



## Fish Passage Center

# Weekly Report #17-12

May 26, 2017

### This Week's Highlights

#### River Conditions

Flows in the Snake River were decreasing early in the last week, but have begun increasing towards the last portion of the last week. Hells Canyon Complex flows are decreasing, with outflows at Hells Canyon decreasing from 37.7 to 30.7 Kcfs over the last four days. Flows at Hells Canyon are expected to be around 29 Kcfs over the next four days.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3<sup>rd</sup>. Due to relatively high river flows this year, significant involuntary spill has occurred at all of the mainstem federal projects, and at the Upper Columbia projects. BPA has indicated that the involuntary spill that is occurring in the Federal Columbia River Power System is mostly in excess of hydraulic capacity, as several projects are presently operating with generation unit outages, limiting hydraulic capacity. Below is a list of unit outages at Snake River and Lower Columbia Dams:

1. Bonneville Dam (as of May 23, 2017): Units 3, 7, 8, 16 Out of Service.
2. The Dalles Dam (as of May 20, 2017): Units 2, 12, 15, 16 Out of Service.
3. John Day Dam (as of May 26, 2017): Units 3, 5, 6, Out of Service.
4. McNary Dam (as of May 18, 2017): Unit 13 Out of Service.
5. Ice Harbor Dam (as of May 18, 2017): Units 2 and 4 Out of Service.
6. Lower Monumental Dam (as of May 18, 2017): Units 1 and 5 Out of Service. Unit 1 expected back in October of 2017 and Unit 5 expected back in late July of 2017.

7. Little Goose Dam (as of May 18, 2017): Unit 5 out of Service.

8. Lower Granite Dam (as of May 18, 2017): Units 1 Out of service.

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 40% and 108% of average at individual sub-basins over May. Precipitation above The Dalles has been 85% of average over May. Over the 2017 water year, precipitation has ranged between 114% and 139% of average.

**Table 1. Summary of May precipitation and cumulative October through May precipitation with respect to average (1981-2000), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2017 May 1-21, 2017		Water Year 2017 October 1, 2016 to May 21, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.97	95	34.6
SNAKE RIVER ABOVE ICE HARBOR	1.17	72	23.0	132
Columbia Above The Dalles	1.41	85	26.3	125
Kootenai	1.65	80	35.5	131
Clark Fork	2.10	104	22.3	114
Flathead	1.28	55	34.9	134
Pend Oreille River Basin above Waneta Dam	1.77	82	30.5	127
Salmon River Basin	2.02	100	30.5	138
Upper Snake Tributaries	0.81	40	26.5	133
Clearwater	2.19	84	38.6	121
Willamette River above Portland	3.03	108	80.6	139

Snowpack within the Columbia Basin has been above average. Average snowpack (as of May 26)

in the Columbia River for basins above the Snake River confluence is 138% of average, for Snake River Basins the average snowpack is 225% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 203% of average.

Table 2 displays the May 25<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the May COE forecasts at Libby and Dworshak. The May 25<sup>th</sup> ESP forecast at The Dalles between April and August is 112,503 Kaf (129% of average).

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

Location	May 25, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	129	112,503
Grand Coulee (Apr-Aug)	121	68,720
Libby Res. Inflow, MT (Apr-Aug)	124 139*	7,325 8,190*
Hungry Horse Res. Inflow, MT (Apr-Aug)	120	2,326
Lower Granite Res. Inflow (Apr- July)	143	28,290
Brownlee Res. Inflow (Apr-July)	187	10,251
Dworshak Res. Inflow (Apr-July)	117 121*	2,840 2,941*

\* Denotes COE May Forecast

Grand Coulee Reservoir is at 1,249.3 feet (5-25-17) and has refilled 8.1 feet over the last week. Outflows at Grand Coulee have ranged between 186.1 Kcfs and 226.3 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,387.4 feet (5-25-17) and has refilled 8.7 feet over the past week. Daily average outflows at Libby Dam have been decreased from 24.2 Kcfs to 18.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,536.7 feet (5-25-17) and has filled 2.3 feet last week. Outflows at Hungry Horse have been 9.3-10.4 Kcfs over the last week.

