



Fish Passage Center

Weekly Report #14 - 10

May 23, 2014

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Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 57% and 126% of average at individual sub-basins over May. Precipitation above The Dalles has been 77% of average over May. Over the 2014 water year, precipitation has ranged between 80% and 99% of average.

Table 1. Summary of May precipitation and cumulative October through May 22, 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 1–22, 2014		October 1, 2013 to May 22, 2014	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	2.25	95	25.8	93
Sneke River above Ice Harbor	1.00	61	14.5	83
Columbia above The Dalles	1.35	77	18.0	85
Kootenai	2.42	98	27.5	99
Clark Fork	1.25	57	16.9	83
Flathead	1.69	65	26.0	97
Pend Oreille River Basin above Waneta Dam	1.51	63	21.9	89
Salmon River Basin	1.25	60	17.4	80
Upper Snake Tributaries	1.36	65	19.2	92
Clearwater	1.57	56	30.4	94
Willamette River above Portland	3.52	126	48.8	85

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 143% of average. For Snake River Basins the average snowpack is 107% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 39% of average.

Table 2 displays the May 22th ESP runoff volume forecasts for multiple reservoirs along with the May COE forecasts at Libby and Dworshak. The May 22th ESP forecast at The Dalles between January and July is 110,117 Kaf (109% of average).

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

Location	May 22, 2014 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Jan–July)	109	110117
Grand Coulee (Jan–July)	112	66665
Libby Res. Inflow, MT (Apr–Aug)	118	6935 6996*
Hungry Horse Res. Inflow, MT (Jan–July)	112	2563
Lower Granite Res. Inflow (Apr–July)	106	21088
Brownlee Res. Inflow (Apr–July)	61	3357
Dworshak Res. Inflow (Apr–July)	133	3224 3183*

* Denotes COE May Forecast

Grand Coulee Reservoir is at 1247.4 feet (5-22-14) and has refilled 8.8 feet over the last week. Outflows at Grand Coulee have ranged between 152.3 and 168.3 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2394.9 feet (5-22-14) and has refilled 6.9 feet over the previous week. The sturgeon pulse operation began on May 16, 2014; daily average outflows at Libby Dam have been 21.8–24.8 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3507.9 feet (5-22-14) and has refilled 7.9 feet over the previous week. Outflows at Hungry Horse have been 6.7–6.8 Kcfs over the last week.

Dworshak is currently at an elevation of 1540.9 feet (5-22-14) and has refilled 16.6 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 2069.0 feet on May 22, 2014, refilling 5.2 feet over the last week. Inflows to Brownlee Dam have ranged between 14.9 and 17.0 Kcfs last week.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 8, 2014), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 110.0 Kcfs over the last week and 82.0 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 10th) and 135 Kcfs at Priest Rapids Dam (which began April 10th). Over the last week, flows at McNary Dam averaged 325.9 Kcfs over the last week and 273.2 over the spring period. Flows at Priest Rapids Dam have averaged 210.9 Kcfs over the last week and 177.4 Kcfs over the spring period.

Spill

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

All of the lower Snake River projects have spilled at the 2014 Fish Operations Plan (FOP) levels. Excess generation spill occurred during some periods at Lower Granite Dam earlier in the week. Spill at Little Goose Dam exceeded the gas cap in the Lower Monumental forebay from May 18, 2014, through May 22, 2014. At Lower Monumental Dam, excess spill occurred from May 17, 2014, through May 19, 2014. Spill at Lower Monumental exceeded the Ice Harbor forebay gas cap from May 16, 2014, through May 22, 2014, with the exception of May 19th. On April 28th the “test-like” conditions, where spill alternates between 30% instantaneous and 45 Kcfs/Gas Cap, were initiated at Ice Harbor Dam. Some 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.

Project	Spill Level Day/Night
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 exceeded the cap in the McNary tailrace from May 19, 2014, through May 21, 2014, and in the John Day forebay on May 22, 2014. John Day Dam spilled close to the objectives with some excess spill on May 19th. The Dalles Dam spilled in excess of 40% on all days, and the Bonneville forebay gas cap was exceeded from May 20, 2014, through May 22, 2014. Bonneville Dam spilled at or above 100 Kcfs.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	Testing: 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. 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. Three percent of sampled fish at Bonneville Dam were observed with signs of GBT on May 20, 2014. The incidence of GBT at all projects was well below the action criteria of 15%.

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 21st and May 8th samples, respectively. Sampling at the Grande Ronde River Trap (GRN) was terminated after the May 21st sample.

This week's samples at Bonneville Dam (BON) were dominated by yearling Chinook. The daily average passage index for yearling Chinook was about 62,400 per day, which is an increase when compared to last week's daily average passage index of about 57,000 per day. Sockeye passage increased substantially this week, when compared to last week. The daily average passage index for sockeye at BON this week was 38,600 per day. Last week's daily average passage index for sockeye was about 5,400 per day. Coho passage also increased this week. This week's daily average passage index for coho at BON was about 22,400 per day. Last week's daily average passage index for coho was about 15,800 per day. With a daily average passage index of about 12,300 per day, steelhead passage decreased slightly this week when compared to last week. Subyearling Chinook passage continued to decrease this week. This week's daily average passage index for subyearling Chinook at BON was about 5,600. So far, no Pacific lamprey ammocoetes have been sampled at BON this year. Pacific lamprey macrophthalmia were encountered in only one sample this week (May 22nd).

Although yearling Chinook passage continued to decrease this week, yearling Chinook were still the dominate species in this week's collections at John Day (JDA). This week's daily average passage index for yearling Chinook at JDA was about 65,300 per day. Last week's daily average passage index was about 81,300 per day. Coho and steelhead passage also

continued to decrease this week. This week's daily average passage indices for these two species were about 4,200 and 15,400, respectively. Last week's daily average passage indices for these two species were about 4,700 and 40,700 per day, respectively. This week's daily average passage index for sockeye at JDA was about 32,700 per day, which is a substantial increase over last week's daily average passage index of only about 6,600 per day. Subyearling Chinook passage also increased this week. This week's daily average passage index for subyearling Chinook was about 2,700 per day. Finally, Pacific lamprey ammocoetes were encountered only once this week (May 20th). Pacific lamprey macrophthalmia were present every day this week, with a daily average collection of nearly 300 per day.

