



# Fish Passage Center

## Weekly Report #16-7

April 29, 2016

### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 45% and 107% of average at individual sub-basins over April. Precipitation above The Dalles has been 66% of average over April. Over the 2016 water year, precipitation has ranged between 90% and 113% of average.

**Table 1.** Summary of April precipitation and cumulative October through April 26 precipitation with respect to average (1971–2000) at select locations within the Columbia and Snake River Basins.

Location	Water Year 2016		Water Year 2016	
	April 1–26 2016		October 1, 2015 to April 26, 2016	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	1.38	59	25.9	103
Sneke River above Ice Harbor	1.47	82	16.0	102
Columbia above The Dalles	1.24	66	20.0	104
Kootenai	1.03	45	25.7	103
Clark Fork	1.98	95	16.6	96
Flathead	2.27	89	25.4	109
Pend Oreille River Basin above Waneta Dam	1.92	84	22.3	104
Salmon River Basin	2.06	86	20.2	102
Upper Snake Tributaries	2.28	107	15.9	90
Clearwater	2.50	83	30.7	106
Willamette River above Portland	3.62	76	62.1	113

Snowpack within the Columbia Basin has been declining. Snowpack is 73% of average in the Columbia River Basins above the Snake River confluence. For lower Columbia Basins between McNary and Bonneville Dam snowpack is 53% of average. While for Snake River Basins the snowpack is 77% of average.

Table 2 displays the April 28<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 28<sup>th</sup> ESP forecast at The Dalles between April and August is 88,518 Kaf (101% of average).

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

Location	April 28, 2016 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	101	88,518
Grand Coulee (Apr–Aug)	102	58,001
Libby Res. Inflow, MT (Apr–Aug)	98 114*	5,778 6,681*
Hungry Horse Res. Inflow, MT (Apr–Aug)	95	1,846
Lower Granite Res. Inflow (Apr–July)	93	18,550
Brownlee Res. Inflow (Apr–July)	83	4,519
Dworshak Res. Inflow (Apr–July)	100 95*	2,421 2,303*

\* Denotes COE April Forecast

Grand Coulee Reservoir is at 1,245.1 feet (4-28-16) and has refilled 1.3 feet over the last week. Outflows at Grand Coulee have ranged between 141.0 and 150.8 Kcfs over the last week. The April 30<sup>th</sup> FC Elevation at Grand Coulee is currently 1,243.8 feet. Grand Coulee has been drafted to 1,255 ft. and below for a period of eight weeks for drum gate maintenance. The BOR expects to be finished with drum gate maintenance on May 6, 2016.

The Libby Reservoir is currently at an elevation of 2,405.6 feet (4-28-16) and has refilled 7.4 feet over the previous week. Daily average outflows at Libby Dam have been 16.4–16.6 Kcfs over the last week. The April 30<sup>th</sup> FC Elevation at Libby is currently 2387.4 feet.

Hungry Horse is currently at an elevation of 3,533.6 feet (4-28-16) and has filled 5.1 feet over the last week. Outflows at Hungry Horse have been 3.3–4.7 Kcfs over the last week. The April 30<sup>th</sup> FC Elevation at Hungry Horse is currently 3,545.0 feet.

Dworshak is currently at an elevation of 1,566.9 feet (4-28-16) and has refilled 4.4 feet over the last week. Outflows have been 13.3–16.1 Kcfs over the last week. The April 30<sup>th</sup> System FC Elevation at Dworshak is currently 1,543.5. The COE is planning to deviate from the mid-April FC elevation by 294 kaf to avoid excessive drafts and has intersected the refill curve (i.e., began refill).

The Brownlee Reservoir was at an elevation of 2,050.8 feet on April 28, 2016, and has refilled 0.5 feet over the last week. The April 30<sup>th</sup> FC Elevation at Brownlee is currently 2,046.9 feet.

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 7, 2016), the flow objective this spring will be 96 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 113.9 last week and 92.9 Kcfs between April 3<sup>rd</sup> and April 28<sup>th</sup>.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives (which began April 10<sup>th</sup>) will be 243 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the last week, flows have averaged 330.8 Kcfs at McNary and 203.3 Kcfs at Priest Rapids. Between April 10<sup>th</sup> and April 28<sup>th</sup>, flows at McNary Dam averaged 305.0 Kcfs. Priest Rapids Dam flows were 191.3 Kcfs.

### Spill and River Temperature

Spill in excess of hydraulic capacity continues at Dworshak Dam. The increase in project outflow was necessary because the Corps of Engineers issued a new April water supply forecast that was significantly greater than the COE had been predicting would occur. This increase in projected inflow of approximately 200 Kaf would have required that the project draft to a deeper end of April flood control elevation. A draft of this magnitude would have resulted in spill levels that caused the TDG below the project to exceed the 110% water quality standard. Consequently, to minimize the TDG level, the COE requested a flood control deviation

of 20 feet by mid-April and intersected the refill curve before the end of April.

Outflow from Dworshak has been 13.3 and 16.1 Kcfs, with a spill level ranging from 5.1 Kcfs to 6.2 Kcfs. The total dissolved gas levels have remained below the 110% standard. The Corps of Engineers conducted a spill test at Dworshak Dam on Thursday, April 28<sup>th</sup> from 1000–1600 hours, operating Dworshak Dam with two small units plus spill, to target 115% TDG at the Dworshak tailwater gauge. The test was to be repeated on Friday to target the 120% TDG level. The purpose of the test is to assess the degassing capability of the equipment at the Dworshak National Fish Hatchery in preparation for potential operations that might occur during the upcoming Unit 3 overhaul at Dworshak Dam.

Project	Spill Level Day/Night
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 3–April 28: 45 Kcfs/Gas Cap
	April 28–June 20: 30%/30% vs. 45 Kcfs/Gas Cap

This past week all Lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams) have spilled at, or above, the 2016 Fish Operations Plan (FOP) levels. To account for a reduction from the planned spill levels at Ice Harbor last week, the first 2-day block of 30% spill starting on 4/28, was amended to 1 day of 45 Kcfs/gas cap spill.

Spill for fish passage began on April 10<sup>th</sup> at the middle Columbia River projects. Spill for fish passage at the middle Columbia River projects is to occur at the following amounts described in the 2016 FOP.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	30%/30%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Over the past week, some uncontrolled spill (above the fish spill program levels) has occurred at McNary, John Day, and Bonneville dams. However, spill at The Dalles Dam is being managed in response to the total dissolved gas measurements in the Bonneville Dam forebay. This has resulted in average daily spill ranging from only 35% to 38% earlier in the week.

At times this past week, the TDG readings were in excess of the waiver limits at some projects. The increased TDG was related to several factors including: increasing flow and spill amounts, changes in environmental conditions, and uncontrolled spill.

**Note:** The State of Oregon TDG waiver requires compliance only with 120% TDG in the tailrace, while the State of Washington requires compliance with both a 115% TDG forebay requirement and a 120% tailrace TDG requirement. The State of Oregon and the State of Washington also 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. The location of a TDG 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 middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill will be decreased if needed.

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

**Temperature:** As can be seen from the graphs (see page 22) the current forebay temperatures remain higher than the average for the past 10 years, but have decreased from the temperatures observed last week.

## Smolt Monitoring

Smolt Monitoring Program (SMP) sampling is ongoing at all SMP traps and bypass facilities.

This week's samples at Bonneville Dam (BON) were dominated by yearling Chinook. In fact, yearling Chinook passage at BON continued to increase this week when compared to the previous week. This week's daily average passage index for yearling Chinook at BON was approximately 69,600 per day, whereas that for last week was about 56,000 per day. Steelhead and sockeye passage also increased this week. This week's daily average passage indices were about 5,800 per day for steelhead and 1,200 per day for sockeye. Last week's daily average passage indices were about 3,300 per day for steelhead and 300 per day for sockeye. Subyearling Chinook passage at BON continued to decrease this week, when compared to the previous week. This week's daily average passage index for subyearling Chinook at BON was about 480, whereas that for last week was about 1,275 per day. Coho passage also decreased this week when compared to the previous week. This week's daily average passage index for coho at BON was about 13,300 per day. Last week's daily average passage index for coho was about 15,700 per day. No Pacific lamprey ammocoetes were sampled at BON this week. Pacific lamprey macrophthalmia were encountered in only three of this week's samples (April 23<sup>rd</sup>, 25<sup>th</sup>, and 26<sup>th</sup>). Collection estimates on these three days ranged from 100 to 400 lamprey macrophthalmia.

Sampling at John Day Dam (JDA) in 2016 is every-other-day for the entire SMP season. This is the first time every-other-day sampling has occurred at this site over the entire season. Yearling Chinook continued to dominate the collections at JDA this week, with a daily average passage index of just over 129,000 fish per day. This is a substantial increase over last week's daily average passage index of about 51,000 yearling Chinook per day. Steelhead were the second most abundant salmonid this week, with a daily average passage index of nearly 39,000 fish per day, which is an increase over last week's daily average passage index of nearly 15,000 per day. Sockeye, coho, and subyearling Chinook passage all increased this week when compared to the previous week. This week's daily average passage indices for these three species were about 5,500 for sockeye, 3,900 for coho, and 925

for subyearling Chinook. Last week's daily average passage indices for these three species were 500, 600, and about 575 per day, respectively. As with previous weeks, all subyearling Chinook that were encountered in this week's samples were fry. No Pacific lamprey ammocoetes were encountered in this week's samples. Pacific lamprey macrophthalmia were collected in all four of this week's samples, with a daily average collection of about 875 macrophthalmia per day, which was higher than last week's daily average collection of about 380 per day.