Dworshak is currently at an elevation of 1,568.5 feet (5-25-17) and has refilled 9.3 feet over the last week. Dworshak outflows over the last week were 6.2 Kcfs.

The Brownlee Reservoir was at an elevation of 2,050.5 feet on May 25, 2017, and refilled 8.5 feet last week. Outflows at Hells Canyon have ranged between 30.9 and 37.7 Kcfs over the last four days.

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 5<sup>th</sup>, 2017), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 127.7 Kcfs last week and 138.0 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 (began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (began April 10<sup>th</sup>). Over the last week, flows at McNary were 401.6 Kcfs and 272.9 Kcfs at Priest Rapids. Over the spring season, flows at McNary Dam were 381.3 Kcfs and Priest Rapids Dam flows were 237.7 Kcfs.

### Spill

Flows in the Snake River have decreased over the past week at Lower Granite, relative to the week prior. Dworshak Dam began its refill operation on April 15<sup>th</sup>, and continues with a reduced outflow of 6.3 Kcfs, with approximately 1.8 Kcfs spill. Hells Canyon Complex flows have decreased, with outflows at Hells Canyon ranging between 31.8 and 35.5 Kcfs over the last four days. Current outflow projections show flow increasing again in both the Snake River and Lower Columbia as seasonal runoff continues.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3<sup>rd</sup>. However, due to the high river flows and turbine unit outages, significant involuntary spill has occurred at all of the mainstem federal projects, and at the Upper Columbia projects. BPA has indicated that the involuntary spill that is occurring in the Federal Columbia River Power System is mostly in excess of hydraulic capacity, as many projects are presently operating with generation unit outages, limiting hydraulic capacity.

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 20: 30%/30% vs. 45 kcfs/Gas Cap

Snake River projects continue to spill “involuntarily” above the Biological Opinion levels presently targeted for fish spill. Spill at Lower Granite Dam exceeded the targeted 20 Kcfs, and ranged from 33 Kcfs to 68 Kcfs. At Little Goose Dam the Biological Opinion spill is 30% of flow but, as a consequence of the flow and the unit outages, spill ranged from 30% to 48% of average daily flow. Spill at Lower Monumental Dam ranged from 54 to 88 Kcfs. At Ice Harbor spill ranged from 80 Kcfs to 128 Kcfs.

Spill for fish passage began in the middle Columbia River on April 10<sup>th</sup>. Spill for fish passage began on April 10<sup>th</sup> at the lower Columbia River projects. Spill for fish passage at the lower Columbia River projects at the following amounts described in the 2017 Fish Operations Plan.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	April 28-June 15: 30%/30% and 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Spill that has occurred in the middle Columbia River over the past several weeks has also exceeded the planned spill for fish passage levels due to “involuntary” spill. At McNary Dam spill averaged 60 to 64% of daily average flow. At John Day Dam spill averaged between 38 and 45% of average daily flow. At The Dalles Dam spill ranged from 51 to 60% of average daily flow. Bonneville Dam spill was 200 to 242 Kcfs.

Similar to the Snake and Middle Columbia rivers, high spill levels are occurring at projects in the Upper Columbia River.

At Dworshak Dam, tailrace TDG levels have been near 107%. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 105% and 107% over the past week. The present

uncontrolled spill due to unit outages, flood control operations and snowmelt has remained high over the last week, with TDG supersaturation levels often exceeding TDG criteria at projects in the Snake and Columbia rivers. However, because flows generally averaged less than the week before and some turbine units were returned to service, observed high gas supersaturation levels were lower than the week before. Over the past week the tailwater TDG supersaturation (average of 12 highest hourly levels in a calendar day) ranged from 117% to 124% at Lower Granite Dam; 116% to 124% at Little Goose Dam; 120% to 126% at Lower Monumental Dam; and, 118 to 125% at Ice Harbor Dam. TDG supersaturation levels have also remained high at the Middle Columbia projects, ranging from 123% to 125% at the tailwater of McNary Dam; 123% to 132% below John Day Dam; 122% to 125% at The Dalles Dam; and, 123% to 126% at the Cascade Island gage below Bonneville Dam. Similar to the federal hydrosystem, TDG supersaturation levels have been high prior at the Upper Columbia over the last week, but decreased a little due to Grand Coulee Reservoir beginning to refill (116% yesterday in the forebay of Wells Dam). TDG downstream remained near 125% in the tailraces of Rocky Reach and Rock Island and Priest Rapids dams.