Sampling at McNary Dam (MCN) is every-other-day for the entire 2014 SMP season. Collections at MCN this week were dominated by sockeye. The daily average passage index for sockeye at MCN this week was about 194,000 per day. This is an increase over last week's daily average passage index of about 120,000 per day. Coho passage also increased this week when compared to last week. This week's daily average passage index for coho was about 11,000 per day. Last week's daily average passage index for coho was about 8,850 per day. Yearling Chinook and steelhead passage decreased this week. This week's daily average passage indices for yearling Chinook and steelhead at MCN were about 89,500 and 10,400 per day, respectively. Last week's daily average passage indices for these two species were about 216,300 and 36,500 per day, respectively. Subyearling Chinook passage increased this week, with a daily average passage index of about 3,200 per day. Unlike previous weeks, a large portion of the subyearling Chinook collected this week were not fry. Most species at MCN continued to exhibit elevated levels of descaling this week. In particular, yearling Chinook descaling this week has been in the 5.6%–9.0% range and sockeye descaling has been in the 9.9%–19.0% range this week. The COE resumed raking the trash racks on Wednesday, May 21st, to remove excess debris at the project. However, given the every-other-day sampling, we will not have a sample from MCN to see if resumed debris removal has improved descaling until later today. Finally, only Pacific lamprey macrophthalmia have been collected so far this year. Pacific macrophthalmia were encountered in only one of this week's samples on May 21st.

Steelhead passage at Lower Granite Dam (LGR) increased this week when compared to last week. This week's daily average passage index for steelhead at LGR was about 57,000 per day. Last week's daily average passage index for steelhead was about 51,000 per day. Sockeye and coho passage also increased this week. This week's daily average passage indices for these two species were about 4,650 and 3,000 per day, respectively. Last week's daily average passage indices for these two species were about 650 and 1,600 per day, respectively. Although the first clipped sockeye for 2014 was sampled on May 11th, hatchery sockeye didn't start passing LGR in large numbers until the May 17th sample. Yearling Chinook passage decreased this week, when compared to last week. This week's daily average passage index for yearling Chinook at LGR was about 51,000 per day. Last week's daily average passage index for yearling Chinook was about 78,700 per day. Subyearling Chinook passage also decreased this week. However, with the release of approximately 2.8 million hatchery subyearling fall Chinook juveniles above LGR this week, passage of subyearling Chinook is expected to increase substantially over the next several days. In all, seven Pacific lamprey ammocoetes were encountered at LGR this week. These Pacific ammocoetes were encountered on three separate days: May 20th, May 21st, and May 22nd. Pacific lamprey macrophthalmia were encountered in two of this week's samples. Sample counts for Pacific macrophthalmia were much lower than last week, with only one on May 21st and two on May 22nd.

This week's samples at Little Goose Dam (LGS) continued to be dominated by yearling Chinook. However, yearling Chinook passage continued to decrease this week, when compared to last week. This week's daily average passage index for yearling Chinook was about 55,600. Sockeye, steelhead, and coho passage also decreased this week. This week's passage indices for these three species were 2,350, 32,600, and 1,860 per day, respectively. Subyearling Chinook passage continued to increase this week. This week's passage index for subyearling Chinook was about 600 per day. Finally, only Pacific lamprey macrophthalmia have been collected so far this year at LGS. Pacific macrophthalmia were encountered in only three of this week's samples: May 17th, May 19th, and May 22nd.

Yearling Chinook dominated this week's samples at Lower Monumental Dam (LMN). This week's daily average passage index for yearling Chinook at LMN was nearly 52,000 per day, which is an increase over last week's daily average passage index of about 46,200 per day. Coho and sockeye passage also increased at LMN this week, when compared to last week. This week's daily average passage indices for these two species were 1,340 and 2,940 per day, respectively. The daily average passage index for steelhead at LMN this week was about 20,600, which is a decrease over last week's daily average passage index of about 32,400 per day. Finally, only Pacific lamprey macrophthalmia have been collected so far this year at LMN. Pacific macrophthalmia were encountered only once this week, on May 22nd.

Coho dominated this week's samples at Rock Island Dam (RIS). This week's daily average passage index for coho at RIS was about 3,650 per day, which is a substantial increase over last week's daily average of about 690 per day. Steelhead and sockeye passage also increased this week, when compared to last week. This week's daily average passage indices for these two species were about 1,430 and 1,800 per day, respectively. Yearling Chinook passage continued to decrease this week, when compared to previous weeks. This week's daily average passage index for yearling Chinook at RIS was about 750 per day. Subyearling Chinook passage at RIS increased this week, with a daily average passage index of about 130 per day. Finally, Pacific lamprey macrophthalmia were encountered in four of this week's samples. When Pacific macrophthalmia were present, collections ranged from two to six per day this week.

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer 2 in the Grande Ronde River. This week's collections were dominated by yearling Chinook with a daily average collection of about 220 per day. This week's daily average collection of 220 per day represented an increase over last week's daily average collection of about 125 per day. Steelhead collections also increased at GRN this week. This week's daily average collection for steelhead was about 180 per day. Last week's daily average collection for steelhead was about 140 per day. Due to the release of approximately

404,000 hatchery subyearling fall Chinook into the Grande Ronde River on May 21st, trapping for the 2014 season was terminated after the May 21st sample.

The Imnaha River Trap (IMN) is located at river kilometer 7 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 21st. However, sampling was suspended for the May 18th sample due to high flows. For the period of May 14–May 21, the average daily collection for yearling Chinook was about 50 per day, which is a decrease from the previous week's daily average collection of about 60 per day. Steelhead collections over the May 14–May 21 period increased when compared to the previous 7-day period. The daily average collection for steelhead for the period of May 14–21 was about 830 per day. One Pacific lamprey ammocoete was collected in the May 20th 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. Approximately 2.8 million subyearling fall Chinook were scheduled to be released into this zone this week. All of these subyearling fall Chinook juveniles were scheduled to be released above Lower Granite Dam. Of these, about 68% were scheduled to be released into the Snake River, 18% were scheduled to be released into the Clearwater River, and 14% were scheduled to be released into the Grande Ronde River. Finally, about 36% of the subyearling fall Chinook juveniles that were scheduled for release into this zone this week are unmarked and about 11% are marked only with a coded-wire tag.