As in recent years, sampling at McNary Dam (MCN) in 2016 will be every-other-day for the entire SMP season. Yearling Chinook continued to dominate samples at MCN this week, with a daily average passage index of nearly 130,000 per day. This is a substantial increase over last week's daily average passage index of nearly 42,300 yearling Chinook per day. Passage of coho, sockeye, and steelhead also increased this week when compared to the previous week. This week's daily average passage indices for these three species were about 2,700, 13,000, and nearly 40,000 per day, respectively. Last week's daily average passage indices were about 1,025 for coho, 6,600 for sockeye, and 23,400 for steelhead. Subyearling Chinook passage decreased this week when compared to the previous week. This week's daily average passage index for subyearling Chinook at MCN was about 12,500 per day. All of the subyearling Chinook juveniles that have been encountered so far at MCN have been fry. Finally, Pacific lamprey macrophthalmia were collected in all three of this week's samples, with a daily average collection of about 730 fish per day. No Pacific ammocoetes have been collected at MCN so far this year.

This week's samples at Lower Granite Dam (LGR) continued to be dominated by yearling Chinook. This week's daily average passage index for yearling Chinook was nearly 244,000 per day, which is an increase over last week's daily average passage index of nearly 130,000 per day. Steelhead were the second most abundant salmonid this week, with a daily average passage index of just over 194,000 per day. This is also an increase over last week's daily average passage index of nearly 84,000 per day. Coho passage also increased this week, with daily average passage index of about 4,000 per day. Last week's daily average passage index for coho at LGR was about 540 per day.

Subyearling Chinook passage decreased this week, with a daily average passage index of about 1,300 per day. To date, all of the subyearlings that have been collected at LGR this year have been fry. Sockeye were collected at LGR on one day this week (April 25<sup>th</sup>). Finally, one Pacific lamprey ammocoetes was sampled on April 27<sup>th</sup> while Pacific lamprey macrophthalmia were encountered in five of this week's samples. The daily average sample count for macrophthalmia at LGR this week was three per day.

Sampling at Little Goose Dam (LGS) is limited to a 24-hour sample every-other-day until transportation begins. On April 18<sup>th</sup>, the GBT monitoring crew at LGS conducted a GBT sample of approximately 100 total yearling Chinook and steelhead that were collected at the separator. This GBT sample was conducted on a non-sample day and, therefore, the Passage Index estimate for the April 19<sup>th</sup> sample is biased low and should not be used to assess trends in passage. At the time of writing this report, data from LGS were available only through the April 26<sup>th</sup> sample. Yearling Chinook continued to dominate the collections at LGS this week. This week's daily average passage index for yearling Chinook at LGS was about 272,400 fish per day. This is an increase over last week's daily average passage index of nearly 166,000 yearling Chinook per day. Steelhead passage also increased this week, when compared to last week. This week's daily average passage index for steelhead at LGS was about 182,000 per day, whereas that for last week was nearly 97,000 per day. Subyearling Chinook were encountered in only one of this week's samples (April 22<sup>nd</sup>). As with many of the other sites, all of the subyearling Chinook juveniles collected at LGS so far this season have been fry. Coho passage also increased this week, when compared to the previous week. This week's daily average passage index for coho at LGS was about 1,570. No coho juveniles were collected at LGS the previous week. No sockeye were collected at LGS this week. Finally, Pacific lamprey macrophthalmia were encountered in only one of this week's samples (April 22<sup>nd</sup>). The estimated collection on April 22<sup>nd</sup> was 800 macrophthalmia.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every-third-day through the April 14<sup>th</sup> sample and then then every-other-day until transportation begins. As with last week, this week's samples at LMN were dominated by yearling



Chinook. The daily average passage index of yearling Chinook this week was about 186,000 fish per day. This represents an increase over last week's daily average passage index of nearly 99,000 per day. Steelhead were the second most abundant salmonid species in this week's samples. This week's daily average passage index for steelhead was about 119,000 fish per day, which is an increase over last week's daily average passage index of nearly 49,000 per day. Coho were the only other salmonids that were collected in this week's samples. This week's daily average passage index for coho at LMN was about 640 per day. No coho juveniles were collected at LMN the previous week. Finally, Pacific lamprey macrophthalmia were collected in all three samples this week, with a daily average collection of 400 per day.

Yearling Chinook juveniles continued to dominate the samples at Rock Island Dam (RIS), with a daily average passage index of about 1,240 per day. This represents an increase over last week's daily average passage index of about 370 per day. Sockeye juveniles were the second most abundant salmonid in this week's samples, with a daily average passage index of about 850 per day. This is also an increase over last week's daily average passage index of about 300 sockeye juveniles per day. Subyearling Chinook, coho, and steelhead passage also increased this week when compared to the previous week. This week's daily average passage indices for these three species were about 90, 100, and 200 per day, respectively. Last week's daily average passage indices for these three species were about 60 for subyearling Chinook, 20 for coho, and 70 for steelhead. To date, all of the subyearling Chinook that have been sampled at RIS this year have been fry. Finally, Pacific lamprey ammocoetes and macrophthalmia were encountered in several of this week's samples, but in relatively low numbers.

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. Yearling Chinook continued to dominate the collections this week. The daily average collection for yearling Chinook this week was about 330, which is similar to last week's daily average collection of about 360 per day. Steelhead collections decreased at GRN this week, when compared to the previous week. This week's daily average collection for steelhead was

about 90 fish per day, whereas that for last week was only 160 fish per day. The only other salmonids that were encountered in this week's samples were a few subyearling Chinook (fry) which were encountered in five of this week's samples.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 and operated by Idaho Department of Fish and Game. Similar to 2015, sampling at the Salmon River Trap in 2016 is 5 days per week. Sampling at WTB has been suspended since the April 21<sup>st</sup> sample due to unsafe conditions associated with increased flows. Therefore, there are no new data from WTB for this week. Sampling at WTB will resume when conditions are deemed safe.

The Snake River Trap at Lewiston (LEW) is located at river kilometer 225 and is operated by Idaho Department of Fish and Game. Due to concerns over increased handling of listed hatchery yearling Chinook, a reduced level of sampling has been in place at LEW since April 18<sup>th</sup>. The reduced sampling during this period equated to reducing the sampling period to approximately 8 hours per day. In addition, sampling was terminated on April 23<sup>rd</sup> and 24<sup>th</sup> due to concerns over debris levels. Steelhead dominated this week's (April 25–28) collections at LEW, with a daily average collection of about 170 fish per day. This is a decrease over last week's daily average collection of just over 300 per day. This week's daily average collection for yearling Chinook was 90 fish per day, which is a decrease over last week's daily average collection of 210 per day. All other species of salmonids were encountered in this week's collections, but in relatively low numbers.

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year-round and, for 2016, the Fish Passage Center has been receiving data since the January 1, 2016 sample. However, due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Currently, the FPC has data from IMN through April 18<sup>th</sup>. Due to high flows and debris, sampling at IMN was suspended from April 11<sup>th</sup> through April 14<sup>th</sup>. Collections resumed on April 15<sup>th</sup>. Over the period of April 15<sup>th</sup> through April 18<sup>th</sup>, yearling Chinook dominated the samples at IMN. The daily average collection for yearling Chinook at IMN during this

period was about 1,100 per day. Steelhead collections over this period averaged about 320 per day. The only other species that were encountered at IMN during this period were subyearling Chinook, but in very low numbers.

## 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. Several volitional releases of yearling Chinook and steelhead that began in past weeks were scheduled to end this week. One of these volitional releases is the release of approximately 2.5 million yearling spring Chinook from Rapid River Hatchery. This volitional release began in mid-March and is expected to end at the end of this week. The only new releases that were scheduled for this zone this week were of summer steelhead. In all, about 680,000 summer steelhead juveniles were scheduled to be released into this zone this week. All of these summer steelhead were scheduled to be released into the Salmon River and its tributaries.

Approximately 630,000 sockeye juveniles are scheduled to be released into Redfish Lake Creek over the next two weeks. About 86% of these sockeye juveniles were reared at Springfield Hatchery in Idaho. This is only the second year of releases of sockeye from this new facility, which will be the primary rearing facility for Snake River hatchery sockeye. The remaining 14% were reared at Oxbow Hatchery in Oregon. This is the last release year for Snake River sockeye reared at Oxbow Hatchery. The only other new releases that are scheduled for this zone over the next two weeks are of summer steelhead. In all, about 690,000 steelhead juveniles are scheduled to be released over the next two weeks. These releases are scheduled to take place throughout this zone, including releases to the Salmon River (12%), the Grande Ronde River and its tributaries (64%), and the Imnaha River (24%).

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. Approximately 535,000 yearling summer Chinook were scheduled to be released from the Dryden Acclimation Ponds on the Wenatchee River this week. The only

other new release that was scheduled for this zone this week was a release of nearly 200,000 summer steelhead juveniles that were scheduled to be released into the Wenatchee River.