**Note:** The State of Oregon TDG waiver only requires compliance 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.

Gas bubble trauma monitoring in smolts took place over the past week at Lower Granite, Little Goose, Lower Monumental, Bonneville, McNary, and Rock Island Dams. At Lower Granite Dam the 5/25/17 sample showed 3% of fish with Rank 1 signs of GBT. At Little Goose Dam 3% of fish were detected with signs of GBT in the exam conducted on 5/22/17 (all with Rank 1 signs). At Lower Monumental Dam, 1% of fish examined were detected with signs of GBT on 5/24/17.

At Bonneville Dam 4% of the sample on 5/20/17 was observed with Rank 1 levels of GBT in their fins; the sample on 5/23/17 at Bonneville showed a total of 5% of sample with signs of GBT: 2% Rank 1 signs and 3% Rank 2 signs. At McNary Dam no fish showed signs of GBT on exams taken on 5/22/17 or 5/24/17. The observed signs of GBT are presently below the action criteria that would be in place during the voluntary spill for fish passage program. At Rock Island Dam, the GBT exams on 5/23/17 and 5/25/17 showed 24% and 19% of fish with signs of GBT (all at Rank 1 or Rank 2), respectively. The action criteria for interruption of the voluntary spill for fish passage program is defined as either 15 percent of examined fish showing signs of gas bubble trauma in their non-paired fins, or five percent of the fish examined show signs of gas bubble trauma in their non-paired fins where more than 25 percent of the surface area of the fin is occluded by gas bubbles, corresponding to ranks greater than 2.

### Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. Thus far, reported temperatures are close to average based on the past ten years of data.

### Smolt Monitoring

Sampling for the Smolt Monitoring Program (SMP) is underway at all bypass facilities. Sampling at the Grande Ronde and Imnaha river traps continued this week. However, sampling at the Grande Ronde River Trap is scheduled to end for the season after the sample on May 28<sup>th</sup>. Due to high flows and debris loads, sampling at the Snake and Salmon river traps has ended for the 2017 season.

This week's samples at Bonneville Dam (BON) were again dominated by yearling Chinook. This week's daily average passage index for yearling Chinook at BON was nearly 24,000 per day, which is a decrease from last

week's daily average passage index of nearly 40,000 per day. Subyearling Chinook passage increased this week, when compared to last week. This week's daily average passage index for subyearling Chinook was 5,000 per day, whereas that for last week was about 3,000 per day. This increase is likely due to a release of nearly 660,000 subyearling fall Chinook to the Umatilla River on May 16<sup>th</sup>. Sockeye and steelhead passage decreased this week when compared to last week. This week's daily average passage indices were about 5,000 and 2,700 per day, respectively. Last week's daily average passage indices were 6,000 for sockeye and 6,600 for steelhead. Sockeye smolts in the samples on May 20<sup>th</sup> through May 22<sup>nd</sup> exhibited high rates of descaling, where descaling ranged from 10.0% to 15.3%. Screens in the Bonneville second powerhouse were cleaned on Monday, May 22<sup>nd</sup>. Since May 22<sup>nd</sup>, descaling rates for sockeye at BON have ranged from 6.0 to 6.9%. Coho passage increased this week, when compared to the previous week. This week's daily average passage index for coho was 5,400 per day, whereas that for last week was about 4,100 per day. Finally, Pacific lamprey macrophthalmia were encountered every day this week, with a daily average collection of 420 per day. This is an increase over last week's daily average collection of about 85 per day. No ammocoetes were encountered at BON this week.