Approximately 700,000 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 500,000 are scheduled to be released from the Nez Perce Tribal Hatchery into the Clearwater River. Approximately 40% of the

subyearling Chinook juveniles in this Clearwater River release 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. Two releases of subyearling summer Chinook juveniles were scheduled for this zone this week. In all, these two releases were expected to total about 750,000 subyearling summer Chinook juveniles. Of these, about 65% were scheduled to be released directly from Wells Hatchery while the remaining 35% were released directly from Chief Joseph Hatchery. The only other release that was scheduled for this zone this week was of approximately 160,000 summer steelhead from Wells Hatchery.

Many of the volitional releases of summer Chinook, coho, and steelhead that began several weeks ago are scheduled to end over the next 2 weeks. In addition, there are two releases of subyearling fall Chinook scheduled to begin in this zone over the next 2 weeks. The first is a release of about 225 subyearling fall Chinook juveniles to Crab Creek. This release is part of the WDFW Cooperative Program. The second release is a Yakama Tribal release of about 80,000 subyearling fall Chinook to the Yakima River.

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. There are two releases of juvenile salmonids scheduled for this zone over the next 2 weeks. The first is a release of approximately 4,000,000 subyearling fall Chinook juveniles to the Klickitat River, on or around June 1st. The second release is a release of about 2,500 subyearling fall Chinook juveniles to the Umatilla River on or around June 5th.

Adult Passage

Adult counts at Bonneville Dam have been updated through May 22nd. Last week, daily adult spring Chinook counts at Bonneville Dam ranged from 1,675 to 2,757 adult salmon per day. As of May 22nd, a total of 170,761 adult spring Chinook have been counted

at Bonneville Dam. In 2013, 75,641 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2014 adult spring Chinook count at Bonneville Dam is about 226% of the 2013 count and 143% of the 10-year average count of 119,191. The 2014 spring Chinook jack count of 22,190 is 72% of the 2013 spring Chinook jack count of 30,773, while being 117% of the 10-year average count of 19,013. At Willamette Falls, 15,563 adult spring Chinook have been counted so far this year. In 2013, 15,654 adult spring Chinook were counted at Willamette Falls. This year's count is about 99% of the 2013 count and 66% of the 10-year average count of 23,649. As of May 22nd, a total of 125,208 adult spring Chinook have been counted at The Dalles Dam and 88,551 have been counted at McNary Dam. The Dalles Dam 2014 adult spring Chinook count is 210% of the 2013 count and 144% of the 10-year average count. The 2014 McNary Dam adult spring Chinook count is 218% of the 2013 count, and 141% of the 10-year average count.

The 2014 Bonneville Dam adult steelhead count of 5,069 is about 1.6 times greater than the 2013 count of 3,082 and has 318 more fish than the 10-year average count of 4,751. The 2014 Bonneville Dam adult wild steelhead count of 1,333 is about 1.6 times greater than the 2013 count of 844 and 1.1 times greater than the 10-year average count of 1,249. 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 4 to 15 adults per day last week. This year's Lower Granite steelhead count of 7,442 has 19 more fish than the 2013 count of 7,423 and is about 85% of the 10-year average count of 8,781. The 2014 Lower Granite Dam adult wild steelhead count of 3,445 has 219 more fish than the 2013 count of 3,226 and is about 1.1 times greater than the 10-year average count of 3,140. At Willamette Falls, the 2014 count for steelhead was 9,572 as of May 20th. This year's steelhead count is about 108% of the 2013 count of 8,885 and about 77% of the 10-year average count of 12,437.

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.

Hatchery Releases Last Two Weeks

Agency	Hatchery	Hatchery Release Summary									
		From:	5/9/2014	to	05/22/14	Species	Race	MigYr	NumRel	RelStart	RelEnd
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		
Colville Tribe Total					445,676						
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		
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2014	470,000	05-14-14	05-14-14	Lapwai Creek	Clearwater River M F		
Nez Perce Tribe Total					1,870,000						
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		
Oregon Dept. of Fish and Wildlife Total					1,613,043						
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2014	53,000	04-15-14	05-15-14	Winthrop Hatchery	Methow River		
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2014	96,000	04-15-14	05-15-14	Winthrop Hatchery	Methow River		
U.S. Fish and Wildlife Service Total					149,000						
Umatilla Tribe	Bonneville Hatchery	CH0	FA	2014	623,050	05-13-14	05-13-14	Umatilla River	Umatilla River		
Umatilla Tribe Total					623,050						
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2014	205,000	04-25-14	05-15-14	Chiwawa Hatchery	Wenatchee River		
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2014	175	05-15-14	05-15-14	Wenatchee River	Wenatchee 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	FA	2014	18,975	05-15-14	05-15-14	Yakama River	Yakima 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	Skamania Hatchery	ST	SU	2014	90,000	05-01-14	05-10-14	Klickitat River	Klickitat River		
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2014	320,000	04-15-14	05-15-14	Wells Hatchery	Mid-Columbia 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	25,000	05-15-14	05-15-14	Omak Creek	Okanogan River		
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2014	80,000	04-25-14	05-10-14	Okanogan River	Okanogan 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		
Washington Dept. of Fish and Wildlife Total					1,513,250						

Hatchery Releases Last Two Weeks

Agency	Hatchery	Hatchery Release Summary							
		Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
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	Cle Elem Hatchery	CH1	SP	2014	258,316	03-15-14	05-15-14	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2014	270,653	03-15-14	05-15-14	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2014	277,151	03-15-14	05-15-14	Easton Pond	Yakima 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	Marion Drain Hatchery	CH0	FA	2014	117,000	05-15-14	05-15-14	Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2014	450,000	05-14-14	05-14-14	Prosser Acclim 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
Yakama Tribe Total					3,170,173				
Grand Total					9,384,192				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	5/23/2014	to	6/5/2014						
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
Colville Tribe Total					180,000				
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
Nez Perce Tribe Total					500,000				
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
Oregon Dept. of Fish and Wildlife Total					1,209,117				
Umatilla Tribe	Umatilla Hatchery	CH0	FA	2014	2,400	06-05-14	06-05-14	Umatilla River	Umatilla River
Umatilla Tribe Total					2,400				
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	06-02-14	06-02-14	Lyons Ferry Hatchery	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	Wells Hatchery	ST	SU	2014	160,000	05-20-14	05-25-14	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife Total					465,325				
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
Yakama Tribe Total					5,877,053				
Grand Total					8,233,895				