Approximately 1.96 million subyearling fall Chinook juveniles are scheduled to be released into this zone over the next two weeks. Of these, approximately 99% are scheduled to be released by the Yakama Tribe into the Yakima River. The remaining 1% are scheduled to be released by Washington Department of Fish and Wildlife COOPs. These COOP releases are scheduled to occur directly into the Mid-Columbia River (between McNary Dam and Priest Rapids Dam), the Wenatchee River, or the Yakima River. In addition, about 171,500 yearling summer Chinook juveniles are scheduled to be released from the Carlton Acclimation Ponds on the Methow River. This release is scheduled to begin on or around May 1<sup>st</sup>. Many of the volitional releases of coho that began earlier this month are scheduled to end over the next two weeks. In addition to these older releases, four new releases of coho juveniles are scheduled for this zone over the next two weeks. These new coho releases are scheduled to take place on the Methow and Wenatchee rivers and are expected to total about 404,000 juveniles. The only other release that is scheduled for this zone over the next two weeks is a release of approximately 100,000 summer steelhead to the Methow River.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 175,000 summer steelhead juveniles were scheduled to be released to this zone this week. Of these, about 150,000 (86%) were scheduled to be released into the Umatilla River while the remaining 25,000 (14%) were scheduled to be released into the Deschutes River. Finally, about 50,000 winter steelhead juveniles were scheduled to be released into Hood River on or around April 29<sup>th</sup>.

On May 9<sup>th</sup>, approximately 4.5 million subyearling fall Chinook tules are scheduled to be released from Spring Creek NFH. In addition, approximately 1.0 million coho juveniles are scheduled to be released in to the Klickitat River, on or around May 1<sup>st</sup>. Finally, 25,000 summer steelhead juveniles are scheduled to be released into the Deschutes River on or around May 5<sup>th</sup>.

## Adult Passage

Adult counts at Bonneville Dam have been updated through April 28, 2016. The 2016 adult spring Chinook count at Bonneville Dam of 21,117 is about 18.5% of the 2015 count of 114,163 and 49.5% of the 10-year average count of 42,655. The 2016 spring Chinook jack count of 144 is about 13.3% of the 2015 count of 1,085 and 25% of the 10-year average count of 577. At Willamette Falls, 4,074 adult spring Chinook have been counted so far this year. In 2015, 12,427 adult spring Chinook were counted at Willamette Falls. This year's count is about 32.8% of the 2015 count and 93.5% of the 10-year average count of 4,356. As of April 28<sup>th</sup>, a total of 9,109 adult spring Chinook have been counted at The Dalles Dam and 4,168 have been counted at McNary Dam. The Dalles Dam 2016 adult spring Chinook count is about 11.9% of the 2015 count and 39.2% of the 10-year average count. The 2016 McNary Dam adult spring Chinook count is about 9.1% of the 2015 count and 38.5% of the 10-year average count. A total of 537 spring chinook have been counted at Lower Granite Dam as of April 28<sup>th</sup>.

The 2016 Bonneville Dam adult steelhead count of 3,637 is about 89.5% of the 2015 count of 4,065 and has 19 fewer fish than the 10-year average count of 3,656. The 2016 Bonneville Dam adult wild steelhead count of 1,560 is about 70.1% of the 2015 count of 2,202, while having 366 more fish than the 10-year average count of 1,194. 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 19 to 42 adults per day last week. This year's Lower Granite steelhead count of 5,278 is 59.6% of the 2015 count of 8,849 and 60% of the 10-year average count of 8,738. The 2016 Lower Granite Dam adult wild steelhead count of 2,973 is 72.5% of the 2015 count of 4,100 and is about 94% of the 10-year average count of 3,167. At Willamette Falls, the 2016 count for steelhead was 6,228 as of April 26<sup>th</sup>. This year's steelhead count is about 1.4 times greater than the 2015 count of 4,302, while having 167 fewer fish than the 10-year average count of 6,395.

## Hatchery Releases Last Two Weeks

Hatchery Release Summary										
		From: 4/16/2016			to 04/29/16					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	
Colville Tribe	Wells Hatchery	ST	SU	2016	2,000	04-20-16	04-23-16	Aneas Creek Similkameen Acclim	Okanogan River	
Colville Tribe	Wells Hatchery	ST	SU	2016	25,000	04-20-16	04-23-16	Pd	Okanogan River	
Colville Tribe	Wells Hatchery	ST	SU	2016	30,000	04-15-16	04-20-16	Omak Creek Salmon Creek	Okanogan River	
Colville Tribe	Wells Hatchery	ST	SU	2016	40,000	04-20-16	04-23-16	(Okanogan)	Okanogan River	
<b>Colville Tribe Total</b>					<b>97,000</b>					
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	49,130	04-18-16	04-20-16	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	90,000	04-13-16	04-26-16	Salmon River (ID)	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	90,000	04-21-16	04-22-16	Pahsimeroi River	Pahsimeroi River	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	120,000	04-20-16	04-21-16	Squaw Creek	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	150,000	04-22-16	04-26-16	Pahsimeroi River	Pahsimeroi River	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	157,700	04-19-16	04-21-16	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	200,000	04-26-16	05-03-16	Yankee Fk (Salmon R)	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	204,020	04-14-16	04-21-16	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	230,000	04-27-16	05-03-16	Yankee Fk (Salmon R)	Salmon River (ID)	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2016	200,000	04-21-16	04-24-16	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2016	250,000	04-24-16	04-30-16	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2016	2,500,000	03-14-16	04-29-16	Rapid River Hatchery	Little Salmon River	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2016	189,786	04-19-16	04-19-16	Yankee Fk (Salmon R)	Salmon River (ID)	
<b>Idaho Dept. of Fish and Game Total</b>					<b>4,430,636</b>					
Nez Perce Tribe	Dworshak NFH	ST	SU	2016	200,000	04-11-16	04-22-16	Lolo Creek	Clearwater River M F	
<b>Nez Perce Tribe Total</b>					<b>200,000</b>					
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	ST	SU	2016	50,000	04-27-16	04-27-16	Thornhollow Acclim Pond	Umatilla River	
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2016	10,000	04-25-16	04-25-16	Wychus Creek	Deschutes River	
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2016	15,000	04-25-16	04-25-16	Crooked River (OR)	Deschutes River	
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>75,000</b>					
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2016	300,000	04-11-16	04-22-16	Clear Creek Redhouse (SFk	Clearwater River M F	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2016	400,000	04-11-16	04-22-16	ClearH20 R)	S Fk Clearwater River	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2016	1,200,000	04-11-16	04-22-16	Dworshak Hatchery	Clearwater River M F	
U.S. Fish and Wildlife Service	Leavenworth NFH	CH1	SP	2016	945,277	04-21-16	04-21-16	Icicle Creek	Wenatchee River	
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2016	405,500	04-15-16	04-21-16	Winthrop Hatchery	Methow River	
<b>U.S. Fish and Wildlife Service Total</b>					<b>3,250,777</b>					
Umatilla Tribe	Cascade Hatchery	CO	UN	2016	500,000	04-16-16	04-16-16	Pendelton Acclim Pond	Umatilla River	
Umatilla Tribe	Umatilla Hatchery	ST	SU	2016	50,000	04-27-16	04-27-16	Minthorn Acclimation Pond	Umatilla River	
Umatilla Tribe	Umatilla Hatchery	ST	SU	2016	50,000	04-27-16	04-27-16	Pendelton Acclim Pond	Umatilla River	
<b>Umatilla Tribe Total</b>					<b>600,000</b>					
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2016	50,000	04-29-16	04-29-16	E Fk Irrig Dist Sand Trap	Hood River	
<b>Warm Springs Tribe Total</b>					<b>50,000</b>					
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2016	199,000	04-25-16	05-07-16	Chiwawa Hatchery	Wenatchee River	
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	04-20-16	05-01-16	Similkameen River	Okanogan River	
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2016	535,000	04-25-16	05-30-16	Dryden Acclim Pond Blackbird Island Acc	Wenatchee River	
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2016	24,000	04-20-16	05-31-16	Pond	Wenatchee River	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2016	47,000	04-15-16	04-20-16	Baileysburg Bridge	Touchet River	
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2016	36,300	04-15-16	04-20-16	Twisp Acclim Pond	Methow River	
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2016	157,000	04-15-16	04-20-16	Methow Hatchery Ringold Springs	Methow River	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2016	168,315	04-09-16	04-19-16	Hatchery	Mid-Columbia River	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2016	90,000	04-20-16	04-30-16	Klickitat River	Klickitat River	
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2016	160,000	04-20-16	05-31-16	Wells Hatchery	Mid-Columbia River	
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>1,416,840</b>					
<b>Grand Total</b>					<b>10,120,253</b>					



