.0	39.4	39.2	162.1	51.6	152.2	47.1	158.1	61.3	162.6	79.6
06/30/2011	7.3	0.0	---	---	171.8	73.9	160.4	52.7	168.0	70.6	171.9	89.6

**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		
06/17/2011	478.5	304.2	500.1	225.5	488.4	247.5	500.3	300.6	85.2	102.1
06/18/2011	455.9	289.7	477.0	202.9	463.0	221.9	480.9	283.9	83.4	101.2
06/19/2011	442.0	269.9	452.0	191.5	440.4	203.0	461.5	260.1	87.3	101.7
06/20/2011	437.2	271.7	443.2	193.6	426.9	200.9	441.5	258.6	71.3	99.2
06/21/2011	431.4	260.1	441.9	171.8	428.5	191.3	440.6	259.3	71.5	97.4
06/22/2011	445.7	282.2	454.8	191.0	440.7	199.4	449.2	265.6	72.0	99.1
06/23/2011	453.2	290.8	448.1	185.8	432.9	182.9	447.6	260.8	71.5	102.9
06/24/2011	493.6	327.8	497.0	240.5	480.6	236.2	483.0	294.8	71.7	104.1
06/25/2011	425.3	262.5	463.0	207.9	451.8	222.7	480.6	292.9	70.0	105.4
06/26/2011	434.4	274.5	439.7	175.3	423.1	180.1	428.6	240.2	68.3	107.7
06/27/2011	413.0	259.7	416.5	151.3	396.5	151.0	420.3	243.7	73.9	90.3
06/28/2011	401.9	244.1	408.9	147.4	394.5	150.6	409.6	234.5	72.3	90.4
06/29/2011	401.0	242.8	394.6	138.0	381.4	138.1	401.9	209.7	79.6	100.2
06/30/2011	404.8	253.6	405.0	141.3	388.9	148.5	396.4	183.3	93.6	107.1

## 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>Lower Granite Dam</b>											
	06/23/11	Chinook + Steelhead	69	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	06/20/11	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0	0
	06/27/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
<b>Lower Monumental Dam</b>											
	06/22/11	Chinook + Steelhead	100	4	4	4.00%	1.00%	3	0	1	0
	06/29/11	Chinook + Steelhead	62	1	1	1.61%	0.00%	1	0	0	0
<b>McNary Dam</b>											
	06/17/11	Chinook + Steelhead	100	1	1	1.00%	1.00%	0	0	1	0
	06/19/11	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0	0
	06/23/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/27/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	06/18/11	Chinook + Steelhead	28	0	0	0.00%	0.00%	0	0	0	0
	06/21/11	Chinook + Steelhead	57	0	0	0.00%	0.00%	0	0	0	0
	06/25/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/28/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0



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

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

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/17	104.0	104.1	104.3	24	133.3	133.5	133.7	24	121.0	121.2	121.4	24	138.7	139.4	140.4	24	137.0	137.8	138.2	24
6/18	104.4	104.6	104.9	24	133.6	133.7	134.1	21	121.7	121.9	122.4	24	138.9	139.1	139.5	21	135.9	136.2	136.7	24
6/19	103.7	103.9	104.1	24	133.6	133.9	134.2	22	121.8	122.0	122.4	24	138.9	139.2	139.8	22	135.8	136.2	136.6	24
6/20	103.3	103.6	103.8	23	133.6	133.9	134.4	21	122.2	122.5	122.6	24	137.3	138.0	139.0	21	135.4	135.9	136.5	24
6/21	103.7	104.1	104.4	24	133.5	134.1	134.5	24	122.6	122.8	122.9	24	136.2	136.5	136.9	24	134.8	135.3	135.8	24
6/22	104.3	104.7	105.0	22	133.4	133.7	134.3	18	123.1	123.5	123.7	24	136.7	136.9	137.4	18	133.3	133.8	134.1	24
6/23	104.5	105.1	105.5	24	133.4	133.8	134.6	22	123.4	123.6	124.1	24	135.9	137.0	137.4	22	133.2	133.6	133.8	24
6/24	103.4	104.2	105.0	23	132.8	133.1	133.7	21	122.9	123.1	123.3	24	130.8	133.3	133.7	21	131.7	132.2	132.6	24
6/25	102.8	103.5	104.1	24	132.8	133.0	133.4	21	123.0	123.1	123.3	24	123.5	123.9	124.5	21	129.8	130.2	130.7	24
6/26	102.7	103.0	103.5	22	132.8	133.0	133.3	18	122.9	123.0	123.1	24	122.9	123.1	123.5	18	123.0	125.6	129.2	24
6/27	103.8	104.5	104.7	24	132.1	132.8	133.9	24	123.8	124.3	124.7	24	123.3	123.7	124.0	24	120.3	120.8	121.2	24
6/28	105.3	105.6	105.9	21	132.4	132.9	133.6	17	124.8	125.3	125.5	24	122.8	123.2	124.0	17	121.1	121.5	121.8	24
6/29	105.3	105.6	106.1	24	132.7	133.1	133.5	23	125.4	125.5	125.6	24	122.0	122.3	122.9	23	120.5	120.8	121.0	24
6/30	104.9	105.2	105.6	23	131.1	131.5	131.7	21	124.1	124.4	124.8	24	121.1	121.3	121.5	21	119.1	119.3	119.7	24