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

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
05/09/2014	141.1	3.2	137.4	17.1	154.0	18.3	152.4	9.7	162.2	23.3	162.5	35.4	177.8	49.3
05/10/2014	152.1	0.0	154.5	21.8	172.5	10.6	164.8	9.0	170.4	30.5	168.1	50.7	173.9	55.1
05/11/2014	149.6	0.0	149.4	20.4	172.9	19.9	167.7	8.5	176.6	31.9	177.5	48.8	190.2	75.6
05/12/2014	156.1	0.0	154.2	24.9	175.6	10.0	169.7	18.6	176.3	32.0	174.1	55.6	183.3	50.0
05/13/2014	159.7	0.0	158.8	24.9	177.2	10.0	169.3	13.5	176.6	32.4	174.2	57.4	186.2	56.2
05/14/2014	165.2	0.0	164.8	25.1	183.1	20.5	176.3	11.7	180.2	37.1	177.7	50.9	182.6	59.4
05/15/2014	165.1	0.0	157.1	25.0	185.8	26.0	180.2	21.6	188.1	40.4	187.6	57.9	199.6	76.9
05/16/2014	163.3	0.2	166.0	25.4	194.3	29.5	187.6	29.6	193.7	47.4	190.0	64.0	198.1	102.6
05/17/2014	156.2	1.2	154.4	25.4	189.6	35.9	187.5	26.8	197.8	44.5	199.8	69.7	221.8	118.9
05/18/2014	152.3	1.2	156.6	26.1	188.5	29.9	186.4	28.0	197.9	29.3	196.1	65.2	214.6	118.8
05/19/2014	154.8	1.0	156.2	40.7	186.4	31.8	182.4	21.0	191.5	33.3	187.0	65.6	205.6	88.2
05/20/2014	156.6	0.0	157.2	48.3	187.0	39.1	187.7	19.8	196.4	31.7	196.2	75.2	216.7	98.4
05/21/2014	168.3	0.0	166.0	43.5	200.9	32.8	193.4	22.7	200.2	34.4	189.5	67.4	201.7	96.2
05/22/2014	165.9	0.0	165.7	31.4	200.1	43.1	194.2	32.7	203.9	30.0	198.7	70.6	214.8	91.3

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

Date	Dworshak		Brownlee Inflow	Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	
05/09/2014	2.4	0.0	14.4	12.2	83.3	20.3	79.7	23.9	79.6	26.9	81.3	24.4	
05/10/2014	2.4	0.0	15.0	11.7	87.0	22.7	86.3	25.9	88.3	28.5	90.9	35.6	
05/11/2014	2.4	0.0	15.4	11.4	83.4	20.2	81.4	24.5	81.9	27.9	83.4	24.9	
05/12/2014	2.4	0.0	15.7	13.1	76.9	20.3	74.4	22.3	75.2	26.4	77.3	44.8	
05/13/2014	2.4	0.0	15.3	10.8	72.5	20.4	71.5	21.4	72.1	28.0	73.9	54.4	
05/14/2014	4.2	0.0	15.2	10.7	70.3	20.3	67.3	20.2	68.0	26.3	69.8	28.5	
05/15/2014	4.8	0.0	15.0	12.4	73.6	20.7	70.1	20.9	72.2	26.9	72.9	23.1	
05/16/2014	4.8	0.1	14.9	10.9	88.0	27.8	84.1	28.1	87.3	26.2	88.9	61.0	
05/17/2014	2.4	0.0	14.9	10.8	99.5	28.8	95.6	33.0	96.1	29.9	100.1	72.6	
05/18/2014	2.3	0.2	15.6	10.4	117.9	36.8	113.8	37.0	113.5	31.2	116.7	86.6	
05/19/2014	2.4	0.2	16.5	13.0	124.4	33.6	119.0	35.6	121.0	27.7	126.0	82.3	
05/20/2014	2.4	0.0	17.0	10.9	117.6	27.8	112.8	33.6	114.0	25.2	119.9	59.6	
05/21/2014	2.4	0.0	16.9	10.9	108.1	20.6	104.1	31.2	104.1	24.4	105.3	37.2	
05/22/2014	2.4	0.0	16.6	13.1	114.8	25.4	108.4	32.3	107.2	23.5	112.0	56.6	

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		
05/09/2014	291.3	139.3	284.9	113.3	265.6	101.8	291.2	103.7	97.2	77.9
05/10/2014	263.0	111.8	249.9	96.0	231.1	93.0	277.6	99.9	89.4	76.0
05/11/2014	270.3	119.3	285.6	85.6	272.5	107.7	280.0	100.7	89.4	77.5
05/12/2014	288.9	139.6	292.5	98.1	276.3	109.1	299.5	115.6	94.6	77.0
05/13/2014	278.5	147.5	285.1	113.6	265.8	106.2	300.8	115.0	96.1	77.3
05/14/2014	262.2	151.1	254.2	97.1	241.4	96.4	277.3	100.7	88.2	76.0
05/15/2014	266.1	149.7	261.4	82.8	246.9	96.6	272.0	111.8	73.1	74.7
05/16/2014	293.2	169.3	281.4	117.6	262.1	94.8	270.9	103.8	79.1	75.6
05/17/2014	318.8	180.0	317.2	125.1	298.3	96.0	311.6	124.9	95.8	78.4
05/18/2014	331.3	183.8	330.8	129.8	312.7	98.4	334.2	145.0	98.2	78.6
05/19/2014	347.3	196.0	351.5	139.9	331.7	118.6	344.0	155.7	96.7	79.2
05/20/2014	346.4	201.0	348.8	143.9	330.1	128.0	353.8	163.1	98.8	79.5
05/21/2014	322.3	177.1	328.6	137.5	311.5	120.2	335.4	144.1	98.2	80.7
05/22/2014	322.3	173.9	314.7	135.0	293.0	104.4	323.6	129.0	95.4	86.8