## Hatchery Releases Next Two Weeks

**Hatchery Release Summary**  
From: **4/30/2016** to **5/13/2016**

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2016	204,000	04-15-16	04-30-16		Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2016	527,000	04-15-16	04-30-16	Chief Joseph Hatchery	Mid-Columbia River
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2016	256,000	04-15-16	04-30-16		Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2016	342,500	04-15-16	04-30-16		Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2016	402,000	04-15-16	04-30-16	Chief Joseph Hatchery	Mid-Columbia River
Colville Tribe	Wells Hatchery	ST	SU	2016	10,000	04-13-16	04-30-16	Omak Creek	Okanogan River
<b>Colville Tribe Total</b>					<b>1,741,500</b>				
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	200,000	04-26-16	05-03-16	Yankee Fk (Salmon R)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2016	230,000	04-27-16	05-03-16	Yankee Fk (Salmon R)	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2016	250,000	04-24-16	04-30-16	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Oxbow-Oregon	SO	UN	2016	90,000	05-10-16	05-10-16	Redfish Lake Creek	Salmon River (ID)
Idaho Dept. of Fish and Game	Springfield Hatchery	SO	UN	2016	540,000	05-02-16	05-13-16	Redfish Lake Creek	Salmon River (ID)
<b>Idaho Dept. of Fish and Game Total</b>					<b>1,310,000</b>				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2016	120,000	05-04-16	05-04-16	Wallowa Acclim Pond	Wallowa River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2016	160,000	04-30-16	04-30-16	Big Canyon Acclim.Pd (Grande Ronde)	Wallowa River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2016	160,000	05-08-16	05-08-16	Big Canyon Acclim.Pd (Grande Ronde)	Wallowa River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2016	165,000	04-30-16	04-30-16	Little Sheep Creek	Imnaha River
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2016	10,000	05-05-16	05-05-16	Wychus Creek	Deschutes River
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2016	15,000	05-05-16	05-05-16	Crooked River (OR)	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>630,000</b>				
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2016	84,500	05-01-16	05-01-16	East Fk Salmon River	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2016	1,404,000	04-06-16	04-30-16	S Fk Salmon River	Salmon River (ID)
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2016	4,500,000	05-09-16	05-09-16	Spring Creek Hatchery	L Col R (D/s McN Dam)
<b>U.S. Fish and Wildlife Service Total</b>					<b>5,988,500</b>				
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2016	230,000	04-15-16	05-01-16	Nason Creek	Wenatchee River
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2016	199,000	04-25-16	05-07-16	Chiwawa Hatchery	Wenatchee River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2016	175	05-01-16	05-31-16	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2016	1,025	05-01-16	05-31-16	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2016	3,850	05-01-16	05-31-16	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2016	3,975	05-01-16	05-31-16	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2016	13,600	05-01-16	05-31-16	Yakama River	Yakima River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	04-20-16	05-01-16		Okanogan River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	05-01-16	05-31-16	Methow River	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2016	171,500	05-01-16	05-15-16	Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2016	100,000	04-30-16	05-07-16	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Similkameen Hatchery	CH1	SU	2016	240,000	04-15-16	04-30-16	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2016	90,000	04-20-16	04-30-16	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2016	320,000	04-15-16	05-07-16	Wells Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>1,373,575</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2016	68,020	05-01-16	05-31-16	Twisp Acclim Pond	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	79,496	05-01-16	05-31-16	Coulter Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	110,086	04-01-16	04-30-16	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	110,126	04-01-16	04-30-16	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	135,272	05-01-16	05-31-16	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Klickitat Hatchery	CO	NO	2016	1,000,000	05-01-16	05-01-16	Klickitat Hatchery	Klickitat River
Yakama Tribe	Marion Drain Hatchery	CH0	FA	2016	37,000	05-06-16	05-06-16	Roza Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2016	20,000	05-06-16	05-06-16	Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2016	180,000	05-06-16	05-06-16	Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2016	1,700,000	05-04-16	05-04-16	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2016	58,499	04-01-16	04-30-16	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2016	110,615	04-01-16	04-30-16	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2016	121,443	05-01-16	05-31-16	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2016	38,503	04-01-16	04-30-16	Methow River	Methow River
Yakama Tribe	Winthrop NFH	CO	UN	2016	42,471	04-01-16	04-30-16	Winthrop Hatchery	Methow River
Yakama Tribe	Winthrop NFH	CO	UN	2016	47,124	04-01-16	04-30-16	Methow River	Methow River
Yakama Tribe	Winthrop NFH	CO	UN	2016	212,356	04-01-16	04-30-16	Winthrop Hatchery	Methow River
<b>Yakama Tribe Total</b>					<b>4,071,011</b>				
<b>Grand Total</b>					<b>15,114,586</b>				

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
04/15/2016	163.8	0.0	165.1	29.7	187.6	39.9	187.1	30.8	193.8	39.3	203.7	65.7	207.3	101.0
04/16/2016	170.6	0.0	175.9	27.3	193.2	45.0	195.2	38.3	199.2	43.8	209.0	71.5	212.4	95.7
04/17/2016	183.0	0.0	184.7	31.3	205.9	56.8	205.9	53.0	209.1	55.4	218.9	81.2	220.3	104.3
04/18/2016	168.3	0.0	168.3	22.3	190.1	39.8	191.5	36.1	198.0	43.2	208.2	74.6	213.0	107.6
04/19/2016	164.3	0.0	162.5	18.2	184.1	33.0	180.3	26.9	187.6	32.9	194.6	60.5	197.0	89.6
04/20/2016	142.9	0.0	146.8	7.1	169.4	22.0	173.1	19.1	187.6	36.8	199.1	60.2	205.6	108.7
04/21/2016	161.3	0.0	156.1	14.4	186.6	38.4	182.7	28.2	194.1	45.3	195.3	65.1	193.2	90.7
04/22/2016	150.8	0.0	167.0	24.7	203.2	56.8	210.0	52.4	221.5	73.4	233.5	97.6	237.6	134.1
04/23/2016	145.3	0.0	136.7	22.0	171.1	28.8	172.1	26.3	188.6	40.4	195.3	73.5	199.3	115.7
04/24/2016	146.2	0.0	144.4	14.3	178.4	32.1	181.2	29.5	195.6	52.7	204.0	83.0	210.4	110.4
04/25/2016	137.6	0.0	141.0	0.0	169.3	35.2	171.2	15.0	185.6	41.5	192.3	63.8	195.3	87.4
04/26/2016	150.0	0.0	142.6	0.0	166.9	35.2	170.9	13.9	182.4	37.6	188.8	54.7	190.1	86.3
04/27/2016	142.4	0.0	147.1	0.0	172.3	37.4	176.6	19.8	185.9	36.2	192.5	59.8	193.8	87.4
04/28/2016	141.0	0.0	147.7	0.0	170.4	27.2	180.9	23.7	190.0	35.9	196.1	62.9	196.5	94.0

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

Date	Dworshak		Brownlee Inflow	Hells Canyon Outflow	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill			Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/15/2016	16.7	6.8	---	25.0	106.0	20.3	102.6	30.9	101.8	28.6	107.5	67.4
04/16/2016	16.6	6.7	---	25.9	100.6	20.3	98.7	29.7	97.6	28.0	102.0	65.0
04/17/2016	16.6	6.6	---	26.8	94.2	20.3	90.4	27.1	90.5	28.0	96.6	63.2
04/18/2016	16.5	6.5	---	28.5	91.9	20.3	89.1	26.7	86.0	27.9	90.8	63.5
04/19/2016	14.4	5.7	---	25.2	89.7	20.3	88.3	26.3	87.3	27.4	94.1	53.9
04/20/2016	16.4	6.4	---	25.4	94.0	20.4	87.6	26.3	85.5	26.9	93.9	45.6
04/21/2016	16.1	6.1	---	22.7	99.4	20.4	96.6	28.9	95.2	26.5	99.0	53.7
04/22/2016	16.1	6.2	---	19.7	106.1	20.3	101.8	30.5	99.8	25.9	105.8	66.8
04/23/2016	15.0	5.0	---	21.9	115.9	38.7	111.9	38.1	108.7	26.0	115.4	86.3
04/24/2016	15.1	5.2	---	20.8	129.3	46.5	123.9	37.2	122.8	30.3	132.4	80.0
04/25/2016	15.0	5.1	---	22.3	125.1	38.1	118.9	35.6	118.8	29.4	124.0	82.9
04/26/2016	14.9	5.1	---	21.1	110.5	23.6	106.2	31.9	103.7	26.3	110.4	75.8
04/27/2016	15.0	5.1	---	25.8	105.3	20.4	101.6	30.4	100.6	27.0	105.6	69.1
04/28/2016	13.3	5.1	---	25.5	105.1	20.6	101.9	30.4	98.8	26.4	104.1	66.6

**Daily Average Flow and Spill (in Kcfs) at Lower Columbia Projects**

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
04/15/2016	320.7	145.7	328.5	100.5	311.0	124.2	316.5	132.2	68.4	103.5
04/16/2016	324.0	148.8	328.4	98.3	315.3	125.9	339.0	149.2	68.4	109.0
04/17/2016	319.5	144.4	314.3	95.2	300.2	119.9	327.6	127.0	68.3	119.9
04/18/2016	316.6	159.0	323.2	104.4	310.3	123.6	327.4	132.9	68.5	113.6
04/19/2016	305.1	154.2	302.5	92.5	284.9	113.8	310.8	120.8	68.0	109.6
04/20/2016	296.3	137.5	291.6	87.7	275.8	110.5	307.8	118.6	67.5	109.3
04/21/2016	292.6	119.7	303.9	91.4	286.3	111.8	294.9	106.6	67.5	108.5
04/22/2016	350.6	176.8	338.2	101.9	322.6	123.2	331.3	144.8	65.3	108.7
04/23/2016	342.6	170.1	328.6	119.0	315.6	112.1	350.3	163.2	65.9	108.9
04/24/2016	341.5	169.8	344.3	115.9	330.2	116.5	347.4	159.7	65.9	109.4
04/25/2016	342.4	169.6	342.6	102.8	331.6	128.1	350.8	164.5	66.3	107.6
04/26/2016	318.6	152.3	324.3	97.4	308.0	123.2	336.9	150.6	66.8	107.1
04/27/2016	305.8	131.7	300.7	89.6	285.8	114.1	306.6	120.0	67.0	107.3
04/28/2016	313.9	139.8	311.7	93.1	299.1	119.3	304.9	119.9	68.2	104.4

