



## Fish Passage Center

# Weekly Report #14 - 11

May 30, 2014

847 NE 19th Ave., Suite 250  
Portland, OR 97232  
phone: (503) 833-3900  
fax: (503) 232-1259

### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 49% and 111% of average at individual sub-basins over May. Precipitation above The Dalles has been 76% of average over May. Over the 2014 water year, precipitation has ranged between 78% and 100% of average.

**Table 1. Summary of May precipitation and cumulative October through May 28, 2014, precipitation with respect to average (1971–2000), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2014		Water Year 2014	
	May 1–28, 2014		October 1, 2013 to May 28, 2014	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	3.06	101	26.6	94
Snake River above Ice Harbor	1.09	53	14.6	81
Columbia above The Dalles	1.69	76	18.3	84
Kootenai	3.47	111	28.5	100
Clark Fork	1.39	49	17.0	82
Flathead	2.16	65	26.5	96
Pend Oreille River Basin above Waneta Dam	1.90	63	22.3	88
Salmon River Basin	1.37	51	17.5	78
Upper Snake Tributaries	1.45	55	19.3	90
Clearwater	1.93	55	30.8	93
Willamette River above Portland	3.90	110	49.2	85

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 152% of average. For Snake River Basins the average snowpack is 91% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 40% of average.

Table 2 displays the May 29<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the May COE forecasts at Libby and Dworshak. The May 29<sup>th</sup> ESP forecast at The Dalles between January and July is 110,138 Kaf (109% of average).

**Table 2. May ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	May 29, 2014, 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Jan–July)	109	110138
Grand Coulee (Jan–July)	112	66545
Libby Res. Inflow, MT (Apr–Aug)	123	7210 6996*
Hungry Horse Res. Inflow, MT (Jan–July)	123	2590
Lower Granite Res. Inflow (Apr–July)	106	20954
Brownlee Res. Inflow (Apr–July)	63	3450
Dworshak Res. Inflow (Apr–July)	132	3200 3183*

\* Denotes COE May Forecast

Grand Coulee Reservoir is at 1260.4 feet (5-28-14) and has refilled 13.0 feet over the last week. Outflows at Grand Coulee have ranged between 144.6 and 168.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2409.2 feet (5-28-14) and has refilled 14.3 feet over the previous week. The daily average outflows at Libby Dam have been 18.0–24.8 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3520.4 feet (5-28-14) and has refilled 12.5 feet over the previous week. Outflows at Hungry Horse have been 3.2–6.7 Kcfs over the last week.

Dworshak is currently at an elevation of 1558.6 feet (5-28-14) and has refilled 17.7 feet over the previous week. Outflows at Dworshak have been 2.3–2.4 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2076.0 feet on May 29, 2014. Inflows to Brownlee Dam have ranged between 16.8 and 19.7 Kcfs last week.

The Biological Opinion flow period began on April 3<sup>rd</sup> in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 8, 2014), the flow objective this spring is 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 137.0 Kcfs over the last week and 88.3 Kcfs over the spring season.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (which began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (which began April 10<sup>th</sup>). Over the last week, flows at McNary Dam averaged 354.9 Kcfs over the last week and 283.9 over the spring period. Flows at Priest Rapids Dam have averaged 215.7 Kcfs over the last week and 182.2 Kcfs over the spring period.

**Spill**

The 2014 fish spill program was initiated at the lower Snake River projects beginning on April 3<sup>rd</sup> and on April 10<sup>th</sup> at the lower Columbia River projects.

Flows increased in the Lower Snake River over the past week. Consequently, excess generation spill occurred at Lower Granite Dam throughout the past week. Spill at Little Goose Dam was restricted to less than the 30% of total flow volume specified in the Fish Operations Plan (FOP) based on the TDG measurements at the Lower Monumental forebay monitor. (Spill averaged about 25%–26% over the past week.) The TDG exceeded the Washington State 115% forebay criteria by about 1% on 4 days over the past week. At Lower Monumental Dam spill was at or above the levels specified in the FOP. The project changed from the bulk to uniform spill pattern on May 28<sup>th</sup>, which allows higher levels of spill to occur

without exceeding the gas caps. On April 28<sup>th</sup> the “test-like” conditions, where spill alternates between 30% instantaneous and 45 Kcfs/Gas Cap, were initiated at Ice Harbor Dam. Excess generation spill has occurred at this project. The net effect of the “test-like” operation is an overall decrease in spill levels during the implementation period.

<b>Project</b>	<b>Spill Level Day/Night</b>
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 28–June 1: 30%/30% vs. 45 Kcfs/Gas Cap

At the Middle Columbia River projects, McNary Dam spilled above 40% due to limited hydraulic capacity and excess generation spill. Total dissolved gas levels have been slightly above (1%–2%) the 120% gas cap in the McNary tailrace. John Day Dam spilled around 40% over the past week. The Dalles Dam spilled less than 40% on all days due to the Bonneville forebay exceeding the Washington State 115% forebay gas criteria. Bonneville Dam spilled above 100 Kcfs over the past week.

<b>Project</b>	<b>Spill Level Day/Night</b>
McNary	40%/40%
John Day	<b>Testing:</b> 30%/30% vs. 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

New this year is a change in the way the U.S. Army Corps of Engineers will assess whether a project is in compliance with the total dissolved gas variances in place. The States of Oregon and Washington use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day. In 2014, the location of a TDG monitor and/or type of monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the lower Columbia River forebay

monitors (since Oregon does not have a forebay TDG requirement). On any given day the compliance of the tailrace monitors at the lower Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill may be decreased if needed.

Monitoring for signs of gas bubble trauma (GBT) occurred at Lower Granite, Little Goose, Lower Monumental, McNary, Bonneville, and Rock Island dams over the past week. There were no signs of GBT detected in fish over the past week.

### Smolt Monitoring

Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, LGR) and only one of the four traps (IMN). Sampling at the Salmon River (WTB) and Snake River (LEW) traps was terminated after the April 21<sup>st</sup> and May 8<sup>th</sup> samples, respectively. Sampling at the Grande Ronde River Trap (GRN) was terminated after the May 21<sup>st</sup> sample.

Although yearling Chinook continued to dominate this week's samples at Bonneville Dam (BON), yearling Chinook passage decreased this week when compared to last week. This week's daily average passage index for yearling Chinook was about 28,900 per day. Last week's daily average passage index for yearling Chinook was about 62,400 per day. Sockeye, coho, and steelhead passage also decreased this week when compared to last week. The daily average passage indices for these three species were about 27,000, 17,000, and 5,000, respectively. Last week's daily average passage indices were 38,600 for sockeye, 22,400 for coho, and 12,300 for steelhead. Subyearling Chinook passage increased this week. This week's daily average passage index for subyearling Chinook at BON was about 9,700 per day. So far, no Pacific lamprey ammocoetes have been sampled at BON this year. Pacific lamprey macrophthalmia were encountered in three of this week's samples.

Yearling Chinook passage at John Day Dam (JDA) continued to decrease this week when compared to last week. This week's daily average passage index for yearling Chinook at JDA was about 29,300 per day. Last week's daily average passage index was about

65,300 per day. Sockeye and steelhead passage also decreased this week. This week's daily average passage indices for these two species were about 28,600 and 10,800, respectively. Last week's daily average passage indices for these two species were about 32,700 and 15,400 per day, respectively. Passage of subyearling Chinook and coho increased this week. This week's daily average passage indices were about 6,800 for subyearling Chinook and 7,830 for coho. Last week's daily average passage indices for these two species were about 2,700 and 4,200 per day, respectively. Finally, Pacific lamprey ammocoetes were encountered in two of this week's samples, May 23<sup>rd</sup> and May 26<sup>th</sup>. Pacific lamprey macrophthalmia were present every day this week, with a daily average collection of about 1,630 per day.

Sampling at McNary Dam (MCN) is every-other-day for the entire 2014 SMP season. Although sockeye passage decreased this week when compared to last week, sockeye continued to be the dominant species in this week's collections. The daily average passage index for sockeye at MCN this week was about 37,800 per day. Last week's daily average passage index for sockeye was about 194,200 per day. Yearling Chinook, steelhead, and coho passage also decreased this week when compared to last week. This week's daily average passage indices were 19,300 for yearling Chinook, 3,300 for steelhead, and 5,900 for coho. Last week's daily average passage indices for these three species were about 89,500, 10,400, and 10,900 per day, respectively. Subyearling Chinook passage increased this week, with a daily average passage index of about 10,300 per day. Of the subyearling Chinook that were sampled at MCN this week, about 33% were fry. Finally, only Pacific lamprey macrophthalmia have been collected so far this year. Pacific macrophthalmia were encountered in three of this week's samples.