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

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/17	117.7	118.4	119.6	24	122.8	123.8	124.8	24	130.4	131.0	131.3	24	128.4	128.8	129.5	24	127.2	127.8	128.1	24
6/18	118.1	118.7	119.7	24	123.0	123.8	124.5	24	129.9	130.7	131.5	24	128.7	129.0	129.3	24	132.8	134.5	137.8	24
6/19	118.2	118.8	120.1	24	123.1	123.7	124.8	24	129.4	130.4	132.3	24	127.6	128.1	128.5	24	126.3	127.3	131.8	24
6/20	117.6	118.4	119.2	24	123.8	124.3	124.8	24	130.7	131.4	132.5	24	128.4	129.8	130.6	24	125.7	126.2	126.5	24
6/21	118.0	119.1	119.5	24	124.3	125.2	125.8	24	128.7	129.5	130.0	24	128.5	129.2	130.0	24	125.7	126.4	126.7	24
6/22	118.5	119.2	119.5	24	124.3	124.6	124.9	24	128.8	129.2	129.5	24	127.7	128.4	128.8	24	126.5	127.0	127.4	24
6/23	118.2	118.7	119.4	24	122.2	123.0	124.1	24	128.7	129.4	130.7	24	125.6	126.8	128.0	24	125.7	126.2	127.6	24
6/24	117.3	118.1	118.8	24	120.7	121.1	122.1	24	125.7	126.9	127.7	24	125.5	126.3	126.6	24	123.7	124.4	125.1	24
6/25	116.0	116.6	118.8	24	121.8	122.1	122.4	24	124.4	126.1	127.0	24	123.3	124.2	125.6	24	120.9	121.1	121.4	24
6/26	116.7	117.4	118.1	24	120.8	121.6	122.2	24	126.4	127.3	129.0	24	124.3	125.4	126.9	24	123.1	123.9	124.3	24
6/27	118.0	118.3	118.9	24	118.2	118.6	118.9	24	123.0	125.4	126.6	24	125.2	126.6	127.4	24	121.6	122.2	123.5	24
6/28	116.0	116.7	119.3	24	118.4	118.8	119.2	24	125.0	127.2	128.6	24	124.2	125.6	127.3	24	122.4	122.9	123.5	24
6/29	115.1	115.4	115.8	24	117.0	117.4	117.8	24	125.6	127.6	128.6	24	122.8	124.3	127.6	24	123.8	124.8	125.7	24
6/30	116.4	117.7	119.2	24	115.0	115.3	115.6	24	121.2	122.3	124.1	24	119.9	123.1	124.5	24	124.1	124.8	125.2	24