## 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>											
	04/21/16	Chinook + Steelhead	101	0	0	0.00%	0.00%	0	0	0	0
	04/28/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	04/18/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/25/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	04/21/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/27/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	04/18/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/24/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/28/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	04/16/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/19/16	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	04/23/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/26/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	04/19/16	Chinook + Steelhead	100	1	1	1.00%	0.00%	0	1	0	0
	04/21/16	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	04/26/16	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>				
4/15	96.1	96.4	96.8	24	---	---	---	0	107.4	107.6	108.0	24	104.7	104.9	105.0	24	104.1	104.4	104.7	24
4/16	96.2	96.3	96.5	24	---	---	---	0	107.4	107.7	108.3	24	104.5	104.8	105.0	24	104.0	104.3	104.5	24
4/17	95.3	95.6	95.9	24	---	---	---	0	107.4	107.7	108.6	24	104.4	104.8	105.3	24	104.5	104.8	105.0	24
4/18	95.6	96.1	96.5	24	---	---	---	0	107.1	107.4	107.9	24	105.1	105.7	105.8	24	105.3	105.6	105.9	24
4/19	96.2	96.5	96.8	24	---	---	---	0	108.6	108.9	109.9	24	106.1	106.7	106.8	24	106.1	106.6	107.2	24
4/20	97.1	97.8	98.4	24	---	---	---	0	109.3	109.7	110.1	24	107.0	107.6	108.1	24	107.0	107.5	107.9	24
4/21	99.9	101.4	102.2	24	---	---	---	0	110.4	111.0	111.7	24	107.8	108.3	108.5	24	107.7	108.0	108.3	24
4/22	101.9	102.4	103.1	24	---	---	---	0	111.2	111.7	112.1	24	108.5	108.8	109.1	24	108.3	108.6	108.8	24
4/23	101.5	101.9	102.5	24	---	---	---	0	110.0	110.4	111.1	24	107.6	108.0	108.4	24	107.6	107.9	108.1	24
4/24	101.5	101.9	102.5	24	---	---	---	0	109.8	110.2	110.8	24	107.4	107.7	108.1	24	107.3	107.6	108.0	24
4/25	101.9	102.3	102.8	24	---	---	---	0	108.6	108.9	109.1	24	107.0	107.4	107.6	24	107.0	107.4	107.8	24
4/26	102.3	103.0	103.5	24	---	---	---	0	108.2	108.3	108.4	24	106.9	107.2	107.5	24	106.8	107.2	107.6	24
4/27	103.5	104.7	105.6	24	---	---	---	0	108.5	108.7	109.1	24	107.2	107.5	107.8	24	107.0	107.2	107.4	24
4/28	104.2	105.0	105.3	23	---	---	---	0	109.1	109.7	110.5	23	107.0	107.4	107.6	23	106.9	107.2	107.6	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>							
	<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>				
4/15	110.3	110.8	111.1	24	104.6	104.9	105.0	24	111.4	111.9	112.5	24	108.9	109.2	109.5	24	118.2	118.5	119.2	24
4/16	109.6	109.9	110.2	24	104.6	104.8	105.1	24	112.4	113.3	113.8	24	110.4	110.7	110.8	24	119.5	120.8	121.2	24
4/17	110.2	110.8	111.0	24	105.2	105.8	106.0	24	114.7	116.7	118.4	24	112.0	112.4	112.8	24	121.7	122.6	123.9	24
4/18	109.0	110.0	110.3	24	106.2	106.6	106.9	24	113.4	115.4	118.2	24	114.6	116.3	117.1	24	121.9	122.5	123.4	24
4/19	107.7	108.2	108.4	24	106.6	106.8	107.1	21	111.9	113.1	115.9	21	115.9	117.4	117.9	24	121.2	122.3	123.1	24
4/20	107.5	108.1	108.4	24	107.0	107.5	107.8	24	111.1	112.6	113.6	24	112.5	113.4	113.6	24	117.8	121.0	121.9	24
4/21	109.2	111.1	112.7	24	107.5	107.7	107.8	24	113.4	116.1	118.1	24	112.4	113.2	113.8	24	117.8	121.8	122.6	24
4/22	110.5	110.8	110.9	24	107.8	107.9	108.1	23	116.9	117.9	120.8	23	112.9	114.5	114.9	24	122.7	123.1	123.6	24
4/23	109.9	110.2	110.5	24	107.1	107.3	107.6	24	112.0	114.0	115.9	24	115.6	116.5	117.3	24	120.4	122.9	123.6	24
4/24	108.7	110.0	110.1	24	106.9	107.2	107.6	24	112.3	114.2	114.8	24	111.4	112.4	113.7	24	117.9	121.8	122.8	24
4/25	106.4	106.8	107.1	24	106.2	106.5	106.7	24	113.0	115.1	117.4	24	110.4	111.1	111.7	24	115.3	117.0	120.9	24
4/26	106.4	106.7	106.9	24	106.2	106.4	106.6	24	113.9	114.6	115.6	24	111.6	112.5	113.0	24	115.6	116.7	117.4	24
4/27	106.6	106.8	107.1	24	106.4	106.6	106.8	24	114.2	114.7	115.8	24	113.1	113.4	113.7	24	117.6	118.4	119.4	24
4/28	106.4	106.8	107.4	23	106.4	106.7	106.9	23	113.2	115.5	116.6	23	112.4	112.6	112.9	23	118.6	119.5	120.1	23

### 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>				
4/15	110.1	111.1	112.1	24	114.9	115.4	116.1	24	109.5	110.4	110.9	24	112.8	113.4	115.5	24	111.3	112.7	113.8	24
4/16	111.8	113.4	114.2	24	116.3	117.2	117.9	24	111.2	112.6	113.8	24	114.0	115.2	117.3	24	112.9	114.5	116.6	24
4/17	113.4	115.2	115.8	24	118.0	119.7	120.9	24	114.0	115.8	116.8	24	116.4	118.2	120.8	24	114.2	115.2	115.8	24
4/18	115.3	116.1	117.4	24	119.3	120.2	121.7	24	116.9	118.6	120.3	24	117.0	117.9	120.5	24	117.7	118.4	119.3	24
4/19	116.6	117.4	118.3	24	118.2	119.9	120.5	24	119.3	120.5	122.4	24	117.0	117.5	119.0	24	116.7	117.7	119.1	24
4/20	113.5	114.2	115.4	24	116.9	117.5	118.4	24	---	---	---	0	---	---	---	0	---	---	---	0
4/21	112.2	113.4	115.6	24	117.1	120.2	122.9	24	---	---	---	0	---	---	---	0	---	---	---	0
4/22	113.9	114.6	115.3	24	121.6	122.2	123.0	24	116.2	117.1	118.5	24	120.6	122.1	123.8	24	120.2	122.1	123.1	24
4/23	114.5	114.7	114.8	24	118.4	119.7	121.1	24	114.0	114.4	114.7	24	117.1	118.6	120.5	24	115.0	115.6	115.8	24
4/24	112.5	114.3	114.8	24	117.9	119.2	122.2	24	113.8	114.6	115.1	24	118.7	121.8	126.9	24	116.7	120.2	124.8	24
4/25	110.6	111.6	112.3	24	115.6	116.6	117.8	24	113.0	113.5	113.8	24	114.9	116.2	119.6	24	114.1	115.5	117.1	24
4/26	110.6	111.3	111.8	24	115.1	115.8	116.3	24	112.8	113.9	114.7	24	113.8	114.6	115.8	24	112.3	113.3	115.0	24
4/27	112.3	112.7	113.0	24	116.3	116.6	117.2	24	112.9	113.5	114.5	24	114.3	115.1	120.0	24	113.1	113.8	115.2	24
4/28	112.6	113.1	114.0	23	116.7	117.0	117.3	23	---	---	---	0	---	---	---	0	---	---	---	0



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

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

Date	<u>Priest R. Dnst</u>			#	<u>Pasco</u>			#	<u>Dworshak</u>			#	<u>Clwrtr-Peck</u>			#	<u>Anatone</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
4/15	117.0	117.4	118.4	24	---	---	---	0	108.9	109.1	109.2	24	103.0	103.4	104.0	24	103.3	103.6	104.2	22
4/16	117.2	118.0	118.3	24	---	---	---	0	108.4	108.6	108.8	24	103.5	104.3	104.7	24	103.8	104.5	105.2	24
4/17	118.7	119.3	119.7	24	---	---	---	0	108.4	108.7	109.2	24	103.8	104.5	105.1	24	103.8	104.5	105.2	24
4/18	120.2	120.4	120.7	24	---	---	---	0	108.6	108.9	109.2	24	104.0	104.7	105.2	24	103.7	104.4	105.2	24
4/19	119.0	119.5	120.2	24	---	---	---	0	107.9	109.8	110.1	24	103.6	104.9	105.6	24	103.8	104.5	105.3	24
4/20	---	---	---	0	---	---	---	0	109.4	109.9	110.7	24	104.3	104.8	105.2	24	104.0	104.7	105.4	24
4/21	---	---	---	0	---	---	---	0	109.1	109.6	109.9	24	104.1	104.9	105.3	24	104.2	105.0	105.6	24
4/22	120.9	121.2	121.7	24	---	---	---	0	109.8	110.0	110.4	24	103.7	104.0	104.7	24	104.1	104.4	104.7	24
4/23	118.4	119.6	120.3	24	---	---	---	0	106.2	106.3	106.5	24	102.3	102.6	103.5	24	103.8	104.1	104.2	24
4/24	119.2	119.8	120.4	24	---	---	---	0	106.5	106.7	106.8	24	103.0	103.4	103.7	24	104.9	105.5	106.0	24
4/25	117.1	118.2	118.6	24	---	---	---	0	105.9	106.1	106.4	24	102.9	103.5	104.0	24	105.0	105.6	106.1	24
4/26	116.7	117.2	117.9	24	---	---	---	0	106.1	106.6	106.9	24	115.0	127.3	143.9	24	105.0	105.7	106.3	24
4/27	117.2	117.7	118.2	24	---	---	---	0	106.7	106.9	107.3	24	103.2	103.8	104.2	24	104.7	105.0	105.5	23
4/28	---	---	---	0	---	---	---	0	108.0	109.6	114.9	23	103.0	103.6	105.3	23	104.1	104.5	105.1	23