Descaling at MCN continued to be elevated this week. Daily descaling rates for all species combined ranged from 10.2% to 20.6% with some species exhibiting higher levels of descaling than others. As mentioned above, sockeye dominated this week's collection at MCN. Daily descaling rates for sockeye ranged from 16.7% on May 29<sup>th</sup> to as high as 36.8% on May 27<sup>th</sup>. In an effort to reduce decaling, seven units at MCN were operated at the mid-range of the

1% efficiency range, beginning at 1800 on May 27<sup>th</sup>. This operation was continued through 0700 on May 29<sup>th</sup>. Overall descaling for the May 29<sup>th</sup> sample was 10.2%, which was lower than the 20.6% descaling rate from the May 27<sup>th</sup> sample. In addition, the COE began work on removing a debris mat from in front of the MCN powerhouse. Work on debris removal began on the afternoon of May 29<sup>th</sup> and is expected to be finished sometime today. Due to the improvement in descaling rates from the May 29<sup>th</sup> sample, the mid-range operation was resumed on the afternoon of May 29<sup>th</sup>. This mid-range operation is scheduled to continue through 0700 on Sunday, June 1<sup>st</sup>. Beginning at 0700 on Sunday, June 1<sup>st</sup>, the COE will operate all units within the normal 1% operating range through 0700 on Monday, June 2<sup>nd</sup>. This will enable the COE to evaluate full operations at MCN, post debris removal. After this period of evaluation, operation of seven turbine units will then be reduced to the mid-range of the 1% efficiency curve. These reduced operations are expected to begin at 0700 on Monday, June 2<sup>nd</sup>, and continue until the data from the June 2<sup>nd</sup> sample can be evaluated.

Steelhead continued to dominate the collections at Lower Granite Dam (LGR) this week. This week's daily average passage index for steelhead at LGR was about 42,000 per day, which is a decrease from last week's daily average passage index of nearly 57,000 per day. Yearling Chinook and sockeye passage also decreased this week. This week's daily average passage indices were 16,250 for yearling Chinook and 550 for sockeye. Last week's daily average passage indices for these two species were about 51,000 and 4,650 per day, respectively. The daily average passage index for coho this week was about 2,700 per day, which was slightly lower than last week's daily average of nearly 3,000 per day. As expected, subyearling Chinook passage increased substantially this week. This week's daily average passage index for subyearling Chinook at LGR was about 19,700 per day. Last week's daily average passage index was only 400 per day. Pacific lamprey ammocoetes were encountered in six of the seven samples at LGR this week. The daily average sample count for Pacific lamprey ammocoetes this week was two per day. Only one Pacific lamprey macrophthalmia was sampled at LGR this week, on May 28<sup>th</sup>.

This week's samples at Little Goose Dam (LGS) were dominated by steelhead. In fact, there was a slight increase in steelhead passage at LGS this week, when compared to last week. This week's daily average passage index for steelhead at LGS was nearly 33,000 per day. Last week's daily average passage index for steelhead at LGS was about 32,600 per day. Passage of yearling Chinook and sockeye continued to decrease this week. This week's daily average passage indices were about 20,000 for yearling Chinook and only 820 for sockeye. Subyearling Chinook and coho passage increased this week, when compared to last week. This week's daily average passage indices for these two species were 5,100 and 2,500 per day, respectively. Last week's daily average passage indices were only 600 for subyearling Chinook and about 1,900 for coho. Finally, both Pacific lamprey ammocoetes and macrophthalmia were collected at LGS this week. The Pacific lamprey ammocoetes were collected in the May 28<sup>th</sup> sample while macrophthalmia were collected in five of this week's samples (May 23<sup>rd</sup>–26<sup>th</sup> and May 29<sup>th</sup>).

Steelhead also dominated this week's samples at Lower Monumental Dam (LMN). This week's daily average passage index for steelhead was nearly 18,000, which represents a decrease from last week's daily average passage index of about 20,600 per day. Yearling Chinook, coho, and sockeye passage at LMN also decreased this week, when compared to last week. This week's daily average passage indices were 12,350 for yearling Chinook, 1,100 for coho, and 700 for sockeye. Last week's daily average passage indices for these three species were 51,800, 1,300, and 2,900 per day, respectively. Although still fairly low, subyearling Chinook passage increased this week. This week's daily average passage index for subyearling Chinook at LMN was about 130 per day. Finally, only Pacific lamprey macrophthalmia have been collected so far this year at LMN. Pacific macrophthalmia were encountered at LMN every day this week. The daily average collection for Pacific lamprey macrophthalmia was nearly 700 per day.

Coho continued to dominate the samples at Rock Island Dam (RIS) this week. This week's daily average passage index for coho at RIS was about 3,330 per day, which is very similar to last week's daily average

passage index of about 3,650 per day. Steelhead, sockeye, and yearling Chinook passage decreased this week, when compared to last week. This week's daily average passage indices for these three species were about 500, 550, and 450 per day, respectively. Last week's daily average passage indices were about 1,430 for steelhead, 1,800 for sockeye, and 750 for yearling Chinook. Subyearling Chinook passage this week was very similar to last week. This week's daily average passage index for subyearling Chinook was about 165 per day. Finally, Pacific lamprey macropthalmia were encountered in three of this week's samples.

The Imnaha River Trap (IMN) is located at river kilometer seven and is operated by the Nez Perce Tribe. Sampling at IMN is year-round, however the FPC typically receives data only from early March through June. Due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Therefore, data for IMN may be several days behind. To date, we have received data through May 27<sup>th</sup>. For the period of May 21–May 27, the average daily collection for yearling Chinook was about 15 per day, which is a decrease from the previous week's daily average collection of about 52 per day. Steelhead collections over the May 21–May 27 period also decreased when compared to the previous 7-day period. The daily average collection for steelhead for the period of May 21–27 was about 250 per day. One Pacific lamprey ammocoete was collected in the May 26<sup>th</sup> sample.

### 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. No new releases were scheduled for this zone this week. However, about 900,000 subyearling fall Chinook juveniles are scheduled for release to this zone over the next 2 weeks. Of these, about 200,000 are scheduled to be released from Lyons Ferry Hatchery, below Little Goose Dam. The remaining 700,000 are scheduled to be released from the Nez Perce Tribal Hatchery into the Clearwater River (71%) or directly into the Snake River near Captain Johns Rapids Acclimation Pond (29%). Approximately 40% of the subyearling Chinook juveniles that are scheduled for release from the Nez Perce Tribal Hatchery are

unmarked and another 40% are marked with coded-wire tags only. There are no other releases scheduled for this zone over the next 2 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 only new release that was scheduled for this zone this week was a release of about 225 subyearling fall Chinook juveniles to Crab Creek, which was part of the WDFW Cooperative Program. Many of the volitional releases of subyearling fall Chinook and subyearling summer Chinook that began several weeks ago are scheduled to end over the next 2 weeks. In addition, there are two new releases of subyearling fall Chinook scheduled to begin in this zone over the next 2 weeks. The first is a Yakama Tribal release of about 80,000 fall Chinook juveniles to the Yakima River. This Yakima River release is expected to be 100% unclipped but tagged with coded-wire tags. The second is a release of about 7.2 million fall Chinook juveniles from Priest Rapids Hatchery, which is scheduled to begin on or around June 10<sup>th</sup>. Of the fall Chinook juveniles that are scheduled to be released from Priest Rapids Hatchery, approximately 61% are unmarked and another 8% are marked with coded-wire tags only. The remaining 31% are expected to be clipped.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no releases scheduled for this zone this week. However, two new releases of subyearling fall Chinook juveniles are scheduled for this zone over the next 2 weeks. The first is a release of approximately 4,000,000 juveniles to the Klickitat River, on or around June 1<sup>st</sup>. The second is a release of about 2,400 juveniles to the Umatilla River, on or around June 5<sup>th</sup>. Finally, the volitional release of about 209,000 yearling spring Chinook juveniles from Round Butte Hatchery on the Deschutes River that began in early April is scheduled to end on or around June 1<sup>st</sup>.