Similar to last year, sampling at John Day Dam (JDA) occurs every-other-day this year. This week's samples at JDA were again dominated by yearling Chinook. This week's daily average passage index for yearling Chinook was approximately 34,000 per day, which is a large decrease over last week's daily average passage index of about 124,000 per day. Sockeye and steelhead passage also decreased this week, when compared to last week. This week's daily average passage indices for these two species were about 5,300 and 20,400 per day, respectively. Last week's daily average passage indices were about 12,300 for sockeye and 62,300 for steelhead. Coho passage increased this week, when compared to last week. This week's daily average passage index for coho at JDA was 7,000 per day, whereas that for last week was about 5,850 per day. Passage of subyearling Chinook this week remained similar to last week. This week's daily average passage index for subyearling Chinook at JDA was about 3,400 per day. Similar to last week, a portion (~22%) of the subyearling Chinook that were collected at JDA this week were smolts and not fry. Finally, both

Pacific lamprey ammocoetes and macrophthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in three of this week's samples while macrophthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific ammocoetes was about 50 per day, while that for macrophthalmia was about 1,000 per day.

Sampling at McNary Dam (MCN) is also every-other-day. Yearling Chinook continued to dominate the samples at MCN this week. This week's daily average passage index for yearling Chinook was about 37,000, which is a decrease from last week's daily average passage index of about 88,000 per day. Subyearling Chinook, sockeye, and steelhead passage all decreased this week, when compared to the previous week. This week's daily average passage indices for these three species were 5,800, 7,900, and 5,600 per day, respectively. Last week's daily average passage indices were 8,700 for subyearling Chinook, 15,300 for sockeye, and 11,100 for steelhead. Unlike previous weeks, a large proportion (53%) of the subyearling Chinook that were collected this week at MCN were smolts and not fry. Coho passage increased slightly this week, when compared to the previous week. This week's daily average passage index for coho at MCN was 7,050 per day, whereas that for last week was 6,700 per day. Finally, no Pacific lamprey ammocoetes were encountered this week but Pacific macrophthalmia were collected in three of this week's four samples. This week's daily average collection for Pacific macrophthalmia was about 275 fish per day, which is a decrease over last week's daily average of nearly 3,100 per day.

This week's samples at Lower Granite Dam (LGR) were again dominated by steelhead. This week's daily average passage index for steelhead was about 16,600 per day, which is a decrease from last week's daily average passage index of about 41,500 per day. Passage of other spring migrants (yearling Chinook, coho, and sockeye) also decreased this week, when compared to last week. This week's daily average passage indices were 7,000 for yearling Chinook, 2,400 for coho, and 720 for sockeye. Last week's daily average passage indices for these three species were 33,700, 5,300, and 2,100 per day, respectively. Passage of subyearling Chinook increased this week, when compared to the previous week. This week's

daily average passage index for subyearling Chinook at LGR was about 1,300 per day, whereas that for last week was about 465 per day. Approximately 94% of the subyearling Chinook juveniles that were collected in this week's samples were smolts and not fry. Subyearling Chinook passage is expected to continue to increase in the coming weeks as more releases of hatchery subyearling fall Chinook occur. Finally, Pacific lamprey ammocoetes were encountered in two of this week's samples (May 19<sup>th</sup> and May 24<sup>th</sup>). No Pacific macrophthalmia were encountered in this week's samples at LGR.

Similar to recent years, sampling at Little Goose Dam (LGS) was every-other-day until the start of transportation, at which time sampling went to every day. This week's samples at LGS were dominated by yearling Chinook and steelhead. This week's daily average passage indices for these two species were 12,900 and 13,400 per day, respectively. These daily average passage indices represent decreases from the previous week's averages, which were 43,800 for yearling Chinook and 27,800 for steelhead. Passage of coho also decreased this week, when compared to the previous week. This week's daily average passage index for coho was 2,850 per day, whereas that for last week was 4,500. Subyearling Chinook and sockeye increased this week. This week's daily average passage indices for these two species were 230 and 1,000 per day, respectively. Last week's daily average passage indices were approximately 80 for subyearling Chinook and 720 for sockeye. Of the subyearling Chinook that were collected this week, approximately 80% were smolts and not fry. Finally, Pacific lamprey ammocoetes were encountered in four of this week's samples. No lamprey macrophthalmia were encountered in this week's samples. This week's daily average collection for Pacific ammocoetes was 64 per day.