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

Date	<u>Clwrtr-Lewiston</u>			#	<u>Lower Granite</u>			#	<u>L. Granite Tlwr</u>			#	<u>Little Goose</u>			#	<u>L. Goose Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
4/15	101.8	102.3	102.7	24	102.5	102.8	103.0	24	108.8	108.9	109.2	24	106.2	106.4	106.9	24	114.0	114.1	114.3	24
4/16	102.7	103.9	104.9	24	101.7	101.9	102.0	24	108.9	109.1	109.3	24	105.2	105.4	105.6	24	113.5	113.7	113.7	24
4/17	103.1	104.3	105.3	24	102.7	103.2	103.7	24	109.1	109.5	109.7	24	106.0	106.6	106.9	24	112.8	113.2	114.0	24
4/18	103.3	104.5	105.6	24	104.3	104.8	105.0	24	109.4	109.7	110.1	24	107.0	107.5	107.9	24	113.0	113.3	113.4	24
4/19	103.2	104.2	105.1	24	105.0	105.4	105.8	24	109.6	109.7	109.9	24	108.4	109.1	109.7	24	113.3	113.6	113.8	24
4/20	103.7	104.9	106.0	24	105.3	105.7	106.1	24	110.0	110.4	111.1	24	109.7	110.2	110.9	24	114.3	114.9	115.2	24
4/21	103.3	104.3	105.2	24	105.1	105.3	105.5	24	110.0	110.2	110.4	24	110.6	111.1	111.6	24	114.9	115.0	115.2	24
4/22	102.8	103.2	103.7	24	105.1	105.4	105.5	24	110.0	110.3	110.5	24	110.8	111.1	111.5	24	115.1	115.3	115.4	24
4/23	101.6	101.8	102.1	24	103.4	103.8	103.9	24	115.8	116.6	116.7	24	108.2	108.7	109.5	24	116.4	116.7	117.0	24
4/24	102.1	102.6	103.0	24	102.3	102.5	102.7	24	117.9	120.5	122.8	24	106.3	106.6	107.0	24	115.6	116.1	116.3	24
4/25	102.3	102.9	103.3	24	102.6	103.1	103.4	24	115.8	116.4	116.6	24	109.3	110.4	111.6	24	115.8	116.5	117.4	24
4/26	102.5	103.3	104.2	24	103.5	103.7	104.0	24	111.2	112.7	113.3	24	111.8	112.2	112.9	24	115.3	115.6	115.8	24
4/27	102.7	103.5	104.3	24	104.2	104.3	104.4	24	109.5	109.7	109.8	24	111.5	111.7	112.0	24	114.9	115.4	115.5	24
4/28	102.1	102.5	102.9	23	104.3	104.4	104.5	23	109.6	109.8	110.1	23	109.9	110.3	110.7	23	114.7	115.1	115.3	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>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
4/15	112.5	112.9	113.7	24	120.6	120.9	121.2	24	112.7	113.0	113.7	24	118.0	119.5	120.2	24	---	---	---	0
4/16	112.5	112.9	113.6	24	119.5	120.0	120.5	24	113.2	113.8	114.2	24	117.3	118.3	119.5	24	---	---	---	0
4/17	113.7	114.1	114.3	24	119.6	120.0	120.4	24	114.7	115.1	115.6	24	116.8	117.3	117.5	24	---	---	---	0
4/18	114.3	114.5	114.7	24	120.1	120.7	120.8	24	116.0	116.5	117.1	24	116.5	117.1	117.5	24	---	---	---	0
4/19	114.6	114.8	115.2	24	120.3	120.7	120.9	24	117.3	117.7	118.0	24	116.7	117.2	117.6	24	---	---	---	0
4/20	115.1	115.3	115.6	24	120.3	120.6	120.9	24	118.2	118.6	119.1	24	115.6	116.3	117.2	24	---	---	---	0
4/21	115.2	115.4	115.7	24	120.0	120.3	120.7	24	118.3	118.6	118.7	24	117.7	118.5	120.2	24	---	---	---	0
4/22	116.0	116.1	116.2	24	119.4	119.7	120.1	24	117.7	118.1	118.7	24	118.4	119.7	120.2	24	---	---	---	0
4/23	114.2	114.6	115.3	24	119.2	119.5	119.8	24	115.1	115.5	116.2	24	119.1	120.0	120.2	24	---	---	---	0
4/24	114.0	114.7	115.3	24	117.5	119.0	119.6	24	113.6	113.8	114.1	24	119.2	119.9	120.3	24	---	---	---	0
4/25	113.5	113.8	114.6	24	118.3	119.2	119.5	24	112.8	113.2	113.6	24	119.1	119.6	120.1	24	---	---	---	0
4/26	113.8	114.5	115.0	24	119.5	119.8	120.6	24	113.8	114.2	114.6	24	118.5	119.2	119.8	24	---	---	---	0
4/27	115.1	115.5	115.8	24	120.2	120.5	120.8	24	114.3	114.7	115.3	24	118.0	118.9	119.7	24	---	---	---	0
4/28	115.0	115.3	116.0	23	120.3	120.6	121.0	23	115.2	115.6	116.1	23	117.5	118.8	119.7	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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>AVG</u>	<u>High</u>	
4/15	107.6	107.9	108.3	24	117.1	117.3	117.4	24	107.3	107.6	108.5	24	117.6	117.8	118.6	24	108.4	108.8	109.2	24
4/16	109.8	111.4	112.5	24	117.2	117.3	117.4	24	107.5	108.2	108.8	24	117.5	117.7	117.9	24	109.0	109.9	110.5	24
4/17	113.2	114.3	115.0	24	117.4	117.6	118.0	24	109.7	110.4	110.9	24	117.1	117.2	117.3	24	110.4	111.1	111.6	24
4/18	114.7	115.9	116.5	24	117.8	118.0	118.2	24	111.5	112.3	113.0	24	118.0	118.5	118.7	24	111.7	112.6	113.4	24
4/19	116.6	117.4	118.1	24	117.9	118.0	118.1	24	114.2	115.2	116.1	24	116.9	117.3	117.7	24	113.4	114.1	114.6	24
4/20	117.9	118.7	119.7	24	117.8	118.5	119.1	24	116.7	117.3	117.8	24	116.6	117.0	117.4	24	114.8	115.3	115.7	24
4/21	117.7	117.9	118.1	24	116.4	116.7	118.3	24	117.5	117.9	118.1	24	117.2	118.0	118.6	24	115.2	115.9	116.3	24
4/22	116.3	116.7	117.4	24	119.7	120.5	120.8	24	117.6	118.1	118.3	24	118.4	119.3	119.6	24	114.8	115.6	116.3	24
4/23	113.1	113.6	114.9	24	118.9	119.0	119.1	24	113.5	114.4	115.8	24	118.8	118.9	119.1	24	112.2	112.6	113.1	24
4/24	111.4	111.7	111.9	24	118.7	118.9	119.1	24	110.4	110.9	111.8	24	118.8	118.9	119.0	24	111.1	111.4	111.7	24
4/25	110.8	111.3	111.8	24	118.7	118.8	118.9	24	108.0	108.3	108.9	24	118.1	118.4	118.6	24	108.7	109.0	109.7	24
4/26	113.1	113.8	114.6	24	118.4	118.8	118.9	24	107.3	107.6	107.8	24	117.5	118.0	118.6	24	109.0	109.8	110.3	24
4/27	113.9	114.1	114.4	24	117.1	117.7	117.9	24	108.1	108.4	108.6	24	116.6	117.1	117.5	24	109.3	109.7	109.9	24
4/28	113.2	113.5	114.0	23	117.7	117.8	117.9	23	109.1	109.8	110.3	23	117.1	117.7	118.1	23	109.3	109.9	110.4	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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
4/15	114.2	114.6	114.9	24	112.4	112.8	113.6	24	115.8	116.0	116.7	24	114.0	114.8	115.3	24	120.4	121.0	122.3	24
4/16	114.6	115.2	115.9	24	113.6	114.6	115.5	24	117.4	118.0	118.1	24	114.7	115.8	116.3	24	122.7	122.8	122.9	24
4/17	115.6	116.1	116.5	24	115.0	115.4	116.2	24	117.2	117.7	118.4	24	114.4	114.9	115.8	24	120.9	121.5	122.8	24
4/18	116.5	117.0	117.6	24	115.9	116.5	117.3	24	117.7	118.6	118.9	24	113.8	114.9	115.6	24	121.7	122.8	123.1	24
4/19	117.3	117.6	118.3	24	117.7	118.1	118.8	24	118.4	118.7	119.0	24	116.8	118.1	118.9	24	120.2	120.5	123.1	24
4/20	117.9	118.2	118.7	24	118.7	119.2	119.8	24	118.8	119.2	119.6	24	117.6	118.5	119.4	24	120.1	120.3	120.5	24
4/21	118.1	118.3	118.5	24	117.5	117.7	118.0	24	117.8	118.3	118.5	24	117.3	117.9	118.6	24	119.4	119.6	120.0	24
4/22	117.5	118.2	118.8	24	116.7	117.5	117.7	24	118.8	119.3	119.8	24	116.1	116.6	116.9	24	121.7	122.7	123.2	24
4/23	115.1	115.4	116.4	24	113.9	114.1	114.6	24	118.2	118.5	119.1	24	116.4	116.7	116.9	24	122.5	122.7	123.2	24
4/24	114.4	114.9	115.6	24	112.9	113.1	113.5	24	117.6	117.9	118.1	24	115.2	115.5	115.8	24	123.0	123.1	123.3	24
4/25	113.7	114.3	114.9	24	111.4	111.7	112.4	24	117.0	117.3	117.6	24	114.9	115.2	115.7	24	122.9	123.0	123.1	24
4/26	115.0	115.5	116.1	24	112.3	112.9	113.7	24	116.8	117.3	117.5	24	115.5	116.6	117.2	24	122.4	122.9	123.2	24
4/27	115.0	115.3	115.7	24	113.6	113.9	114.2	24	115.7	115.8	116.0	24	114.7	115.0	115.5	24	119.9	120.0	120.1	24
4/28	114.8	115.1	115.5	23	112.7	112.9	113.5	23	115.2	115.3	115.6	23	113.9	114.2	114.7	23	119.6	119.7	119.8	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 4/29/2016 6:59