### Adult Passage

Adult counts at Bonneville Dam have been updated through May 29<sup>th</sup>. Daily adult spring Chinook counts at Bonneville Dam ranged from 1,691 to 2,093 adult salmon per day. As of May 29<sup>th</sup>, a total of 184,394 spring Chinook have been counted at Bonneville Dam.

In 2013, 81,636 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2014 adult spring Chinook count at Bonneville Dam is about 2.3 times greater than the 2013 count and 1.4 times greater than the 10-year average count of 127,238. The 2014 spring Chinook jack count of 25,428 is 76.5% of the 2013 count of 33,228, while being 1.2 times greater than the 10-year average count of 21,451. At Willamette Falls 18,210 adult spring Chinook have been counted so far this year. In 2013, 16,712 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.1 times greater than the 2013 count, while being 70.1% of the 10-year average count of 25,985. As of May 29<sup>th</sup>, a total of 135,828 adult spring Chinook have been counted at The Dalles Dam and 96,913 have been counted at McNary Dam. The Dalles Dam 2014 adult spring Chinook count is 2.1 times greater than the 2013 and 1.4 times greater than the 10-year average count. The 2014 McNary Dam adult spring Chinook count is about 2.1 times greater than the 2013 count and 1.4 times greater than the 10-year average count.

The 2014 Bonneville Dam adult steelhead count of 5,539 is about 1.7 times greater than the 2013 count of 3,295 and has 261 more fish than the 10-year average count of 5,278. The 2014 Bonneville Dam adult wild steelhead count of 1,439 is about 1.6 times greater than the 2013 count of 893 and about 1.1 times greater than the 10-year average count of 1,350. At upriver sites, adult steelhead continue to move through the hydrosystem to reach their tributaries and spawning sites. The majority of these fish over-wintered in pools and will complete their trip to their spawning grounds in March through early May. Daily adult steelhead counts at Lower Granite Dam ranged from 1 to 11 adults per day last week. This year's Lower Granite steelhead count of 7,473 has 38 more fish than the 2013 count of 7,435, while being about 84.9% of the 10-year average count of 8,802. The 2014 Lower Granite Dam adult wild steelhead count of 3,461 has 230 more fish than the 2013 count of 3,231 and is about 1.1 times greater than the 10-year average count of 3,152. At Willamette Falls, the 2014 count for steelhead was 10,944 as of May 27<sup>th</sup>. This year's steelhead count is about 1.1 times greater than the 2013 count of 9,945, while being about 78.5% of the 10-year average count of 13,949.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 0 and 8 last week. The 2014 adult sockeye count at Bonneville Dam of 28 has 6 fewer fish than the 2013 count, while having 12 more fish than the 10-year average count.

### *Wanapum Dam Update*

At Wanapum Dam a significant crack (65-feet long by 2-inches wide) was discovered in a spillway monolith (#4) on February 27, 2014. This discovery has led to an emergency drawdown of the Wanapum pool to an elevation range of 541–545 feet, which is over 20 feet below its typical forebay elevation. Preliminary results of an investigation by Grant PUD and its consultants has determined that the primary contributing factor to a fracture developing within the dam's spillway was a mathematical error during the pre-construction design of Wanapum Dam.

The drawdown of Wanapum pool had caused the adult fishways at Wanapum Dam to not be operational. The adult fishways exits have been approximately 10 feet above the forebay water level. Grant County has designed adult fishway retrofits that involve the use of weir boxes and chutes to deliver adult fish into the forebay of Wanapum Dam. On April 15, 2014, the weir and chute retrofit was operational at the left bank fishway. A weir and chute has also been installed at the right bank fishway at Wanapum and was operational on April 26, 2014. Grant County will not be capable of counting adult fish at the usual count stations at either the left or right bank fishways at Wanapum Dam due to the lower than normal upper ladder flows. Grant County does have people monitoring/observing passage at the exit structures at Wanapum Dam.

Visual observations of the exit retrofits have been promising. During Wanapum Dam site visits on May 7 and 21, 2014, several hundred adult fish have been seen passing the left bank fishway weir and chute. During these observations, fish generally pass the left bank weir quickly and there were no signs of stress or mortality upon entry into the forebay. On the dates of observation, no adult fish have been seen passing the right bank weir structure. Grant County PUD does have

plans to modify the exit chutes to include a spiral flume that will reduce the elevation of the chute outflow from approximately 10 feet down to several feet. However, the installation of these spirals is not expected to occur until early to mid-June and will require a ladder outage for a period of 5–10 days for installation. The spiral flume is now expected to first be installed at the left bank fishway. Observations on May 7 and 21, 2014, have showed all adult fish to be passing via the left bank ladder. A 5- to 10-day outage of the left bank ladder for spiral flume installation during the onset of the summer Chinook and sockeye runs could be difficult. Although the right bank ladder will be operating during the outage at the left bank ladder, to date this year a small proportion of salmonids have passed via the right bank ladder. Investigating the possibility of maximizing the attraction of salmonids to the right bank ladder should be conducted before the installation of the spiral and the outage of the left bank ladder

The drawdown of Wanapum pool has also had a significant impact on the adult fishways at Rock Island Dam, operated by Chelan PUD. With the lower than normal tailrace levels, Chelan PUD has constructed extensions or denils at several ladder entrances. Chelan County PUD currently has two denils in place at the right bank fishway. A denil extension is also planned to be in place at the left bank fishway in June.

The WDFW has noticed an unusually large percentage of adult fish at the Wells Dam Trap with significant injuries. The WDFW has sampled fish from the trap at Wells Dam for approximately 3 weeks and the first 2 weeks of sampling indicated that approximately 20% of fish had notable injuries and 10% of the sampled fish had notable injuries that looked fresh and likely occurred within the last several days. Previous years sampling showed 2%–5% of fish with injuries. The source of these injuries is currently being investigated and video counts at dams below Wells are being reviewed to narrow the source of the large/fresh injuries. The drawdown of Wanapum pool has caused adult fishways to be significantly modified at several projects this year, these modifications will need to be thoroughly investigated in terms of potential for injury as well as other sources such as predation, and other project operations.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:	5/16/2014		to		05/29/14				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2014	180,000	05-15-14	06-01-14	Omak Creek	Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2014	265,676	05-21-14	05-21-14	Chief Joseph Hatchery	Mid-Columbia River
<b>Colville Tribe Total</b>					<b>445,676</b>				
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2014	400,000	05-20-14	05-20-14	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2014	500,000	05-21-14	05-21-14	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2014	500,000	05-22-14	05-22-14	Big Canyon (Clearwater River)	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>1,400,000</b>				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2014	403,926	05-21-14	05-21-14	Grande Ronde River	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2014	1,000,000	05-19-14	05-23-14	Hells Canyon Dam	Snake River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2014	209,117	04-01-14	06-01-14	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>1,613,043</b>				
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2014	225	05-25-14	05-31-14	Crab Creek	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2014	4,700	05-01-14	05-31-14	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2014	175	05-01-14	05-31-14	Methow River	Methow River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2014	225	05-01-14	05-31-14	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2014	25,000	04-20-14	05-20-14	Blackbird Island Acc Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2014	100,000	05-05-14	06-15-14	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2014	484,000	05-20-14	05-20-14	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2014	160,000	05-20-14	05-25-14	Wells Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>774,325</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2014	49,841	05-01-14	05-30-14	Methow River	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	49,892	05-01-14	05-30-14	Winthrop Hatchery	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	64,822	05-01-14	05-30-14	Biddle Pond	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	89,748	05-01-14	05-30-14	Twisp Acclim Pond	Methow River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	72,750	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,105	04-15-14	06-15-14	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,376	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	94,680	04-15-14	06-15-14	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	140,342	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	43,408	04-15-14	06-15-14	Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	108,570	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	221,567	04-15-14	06-15-14	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2014	17,280	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	33,608	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	62,997	05-01-14	05-30-14	Coulter Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	72,081	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	101,921	05-01-14	05-30-14	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	109,688	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2014	279,377	05-01-14	05-30-14	Winthrop Hatchery	Methow River
<b>Yakama Tribe Total</b>					<b>1,797,053</b>				
<b>Grand Total</b>					<b>6,030,097</b>				



### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	5/30/2014		to		6/12/2014				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2014	180,000	05-15-14	06-01-14	Omak Creek	Okanogan River
<b>Colville Tribe Total</b>					<b>180,000</b>				
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2014	500,000	06-03-14	06-14-14	Nez Perce Tribal Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>500,000</b>				
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2014	209,117	04-01-14	06-01-14	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>209,117</b>				
Umatilla Tribe	Umatilla Hatchery	CH0	FA	2014	2,400	06-05-14	06-05-14	Umatilla River	Umatilla River
<b>Umatilla Tribe Total</b>					<b>2,400</b>				
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2014	225	05-25-14	05-31-14	Crab Creek	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2014	4,700	05-01-14	05-31-14	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2014	175	05-01-14	05-31-14	Methow River	Methow River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2014	225	05-01-14	05-31-14	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2014	200,000	06-05-14	06-05-14	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2014	200,000	06-12-14	06-12-14	Cpt John Acclim Pond	Snake River
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2014	100,000	05-05-14	06-15-14	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2014	7,229,543	06-10-14	06-15-14	Priest Rapids Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>7,734,868</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2014	49,841	05-01-14	05-30-14	Methow River	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	49,892	05-01-14	05-30-14	Winthrop Hatchery	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	64,822	05-01-14	05-30-14	Biddle Pond	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2014	89,748	05-01-14	05-30-14	Twisp Acclim Pond	Methow River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	72,750	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,105	04-15-14	06-15-14	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,376	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	94,680	04-15-14	06-15-14	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	140,342	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Klickitat Hatchery	CH0	FA	2014	4,000,000	06-01-14	06-01-14	Klickitat Hatchery	Klickitat River
Yakama Tribe	Marion Drain Hatchery	CH0	FA	2014	80,000	06-01-14	06-01-14	Nelson Springs	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	43,408	04-15-14	06-15-14	Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	108,570	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	221,567	04-15-14	06-15-14	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2014	17,280	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	33,608	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	62,997	05-01-14	05-30-14	Coulter Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	72,081	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	101,921	05-01-14	05-30-14	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2014	109,688	05-01-14	05-30-14	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2014	279,377	05-01-14	05-30-14	Winthrop Hatchery	Methow River
<b>Yakama Tribe Total</b>					<b>5,877,053</b>				
<b>Grand Total</b>					<b>14,503,438</b>				

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



## 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>											
	05/22/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/29/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	05/19/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/26/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	05/21/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/28/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	05/16/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/18/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/22/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/26/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	05/17/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/20/14	Chinook + Steelhead	100	3	2	2.00%	0.00%	2	0	0	0
	05/24/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/27/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	05/20/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/22/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/27/14	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>				
5/16	98.8	99.2	99.4	24	---	---	---	0	113.7	114.1	114.8	24	111.4	111.9	112.3	24	111.2	111.4	111.7	24
5/17	99.3	99.8	100.0	24	---	---	---	0	114.1	114.4	114.7	24	112.4	112.8	113.5	24	111.6	111.8	112.0	24
5/18	99.8	100.2	100.4	24	---	---	---	0	114.2	114.3	114.4	24	112.4	112.7	112.9	24	112.3	112.7	113.7	24
5/19	99.4	99.6	100.0	24	---	---	---	0	113.8	113.8	114.1	10	112.0	112.0	112.4	11	112.8	113.4	113.9	24
5/20	98.9	99.2	99.4	24	---	---	---	0	113.4	113.6	113.8	24	111.8	112.2	112.4	24	113.0	113.6	114.6	24
5/21	98.7	99.1	99.4	24	---	---	---	0	113.9	114.2	114.4	24	111.9	112.2	112.5	24	112.8	113.2	114.2	24
5/22	102.1	105.6	108.8	24	---	---	---	0	114.2	114.5	114.6	24	112.7	113.1	113.4	24	112.4	112.8	113.1	24
5/23	106.3	109.1	109.4	24	---	---	---	0	114.9	115.2	115.4	24	113.8	114.0	114.6	24	112.8	112.9	113.0	24
5/24	100.1	100.5	101.6	24	---	---	---	0	115.4	115.7	116.0	24	114.4	114.9	115.8	24	113.1	113.7	114.3	24
5/25	99.5	99.7	99.7	24	---	---	---	0	116.1	116.4	116.5	24	114.9	115.6	117.4	24	114.0	114.6	116.6	24
5/26	99.4	99.8	100.1	24	---	---	---	0	116.5	116.7	116.8	24	115.3	116.1	116.6	24	115.3	116.1	116.9	24
5/27	99.3	99.6	100.1	24	---	---	---	0	116.7	116.9	117.1	24	115.5	116.6	118.8	24	114.9	115.7	116.7	24
5/28	102.9	105.9	109.3	23	---	---	---	0	116.9	117.0	117.2	23	117.1	117.8	118.5	23	115.5	116.5	116.9	23
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

### 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>				
5/16	110.3	110.5	110.6	24	111.0	111.1	111.6	14	114.2	114.4	115.4	14	113.7	113.9	114.2	18	119.3	119.5	120.1	13
5/17	110.6	110.7	110.9	24	110.8	110.8	111.1	13	115.1	115.2	116.0	13	113.6	113.9	114.0	21	119.1	119.4	121.2	16
5/18	110.5	110.6	110.9	24	111.2	111.3	111.5	17	114.3	114.7	115.3	17	114.5	114.7	114.9	17	119.4	119.5	120.1	13
5/19	112.3	113.7	114.3	24	111.4	111.7	112.2	21	114.7	115.1	115.8	20	113.6	113.8	114.0	21	119.1	119.5	119.9	18
5/20	113.1	113.8	114.2	24	112.3	112.8	113.6	19	117.1	118.2	122.1	19	113.3	113.7	113.9	20	119.3	119.7	119.9	19
5/21	112.4	113.2	113.5	24	112.8	113.2	113.6	19	116.1	116.5	117.4	19	115.8	116.5	117.5	23	120.3	120.8	121.9	22
5/22	111.8	112.0	112.1	24	111.9	112.2	113.2	19	116.3	116.8	117.7	19	115.4	115.6	115.8	23	119.7	120.3	121.0	23
5/23	113.0	113.7	114.8	24	111.7	111.8	112.3	17	117.1	117.6	118.2	17	115.7	116.3	116.6	24	119.8	120.9	122.2	24
5/24	114.0	114.6	115.0	24	111.6	111.7	112.0	14	117.4	117.6	118.4	14	114.9	115.5	116.0	24	119.1	119.7	120.6	22
5/25	115.2	115.7	115.9	24	112.3	112.4	112.6	17	115.0	115.1	115.2	15	116.4	116.9	117.1	24	118.5	118.8	119.1	24
5/26	115.7	115.9	116.2	24	113.1	113.5	114.1	17	117.0	117.5	119.0	17	114.2	114.4	115.1	22	118.3	119.0	120.8	22
5/27	115.7	116.1	116.4	24	113.5	114.2	114.8	20	116.9	117.5	118.7	20	115.2	115.7	115.9	22	119.0	119.4	119.8	22
5/28	115.4	115.7	116.2	23	114.1	114.2	114.6	20	116.1	116.5	117.8	20	116.1	116.7	117.1	18	119.8	120.0	120.8	14
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