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
Lower Granite Dam											
	05/15/14	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
Little Goose Dam											
	05/12/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/19/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	05/14/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/21/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	05/12/14	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	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
Bonneville Dam											
	05/10/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/13/14	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	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
Rock Island Dam											
	05/13/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/15/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	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

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>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
5/9	100.5	100.7	101.0	23	---	---	---	0	110.4	110.9	111.3	24	114.7	117.9	118.2	24	117.0	117.3	117.5	24
5/10	99.7	100.1	100.6	24	---	---	---	0	109.3	109.5	109.6	24	108.4	108.9	109.4	24	116.2	116.6	117.0	24
5/11	98.3	98.5	98.8	24	---	---	---	0	108.4	108.5	108.9	24	107.7	108.1	108.4	24	111.7	114.4	115.4	24
5/12	107.8	112.8	113.0	24	---	---	---	0	108.9	109.4	109.5	24	107.6	108.2	108.5	24	107.2	107.5	107.8	24
5/13	112.7	112.8	113.0	24	---	---	---	0	109.9	110.4	110.6	24	108.5	109.0	109.3	24	107.6	108.1	108.4	24
5/14	112.8	112.9	113.1	24	---	---	---	0	111.3	111.6	111.7	24	109.5	110.0	110.3	24	108.8	109.4	109.7	24
5/15	104.0	109.3	113.0	24	---	---	---	0	112.5	113.1	113.2	24	110.6	111.3	111.6	24	110.3	110.8	111.1	24
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	101.8	104.8	108.8	23	---	---	---	0	114.2	114.4	114.6	23	112.7	113.0	113.4	23	112.4	112.7	113.1	23

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>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
5/9	111.0	111.4	111.8	24	113.8	113.8	114.1	9	114.7	114.7	115.1	9	116.4	116.5	116.6	24	117.5	119.1	120.9	22
5/10	111.4	111.7	112.0	24	113.5	113.5	113.8	13	114.4	114.5	115.1	13	115.0	115.8	116.0	22	115.0	115.5	116.2	21
5/11	110.8	111.7	113.4	24	113.2	113.2	113.7	10	115.2	115.2	115.5	10	112.3	112.5	112.9	14	113.5	113.5	116.1	7
5/12	109.8	110.0	110.3	24	109.4	109.9	112.9	16	111.3	111.9	113.9	16	113.6	114.3	114.7	20	115.3	115.3	117.7	12
5/13	109.7	109.9	110.2	24	108.2	108.3	108.5	17	109.7	109.8	110.5	17	113.0	113.5	114.1	18	116.1	116.8	118.5	16
5/14	109.7	109.8	109.9	24	109.3	109.4	110.0	13	112.1	112.3	113.6	13	110.7	111.0	111.3	19	113.5	113.8	115.6	13
5/15	110.1	110.2	110.4	24	110.2	110.2	110.9	12	113.3	113.3	114.5	12	111.6	112.3	113.3	21	116.4	117.0	118.2	17
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	23	111.9	112.2	113.2	18	116.3	116.8	117.7	18	115.3	115.5	115.8	22	119.7	120.3	121.0	22

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>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
5/9	113.5	113.5	115.9	9	116.6	116.9	117.5	15	114.7	115.1	115.7	24	115.5	116.6	117.6	24	116.0	116.4	116.9	24
5/10	112.9	113.5	114.1	22	115.3	115.9	116.6	22	113.2	113.9	114.7	24	115.9	117.0	118.6	24	113.4	114.6	116.3	24
5/11	111.3	111.6	112.5	19	114.2	114.7	115.4	19	113.0	113.6	114.0	24	114.6	115.2	115.8	24	113.2	114.0	114.9	24
5/12	112.1	113.1	114.2	17	114.7	115.6	116.7	17	112.9	113.2	113.4	24	116.4	117.4	117.7	24	114.7	115.7	118.0	24
5/13	112.7	112.9	113.8	14	115.7	115.9	116.7	14	113.8	114.8	115.0	24	118.0	119.0	120.5	24	117.8	119.2	121.9	24
5/14	109.9	111.0	111.8	21	114.0	114.9	116.6	18	114.9	115.2	115.7	24	116.8	117.2	118.1	24	117.5	118.2	120.7	24
5/15	111.2	112.1	113.0	20	115.6	116.5	118.0	20	114.2	114.9	115.3	24	116.7	117.3	117.7	24	116.3	116.9	117.2	24
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	21	117.3	118.0	120.0	21	---	---	---	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>							
	<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>
5/9	116.3	117.9	118.8	24	---	---	---	0	102.5	103.1	103.6	24	101.5	102.0	102.4	24	103.9	104.4	105.1	24
5/10	114.4	115.2	116.1	24	---	---	---	0	102.3	102.9	103.6	24	101.6	102.2	102.6	24	103.6	104.2	104.9	23
5/11	116.1	116.6	117.0	24	---	---	---	0	101.2	101.7	102.3	24	101.0	101.4	102.0	24	103.6	104.3	104.8	24
5/12	114.7	115.0	115.3	24	---	---	---	0	100.4	101.1	101.7	24	101.6	102.8	103.6	24	103.8	104.9	105.8	24
5/13	116.5	116.9	117.4	24	---	---	---	0	99.9	100.8	101.6	24	101.6	102.6	103.4	24	103.9	104.9	105.7	24
5/14	117.0	117.2	117.5	24	---	---	---	0	99.7	100.3	100.7	24	101.6	102.6	103.4	24	104.0	104.9	105.6	24
5/15	117.8	118.4	118.6	24	---	---	---	0	100.3	100.9	101.5	24	101.9	102.8	103.4	24	104.3	105.2	105.9	24
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	---	---	---	0	---	---	---	0	101.3	102.5	104.4	23	103.5	105.0	105.6	23	105.5	105.5	106.4	11