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

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/17	125.9	126.2	126.7	24	127.2	127.4	127.7	24	124.2	124.9	125.2	24	128.7	129.5	129.7	24	125.1	126.5	127.2	24
6/18	127.2	128.6	130.0	24	128.4	129.3	130.2	24	123.9	124.3	124.5	24	129.0	129.2	129.5	24	125.1	127.3	127.7	24
6/19	125.5	126.2	126.8	24	127.4	127.8	128.1	24	123.4	124.2	124.6	24	128.6	128.9	129.2	24	123.9	125.3	126.5	24
6/20	125.1	126.0	126.4	24	127.7	129.0	129.2	24	123.5	124.5	126.2	24	126.8	127.1	127.6	24	124.2	125.5	125.9	24
6/21	125.4	126.1	126.6	24	128.7	129.1	129.3	24	125.7	127.5	128.5	23	126.9	127.9	128.2	23	125.0	127.6	129.4	23
6/22	125.3	125.7	126.1	24	127.4	127.9	128.4	24	128.3	129.4	130.2	24	128.4	128.9	129.6	24	126.9	128.4	129.3	24
6/23	123.5	123.9	124.3	24	125.9	126.3	126.7	24	121.5	123.2	125.1	24	127.0	128.0	128.4	24	123.7	124.6	125.6	24
6/24	123.1	123.8	124.4	24	125.0	125.4	126.3	24	119.5	120.2	120.7	24	125.9	127.7	129.0	24	125.5	126.3	126.7	24
6/25	121.4	121.9	122.8	24	120.6	123.3	124.0	24	121.7	122.9	123.4	24	123.6	123.8	124.2	24	122.2	123.2	123.8	24
6/26	121.5	123.0	123.4	24	123.3	124.4	124.7	24	122.4	123.0	123.6	24	123.4	123.5	123.6	24	122.6	123.4	123.9	24
6/27	123.3	123.9	124.2	24	124.5	125.0	125.3	24	123.0	124.1	124.3	24	122.5	123.6	124.2	24	123.8	124.0	124.4	24
6/28	121.5	122.7	123.4	24	123.1	124.0	124.6	24	124.3	124.9	125.7	24	123.8	125.6	127.0	24	124.0	126.2	128.4	24
6/29	122.4	123.1	123.6	24	124.8	125.9	127.3	24	119.9	120.5	121.9	24	124.7	126.0	126.5	24	123.7	125.3	126.6	24
6/30	120.0	121.2	122.1	24	121.9	127.0	127.6	17	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clwrtr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
6/17	124.8	125.7	126.0	24	119.3	119.9	120.6	24	104.4	107.5	111.0	24	102.6	103.2	103.7	24	109.0	109.6	110.1	24
6/18	125.1	125.6	125.8	24	118.9	119.1	119.2	24	102.9	103.7	108.8	24	102.0	102.3	102.9	24	107.8	108.0	108.5	24
6/19	124.4	125.2	125.9	24	118.1	118.4	118.7	24	101.8	101.8	102.1	12	101.6	102.1	102.4	24	107.3	107.8	108.2	24
6/20	124.2	125.0	125.3	24	118.9	119.7	120.4	24	101.8	102.8	110.7	24	102.7	103.6	104.3	24	107.8	108.5	109.0	24
6/21	125.5	127.1	127.5	23	119.0	119.6	120.0	24	101.0	101.3	101.4	24	102.8	103.8	104.4	24	107.5	108.3	108.7	24
6/22	126.6	127.3	127.9	24	120.1	120.8	121.6	24	103.7	106.2	110.4	24	103.2	104.2	104.8	24	108.0	108.8	109.5	24
6/23	125.1	125.7	126.3	24	118.1	118.7	119.4	24	103.0	104.9	108.6	24	103.2	103.6	104.0	24	108.1	108.5	109.0	24