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from April 1<sup>st</sup> to April 16<sup>th</sup>, every-other-day from April 16<sup>th</sup> until transportation began, at which time sampling switched to every day. Steelhead dominated this week's samples at LMN. This week's daily average passage index for steelhead at LMN was about 10,000 per day, which is a decrease over last week's daily average passage index of about 59,000 per day. Passage of all other spring migrants (yearling Chinook, coho, and sockeye) also decreased this week, when

compared to last week. This week's daily average passage indices for these three species were about 7,250, 1,750, and 750 per day, respectively. Last week's daily average passage indices were 101,300 for yearling Chinook, 5,000 for coho, and 1,600 for sockeye. Due to a buildup of debris at the separator, facility mortalities at LMN were high for the samples on May 24<sup>th</sup> and 25<sup>th</sup>. In all, approximately 330 facility mortalities (spring Chinook, steelhead, coho, and sockeye combined) were recovered over these two days. The debris plug was removed and more frequent inspections of this area will be implemented to prevent future occurrences of this type. Subyearling Chinook were encountered in only two of this week's samples, and in relatively low numbers. Finally, Pacific lamprey ammocoetes were encountered in one (May 19<sup>th</sup>) of this week's samples. No macrophthalmia were encountered in this week's samples.

This week's collections at Rock Island Dam (RIS) were again dominated by coho. This week's daily average passage index for coho was about 1,700 per day, which is a slight increase over last week's daily average passage index of about 1,400 per day. Passage of yearling Chinook, sockeye, and steelhead all decreased this week, when compared to last week. This week's daily average passage indices for these three species were 400, 150, and 760 per day, respectively. Last week's daily average passage indices were 1,000 for yearling Chinook, 465 for sockeye, and 1,100 for steelhead. Sockeye experienced a high sample mortality rate in the sample from May 23<sup>rd</sup> because of human error while processing the sample. Subyearling Chinook passage increased this week, when compared to last week. This week's daily average passage index for subyearling Chinook at RIS was about 400 per day, whereas that for last week was only 50 per day. Finally, one Pacific lamprey ammocoetes was collected in the sample on May 19<sup>th</sup> and one macrophthalmia was collected in the sample on May 25<sup>th</sup>.

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer two in the Grande Ronde River. This week's samples at GRN were dominated by yearling Chinook. This week's daily average collection for yearling Chinook at GRN was approximately 75 fish per day. This is a decrease from last week's daily average collection of 140 per day. Steelhead collections also

decreased this week, when compared to last week. This week's daily average collection for steelhead was about 30 per day, whereas that for last week was about 140 fish per day. Coho collections also decreased this week, when compared to the previous week. This week's daily average collection for coho was about 25 per day, whereas that for last week was about 70 per day. These coho juveniles are likely part of a release of approximately 500,000 hatchery coho juveniles into the Lostine River on March 9<sup>th</sup>. Subyearling Chinook were encountered in all seven of this week's samples, but in very low numbers. No lamprey juveniles were encountered in this week's samples at GRN. Finally, sampling from this trap for the 2017 SMP season is expected to end after the sample on May 28<sup>th</sup>.

Sampling from the Snake River Trap at Lewiston (LEW) and the Salmon River Trap at Whitebird (WTB) has already been terminated for the 2017 SMP season. Sampling at both of these traps was terminated due to high flows and high debris loads. Sampling at LEW was terminated in March while sampling at WTB was terminated after the sample on May 5<sup>th</sup>.

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. The FPC currently has data from IMN through May 25<sup>th</sup>. However, sampling at IMN was suspended for the period of May 21<sup>st</sup> through May 25<sup>th</sup> due to repairs to the trap and high flows. Over the period of May 15<sup>th</sup> through May 21<sup>st</sup>, collections at IMN were dominated by steelhead. The daily average collection for steelhead over this period was about 200 per day. Of the steelhead smolts that were collected during this period, approximately 60% were clipped. The daily average collection for yearling Chinook over this period was about 15 per day. Of the yearling Chinook smolts that were collected over these two days, approximately 17% were clipped. One Pacific lamprey ammocoete was collected in the sample on May 17<sup>th</sup>.