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>							
	<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>
5/9	102.0	102.7	103.8	24	104.3	104.5	104.9	24	109.9	110.3	110.9	24	111.4	112.3	112.8	24	113.4	113.9	114.4	24
5/10	101.2	101.8	102.5	24	103.2	103.4	103.9	24	111.0	111.9	116.1	24	107.9	108.3	109.1	24	112.4	112.7	113.0	24
5/11	101.1	101.6	102.4	24	102.2	102.4	102.9	24	109.5	109.8	110.4	24	106.3	106.5	107.0	24	111.8	112.1	112.4	24
5/12	101.9	103.4	104.4	24	101.7	102.2	102.6	24	109.4	109.9	110.6	24	107.2	108.0	108.3	24	112.0	112.7	113.0	24
5/13	102.3	103.5	104.4	24	102.5	102.7	103.0	24	110.1	110.6	111.1	24	107.9	108.1	108.4	24	112.5	112.8	113.0	24
5/14	102.3	103.5	104.4	24	103.6	104.1	104.5	24	110.6	111.2	112.0	24	108.3	108.7	109.4	24	112.9	113.3	113.5	24
5/15	102.4	103.5	104.3	24	105.3	105.7	106.1	24	111.1	111.7	112.4	24	110.1	110.6	111.0	24	113.7	114.1	114.3	24
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	103.8	104.4	23	106.0	106.1	106.2	23	113.0	114.7	117.1	23	111.7	112.0	112.7	23	115.0	115.4	115.9	23

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>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>
5/9	113.1	113.9	114.7	24	118.3	118.9	119.3	24	114.9	115.6	116.5	24	114.6	115.1	116.4	24	---	---	---	0
5/10	111.0	111.2	111.7	24	117.6	118.7	119.0	24	111.9	112.4	113.3	24	115.2	115.9	117.0	24	---	---	---	0
5/11	110.4	110.7	110.8	24	118.1	118.7	119.1	24	110.8	111.1	111.5	24	113.5	113.9	114.3	24	---	---	---	0
5/12	110.6	111.0	111.1	24	117.9	118.7	119.7	24	112.1	112.6	113.0	24	115.0	115.7	116.0	24	---	---	---	0
5/13	111.1	111.4	111.6	24	119.2	119.9	120.6	24	113.1	113.3	113.5	24	115.5	115.8	116.9	24	---	---	---	0
5/14	112.4	113.0	113.8	24	118.3	119.3	119.6	24	114.5	115.1	115.7	24	115.0	115.3	115.9	24	---	---	---	0
5/15	114.3	114.7	115.0	24	119.0	119.5	119.8	24	117.0	117.7	117.9	24	115.8	116.0	116.3	24	---	---	---	0
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	116.0	116.3	116.5	23	115.5	116.2	117.8	23	116.6	116.9	117.2	23	117.5	118.2	120.3	23	---	---	---	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>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
5/9	111.4	112.5	114.0	24	116.9	117.3	117.5	24	111.4	111.6	112.2	24	116.8	117.5	118.0	24	111.3	111.8	112.4	24
5/10	108.4	108.7	109.2	24	114.3	114.5	114.7	24	110.4	110.6	110.9	24	115.5	116.1	116.4	24	111.1	111.4	111.6	24
5/11	108.7	109.3	110.1	24	115.2	115.9	116.1	24	109.6	109.8	110.1	24	114.5	114.8	115.2	24	110.6	111.3	111.9	24
5/12	110.0	110.9	111.6	24	116.5	116.9	117.2	24	109.1	109.4	109.6	24	115.4	117.3	118.3	24	111.1	111.4	111.8	24
5/13	112.0	113.4	114.3	24	116.9	118.4	118.8	24	108.5	108.9	109.4	24	117.6	117.8	118.1	24	111.9	112.8	113.3	24
5/14	113.8	114.5	115.2	24	117.2	117.4	118.2	24	110.5	111.3	112.2	24	116.4	117.5	118.0	24	113.3	113.9	114.2	24
5/15	115.7	116.8	117.8	24	117.3	117.4	117.6	24	113.5	114.4	115.0	24	114.8	115.8	117.9	24	113.9	114.1	114.5	21
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	115.7	23	119.1	119.5	120.4	23	114.7	116.1	116.6	23	118.4	118.8	119.0	23	114.4	115.7	116.7	23

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>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
5/9	116.4	116.6	117.0	24	112.5	113.2	114.3	24	113.9	114.3	115.3	24	112.6	113.0	113.4	24	118.7	119.0	119.6	24
5/10	116.4	116.8	117.2	24	112.4	112.5	112.7	24	113.7	114.0	114.2	24	112.3	113.2	113.7	24	118.3	118.5	118.6	24
5/11	116.5	116.8	117.3	24	112.4	112.8	113.2	24	114.1	114.3	114.7	24	113.8	115.2	116.2	24	118.2	118.4	118.5	24
5/12	116.9	117.2	117.5	24	114.6	115.3	115.6	24	115.8	116.6	116.8	24	113.7	114.8	115.4	24	119.1	119.3	119.4	24
5/13	117.4	118.1	118.7	24	115.7	116.1	116.4	24	116.7	116.9	117.2	24	115.3	116.4	117.1	24	119.3	119.7	120.0	24
5/14	118.4	119.0	119.4	24	116.6	117.1	118.0	24	116.8	117.1	117.4	23	115.6	116.7	117.6	24	118.7	118.9	119.8	24
5/15	118.6	119.1	119.5	24	118.1	118.2	118.4	24	118.2	118.9	119.3	24	116.5	118.0	118.9	24	119.4	119.7	119.8	24
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	118.1	118.7	119.2	23	115.5	116.3	116.6	23	116.9	117.3	117.6	23	116.5	117.6	118.4	23	121.4	121.7	121.9	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 5/23/2014 7:26