6/24	125.7	126.1	126.4	24	117.3	118.9	119.6	24	102.8	104.9	109.1	24	103.4	104.2	104.7	24	108.8	109.6	110.1	24
6/25	124.0	124.6	125.1	24	118.1	118.7	119.4	24	103.3	105.4	108.3	24	103.2	103.8	104.4	24	109.4	110.0	110.5	24
6/26	124.2	124.8	125.0	24	117.3	118.0	118.5	24	102.5	104.0	108.4	24	102.8	103.5	104.0	24	109.1	109.7	110.1	24
6/27	124.5	124.8	125.0	24	118.5	119.5	120.0	24	101.9	102.0	102.1	24	102.9	103.7	104.1	24	109.1	109.7	110.1	24
6/28	124.6	125.4	126.3	24	117.9	118.4	119.0	24	103.8	105.4	107.9	24	102.6	103.2	103.6	24	108.3	108.7	109.2	24
6/29	124.4	125.2	125.6	24	116.3	116.9	117.9	24	103.6	105.4	107.3	24	103.0	103.5	103.7	24	107.7	108.0	108.6	24
6/30	---	---	---	0	115.7	116.3	116.9	24	101.3	101.8	103.9	24	103.3	104.0	104.4	24	108.3	109.0	109.6	24

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

Date	<u>Clwrtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
6/17	102.6	103.5	104.4	24	107.8	108.1	108.3	24	123.3	124.1	124.3	24	117.9	118.2	118.3	24	124.8	125.3	125.5	24
6/18	101.9	102.2	102.4	24	108.5	108.7	108.9	24	119.9	121.5	124.2	24	118.2	118.3	118.4	24	122.0	123.6	125.0	24
6/19	101.5	101.9	102.5	24	107.1	107.4	108.0	24	117.8	118.3	119.2	24	116.3	116.6	117.2	24	120.4	121.1	121.7	24
6/20	102.5	103.6	104.1	24	106.7	107.2	107.5	24	119.4	120.1	120.7	24	113.9	114.2	114.9	24	121.9	122.3	122.7	24
6/21	102.8	103.5	104.0	24	107.4	108.1	108.5	24	120.1	120.9	121.8	24	114.3	115.4	116.2	24	123.7	124.9	128.5	24
6/22	103.1	103.8	104.3	24	108.0	108.5	108.8	24	123.4	125.4	126.9	24	116.7	117.2	117.9	24	119.3	120.2	120.9	24
6/23	102.9	103.2	103.6	24	107.3	107.6	108.1	24	126.6	127.5	127.8	24	115.4	115.8	116.8	24	122.4	124.2	126.0	24
6/24	102.9	103.6	103.9	24	106.7	107.1	107.3	24	127.7	128.4	128.9	24	115.2	116.1	117.1	24	124.5	125.0	126.3	24
6/25	103.1	103.8	104.5	24	107.8	108.3	108.7	24	126.4	126.8	128.3	24	118.3	119.1	119.5	24	123.4	123.9	124.6	24
6/26	102.8	103.5	104.1	24	108.3	108.6	109.0	24	125.5	125.7	126.0	24	119.5	119.7	120.1	24	120.7	121.5	122.9	24
6/27	103.1	103.9	104.4	24	108.9	109.5	109.8	24	122.6	123.6	125.7	24	120.0	120.5	120.9	24	119.7	121.0	122.0	24
6/28	102.8	103.3	104.0	24	109.0	109.2	109.4	24	121.0	122.1	123.3	24	119.7	120.1	120.5	24	117.6	117.8	118.0	24
6/29	102.3	102.7	103.3	24	107.5	107.8	108.4	24	122.0	125.1	125.8	24	116.4	117.3	118.2	24	118.6	120.0	120.7	24
6/30	102.1	102.8	103.2	24	105.7	105.8	106.1	24	126.7	130.0	130.7	24	112.4	113.1	114.0	24	120.0	122.0	123.6	24