### **Hatchery Release**

Effective 2017, the FPC has reorganized our hatchery release zones in an effort to more closely match the geographical regions used by NOAA in their ESU designations. The new river zones are: 1) Lower Columbia, 2) Middle Columbia, 3) Upper Columbia, and 4) Snake River. In addition, the FPC now provides a summary of hatchery releases below Bonneville Dam

(i.e., Lower Columbia River Zone) in the weekly report.

**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. Just over 1.6 million subyearling fall Chinook smolts were scheduled for release to this zone. Of these, approximately 725,000 (45%) were released into the Clearwater River and its tributaries. One of these Clearwater River releases was a release of approximately 225,000 subyearling fall Chinook smolts from the Cedar Flats Acclimation Pond on the Selway River which occurred on May 20<sup>th</sup>. This was an emergency release due to a power outage at the facility. This release was originally scheduled to occur on or around June 6<sup>th</sup>. Approximately 900,000 (55%) of the subyearling fall Chinook that were scheduled to be released this week were to be released from acclimation facilities on the Snake River, above Lower Granit Dam. Of the 1.6 million subyearling fall Chinook smolts that were released this week, approximately 50% were unmarked, which means that distinguishing them from wild smolts will be difficult.

Approximately 620,500 subyearling fall Chinook smolts are scheduled to be released to this zone over the next two weeks. Of these, 220,500 are scheduled to be released directly from Lyons Ferry Hatchery, which is located below Little Goose Dam. This Lyons Ferry Hatchery release is expected to occur on or around May 31<sup>st</sup>. The remaining 400,000 are scheduled to be released into the Grande Ronde River, on or around May 30<sup>th</sup>. Of these 400,000 smolts, 50% are expected to be unmarked, which means that distinguishing them from wild smolts will be difficult.

**Upper Columbia Zone:** The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. Two volitional releases of coho smolts to the Methow and Wenatchee rivers were scheduled to end this week. Both of these releases began in late April. In addition, approximately 175,000 subyearling summer Chinook smolts were scheduled to be released into the Okanogan River this week. This is the only new release that was scheduled for this zone this week. Several volitional releases of coho and summer steelhead to the Wenatchee River are scheduled to end over the next two weeks. Other than these volitional releases, there are no new releases scheduled for this

zone over the next two weeks.

**Middle Columbia Zone:** The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). There were no new releases scheduled for this zone this week. Several volitional releases of yearling spring Chinook and coho that began in April are scheduled to end over the next two weeks. The only new release that is scheduled for this zone over the next two weeks is a release of approximately 4.0 million subyearling fall Chinook smolts to the Klickitat River, which is scheduled to begin on or around June 1<sup>st</sup>.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Only one new release was scheduled for this zone this week. This was a release of approximately 3.6 million subyearling fall Chinook from Fallert Creek Hatchery into the Kalama River. Approximately 11.0 million subyearling fall Chinook smolts are scheduled to be released into this zone over the next two weeks. These fall Chinook releases are scheduled to occur throughout this river zone, including releases to the Cowlitz (42%), Kalama (31%), Washougal (17%), and Grays (9%) rivers. A very small portion (<0.5%) of these fall Chinook smolts are scheduled to be released at or near the Columbia River estuary. Finally, about 6,000 coho smolts are scheduled to be released into this zone over the next two weeks. These coho releases are part of the WDFW Cooperative Program on the Cowlitz River (1,000 smolts) or the ODFW Enhancement Program on the Skipanon River (5,000 smolts).