### 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>				
5/16	112.9	113.3	114.3	17	117.3	118.0	119.1	17	114.4	115.0	115.5	24	117.8	118.4	120.8	24	116.1	116.8	117.7	24
5/17	113.0	113.2	114.0	15	118.0	118.2	118.5	15	114.5	115.7	116.0	24	118.5	119.3	119.7	24	115.6	117.5	118.3	24
5/18	113.0	113.1	114.2	13	118.4	118.4	118.5	13	115.6	116.4	116.6	24	118.2	118.6	118.7	24	116.8	117.3	117.7	24
5/19	112.9	113.4	113.7	19	117.8	118.0	118.3	15	113.0	114.0	114.4	24	117.7	119.3	120.0	24	115.2	115.7	116.2	24
5/20	112.9	113.6	114.5	21	115.7	116.4	118.0	21	114.3	115.4	115.9	24	119.5	120.1	120.8	24	117.9	119.3	119.7	24
5/21	115.1	116.4	118.3	21	117.0	118.7	121.3	20	114.0	114.8	115.3	24	118.9	119.3	119.9	24	117.1	118.1	118.9	24
5/22	115.4	116.2	116.9	22	117.3	118.1	120.0	22	116.4	117.5	117.7	24	120.1	120.6	120.9	24	118.3	119.9	120.7	24
5/23	111.9	115.2	115.6	22	116.0	116.2	116.5	22	115.4	116.5	117.4	24	120.6	121.5	123.6	24	118.7	119.0	119.5	24
5/24	100.1	102.2	107.1	23	115.9	116.0	116.1	23	114.4	115.6	116.0	24	121.1	122.0	123.3	24	119.5	120.7	121.6	24
5/25	102.7	104.3	107.9	24	116.1	116.3	116.4	24	115.4	115.9	116.2	24	120.2	120.7	121.8	24	118.3	118.9	119.2	24
5/26	101.4	102.1	103.1	23	115.9	116.0	116.1	23	115.3	116.0	116.4	23	121.9	123.3	123.7	23	120.6	121.9	122.3	23
5/27	102.0	103.0	103.8	22	117.1	118.3	119.0	21	114.5	115.3	115.5	24	120.2	121.0	121.6	24	118.5	119.7	120.4	24
5/28	107.9	112.1	115.1	21	117.7	118.9	124.5	21	114.4	115.4	116.2	24	118.2	119.3	119.6	24	116.3	117.3	118.0	24
5/29	---	---	---	0	---	---	---	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 Lower Columbia and Snake River Sites**

Date	<u>Priest R. Dnst</u>				<u>Pasco</u>				<u>Dworshak</u>				<u>Clrwrtr-Peck</u>				<u>Anatone</u>			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/16	119.0	119.6	119.8	24	---	---	---	0	100.9	101.4	101.8	24	102.2	103.0	103.6	24	104.3	105.1	105.7	24
5/17	119.2	119.8	120.2	24	---	---	---	0	101.8	102.4	102.8	24	102.8	103.9	104.4	24	105.0	106.0	106.6	24
5/18	119.8	119.9	120.0	24	---	---	---	0	102.4	103.4	104.4	24	102.6	102.8	103.4	24	105.4	105.8	106.3	24
5/19	117.8	118.5	119.4	24	---	---	---	0	102.8	104.1	105.2	24	103.0	103.7	104.3	24	106.5	107.4	108.1	24
5/20	119.0	119.5	119.9	24	---	---	---	0	100.9	101.7	102.4	24	103.1	104.3	105.0	24	106.6	107.4	108.2	24
5/21	118.9	119.3	119.6	24	---	---	---	0	101.0	101.9	102.6	24	102.9	104.0	104.7	24	106.4	107.2	107.9	24
5/22	119.1	119.9	120.5	24	---	---	---	0	101.2	102.5	104.4	24	103.5	105.0	105.6	24	105.5	105.5	106.4	11
5/23	119.6	120.1	120.9	24	---	---	---	0	101.3	102.1	102.9	24	103.8	104.7	105.2	24	107.1	107.3	108.0	16
5/24	119.8	120.3	120.6	24	---	---	---	0	104.2	105.8	107.0	24	104.2	105.0	105.3	24	107.5	108.3	108.8	24
5/25	119.4	119.7	120.0	24	---	---	---	0	104.0	104.9	105.4	24	104.6	105.4	106.1	24	108.3	109.1	109.7	24
5/26	120.1	120.5	120.8	23	---	---	---	0	104.2	106.0	106.7	24	103.9	104.6	105.2	24	108.2	108.8	109.4	24
5/27	119.7	120.1	120.4	24	---	---	---	0	101.9	102.6	103.1	24	103.9	104.8	105.2	24	108.3	109.1	109.7	24
5/28	117.4	118.6	119.8	24	---	---	---	0	102.2	103.6	105.0	23	103.3	103.6	103.9	23	107.8	108.0	108.2	22
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

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

Date	<u>Clrwrtr-Lewiston</u>				<u>Lower Granite</u>				<u>L. Granite Tlwr</u>				<u>Little Goose</u>				<u>L. Goose Tlwr</u>			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/16	102.2	103.0	103.5	24	105.6	105.7	105.8	24	112.9	115.4	117.7	24	111.9	112.3	112.4	24	115.0	115.5	116.9	24
5/17	102.3	103.2	103.6	24	105.5	105.6	105.7	24	113.1	115.6	116.9	24	111.4	111.7	112.0	24	115.8	116.3	116.8	24
5/18	102.1	102.3	102.5	24	104.6	104.8	105.3	24	116.3	117.1	117.3	24	111.3	111.5	111.8	24	116.4	116.7	116.8	24
5/19	102.5	103.3	103.9	24	103.8	103.9	104.0	24	115.4	116.7	117.3	24	110.6	110.8	111.0	24	116.1	116.7	116.9	24
5/20	102.8	103.6	104.2	24	103.8	104.2	104.9	24	113.0	114.7	115.9	24	111.4	112.2	112.5	24	115.3	115.6	115.8	24
5/21	102.8	103.4	104.0	24	105.3	105.7	105.9	24	111.0	111.7	113.6	24	112.7	113.1	113.7	24	115.2	115.4	115.6	24
5/22	103.0	103.9	104.4	24	106.0	106.1	106.2	24	113.1	115.1	117.1	24	111.7	112.0	112.7	24	115.0	115.4	115.9	24
5/23	103.1	103.4	103.7	24	105.8	106.1	106.2	24	117.3	117.7	118.0	24	110.0	110.2	110.5	24	115.3	115.4	115.5	24
5/24	103.5	104.0	104.5	24	105.3	105.4	105.6	24	119.1	120.5	121.5	24	110.4	111.4	111.9	24	115.8	116.0	116.2	24
5/25	103.9	104.7	105.2	24	105.8	106.4	106.7	24	121.9	122.4	122.9	24	112.9	113.7	114.0	24	116.2	116.4	116.6	24
5/26	103.3	103.7	104.1	24	106.5	106.7	106.9	24	121.0	121.3	121.4	24	115.5	116.0	116.3	24	116.7	116.8	117.0	24
5/27	103.5	104.2	104.9	24	106.5	106.7	106.8	24	120.2	120.6	121.1	24	116.2	116.5	116.9	24	116.7	116.8	116.9	24
5/28	102.7	102.9	103.3	23	106.4	106.5	106.8	23	119.3	119.7	120.0	23	116.5	116.7	116.9	23	116.7	116.8	117.0	23
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

**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>			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/16	114.7	114.8	115.0	24	118.1	118.9	119.7	24	117.7	117.9	118.1	24	116.4	116.8	117.3	24	---	---	---	0
5/17	114.3	114.6	115.0	24	116.5	117.5	118.9	24	116.1	116.4	117.0	24	117.6	118.3	119.8	24	---	---	---	0
5/18	115.0	115.6	116.2	24	116.2	117.0	119.1	24	114.8	115.1	115.4	24	119.3	120.2	120.5	24	---	---	---	0
5/19	115.0	115.1	115.4	24	117.5	119.0	119.3	24	113.7	114.0	114.2	24	119.3	119.8	120.3	24	---	---	---	0
5/20	115.3	115.6	115.8	24	119.3	119.8	120.2	24	114.7	115.4	115.7	24	117.9	119.7	120.5	24	---	---	---	0
5/21	115.7	115.9	116.4	24	117.9	119.2	119.6	24	115.9	116.5	116.8	24	116.5	117.0	117.3	24	---	---	---	0
5/22	116.1	116.3	116.6	24	115.6	116.3	117.8	24	116.6	116.9	117.2	24	117.6	118.5	120.4	24	---	---	---	0
5/23	116.1	116.3	116.6	24	116.3	116.9	117.5	24	116.5	116.9	117.1	24	119.7	120.3	120.5	24	---	---	---	0
5/24	114.6	114.8	115.1	24	116.3	116.5	117.4	24	115.4	115.6	115.7	24	120.0	120.5	121.0	24	---	---	---	0
5/25	114.8	115.0	115.3	24	116.4	116.7	116.9	24	115.1	115.2	115.5	24	120.5	121.2	121.5	24	---	---	---	0
5/26	114.5	114.6	114.7	24	116.4	116.5	116.7	24	114.3	114.6	114.9	24	120.4	120.9	121.2	24	---	---	---	0
5/27	115.6	116.3	116.8	24	117.7	118.9	119.8	24	113.8	114.2	114.5	24	120.3	120.7	121.0	24	---	---	---	0
5/28	116.2	116.5	116.7	23	117.5	118.4	119.6	23	114.6	114.8	115.1	23	119.4	119.9	120.4	23	---	---	---	0
5/29	---	---	---	0	---	---	---	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 Lower Columbia River Sites