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>							
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
6/17	126.6	126.9	127.3	24	122.6	123.4	123.8	24	121.5	122.0	122.3	24	123.8	124.7	125.0	24	---	---	---	0
6/18	126.3	127.2	127.7	24	119.2	121.5	122.1	24	121.7	122.0	122.3	24	121.9	122.8	123.0	24	---	---	---	0
6/19	122.3	123.6	124.9	24	117.7	119.9	121.2	24	120.0	120.4	121.0	24	120.7	121.2	121.6	24	---	---	---	0
6/20	120.3	120.5	120.7	24	120.4	120.9	121.4	24	118.3	118.6	119.1	24	121.2	121.5	122.2	24	---	---	---	0
6/21	122.4	123.2	124.4	24	119.9	120.6	121.7	24	118.7	119.1	119.5	24	122.0	123.0	126.6	24	---	---	---	0
6/22	126.4	127.7	128.3	24	121.1	121.9	122.6	24	120.8	121.3	121.7	24	122.2	122.6	123.2	24	---	---	---	0
6/23	119.4	120.0	121.2	24	122.5	123.3	124.5	24	120.0	121.1	121.8	24	123.5	123.9	125.5	24	---	---	---	0
6/24	121.1	123.1	124.2	24	123.7	124.3	124.6	23	118.1	119.2	120.0	24	125.4	126.5	127.8	24	---	---	---	0
6/25	123.6	124.0	124.4	24	122.8	123.4	123.9	24	120.8	121.5	121.9	24	124.9	125.5	127.7	24	---	---	---	0
6/26	123.1	123.5	124.4	24	121.5	122.2	123.2	24	121.3	121.5	121.7	24	122.5	123.4	123.9	24	---	---	---	0
6/27	122.2	122.4	122.9	24	121.6	122.9	124.9	24	121.6	121.6	121.7	24	122.2	122.9	123.1	24	---	---	---	0
6/28	121.6	122.4	122.7	24	121.5	122.5	123.0	24	121.0	121.6	121.9	24	121.2	121.7	123.0	24	---	---	---	0
6/29	118.3	118.9	119.4	24	121.9	123.0	123.9	24	118.6	119.2	119.5	24	121.3	122.0	123.1	24	---	---	---	0
6/30	116.1	116.6	117.2	24	122.6	123.9	126.2	24	115.6	116.2	116.6	24	122.1	123.3	127.1	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	
6/17	117.3	118.0	118.5	24	128.6	129.8	130.1	24	117.7	118.6	119.1	24	128.5	129.4	129.8	24	120.0	120.7	121.2	24
6/18	118.0	118.4	118.6	24	127.7	128.2	128.8	24	118.3	118.6	118.9	24	125.9	126.8	127.3	24	118.5	119.0	119.5	24
6/19	116.0	116.3	116.4	24	126.1	126.4	126.7	24	116.6	117.0	117.1	24	124.1	124.6	125.1	24	116.4	116.6	116.9	24
6/20	116.1	116.5	116.8	24	126.2	126.5	126.9	24	114.6	114.8	115.6	24	124.3	125.0	125.4	24	116.9	117.4	117.9	24
6/21	118.3	119.2	119.5	24	126.0	126.3	127.0	24	115.4	116.5	117.2	24	122.3	123.4	124.5	24	117.1	117.9	118.5	24
6/22	119.4	120.0	120.5	24	127.2	127.4	128.1	24	118.9	120.1	120.7	24	124.5	124.7	125.0	24	118.2	119.0	119.4	23
6/23	117.0	118.5	119.6	24	127.4	127.6	128.6	24	117.7	118.5	119.6	24	123.4	124.0	125.6	24	115.6	115.7	116.1	16
6/24	115.6	116.2	116.7	24	129.9	130.6	131.0	24	115.2	115.7	116.3	24	128.2	128.6	129.2	24	118.8	120.3	121.1	24
6/25	116.8	118.0	118.9	24	126.8	128.4	129.2	24	114.2	114.8	115.3	24	125.2	127.5	127.7	24	119.5	120.3	121.2	24
6/26	118.2	118.8	119.5	24	126.8	127.7	127.9	24	118.6	120.5	121.6	24	122.4	124.0	124.7	24	118.2	120.4	121.1	24
6/27	118.9	120.1	120.8	24	126.3	126.6	126.9	24	123.3	124.7	125.4	24	120.4	120.7	121.4	24	120.0	120.9	121.3	24
6/28	119.3	119.8	120.1	24	126.0	126.1	126.4	24	124.0	124.3	125.0	24	120.3	120.6	121.4	24	119.7	120.2	120.6	24
6/29	116.5	117.9	119.0	24	125.5	125.8	125.9	24	121.5	122.8	123.7	24	119.4	119.9	120.5	24	117.2	118.0	118.3	19
6/30	112.0	112.3	112.7	24	125.3	125.6	125.8	24	115.8	116.8	118.6	24	119.4	119.6	119.9	24	114.3	114.7	115.0	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	
6/17	123.2	123.7	124.3	24	120.8	121.0	121.3	24	129.6	130.5	131.5	24	128.4	128.9	129.4	24	---	---	---	0
6/18	121.9	122.3	122.9	24	120.0	120.5	120.8	24	127.9	128.6	130.3	24	127.4	128.2	128.5	24	---	---	---	0
6/19	120.4	120.8	121.2	24	117.4	117.6	118.0	24	125.1	125.4	125.8	24	124.7	124.9	125.7	24	---	---	---	0
6/20	120.7	121.3	121.8	24	118.2	118.7	118.8	24	126.8	127.1	127.3	24	124.8	125.6	126.1	24	---	---	---	0
6/21	121.1	121.6	122.0	24	119.8	120.8	121.2	24	127.8	128.2	128.7	24	126.0	127.0	127.4	24	---	---	---	0
6/22	121.5	121.8	122.1	24	119.9	121.0	121.4	24	128.3	128.8	129.2	24	126.0	126.5	126.8	24	---	---	---	0
6/23	119.7	120.5	121.4	24	116.3	116.5	117.2	24	126.0	126.3	126.8	24	123.5	123.9	124.4	24	---	---	---	0
6/24	121.5	122.8	123.7	24	117.3	118.0	119.1	24	129.4	131.4	132.1	24	124.9	126.5	128.2	24	---	---	---	0
6/25	122.4	122.9	123.4	24	120.6	121.0	121.2	24	130.8	132.0	132.5	24	129.3	130.2	130.9	24	---	---	---	0
6/26	121.6	122.8	123.3	24	120.7	120.8	121.0	24	127.6	128.2	128.8	24	126.4	126.9	127.8	24	---	---	---	0
6/27	122.5	122.9	123.6	24	122.0	122.9	123.4	24	128.1	128.5	128.8	24	125.9	127.3	127.9	24	---	---	---	0
6/28	122.5	123.0	123.6	24	120.2	120.9	121.8	24	126.8	127.6	128.1	24	125.9	126.3	126.6	24	---	---	---	0
6/29	120.3	120.8	121.1	24	117.9	118.9	119.7	24	123.7	124.9	125.4	24	122.6	123.3	124.5	24	---	---	---	0
6/30	118.8	119.3	119.6	24	115.3	115.5	115.8	24	120.0	120.2	120.5	24	118.9	119.3	120.7	24	---	---	---	0