### **Adult Passage**

Adult Passage Adult counts at Bonneville Dam have been updated through 5/25/17. The 2017 adult spring Chinook count at Bonneville Dam of 69,046 is about 53.5% of the 2016 count of 128,949 and 48.8% of the 10-year average count of 141,414. The 2017 spring Chinook jack count of 14,122 is about 1.4 times greater than the 2016 count of 10,216, while being about 60.7% of the 10-year average count of 23,259. At Willamette Falls, 9,987 adult spring Chinook have been counted so far this year. The Willamette Falls 2017 adult spring Chinook count is about 69.6% of the 2016 count of 14,354 and about 51.1% of the 10 year average count of 19,540. As of May 25th, a total of 41,271 adult spring Chinook have been counted at The Dalles Dam and

17,611 have been counted at McNary Dam. The Dalles Dam 2017 adult spring Chinook count is about 43.7% of the 2016 count and 38.5% of the 10-year average count. The 2017 McNary Dam adult spring Chinook count is about 24.4% of the 2016 count and 22.3% of the 10-year average count. A total of 5,834 spring chinook have been counted at Little Goose Dam and a total of 5,059 spring chinook have been counted at Lower Granite Dam as of May 25th. The Lower Granite 2017 adult spring Chinook count is about 12% of the 2016 count and 11.8% of the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 3,049 is about 62.2% of the 2016 count of 4,903 and 60.7% of the 10-year average count of 5,024. The 2017 Bonneville Dam adult unclipped steelhead count of 996 is about 53.9% of the 2016 count of 1,849 and 63.9% of the 10-year average count of 1,558. 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 May. Daily adult steelhead counts at Lower Granite Dam ranged from 1 to 7 adults per day last week. This year's Lower Granite steelhead count of 7,291 is 1.3 times greater than the 2016 count of 5,467, while being about 80.8% of the 10-year average count of 9,022. The 2017 Lower Granite Dam adult unclipped steelhead count of 3,038 has 74 fewer fish than the 2016 count of 3,112 and 544 fewer fish than the 10-year average count of 3,582. At Willamette Falls, the 2017 count for steelhead was 1,060 as of May 23rd. This year's steelhead count is about 8.8% of the 2016 count of 12,060 and 9.6% the 10-year average count of 11,030.

A total of 1,396 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 77.1% of the 2016 count of 1,810, while being 2.3 times greater than the 10-year average count of 597. Three sockeye have been counted at Bonneville Dam so far this year.