\* 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>

<b>COMBINED YEARLING CHINOOK</b>												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/15/2016	*	---	2,285	538	758	275,321	---	---	75	21,065	---	37,017
04/16/2016	*	---	1,372	558	620	196,396	185,723	107,169	112	---	48,468	61,940
04/17/2016	*	---	506	137	---	124,583	---	---	283	26,250	---	61,760
04/18/2016	*	80	282	96	15	96,572	207,521	68,761	343	---	55,376	61,996
04/19/2016	*	529	---	322	16	68,870	132	---	474	48,351	---	55,254
04/20/2016	*	265	---	330	8	66,707	105,170	120,599	579	---	49,854	55,395
04/21/2016	*	224	---	562	8	78,092	---	---	716	73,417	---	58,015
04/22/2016	*	---	---	571	47	119,798	260,639	209,292	974	---	73,197	76,607
04/23/2016	*	---	---	846	---	263,888	---	---	969	93,984	---	84,355
04/24/2016	*	---	---	209	---	287,177	348,092	224,535	614	---	151,166	66,832
04/25/2016	*	---	---	113	208	313,481	---	---	736	107,189	---	76,342
04/26/2016	*	---	---	268	96	343,493	208,554	---	1,400	---	150,076	83,713
04/27/2016	*	---	---	199	21	201,413	---	---	1,480	188,358	---	53,112
04/28/2016	*	---	---	125	35	176,701	---	124,457	2,483	---	141,860	46,484
04/29/2016	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>1,098</b>	<b>4,445</b>	<b>4,874</b>	<b>1,832</b>	<b>2,612,492</b>	<b>1,315,831</b>	<b>854,813</b>	<b>11,238</b>	<b>558,614</b>	<b>669,997</b>	<b>878,822</b>
<b># Days:</b>		<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>		<b>275</b>	<b>1,111</b>	<b>348</b>	<b>167</b>	<b>186,607</b>	<b>187,976</b>	<b>142,469</b>	<b>803</b>	<b>79,802</b>	<b>95,714</b>	<b>62,773</b>
<b>YTD</b>		<b>27,295</b>	<b>54,501</b>	<b>13,527</b>	<b>5,765</b>	<b>3,496,064</b>	<b>1,492,829</b>	<b>952,945</b>	<b>12,072</b>	<b>575,935</b>	<b>723,117</b>	<b>964,381</b>

<b>COMBINED SUBYEARLING CHINOOK</b>												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/15/2016	*	---	1	0	19	996	---	---	181	8,531	---	3,834
04/16/2016	*	---	1	0	11	4,475	573	0	85	---	286	2,375
04/17/2016	*	---	0	0	---	2,018	---	---	36	41,963	---	1,172
04/18/2016	*	0	0	0	0	2,049	0	0	35	---	577	0
04/19/2016	*	0	---	1	6	512	0	---	28	23,482	---	868
04/20/2016	*	0	---	0	1	4,169	0	0	18	---	867	690
04/21/2016	*	0	---	3	1	1,268	---	---	16	4,667	---	0
04/22/2016	*	---	---	0	0	501	1,143	0	49	---	1,003	539
04/23/2016	*	---	---	0	---	0	---	---	87	7,452	---	620
04/24/2016	*	---	---	1	---	0	0	0	66	---	451	343
04/25/2016	*	---	---	1	167	3,717	---	---	282	16,961	---	626
04/26/2016	*	---	---	2	45	1,953	0	---	102	---	1,431	639
04/27/2016	*	---	---	4	36	2,009	---	---	32	13,156	---	298
04/28/2016	*	---	---	5	44	994	---	0	14	---	815	278
04/29/2016	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>2</b>	<b>17</b>	<b>330</b>	<b>24,661</b>	<b>1,716</b>	<b>0</b>	<b>1,031</b>	<b>116,212</b>	<b>5,430</b>	<b>12,282</b>
<b># Days:</b>		<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>1</b>	<b>1</b>	<b>30</b>	<b>1,762</b>	<b>245</b>	<b>0</b>	<b>74</b>	<b>16,602</b>	<b>776</b>	<b>877</b>
<b>YTD</b>		<b>0</b>	<b>12</b>	<b>42</b>	<b>579</b>	<b>38,625</b>	<b>2,289</b>	<b>0</b>	<b>6,021</b>	<b>126,855</b>	<b>5,590</b>	<b>1,089,223</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)
04/15/2016 *	---	0	0	23	747	---	---	9	1,115	---	28,696
04/16/2016 *	---	0	0	29	994	0	0	2	---	286	15,237
04/17/2016 *	---	0	0	---	252	---	---	6	739	---	13,490
04/18/2016 *	0	0	0	2	512	0	0	16	---	505	16,690
04/19/2016 *	0	---	0	0	768	0	---	25	629	---	16,489
04/20/2016 *	0	---	0	0	0	0	0	30	---	1,012	10,604
04/21/2016 *	0	---	0	0	507	---	---	47	1,616	---	8,905
04/22/2016 *	---	---	0	1	0	572	1,106	60	---	573	14,566
04/23/2016 *	---	---	0	---	1,291	---	---	98	1,242	---	11,785
04/24/2016 *	---	---	0	---	2,741	2,990	526	33	---	2,254	9,360
04/25/2016 *	---	---	0	9	4,027	---	---	113	2,827	---	13,454
04/26/2016 *	---	---	0	25	7,813	1,145	---	166	---	9,611	18,532
04/27/2016 *	---	---	0	1	4,018	---	---	112	4,135	---	14,253
04/28/2016 *	---	---	0	3	8,201	---	277	156	---	3,058	11,412
04/29/2016	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>93</b>	<b>31,871</b>	<b>4,707</b>	<b>1,909</b>	<b>873</b>	<b>12,303</b>	<b>17,299</b>	<b>203,473</b>
<b># Days:</b>	<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>2,277</b>	<b>672</b>	<b>318</b>	<b>62</b>	<b>1,758</b>	<b>2,471</b>	<b>14,534</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>33,191</b>	<b>5,280</b>	<b>1,936</b>	<b>917</b>	<b>13,539</b>	<b>17,691</b>	<b>348,971</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)
04/15/2016 *	---	323	23	483	94,925	---	---	47	19,216	---	2,520
04/16/2016 *	---	509	96	192	122,312	63,048	47,400	35	---	8,436	2,968
04/17/2016 *	---	267	475	---	79,189	---	---	45	26,805	---	2,466
04/18/2016 *	54	190	118	32	66,089	111,916	40,905	89	---	14,493	4,427
04/19/2016 *	152	---	155	194	94,217	37	---	75	20,210	---	3,761
04/20/2016 *	148	---	115	417	71,657	116,024	58,491	72	---	21,965	2,706
04/21/2016 *	122	---	164	479	59,076	---	---	104	27,464	---	4,048
04/22/2016 *	---	---	208	390	69,959	83,448	93,764	128	---	30,797	5,395
04/23/2016 *	---	---	179	---	209,923	---	---	168	24,425	---	4,342
04/24/2016 *	---	---	16	---	323,417	294,855	117,401	92	---	32,891	6,427
04/25/2016 *	---	---	10	249	182,141	---	---	168	29,924	---	2,190
04/26/2016 *	---	---	144	292	333,168	167,882	---	199	---	45,800	10,225
04/27/2016 *	---	---	69	98	124,816	---	---	227	65,038	---	3,868
04/28/2016 *	---	---	31	35	116,807	---	146,343	436	---	46,063	8,072
04/29/2016	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>476</b>	<b>1,289</b>	<b>1,803</b>	<b>2,861</b>	<b>1,947,696</b>	<b>837,210</b>	<b>504,304</b>	<b>1,885</b>	<b>213,082</b>	<b>200,445</b>	<b>63,415</b>
<b># Days:</b>	<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>	<b>119</b>	<b>322</b>	<b>129</b>	<b>260</b>	<b>139,121</b>	<b>119,601</b>	<b>84,051</b>	<b>135</b>	<b>30,440</b>	<b>28,635</b>	<b>4,530</b>
<b>YTD</b>	<b>755</b>	<b>15,419</b>	<b>1,977</b>	<b>4,268</b>	<b>2,309,798</b>	<b>988,831</b>	<b>528,877</b>	<b>2,097</b>	<b>222,962</b>	<b>207,557</b>	<b>73,501</b>