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 7/1/2011 8:04

### Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/17/2011	*	---	3	---	---	880	571	159	9	---	894	389
06/18/2011	*	---	1	---	---	1,248	995	277	11	749	833	96
06/19/2011	*	---	9	---	---	287	1,467	160	28	---	1,038	300
06/20/2011	*	---	14	---	---	706	1,127	142	13	525	1,290	0
06/21/2011	*	---	5	---	---	659	736	205	12	---	613	44
06/22/2011	*	---	2	---	---	797	896	290	13	568	247	188
06/23/2011	*	---	5	---	---	460	296	407	17	---	548	219
06/24/2011	*	---	---	---	---	928	292	296	11	1,053	622	130
06/25/2011	*	---	---	---	---	770	494	223	11	---	383	280
06/26/2011	*	---	---	---	---	733	506	268	4	330	634	121
06/27/2011	*	---	5	---	---	232	1,167	367	6	---	0	0
06/28/2011	*	---	1	---	---	219	526	404	4	295	390	303
06/29/2011	*	---	---	---	---	72	486	661	0	---	519	0
06/30/2011	*	---	---	---	---	75	551	345	4	533	104	124
07/01/2011		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>8,066</b>	<b>10,110</b>	<b>4,204</b>	<b>143</b>	<b>4,053</b>	<b>8,115</b>	<b>2,194</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>576</b>	<b>722</b>	<b>300</b>	<b>10</b>	<b>579</b>	<b>580</b>	<b>157</b>
<b>YTD</b>		<b>31,090</b>	<b>30,208</b>	<b>12,492</b>	<b>18,836</b>	<b>3,829,968</b>	<b>2,526,481</b>	<b>1,235,226</b>	<b>26,426</b>	<b>1,978,696</b>	<b>2,935,439</b>	<b>1,320,875</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)	
06/17/2011	*	---	0	---	---	32,542	21,981	1,955	238	---	26,504	14,189
06/18/2011	*	---	0	---	---	42,117	15,578	2,666	122	27,681	14,394	11,722
06/19/2011	*	---	0	---	---	39,922	18,784	1,581	150	---	16,832	8,448
06/20/2011	*	---	0	---	---	28,537	30,899	3,697	293	34,371	14,469	5,408
06/21/2011	*	---	0	---	---	25,853	33,459	5,938	186	---	12,706	6,399
06/22/2011	*	---	0	---	---	17,018	18,484	7,545	158	58,930	12,083	7,822
06/23/2011	*	---	0	---	---	16,261	16,942	13,223	297	---	9,635	9,215
06/24/2011	*	---	---	---	---	15,749	26,897	10,507	228	67,830	20,567	15,028
06/25/2011	*	---	---	---	---	18,916	31,029	9,186	343	---	22,532	25,831
06/26/2011	*	---	---	---	---	19,375	34,705	12,345	374	84,732	31,585	27,887
06/27/2011	*	---	0	---	---	12,237	25,287	8,632	309	---	35,290	33,328
06/28/2011	*	---	0	---	---	9,848	15,833	8,087	200	120,940	29,501	52,990
06/29/2011	*	---	---	---	---	3,732	7,924	14,453	251	---	32,752	48,790
06/30/2011	*	---	---	---	---	6,292	13,241	6,035	371	177,292	50,215	69,699
07/01/2011		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>288,399</b>	<b>311,043</b>	<b>105,850</b>	<b>3,520</b>	<b>571,776</b>	<b>329,065</b>	<b>336,756</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20,600</b>	<b>22,217</b>	<b>7,561</b>	<b>251</b>	<b>81,682</b>	<b>23,505</b>	<b>24,054</b>
<b>YTD</b>		<b>9</b>	<b>36</b>	<b>12</b>	<b>163</b>	<b>986,270</b>	<b>1,101,263</b>	<b>261,073</b>	<b>12,022</b>	<b>1,157,987</b>	<b>794,353</b>	<b>3,201,001</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)
06/17/2011	*	---	0	---	41	0	0	114	---	1,018	97
06/18/2011	*	---	0	---	78	90	43	102	1,112	1,079	96
06/19/2011	*	---	0	---	72	163	20	110	---	519	92
06/20/2011	*	---	0	---	71	80	41	101	888	1,054	150
06/21/2011	*	---	0	---	0	43	0	81	---	789	175
06/22/2011	*	---	0	---	0	0	21	62	485	619	98
06/23/2011	*	---	0	---	153	0	0	48	---	656	44
06/24/2011	*	---	---	---	0	0	0	39	727	326	43
06/25/2011	*	---	---	---	86	0	32	7	---	383	234
06/26/2011	*	---	---	---	81	0	30	17	795	318	190
06/27/2011	*	---	0	---	0	0	0	25	---	324	80
06/28/2011	*	---	0	---	0	0	0	10	138	78	0
06/29/2011	*	---	---	---	0	69	31	4	---	104	35
06/30/2011	*	---	---	---	150	0	0	10	260	206	187
07/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>732</b>	<b>445</b>	<b>218</b>	<b>730</b>	<b>4,405</b>	<b>7,473</b>	<b>1,521</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>32</b>	<b>16</b>	<b>52</b>	<b>629</b>	<b>534</b>	<b>109</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>218</b>	<b>80,294</b>	<b>79,956</b>	<b>18,921</b>	<b>46,261</b>	<b>186,718</b>	<b>438,642</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)
06/17/2011	*	---	11	---	2,413	1,997	705	252	---	4,580	777
06/18/2011	*	---	6	---	1,716	2,261	277	233	433	1,455	288
06/19/2011	*	---	4	---	1,867	1,469	621	269	---	1,383	300
06/20/2011	*	---	8	---	1,837	2,188	406	157	426	1,348	62
06/21/2011	*	---	11	---	2,124	1,515	329	202	---	1,227	0
06/22/2011	*	---	6	---	2,317	898	728	180	324	619	170
06/23/2011	*	---	16	---	2,685	680	872	226	---	733	307
06/24/2011	*	---	---	---	2,706	1,892	197	174	148	618	43
06/25/2011	*	---	---	---	2,225	1,974	318	94	---	765	47
06/26/2011	*	---	---	---	2,117	1,944	596	70	8	958	17
06/27/2011	*	---	6	---	1,704	1,555	551	130	---	729	160
06/28/2011	*	---	2	---	1,459	1,858	462	46	544	546	0
06/29/2011	*	---	---	---	1,076	1,045	554	52	---	937	288
06/30/2011	*	---	---	---	674	919	241	54	523	618	251
07/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>70</b>	<b>0</b>	<b>26,920</b>	<b>22,195</b>	<b>6,857</b>	<b>2,139</b>	<b>2,406</b>	<b>16,516</b>	<b>2,710</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>8</b>	<b>0</b>	<b>1,923</b>	<b>1,585</b>	<b>490</b>	<b>153</b>	<b>344</b>	<b>1,180</b>	<b>194</b>
<b>YTD</b>		<b>1,080</b>	<b>13,876</b>	<b>4,071</b>	<b>2,934</b>	<b>4,112,862</b>	<b>2,028,612</b>	<b>837,016</b>	<b>28,058</b>	<b>607,741</b>	<b>2,617,252</b>