Date	McNary-Wash			#	McNary Tlwr			#	John Day			#	John Day Tlwr			#	The Dalles			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24h Avg	12h Avg	High		24h Avg	12h Avg	High		24h Avg	12h Avg	High	
5/16	115.5	116.0	117.0	24	118.4	118.9	119.2	24	114.6	114.7	114.9	24	117.8	118.2	118.5	24	112.2	112.2	112.3	2
5/17	112.6	112.8	113.4	24	119.2	119.3	119.5	24	113.9	114.2	114.4	24	118.3	118.4	118.7	24	114.1	114.1	114.1	1
5/18	112.2	112.9	113.4	24	119.3	119.5	120.0	24	112.9	113.3	114.0	24	118.4	118.6	119.0	24	113.8	114.1	114.4	24
5/19	112.4	112.6	112.8	24	120.0	120.2	120.4	24	110.2	110.5	111.5	24	118.8	119.1	119.2	24	113.3	113.9	114.5	24
5/20	112.8	113.4	114.3	24	120.2	120.4	120.6	24	110.6	111.2	111.6	24	119.0	119.2	119.3	24	113.5	114.3	115.1	24
5/21	114.6	114.9	115.3	24	119.2	119.5	120.0	24	111.4	112.0	112.2	24	118.3	118.8	119.1	24	113.3	114.3	114.9	24
5/22	115.1	115.4	115.9	24	119.1	119.6	120.4	24	114.8	116.2	116.6	24	118.4	118.8	119.0	24	114.5	115.9	117.1	24
5/23	115.5	115.8	115.9	24	120.2	120.3	120.5	24	117.1	117.4	117.6	24	118.6	118.9	119.3	24	115.9	116.3	117.1	24
5/24	114.5	114.7	114.8	24	120.3	120.5	120.9	24	116.1	116.4	116.5	24	118.3	118.5	118.9	24	115.2	115.5	115.7	24
5/25	114.8	115.1	115.4	24	120.7	120.9	121.1	24	114.8	115.1	115.2	24	118.6	118.9	119.1	24	115.3	116.1	116.7	24
5/26	114.6	114.8	115.1	24	120.5	120.9	121.7	24	113.4	113.6	114.2	24	118.5	118.7	119.4	24	114.5	114.8	115.5	24
5/27	113.5	113.7	114.1	24	121.8	122.1	122.6	24	113.5	113.8	113.9	24	119.7	119.8	120.1	24	114.5	115.0	115.3	24
5/28	113.7	113.9	114.1	23	121.4	121.7	121.8	23	112.8	113.5	113.8	23	118.4	118.5	118.7	23	113.7	113.7	114.2	5
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

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

Date	The Dalles Dnst			#	Bonneville			#	Warrendale			#	Camas\Washougal			#	Cascade Island			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24h Avg	12h Avg	High		24h Avg	12h Avg	High		24h Avg	12h Avg	High	
5/16	117.0	117.5	118.1	24	115.6	116.4	117.5	24	116.5	117.0	117.6	24	116.8	117.4	118.2	24	118.6	119.0	119.8	24
5/17	116.4	116.9	117.4	24	113.2	113.7	114.4	24	115.2	115.8	116.8	24	115.0	115.9	116.6	24	120.6	121.4	123.4	24
5/18	116.7	117.0	117.1	24	114.2	114.4	114.4	24	116.7	116.8	117.0	24	115.5	116.0	116.7	24	123.4	123.5	123.7	24
5/19	117.3	118.4	118.8	24	114.5	114.9	115.4	24	117.6	118.2	118.5	24	116.7	117.9	118.7	24	123.6	123.8	124.1	24
5/20	118.7	119.2	120.1	24	115.5	116.0	116.2	24	118.5	118.8	119.1	24	117.9	118.8	119.4	24	123.9	124.0	124.0	24
5/21	118.5	119.0	119.5	24	114.3	114.7	115.6	24	116.8	117.2	118.2	24	117.2	117.9	118.7	24	122.8	123.6	124.0	24
5/22	118.2	118.8	119.7	24	115.6	116.3	116.6	24	116.9	117.3	117.6	24	116.6	117.7	118.4	24	121.4	121.7	121.9	24
5/23	119.9	120.3	121.0	24	116.0	116.6	117.0	24	117.6	118.0	118.3	24	116.3	116.9	117.4	24	123.6	123.7	123.8	24
5/24	118.7	118.9	119.2	24	116.0	116.1	116.3	24	118.3	118.8	119.1	24	116.8	118.1	118.6	24	123.7	123.9	124.1	24
5/25	119.3	119.7	119.9	24	116.2	116.6	117.1	24	118.8	118.9	119.1	24	118.3	118.8	119.2	24	123.9	124.0	124.2	24
5/26	119.2	119.7	120.0	24	116.6	117.0	117.2	24	118.5	118.7	119.0	24	117.2	117.8	118.3	24	123.9	124.1	124.2	24
5/27	119.2	119.7	121.0	24	116.6	116.9	117.3	24	119.2	119.5	119.8	24	117.9	118.9	119.6	24	124.1	124.1	124.3	24
5/28	117.7	118.0	118.8	23	115.0	115.4	115.7	23	118.3	118.5	118.8	23	117.6	117.9	118.0	23	123.9	124.0	124.2	23
5/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 5/30/2014 7:09

### 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/currentsmptsubmitdata.asp>

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)
05/16/2014	*	---	74	51	---	16,669	35,105	32,698	1,121	---	74,454	73,723
05/17/2014	*	---	108	502	---	41,862	36,679	64,651	780	73,171	69,364	62,044
05/18/2014	*	---	---	448	---	62,913	69,552	64,391	736	---	84,318	66,304
05/19/2014	*	---	24	174	---	108,909	64,450	58,761	797	123,880	90,358	53,643
05/20/2014	*	---	19	63	---	74,136	96,933	66,588	637	---	55,420	68,666
05/21/2014	*	---	34	84	---	34,092	36,837	51,703	581	71,303	44,605	61,413
05/22/2014	*	---	14	---	---	18,303	49,504	23,549	599	---	38,670	50,749
05/23/2014	*	---	20	---	---	19,050	30,406	20,208	498	53,544	25,377	44,996
05/24/2014	*	---	15	---	---	16,937	15,947	14,344	598	---	39,303	30,314
05/25/2014	*	---	13	---	---	26,019	21,320	15,206	567	37,454	36,239	31,130
05/26/2014	*	---	3	---	---	20,615	21,363	8,836	267	---	31,986	33,413
05/27/2014	*	---	5	---	---	14,113	23,845	8,517	229	10,154	35,030	28,145
05/28/2014	*	---	---	---	---	10,250	14,473	7,032	266	---	21,267	24,133
05/29/2014	*	---	---	---	---	6,746	12,080	---	683	10,293	15,922	10,046
05/30/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>329</b>	<b>1,322</b>	<b>0</b>	<b>470,614</b>	<b>528,494</b>	<b>436,484</b>	<b>8,359</b>	<b>379,799</b>	<b>662,313</b>	<b>638,719</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>30</b>	<b>220</b>	<b>0</b>	<b>33,615</b>	<b>37,750</b>	<b>33,576</b>	<b>597</b>	<b>54,257</b>	<b>47,308</b>	<b>45,623</b>
<b>YTD</b>		<b>65,404</b>	<b>63,110</b>	<b>25,420</b>	<b>10,159</b>	<b>4,773,867</b>	<b>2,809,878</b>	<b>1,934,479</b>	<b>25,726</b>	<b>1,983,970</b>	<b>2,243,066</b>	<b>2,088,520</b>