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)	
05/09/2014	*	---	58	62	---	179,360	153,752	92,086	507	118,649	108,032	91,875
05/10/2014	*	---	60	149	---	151,632	207,681	102,649	1,149	---	111,757	59,885
05/11/2014	*	---	70	274	---	71,770	172,649	49,042	1,030	344,892	66,557	40,370
05/12/2014	*	---	56	186	---	59,398	195,675	27,779	822	---	72,440	43,155
05/13/2014	*	---	44	91	---	47,332	94,217	23,577	784	280,678	70,202	36,172
05/14/2014	*	---	25	66	---	22,258	37,840	14,893	877	---	77,314	51,828
05/15/2014	*	---	62	56	---	18,943	42,464	13,320	823	120,903	62,838	73,940
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	*	---	---	---	---	18,303	49,504	23,549	599	---	38,670	50,749
05/23/2014	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	634	2,206	0	907,577	1,293,338	685,687	11,243	1,133,476	1,026,329	833,767
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	53	170	0	64,827	92,381	48,978	803	161,925	73,309	59,555
YTD		65,404	63,040	25,420	10,159	4,660,137	2,670,444	1,860,336	22,618	1,872,525	2,037,942	1,886,343

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)	
05/09/2014	*	---	1	0	---	784	0	0	771	0	139,535	
05/10/2014	*	---	0	0	---	1,660	1,147	0	31	---	0	39,053
05/11/2014	*	---	1	0	---	518	574	0	34	1,065	0	18,618
05/12/2014	*	---	0	0	---	266	0	0	7	---	117	4,280
05/13/2014	*	---	0	0	---	1,384	0	0	9	2,336	209	3,848
05/14/2014	*	---	0	1	---	282	573	0	36	---	175	3,370
05/15/2014	*	---	0	0	---	0	0	162	23	476	155	704
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	*	---	---	---	---	989	572	0	170	---	5,304	10,472
05/23/2014	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	2	3	0	7,702	6,495	425	1,037	14,253	19,743	248,680
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	0	0	0	550	464	30	74	2,036	1,410	17,763
YTD		0	17	4	332	24,303	6,822	1,000	2,612	22,632	20,515	1,757,202

Two-Week Summary of Passage Indices

COMBINED COHO												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
05/09/2014	*	---	0	0	---	5,227	2,868	0	56	9,254	9,463	19,160
05/10/2014	*	---	0	0	---	2,214	5,163	613	393	---	4,115	14,059
05/11/2014	*	---	0	0	---	1,036	1,147	584	459	14,202	4,568	17,335
05/12/2014	*	---	0	0	---	2,131	1,148	0	485	---	4,808	17,119
05/13/2014	*	---	0	0	---	277	1,148	0	676	10,512	6,363	13,853
05/14/2014	*	---	0	0	---	282	1,720	169	1,099	---	2,577	14,111
05/15/2014	*	---	0	0	---	0	287	162	1,659	1,427	1,010	15,024
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	*	---	---	---	---	2,473	1,717	776	4,953	---	4,499	33,430
05/23/2014		---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	32,081	26,504	10,889	30,406	68,029	62,278	267,576
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	0	0	0	2,292	1,893	778	2,172	9,718	4,448	19,113
YTD		0	0	0	267	53,081	39,507	15,025	31,093	98,342	140,848	592,646

COMBINED STEELHEAD												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
05/09/2014	*	---	523	49	---	104,330	103,262	62,293	307	23,538	83,017	17,196
05/10/2014	*	---	810	88	---	101,272	81,473	34,012	1,719	---	50,248	7,290
05/11/2014	*	---	844	305	---	50,265	65,969	43,496	1,615	44,737	39,682	21,390
05/12/2014	*	---	598	277	---	31,164	57,380	26,235	1,501	---	29,446	17,833
05/13/2014	*	---	819	140	---	23,528	42,518	26,807	1,386	65,762	24,710	7,696
05/14/2014	*	---	978	65	---	23,949	21,212	19,487	1,092	---	35,054	7,955
05/15/2014	*	---	1,326	84	---	22,451	18,363	14,132	986	11,898	22,514	11,031
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	*	---	---	---	---	89,785	42,064	24,584	850	---	11,697	8,861
05/23/2014		---	---	---	---	---	---	---	---	---	---	---
Total:		0	9,414	2,098	0	754,877	618,592	370,773	18,610	177,124	392,499	176,314
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	785	161	0	53,920	44,185	26,484	1,329	25,303	28,036	12,594
YTD		2,080	40,226	4,243	12,842	2,962,530	1,642,858	1,006,511	22,481	552,061	923,424	399,367

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)	
05/09/2014	*	---	0	0	---	1,829	6,320	3,912	170	47,441	3,291	1,475
05/10/2014	*	---	0	0	---	553	9,771	3,064	996	---	6,930	3,124
05/11/2014	*	---	0	0	---	777	588	2,919	1,122	128,610	8,420	4,125
05/12/2014	*	---	0	0	---	0	3,451	1,235	761	---	8,710	6,063
05/13/2014	*	---	0	0	---	0	1,155	1,615	519	209,090	6,653	5,772
05/14/2014	*	---	0	0	---	845	582	1,011	1,629	---	5,436	8,950
05/15/2014	*	---	0	0	---	561	574	1,137	1,445	94,272	6,705	8,214
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	*	---	---	---	---	495	286	518	887	---	39,683	45,110
05/23/2014	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	2	0	37,064	38,870	35,449	19,150	1,062,117	275,067	307,827
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	0	0	0	2,647	2,776	2,532	1,368	151,731	19,648	21,988
YTD		0	0	2	0	175,269	77,808	60,684	33,604	1,236,270	296,114	335,320

COMBINED LAMPREY JUVENILES												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR [†] (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)	
05/09/2014	*	---	0	0	---	2	0	0	1	0	0	0
05/10/2014	*	---	0	0	---	2	0	0	0	---	0	0
05/11/2014	*	---	0	0	---	2	800	0	0	0	0	0
05/12/2014	*	---	0	0	---	1	0	0	0	---	0	0
05/13/2014	*	---	0	0	---	53	0	200	0	0	210	0
05/14/2014	*	---	0	0	---	0	0	0	0	---	50	0
05/15/2014	*	---	0	0	---	0	0	0	0	0	150	0
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	*	---	---	---	---	5	400	600	2	---	420	100
05/23/2014	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	1	0	0	70	1,500	800	17	200	2,527	100
# Days:		0	12	13	0	14	14	14	14	7	14	14
Average:		0	0	0	0	5	107	57	1	29	181	7
YTD		1	2	0	0	70	1,863	1,417	22	2,730	14,476	11,868

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:

5/23/14 7:28 AM

		05/09/14 TO 05/23/14					
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	5,700	668,422	23,702	562,978	26,700	1,287,502
	Sum of NumberBarged	5,672	659,930	23,701	545,610	26,640	1,261,553
	Sum of NumberBypassed	23	8,170	0	17,315	0	25,508
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	4	36	0	15	3	58
	Sum of FacilityMorts	1	262	1	33	57	354
	Sum of ResearchMorts	0	24	0	5	0	29
	Sum of TotalProjectMorts	5	322	1	53	60	441
LGS	Sum of NumberCollected	4,501	897,033	18,350	429,464	27,003	1,376,351
	Sum of NumberBarged	4,493	896,779	18,349	429,427	26,838	1,375,886
	Sum of NumberBypassed	6	0	0	0	0	6
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	7	1	4	3	15
	Sum of FacilityMorts	2	247	0	33	162	444
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2	254	1	37	165	459
LMN	Sum of NumberCollected	301	477,386	8,000	254,713	25,400	765,800
	Sum of NumberBarged	299	476,833	8,000	254,529	25,295	764,956
	Sum of NumberBypassed	2	86	0	113	0	201
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	6	0	5	0	11
	Sum of FacilityMorts	0	461	0	66	105	632
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	467	0	71	105	643
Total Sum of NumberCollected		10,502	2,042,841	50,052	1,247,155	79,103	3,429,653
Total Sum of NumberBarged		10,464	2,033,542	50,050	1,229,566	78,773	3,402,395
Total Sum of NumberBypassed		31	8,256	0	17,428	0	25,715
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		4	49	1	24	6	84
Total Sum of FacilityMorts		3	970	1	132	324	1,430
Total Sum of ResearchMorts		0	24	0	5	0	29
Total Sum of TotalProjectMorts		7	1,043	2	161	330	1,543

YTD Transportation Summary

Source: Fish Passage Center

Updated:

5/23/14 7:28 AM

TO: 05/23/14

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	17,500	3,342,902	38,772	126,350	2,124,758	5,650,282
	Sum of NumberBarged	8,899	1,842,326	35,045	66,279	1,054,951	3,007,500
	Sum of NumberBypassed	8,559	1,499,143	3,722	59,638	1,069,597	2,640,659
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	29	127	0	43	51	250
	Sum of FacilityMorts	13	1,249	5	390	70	1,727
	Sum of ResearchMorts	0	57	0	0	89	146
	Sum of TotalProjectMorts	42	1,433	5	433	210	2,123
LGS	Sum of NumberCollected	4,729	1,829,121	27,152	53,527	1,127,269	3,041,798
	Sum of NumberBarged	4,493	1,648,239	26,549	47,423	916,708	2,643,412
	Sum of NumberBypassed	231	180,543	600	5,910	210,493	397,777
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	21	1	9	7	38
	Sum of FacilityMorts	5	318	2	185	61	571
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	5	339	3	194	68	609
LMN	Sum of NumberCollected	701	1,244,351	10,800	41,768	661,410	1,959,030
	Sum of NumberBarged	699	1,066,461	10,600	38,929	571,478	1,688,167
	Sum of NumberBypassed	2	177,034	0	2,568	89,797	269,401
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	22	0	1	15	38
	Sum of FacilityMorts	0	830	0	270	118	1,218
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	852	0	271	133	1,256
Total Sum of NumberCollected		22,930	6,416,374	76,724	221,645	3,913,437	10,651,110
Total Sum of NumberBarged		14,091	4,557,026	72,194	152,631	2,543,137	7,339,079
Total Sum of NumberBypassed		8,792	1,856,720	4,322	68,116	1,369,887	3,307,837
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		29	170	1	53	73	326
Total Sum of FacilityMorts		18	2,397	7	845	249	3,516
Total Sum of ResearchMorts		0	57	0	0	89	146
Total Sum of TotalProjectMorts		47	2,624	8	898	411	3,988

Cumulative Adult Passage at Mainstem Dams Through: 05/22

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	05/22	170761	22190	75641	30773	119191	19013	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/22	125208	16840	59502	28405	86705	15111	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/22	105845	14691	47840	24757	73882	13502	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/22	88551	10587	40695	17339	62934	9714	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/22	65436	7620	30075	13497	41820	5707	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/22	63186	7586	27225	11944	38206	4124	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/22	60242	6632	24185	11506	30985	3845	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/22	57474	5482	23423	11228	28627	3845	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/21	15928	1018	7745	699	9148	413	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	05/20	12000	446	5370	1020	6360	368	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/20	5611	258	2172	636	2122	117	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/20	3081	91	1218	301	1011	63	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/20	15563	390	15654	637	23649	387	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.	10-Yr		2014	2013	10-Yr Avg.	2014	2013	10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack				Wild	Wild							Wild
BON	05/22	5	-2	0	0	0	0	10	0	0	5069	3082	4751	1333	844	1249	832	770	220
TDA	05/22	0	0	0	0	0	0	0	0	0	741	772	2398	185	347	903	0	0	0
JDA	05/22	0	1	0	0	0	0	4	0	0	3002	898	4820	1121	473	1587	122	17	30
MCN	05/22	0	0	1	0	1	0	0	0	0	722	1416	5468	334	695	1854	9	21	2
IHR	05/22	0	0	0	0	0	0	0	0	0	1689	3830	4583	761	1508	1370	5	7	0
LMN	05/22	0	0	0	0	0	0	1	0	0	1563	2465	6722	933	1372	2843	1	2	0
LGS	05/22	0	0	0	0	0	0	0	0	0	1513	2191	6738	999	1177	2329	0	1	0
LGR	05/22	0	0	0	0	0	0	0	0	0	7442	7423	8781	3445	3226	3140	0	1	0
PRD	05/21	0	0	0	0	0	0	2	0	0	110	45	42	0	0	0	1	6	1
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/20	0	0	0	0	0	0	1	0	1	264	84	86	143	60	49	0	0	0
RRH	05/20	0	0	0	0	0	0	0	0	0	240	149	335	153	125	252	0	0	0
WEL	05/20	0	0	0	0	0	0	0	0	0	107	49	55	65	42	40	0	0	2
WFA	05/20	9	0	2	0	0	0	0	0	0	9572	8885	12437	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.