## Two-Week Summary of Passage Indices

<b>COMBINED SOCKEYE</b>												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	
06/17/2011	*	---	0	---	---	331	380	136	57	---	336	97
06/18/2011	*	---	0	---	---	546	90	85	95	419	59	192
06/19/2011	*	---	0	---	---	287	163	40	283	---	403	46
06/20/2011	*	---	0	---	---	0	239	81	202	335	409	62
06/21/2011	*	---	0	---	---	220	43	164	85	---	351	88
06/22/2011	*	---	0	---	---	0	45	62	82	475	206	161
06/23/2011	*	---	0	---	---	230	89	203	75	---	195	132
06/24/2011	*	---	---	---	---	251	243	0	67	454	434	302
06/25/2011	*	---	---	---	---	428	82	64	67	---	287	280
06/26/2011	*	---	---	---	---	163	39	0	36	674	869	259
06/27/2011	*	---	0	---	---	77	73	122	72	---	243	240
06/28/2011	*	---	0	---	---	219	0	0	10	135	234	152
06/29/2011	*	---	---	---	---	72	35	345	2	---	312	144
06/30/2011	*	---	---	---	---	0	74	138	35	525	516	0
07/01/2011		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,824</b>	<b>1,595</b>	<b>1,440</b>	<b>1,168</b>	<b>3,017</b>	<b>4,854</b>	<b>2,155</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>202</b>	<b>114</b>	<b>103</b>	<b>83</b>	<b>431</b>	<b>347</b>	<b>154</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>117,117</b>	<b>42,684</b>	<b>30,757</b>	<b>18,246</b>	<b>315,358</b>	<b>359,244</b>	<b>110,076</b>

<b>COMBINED LAMPREY JUVENILES</b>												
	WTB	IMN	GRN	LEW	LGR <sup>†</sup>	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	
06/17/2011	*	---	0	---	---	0	50	0	1	---	7,133	40
06/18/2011	*	---	0	---	---	0	0	0	0	4,025	4,796	20
06/19/2011	*	---	0	---	---	0	100	0	0	---	4,833	40
06/20/2011	*	---	0	---	---	0	50	0	0	540	4,133	103
06/21/2011	*	---	0	---	---	0	25	0	0	---	3,175	50
06/22/2011	*	---	0	---	---	50	250	0	0	840	1,125	30
06/23/2011	*	---	0	---	---	0	160	0	1	---	1,289	30
06/24/2011	*	---	---	---	---	0	20	0	1	1,150	780	20
06/25/2011	*	---	---	---	---	0	125	0	0	---	1,150	50
06/26/2011	*	---	---	---	---	100	150	0	3	1,100	1,029	32
06/27/2011	*	---	0	---	---	0	450	0	2	---	586	40
06/28/2011	*	---	0	---	---	200	400	0	1	750	750	20
06/29/2011	*	---	---	---	---	150	275	0	2	---	600	67
06/30/2011	*	---	---	---	---	200	250	0	1	400	133	133
07/01/2011		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>700</b>	<b>2,305</b>	<b>0</b>	<b>12</b>	<b>8,805</b>	<b>31,512</b>	<b>675</b>
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>165</b>	<b>0</b>	<b>1</b>	<b>1,258</b>	<b>2,251</b>	<b>48</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,627</b>	<b>13,398</b>	<b>746</b>	<b>307</b>	<b>154,815</b>	<b>477,132</b>	<b>25,321</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, 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.

<sup>†</sup> 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

## Two-Week Summary of Passage Indices

### 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:

7/1/11 8:08 AM

		06/17/11 TO 07/01/11						
		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
<b>LGR</b>	Sum of NumberCollected	188,475	5,186	475	17,474	1,800	213,410	
	Sum of NumberBarged	188,198	5,173	473	17,141	1,780	212,765	
	Sum of NumberBypassed	35	0	1	321	0	357	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	17	0	0	1	2	20	
	Sum of FacilityMorts	225	13	1	11	18	268	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	242	13	1	12	20	288	
<b>LGS</b>	Sum of NumberCollected	193,273	6,287	275	13,795	960	214,590	
	Sum of NumberBarged	192,308	6,284	275	13,763	955	213,585	
	Sum of NumberBypassed	18	0	0	0	0	18	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	45	0	0	1	0	46	
	Sum of FacilityMorts	902	3	0	31	5	941	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	947	3	0	32	5	987	
<b>LMN</b>	Sum of NumberCollected	70,418	2,807	150	4,688	965	79,028	
	Sum of NumberBarged	70,163	2,805	150	4,593	958	78,669	
	Sum of NumberBypassed	78	2	0	83	0	163	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	2	0	0	0	0	2	
	Sum of FacilityMorts	175	0	0	12	7	194	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	177	0	0	12	7	196	
<b>MCN</b>	Sum of NumberCollected	214,190	1,492	1,632	901	1,126	219,341	
	Sum of NumberBarged	0	0	0	0	0	0	
	Sum of NumberBypassed	211,708	1,389	1,599	887	1,098	216,681	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	136	0	1	0	2	139	
	Sum of FacilityMorts	2,346	103	12	14	26	2,501	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	2,482	103	13	14	28	2,640	
Total Sum of NumberCollected		666,356	15,772	2,532	36,858	4,851	726,369	
Total Sum of NumberBarged		450,669	14,262	898	35,497	3,693	505,019	
Total Sum of NumberBypassed		211,839	1,391	1,600	1,291	1,098	217,219	
Total Sum of Numbertrucked		0	0	0	0	0	0	
Total Sum of SampleMorts		200	0	1	2	4	207	
Total Sum of FacilityMorts		3,648	119	13	68	56	3,904	
Total Sum of ResearchMorts		0	0	0	0	0	0	
Total Sum of TotalProjectMorts		3,848	119	14	70	60	4,111	