## Two-Week Summary of Passage Indices

<b>COMBINED SOCKEYE</b>											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
04/15/2016	*	---	0	0	249	---	---	597	1,648	---	203
04/16/2016	*	---	0	0	0	0	0	506	---	286	199
04/17/2016	*	---	0	0	---	0	---	225	6,100	---	0
04/18/2016	*	1	0	0	0	0	0	164	---	216	340
04/19/2016	*	0	---	0	0	0	---	61	8,177	---	772
04/20/2016	*	0	---	0	0	0	0	105	---	1,012	331
04/21/2016	*	0	---	0	0	---	---	459	10,411	---	270
04/22/2016	*	---	---	0	0	0	0	792	---	1,862	270
04/23/2016	*	---	---	0	---	---	---	1,097	9,108	---	930
04/24/2016	*	---	---	0	---	0	0	1,250	---	3,379	343
04/25/2016	*	---	---	0	4	310	---	421	8,077	---	2,190
04/26/2016	*	---	---	0	7	0	0	219	---	8,997	2,556
04/27/2016	*	---	---	0	4	0	---	347	21,804	---	774
04/28/2016	*	---	---	0	3	0	---	1,843	---	7,746	1,392
04/29/2016	*	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>1</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>559</b>	<b>0</b>	<b>8,086</b>	<b>65,325</b>	<b>23,498</b>	<b>10,570</b>
<b># Days:</b>		<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>40</b>	<b>0</b>	<b>578</b>	<b>9,332</b>	<b>3,357</b>	<b>755</b>
<b>YTD</b>		<b>1</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>633</b>	<b>0</b>	<b>11,986</b>	<b>65,695</b>	<b>23,588</b>	<b>11,559</b>

<b>COMBINED LAMPREY JUVENILES</b>											
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)
04/15/2016	*	---	0	0	5	---	---	1	625	---	50
04/16/2016	*	---	0	0	22	800	0	1	---	400	133
04/17/2016	*	---	0	0	22	---	---	0	3,200	---	0
04/18/2016	*	0	0	0	3	800	0	1	---	150	0
04/19/2016	*	0	---	0	1	0	---	1	600	---	0
04/20/2016	*	0	---	0	2	800	0	0	---	600	110
04/21/2016	*	0	---	0	0	---	---	0	400	---	0
04/22/2016	*	---	---	0	0	800	400	0	---	500	0
04/23/2016	*	---	---	0	---	---	---	2	600	---	100
04/24/2016	*	---	---	0	1	0	400	7	---	571	0
04/25/2016	*	---	---	0	1	---	---	3	1,000	---	100
04/26/2016	*	---	---	0	7	0	---	3	---	1,286	400
04/27/2016	*	---	---	0	10	---	---	2	600	---	0
04/28/2016	*	---	---	0	1	---	400	0	---	1,143	0
04/29/2016	*	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>75</b>	<b>3,200</b>	<b>1,200</b>	<b>21</b>	<b>7,025</b>	<b>4,650</b>	<b>893</b>
<b># Days:</b>		<b>4</b>	<b>4</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>457</b>	<b>200</b>	<b>2</b>	<b>1,004</b>	<b>664</b>	<b>64</b>
<b>YTD</b>		<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>91</b>	<b>3,300</b>	<b>1,420</b>	<b>7,250</b>	<b>8,104</b>	<b>6,423</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:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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:

4/29/16 7:00 AM

		04/15/16 TO 04/29/16					
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	18,800	1,959,723	23,800	1,444,878	400	3,447,601
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	18,789	1,959,541	23,799	1,444,835	400	3,447,364
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	10	31	1	13	0	55
	Sum of FacilityMorts	1	31	0	5	0	37
	Sum of ResearchMorts	0	120	0	25	0	145
	Sum of TotalProjectMorts	11	182	1	43	0	237
<b>LGS</b>	Sum of NumberCollected	1,200	909,251	3,200	576,288		1,489,939
	Sum of NumberBarged	0	0	0	0		0
	Sum of NumberBypassed	1,200	909,118	3,200	576,273		1,489,791
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	0	7	0	2		9
	Sum of FacilityMorts	0	126	0	13		139
	Sum of ResearchMorts	0	0	0	0		0
	Sum of TotalProjectMorts	0	133	0	15		148
<b>LMN</b>	Sum of NumberCollected		615,761	1,400	363,439		980,600
	Sum of NumberBarged		0	0	0		0
	Sum of NumberBypassed		615,738	1,400	363,438		980,576
	Sum of Numbertrucked		0	0	0		0
	Sum of SampleMorts		23	0	1		24
	Sum of FacilityMorts		0	0	0		0
	Sum of ResearchMorts		0	0	0		0
	Sum of TotalProjectMorts		23	0	1		24
Total Sum of NumberCollected		20,000	3,484,735	28,400	2,384,605	400	5,918,140
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		19,989	3,484,397	28,399	2,384,546	400	5,917,731
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		10	61	1	16	0	88
Total Sum of FacilityMorts		1	157	0	18	0	176
Total Sum of ResearchMorts		0	120	0	25	0	145
Total Sum of TotalProjectMorts		11	338	1	59	0	409

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/29/16 7:00 AM

TO: 04/29/16

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	29,990	2,663,330	24,870	450	1,722,482	4,441,122
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	29,937	2,663,077	24,869	450	1,722,435	4,440,768
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	11	51	1	0	17	80
	Sum of FacilityMorts	42	82	0	0	5	129
	Sum of ResearchMorts	0	120	0	0	25	145
	Sum of TotalProjectMorts	53	253	1	0	47	354
<b>LGS</b>	Sum of NumberCollected	1,600	1,032,789	3,600		682,164	1,720,153
	Sum of NumberBarged	0	0	0		0	0
	Sum of NumberBypassed	1,600	1,032,640	3,600		682,147	1,719,987
	Sum of NumberTrucked	0	0	0		0	0
	Sum of SampleMorts	0	9	0		3	12
	Sum of FacilityMorts	0	140	0		14	154
	Sum of ResearchMorts	0	0	0		0	0
	Sum of TotalProjectMorts	0	149	0		17	166
<b>LMN</b>	Sum of NumberCollected		682,794	1,420		380,964	1,065,178
	Sum of NumberBarged		0	0		0	0
	Sum of NumberBypassed		682,768	1,420		380,961	1,065,149
	Sum of NumberTrucked		0	0		0	0
	Sum of SampleMorts		26	0		3	29
	Sum of FacilityMorts		0	0		0	0
	Sum of ResearchMorts		0	0		0	0
	Sum of TotalProjectMorts		26	0		3	29
Total Sum of NumberCollected		31,590	4,378,913	29,890	450	2,785,610	7,226,453
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		31,537	4,378,485	29,889	450	2,785,543	7,225,904
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		11	86	1	0	23	121
Total Sum of FacilityMorts		42	222	0	0	19	283
Total Sum of ResearchMorts		0	120	0	0	25	145
Total Sum of TotalProjectMorts		53	428	1	0	67	549



**Cumulative Adult Passage at Mainstem Dams Through: 04/28**

DAM	END DATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/28	21117	144	114163	1085	42655	577	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/28	9109	154	76602	678	23218	278	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/28	6539	83	57975	536	17074	231	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/28	4168	38	45731	507	10839	121	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/28	1638	26	29873	129	6565	49	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/28	1198	25	22265	244	4299	43	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/28	841	15	13624	173	2672	37	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/28	537	9	7320	74	1497	16	0	0	0	0	0	0	0	0	0	0	0	0
PRD	04/27	177	-1	3119	9	829	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN	04/27	94	0	1616	8	574	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	04/27	64	0	634	0	207	1	0	0	0	0	0	0	0	0	0	0	0	0
RRH	04/27	16	1	165	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/26	4074	48	12427	268	4356	51	0	0	0	0	0	0	0	0	0	0	0	0

DAM	END DATE	Coho						Sockeye			Steelhead						Lamprey		
		2016		2015		10-Yr Avg.		10-Yr			10-Yr			Wild	Wild	10-Yr	10-Yr		
		Adult	Jack	Adult	Jack	Adult	Jack	2016	2015	Avg.	2016	2015	Avg.	2016	2015	Avg.	2016	2015	Avg.
BON	04/28	0	0	0	0	0	0	1	1	0	3637	4065	3656	1560	2202	1194	7	0	1
TDA	04/28	0	0	0	0	0	0	0	0	0	286	257	2224	163	140	886	0	0	0
JDA	04/28	0	0	0	0	0	1	0	0	0	329	407	4440	227	287	1687	17	3	-1
MCN	04/28	0	0	0	0	1	0	1	0	0	465	573	5316	300	370	1779	2	5	2
IHR	04/28	0	0	0	0	0	0	0	0	0	1233	923	4908	648	585	1444	1	2	0
LMN	04/28	-1	0	0	0	0	0	0	0	0	1301	3197	7982	900	1695	2602	0	0	0
LGS	04/28	0	0	0	0	0	0	0	0	0	3219	1260	2691	1853	830	1234	0	0	0
LGR	04/28	0	0	0	0	0	0	0	0	0	5278	8849	8738	2973	4100	3167	0	0	0
PRD	04/27	0	0	0	0	0	0	0	0	0	11	21	26	0	0	0	3	4	0
WAN	04/27	0	0	0	0	0	0	0	0	0	11	34	61	0	0	0	0	2	0
RIS	04/27	0	0	0	0	0	0	0	0	0	21	53	72	12	38	39	0	0	0
RRH	04/27	0	0	0	0	0	0	0	0	0	50	68	200	17	48	138	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/26	0	0	1	0	0	0	0	0	0	6228	4302	6395	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.