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)
05/16/2014	*	---	0	0	---	293	297	0	20	---	188	2,051
05/17/2014	*	---	0	1	---	0	77	0	210	1,027	205	3,678
05/18/2014	*	---	---	1	---	416	674	0	59	---	1,005	3,664
05/19/2014	*	---	0	0	---	567	867	262	142	2,766	3,068	3,327
05/20/2014	*	---	0	0	---	543	1	0	147	---	5,053	3,004
05/21/2014	*	---	0	0	---	0	1,713	1	149	5,812	4,264	13,076
05/22/2014	*	---	0	---	---	989	572	0	170	---	5,304	10,472
05/23/2014	*	---	0	---	---	268	1,434	499	62	6,381	7,214	6,679
05/24/2014	*	---	0	---	---	287	564	0	95	---	5,687	14,787
05/25/2014	*	---	0	---	---	9,202	1,599	130	310	8,747	6,346	11,241
05/26/2014	*	---	2	---	---	28,024	1,068	132	190	---	6,574	11,307
05/27/2014	*	---	0	---	---	31,113	2,940	0	132	11,938	7,542	8,958
05/28/2014	*	---	---	---	---	31,062	19,207	3	143	---	8,206	9,645
05/29/2014	*	---	---	---	---	38,023	8,932	---	224	10,293	6,262	5,289
05/30/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>140,787</b>	<b>39,945</b>	<b>1,027</b>	<b>2,053</b>	<b>46,964</b>	<b>66,918</b>	<b>107,178</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>10,056</b>	<b>2,853</b>	<b>79</b>	<b>147</b>	<b>6,709</b>	<b>4,780</b>	<b>7,656</b>
<b>YTD</b>		<b>0</b>	<b>19</b>	<b>4</b>	<b>332</b>	<b>162,282</b>	<b>42,566</b>	<b>1,764</b>	<b>3,768</b>	<b>59,991</b>	<b>68,346</b>	<b>1,825,108</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)	
05/16/2014	*	---	0	0	---	443	297	584	2,506	---	754	15,974
05/17/2014	*	---	0	0	---	1,183	692	892	2,675	2,054	3,426	19,864
05/18/2014	*	---	---	0	---	831	2,847	847	3,829	---	4,357	15,232
05/19/2014	*	---	0	0	---	7,941	2,601	2,623	2,931	8,299	7,550	19,544
05/20/2014	*	---	0	0	---	6,517	4,012	1,531	3,823	---	3,647	30,470
05/21/2014	*	---	0	0	---	1,526	857	2,108	4,862	22,281	5,141	22,401
05/22/2014	*	---	0	---	---	2,473	1,717	776	4,953	---	4,499	33,430
05/23/2014	*	---	0	---	---	1,609	1,004	499	3,998	11,394	4,264	31,286
05/24/2014	*	---	0	---	---	4,880	1,693	812	4,672	---	7,404	18,854
05/25/2014	*	---	0	---	---	5,077	3,064	1,300	3,344	10,204	10,204	18,612
05/26/2014	*	---	0	---	---	2,899	4,273	1,714	2,474	---	9,836	15,421
05/27/2014	*	---	0	---	---	2,245	2,271	1,217	2,073	3,974	11,433	13,817
05/28/2014	*	---	---	---	---	932	1,894	841	1,941	---	5,344	12,608
05/29/2014	*	---	---	---	---	1,227	3,113	---	4,803	3,430	6,311	7,073
05/30/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>39,783</b>	<b>30,335</b>	<b>15,744</b>	<b>48,884</b>	<b>61,636</b>	<b>84,170</b>	<b>274,586</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>2,842</b>	<b>2,167</b>	<b>1,211</b>	<b>3,492</b>	<b>8,805</b>	<b>6,012</b>	<b>19,613</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>71,950</b>	<b>56,819</b>	<b>21,408</b>	<b>54,398</b>	<b>127,344</b>	<b>195,644</b>	<b>710,317</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)	
05/16/2014	*	---	1,447	82	---	19,858	12,792	20,436	967	---	19,987	23,280
05/17/2014	*	---	938	311	---	28,401	16,608	13,376	1,438	10,295	15,201	16,921
05/18/2014	*	---	---	296	---	31,041	29,892	7,908	1,800	---	16,116	15,033
05/19/2014	*	---	685	261	---	72,890	22,831	21,248	1,836	8,778	17,459	6,653
05/20/2014	*	---	231	74	---	80,382	57,966	22,706	1,542	---	13,093	8,583
05/21/2014	*	---	215	66	---	75,561	46,262	34,053	1,571	12,116	14,275	6,592
05/22/2014	*	---	310	---	---	89,785	42,064	24,584	850	---	11,697	8,861
05/23/2014	*	---	332	---	---	42,755	25,955	17,464	618	6,399	9,686	8,085
05/24/2014	*	---	361	---	---	42,487	33,156	11,908	429	---	8,134	4,436
05/25/2014	*	---	243	---	---	36,173	29,577	18,975	512	3,894	12,237	6,443
05/26/2014	*	---	155	---	---	38,976	39,254	19,387	553	---	12,390	3,339
05/27/2014	*	---	142	---	---	65,112	40,296	23,119	395	3,520	15,567	6,141
05/28/2014	*	---	---	---	---	46,904	33,545	15,939	323	---	10,862	2,481
05/29/2014	*	---	---	---	---	22,385	28,566	---	591	2,377	6,859	2,906
05/30/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>5,059</b>	<b>1,090</b>	<b>0</b>	<b>692,710</b>	<b>458,764</b>	<b>251,103</b>	<b>13,425</b>	<b>47,379</b>	<b>183,563</b>	<b>119,754</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>460</b>	<b>182</b>	<b>0</b>	<b>49,479</b>	<b>32,769</b>	<b>19,316</b>	<b>959</b>	<b>6,768</b>	<b>13,112</b>	<b>8,554</b>
<b>YTD</b>		<b>2,080</b>	<b>41,769</b>	<b>4,243</b>	<b>12,842</b>	<b>3,257,322</b>	<b>1,873,207</b>	<b>1,113,303</b>	<b>25,902</b>	<b>568,251</b>	<b>999,159</b>	<b>433,198</b>



### 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)	
05/16/2014	*	---	0	0	---	293	596	292	1,296	---	20,050	18,487
05/17/2014	*	---	0	0	---	3,994	770	1,040	1,918	135,090	24,467	24,035
05/18/2014	*	---	---	0	---	13,857	974	847	2,365	---	38,388	30,942
05/19/2014	*	---	0	0	---	8,225	5,780	4,722	2,276	253,704	35,624	58,633
05/20/2014	*	---	0	2	---	4,617	6,310	9,185	2,123	---	26,131	51,499
05/21/2014		---	0	0	---	1,018	1,713	3,952	1,643	193,910	44,579	41,398
05/22/2014	*	---	0	---	---	495	286	518	887	---	39,683	45,110
05/23/2014	*	---	0	---	---	1,073	575	0	1,314	105,816	25,903	41,129
05/24/2014	*	---	0	---	---	574	1,271	1,624	777	---	38,272	42,883
05/25/2014	*	---	0	---	---	952	1,335	780	556	64,256	30,914	26,003
05/26/2014	*	---	0	---	---	322	801	659	341	---	30,669	23,389
05/27/2014	*	---	0	---	---	321	536	811	221	28,418	36,246	23,282
05/28/2014	*	---	---	---	---	311	406	280	255	---	17,520	20,962
05/29/2014		---	---	---	---	307	815	---	401	20,597	20,687	11,033
05/30/2014		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>36,359</b>	<b>22,168</b>	<b>24,710</b>	<b>16,373</b>	<b>801,791</b>	<b>429,133</b>	<b>458,785</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>2,597</b>	<b>1,583</b>	<b>1,901</b>	<b>1,170</b>	<b>114,542</b>	<b>30,652</b>	<b>32,770</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>179,129</b>	<b>83,547</b>	<b>64,838</b>	<b>37,469</b>	<b>1,455,357</b>	<b>496,325</b>	<b>524,001</b>

COMBINED LAMPREY JUVENILES												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)	
05/16/2014	*	---	0	0	---	0	0	0	0	---	120	0
05/17/2014	*	---	0	0	---	0	100	0	0	0	212	0
05/18/2014	*	---	---	0	---	0	0	0	0	---	80	0
05/19/2014	*	---	0	0	---	0	200	0	4	0	429	0
05/20/2014	*	---	1	0	---	1	0	0	6	---	233	0
05/21/2014		---	0	0	---	4	0	0	4	200	623	0
05/22/2014	*	---	0	---	---	5	400	600	2	---	420	100
05/23/2014	*	---	0	---	---	0	2,600	200	4	0	285	0
05/24/2014	*	---	0	---	---	2	1,300	1,000	1	---	1,947	0
05/25/2014	*	---	0	---	---	2	200	5,100	0	0	900	5
05/26/2014	*	---	1	---	---	1	200	1,700	0	---	1,077	0
05/27/2014	*	---	0	---	---	4	0	1,800	0	200	1,857	133
05/28/2014	*	---	---	---	---	2	200	300	0	---	533	77
05/29/2014		---	---	---	---	6	400	---	1	1,400	4,818	100
05/30/2014		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>5,600</b>	<b>10,700</b>	<b>22</b>	<b>1,800</b>	<b>13,534</b>	<b>415</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>2</b>	<b>400</b>	<b>823</b>	<b>2</b>	<b>257</b>	<b>967</b>	<b>30</b>
<b>YTD</b>		<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>87</b>	<b>6,763</b>	<b>11,517</b>	<b>28</b>	<b>4,330</b>	<b>25,893</b>	<b>12,183</b>

## 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:

Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details †.