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

7/1/11 8:08 AM

TO: 07/01/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	611,350	2,716,188	52,634	76,489	2,709,476	6,166,137
	Sum of NumberBarged	527,724	1,704,407	38,108	33,876	1,433,205	3,737,320
	Sum of NumberBypassed	81,799	1,009,672	14,508	42,055	1,275,909	2,423,943
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	114	101	1	71	39	326
	Sum of FacilityMorts	1,713	1,767	17	487	260	4,244
	Sum of ResearchMorts	0	241	0	0	58	299
	Sum of TotalProjectMorts	1,827	2,109	18	558	357	4,869
<b>LGS</b>	Sum of NumberCollected	556,030	1,447,874	40,260	23,081	1,129,333	3,196,578
	Sum of NumberBarged	553,332	1,342,923	39,858	17,722	890,292	2,844,127
	Sum of NumberBypassed	73	103,168	401	5,227	238,633	347,502
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	92	50	0	9	9	160
	Sum of FacilityMorts	2,533	1,733	1	123	399	4,789
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,625	1,783	1	132	408	4,949
<b>LMN</b>	Sum of NumberCollected	172,539	853,031	12,565	20,641	564,981	1,623,757
	Sum of NumberBarged	163,319	635,630	11,403	18,427	458,879	1,287,658
	Sum of NumberBypassed	8,311	215,896	1,254	1,964	103,428	330,853
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	3	3	0	0	5	11
	Sum of FacilityMorts	906	1,499	10	250	869	3,534
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	909	1,502	10	250	874	3,545
<b>MCN</b>	Sum of NumberCollected	399,133	952,427	71,255	132,045	295,875	1,850,735
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	395,166	949,571	71,057	131,664	295,663	1,843,121
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	260	187	8	40	13	508
	Sum of FacilityMorts	3,707	2,669	170	341	199	7,086
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3,967	2,856	178	381	212	7,594
Total Sum of NumberCollected		1,739,052	5,969,520	176,714	252,256	4,699,665	12,837,207
Total Sum of NumberBarged		1,244,375	3,682,960	89,369	70,025	2,782,376	7,869,105
Total Sum of NumberBypassed		485,349	2,278,307	87,220	180,910	1,913,633	4,945,419
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		469	341	9	120	66	1,005
Total Sum of FacilityMorts		8,859	7,668	198	1,201	1,727	19,653
Total Sum of ResearchMorts		0	241	0	0	58	299
Total Sum of TotalProjectMorts		9,328	8,250	207	1,321	1,851	20,957

Cumulative Adult Passage at Mainstem Dams Through: 06/30

DAM	EndDate	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	06/23	167097	50945	244384	12612	174444	16431	56632	25099	56080	7345	46283	6709	0	0	0	0	0	0
TDA	06/23	124164	40146	189839	11546	130174	13470	34547	16308	38748	4601	35913	4664	0	0	0	0	0	0
JDA	06/23	103401	39823	179446	11794	110572	12004	28480	13832	29538	3646	28786	4207	0	0	0	0	0	0
MCN	06/23	101245	31750	153500	9185	102003	11175	22712	10339	22851	2342	22857	3005	0	0	0	0	0	0
IHR	06/23	69306	18161	101188	6047	70295	6879	12808	4274	16873	1188	10002	1560	0	0	0	0	0	0
LMN	06/23	69832	18094	97334	5898	69566	5561	13805	4732	19998	1622	9246	1053	0	0	0	0	0	0
LGS	06/23	67321	23492	92985	5461	64800	6145	13438	5064	16959	1403	6573	1044	0	0	0	0	0	0
LGR	06/23	59342	22063	94203	6409	65342	7745	7515	3283	12307	1161	5031	915	0	0	0	0	0	0
PRD	06/22	15246	6030	30539	932	20141	818	2533	852	3157	58	5306	148	0	0	0	0	0	0
RIS	06/21	13089	8394	29684	1513	17327	1572	748	973	1158	55	1518	123	0	0	0	0	0	0
RRH	06/21	6989	3491	8660	523	6536	525	286	164	145	6	301	19	0	0	0	0	0	0
WEL	06/22	3830	3532	7134	634	4147	467	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/21	32667	951	49617	1189	48630	935	-	-	-	-	-	-	0	0	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
BON	0	0	0	0	0	0	31692	164432	58411	7425	18729	12511	2332
TDA	0	0	0	0	0	0	12434	89014	39245	2054	5778	4349	887
JDA	0	0	0	0	0	0	9880	61246	32180	3278	5142	5578	1871
MCN	0	0	0	0	0	0	2664	24350	16440	2987	3468	3587	1629
IHR	0	0	0	0	0	0	19	40	10	3178	3561	3007	1225
LMN	0	0	0	0	0	0	4	27	3	3996	4720	3349	2184
LGS	0	0	0	0	0	0	1	12	2	6284	3353	3121	3353
LGR	0	0	0	0	0	0	0	9	0	12332	10650	9493	5789
PRD	0	0	0	0	0	0	258	3483	3407	58	134	92	0
RIS	0	0	0	0	0	0	29	699	587	75	131	111	51
RRH	0	0	0	0	0	0	18	435	273	561	360	266	496
WEL	0	0	0	0	0	0	4	172	108	127	109	61	98
WFA	0	0	0	0	0	0	-	-	-	20367	26444	25380	-

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: 06/24/11

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