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

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

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

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, pacific lamprey macrophthalmia, and unidentified lamprey species.

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection.

Therefore, only sample counts are provided in this report.

### 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.

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.

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)

WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

## Two Week Transportation Summary

Source: Fish Passage Center

Updated:

5/30/14 7:11 AM

		05/16/14 TO 05/30/14					
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	89,900	333,072	27,702	491,628	25,900	968,202
	Sum of NumberBarged	89,482	326,760	27,699	477,759	25,859	947,559
	Sum of NumberBypassed	355	6,150	0	13,823	0	20,328
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	7	8	1	9	1	26
	Sum of FacilityMorts	56	137	2	32	40	267
	Sum of ResearchMorts	0	17	0	5	0	22
	Sum of TotalProjectMorts	63	162	3	46	41	315
<b>LGS</b>	Sum of NumberCollected	29,301	368,522	21,750	326,682	15,563	761,818
	Sum of NumberBarged	29,280	368,252	21,743	326,635	15,513	761,423
	Sum of NumberBypassed	6	0	0	0	0	6
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	15	1	5	3	24
	Sum of FacilityMorts	15	255	6	42	47	365
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	15	270	7	47	50	389
<b>LMN</b>	Sum of NumberCollected	803	322,469	11,800	188,028	18,800	541,900
	Sum of NumberBarged	800	322,051	11,800	187,849	18,768	541,268
	Sum of NumberBypassed	3	69	0	128	0	200
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	5	0	3	0	8
	Sum of FacilityMorts	0	344	0	48	32	424
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	349	0	51	32	432
<b>Total Sum of NumberCollected</b>		<b>120,004</b>	<b>1,024,063</b>	<b>61,252</b>	<b>1,006,338</b>	<b>60,263</b>	<b>2,271,920</b>
<b>Total Sum of NumberBarged</b>		<b>119,562</b>	<b>1,017,063</b>	<b>61,242</b>	<b>992,243</b>	<b>60,140</b>	<b>2,250,250</b>
<b>Total Sum of NumberBypassed</b>		<b>364</b>	<b>6,219</b>	<b>0</b>	<b>13,951</b>	<b>0</b>	<b>20,534</b>
<b>Total Sum of Numbertrucked</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Sum of SampleMorts</b>		<b>7</b>	<b>28</b>	<b>2</b>	<b>17</b>	<b>4</b>	<b>58</b>
<b>Total Sum of FacilityMorts</b>		<b>71</b>	<b>736</b>	<b>8</b>	<b>122</b>	<b>119</b>	<b>1,056</b>
<b>Total Sum of ResearchMorts</b>		<b>0</b>	<b>17</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>22</b>
<b>Total Sum of TotalProjectMorts</b>		<b>78</b>	<b>781</b>	<b>10</b>	<b>144</b>	<b>123</b>	<b>1,136</b>

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

5/30/14 7:11 AM

TO: 05/30/14

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	105,300	3,417,911	51,172	128,950	2,318,649	6,021,982
	Sum of NumberBarged	96,292	1,915,340	47,442	68,865	1,244,370	3,372,309
	Sum of NumberBypassed	8,906	1,501,115	3,722	59,638	1,074,055	2,647,436
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	34	129	1	43	52	259
	Sum of FacilityMorts	68	1,268	7	404	83	1,830
	Sum of ResearchMorts	0	59	0	0	89	148
	Sum of TotalProjectMorts	102	1,456	8	447	224	2,237
<b>LGS</b>	Sum of NumberCollected	31,129	1,931,104	39,952	57,734	1,296,537	3,356,456
	Sum of NumberBarged	30,876	1,750,077	39,343	51,606	1,085,945	2,957,847
	Sum of NumberBypassed	235	180,543	600	5,910	210,493	397,781
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	30	1	12	9	52
	Sum of FacilityMorts	18	454	8	206	90	776
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	18	484	9	218	99	828
<b>LMN</b>	Sum of NumberCollected	1,303	1,300,871	15,600	44,868	741,988	2,104,630
	Sum of NumberBarged	1,299	1,122,877	15,400	42,016	651,956	1,833,548
	Sum of NumberBypassed	4	177,054	0	2,568	89,875	269,501
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	23	0	1	15	39
	Sum of FacilityMorts	0	913	0	283	140	1,336
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	936	0	284	155	1,375
Total Sum of NumberCollected		137,732	6,649,886	106,724	231,552	4,357,174	11,483,068
Total Sum of NumberBarged		128,467	4,788,294	102,185	162,487	2,982,271	8,163,704
Total Sum of NumberBypassed		9,145	1,858,712	4,322	68,116	1,374,423	3,314,718
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		34	182	2	56	76	350
Total Sum of FacilityMorts		86	2,635	15	893	313	3,942
Total Sum of ResearchMorts		0	59	0	0	89	148
Total Sum of TotalProjectMorts		120	2,876	17	949	478	4,440

Cumulative Adult Passage at Mainstem Dams Through: 05/29

DAM	END DATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/29	184394	25428	81636	33228	127238	21451	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/29	135828	19634	65316	31075	93810	17532	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/29	115230	17377	52448	27246	79861	15901	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/29	96913	13620	45235	19988	69516	12380	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/29	70084	9269	32811	15699	46188	7286	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/28	67257	9480	29715	14593	42903	5552	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/29	66121	9206	27182	14723	37029	5999	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/29	63801	8425	26365	14408	35562	6466	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/28	17760	1763	9804	1048	11337	911	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/27	16080	1420	7519	2045	9300	1078	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/27	8176	1050	3644	1363	3462	378	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/28	6373	611	2298	1524	2130	337	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/27	18210	594	16712	735	25985	502	0	0	0	0	0	0	0	0	0	0	0	0

DAM	END DATE	Coho						Sockeye			Steelhead					Lamprey			
		2014		2013		10-Yr Avg.		2014	2013	10-Yr Avg.	2014	2013	10-Yr Avg.	Wild 2014	Wild 2013	10-Yr Avg.	2014	2013	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	05/29	5	-2	0	0	0	0	28	34	16	5539	3295	5278	1439	893	1350	2366	1142	574
TDA	05/29	0	0	0	0	0	0	2	8	3	888	832	2510	215	353	922	0	0	0
JDA	05/29	0	1	0	0	0	0	4	4	1	3138	933	4917	1129	480	1601	131	24	40
MCN	05/29	0	0	1	0	1	0	0	0	0	832	1447	5532	336	706	1862	7	21	2
IHR	05/29	0	0	0	0	0	0	0	0	0	1758	3838	4595	765	1508	1371	5	8	0
LMN	05/28	0	0	0	0	0	0	1	0	0	1635	2491	6744	940	1377	2848	1	2	0
LGS	05/29	0	0	0	0	0	0	0	0	0	1548	2206	6752	1002	1184	2332	0	2	0
LGR	05/29	0	0	0	0	0	0	0	0	0	7473	7435	8802	3461	3231	3152	0	2	0
PRD	05/28	0	0	0	0	0	0	23	1	0	111	52	49	0	0	0	1	7	2
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/27	0	0	0	0	0	0	2	0	1	275	96	93	147	69	53	0	0	0
RRH	05/27	0	0	0	0	0	0	1	0	0	246	153	350	157	129	262	0	0	0
WEL	05/28	0	0	0	0	0	0	0	0	0	121	57	63	74	50	44	0	0	2
WFA	05/27	9	0	2	0	0	0	0	0	0	10944	9945	13949	0	0	0	0	0	0

PRD does not post wild steelhead numbers. These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART. Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish. Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC. Historic counts 1997 to present were obtained from the Corps of Engineers.