## Hatchery Releases Last Two Weeks

		Hatchery Release Summary									
From:		5/13/2017		to		05/26/17					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone	
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2017	150,000	05-16-17	05-16-17	Chief Joseph Hatchery	Wells Pool	UCOL	
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2017	175,000	05-20-17	05-20-17	Omak Pond	Okanogan River	UCOL	
<b>Colville Tribe Total</b>					<b>325,000</b>						
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2017	400,000	05-20-17	05-20-17	Pittsburg Landing Acclim Pond	Snake River	SNAK	
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2017	500,000	05-25-17	05-25-17	Cpt John Acclim Pond Big Canyon (Clearwater River)	Snake River	SNAK	
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2017	500,000	05-26-17	05-26-17	River)	Clearwater River M F	SNAK	
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	225,000	05-20-17	05-20-17	Cedar Flats Acclim.	Selway River	SNAK	
<b>Nez Perce Tribe Total</b>					<b>1,625,000</b>						
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2017	1,000,000	05-15-17	05-19-17	Hells Canyon Dam	Snake River	SNAK	
Oregon Dept. of Fish and Wildlife	Claskanine Hatchery	CO	UN	2017	800,000	05-16-17	05-16-17	N Fk Klaskanine River	Klaskanine River	LCOL	
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>1,800,000</b>						
Umatilla Tribe	Umatilla Hatchery	CH0	FA	2017	657,530	05-16-17	05-16-17	Reith Bridge	Umatilla River	MCOL	
<b>Umatilla Tribe Total</b>					<b>657,530</b>						
Washington Dept. of Fish and Wildlife	Cowlitz Trout	CT	UN	2017	95,000	04-15-17	05-15-17	Cowlitz Trout	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2017	50,000	04-15-17	05-15-17	Cowlitz Trout	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2017	120,000	04-15-17	05-15-17	Cowlitz Trout	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Cowlitz Trout	ST	WI	2017	480,000	04-15-17	05-15-17	Cowlitz Trout	Cowlitz River	LCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	CH0	FA	2017	3,583,300	05-20-17	05-31-17	Fallert Creek Hatchery	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	ST	SU	2017	24,600	04-15-17	05-15-17	Fallert Creek Hatchery	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2017	12,000	04-15-17	05-15-17	Coweeman River	Coweeman River	LCOL	
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	WI	2017	43,900	04-15-17	05-15-17	Kalama Falls Hatchery	Kalama River	LCOL	
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	SU	2017	177,000	04-15-17	05-15-17	Lewis River	Lewis River	LCOL	
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	WI	2017	116,000	04-15-17	05-15-17	Lewis River	Lewis River	LCOL	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2017	20,000	04-15-17	05-15-17	S Fk Toutle River	Toutle River	LCOL	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2017	90,000	04-17-17	05-17-17	Klickitat River	Klickitat River	MCOL	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2017	20,000	04-17-17	05-17-17	Rock Cr (Stevenson)	Bonneville Pool	MCOL	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2017	60,000	04-17-17	05-17-17	Washougal River	Washougal River	LCOL	
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2017	75,000	04-17-17	05-17-17	Washougal River	Washougal River	LCOL	
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2017	500,000	05-15-17	05-15-17	Wells Hatchery	Rocky Reach Pool	UCOL	
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>5,466,800</b>						
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2017	208,500	03-15-17	05-15-17	Clark Flat Acclim Pond	Yakima River	MCOL	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2017	218,451	03-15-17	05-15-17	Easton Pond Jack Creek Acclim Pond	Yakima River	MCOL	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2017	228,881	03-15-17	05-15-17	Pond	Yakima River	MCOL	
<b>Yakama Tribe Total</b>					<b>655,832</b>						
<b>Grand Total</b>					<b>10,530,162</b>						

## Hatchery Releases Next Two Weeks

Hatchery Release Summary										
From:			5/27/2017	to	6/9/2017					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	225,000	06-06-17	06-06-17	Lukes Gulch Acclim. Nez Perce Tribal	S Fk Clearwater River	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	322,000	06-08-17	06-08-17	Hatchery Nez Perce Tribal	Clearwater River M F	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	640,000	06-07-17	06-07-17	Hatchery	Clearwater River M F	SNAK
<b>Nez Perce Tribe Total</b>					<b>1,187,000</b>					
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH0	FA	2017	16,500	06-01-17	06-01-17	Skipanon River	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH0	FA	2017	25,000	06-01-17	06-01-17	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CO	UN	2018	5,000	06-01-17	06-01-17	Skipanon River	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2017	400,000	05-30-17	05-30-17	Grande Ronde River	Grande Ronde River	SNAK
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2017	240,000	04-14-17	05-31-17	Deschutes River	Deschutes River	MCOL
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>686,500</b>					
Washington Dept. of Fish and Wildlife	COOP	CO	NO	2018	1,000	06-01-17	06-01-17	Campbell Creek	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH0	FA	2017	168,340	06-01-17	06-01-17	Cowlitz Hatchery	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CH0	FA	2017	3,079,580	06-01-17	06-01-17	Cowlitz Hatchery	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2017	24,500	04-20-17	05-31-17	Blackbird Island Acc Pond	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	CH0	FA	2017	3,583,300	05-20-17	05-31-17	Fallert Creek Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	CH0	FA	2017	3,422,352	06-01-17	06-01-17	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2017	220,500	05-31-17	05-31-17	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	WI	2017	51,000	05-01-17	06-01-17	N Fk Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	North Toutle Hatchery	CH0	FA	2017	1,400,000	06-01-17	07-01-17	Green River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CH0	FA	2017	990,000	06-01-17	06-01-17	Deep River Net Pens	Grays River	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CH0	FA	2017	1,900,000	06-01-17	06-01-17	Washougal Hatchery	Washougal River	LCOL
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>14,840,572</b>					
Yakama Tribe	Cascade Hatchery	CO	UN	2017	69,703	04-27-17	06-01-17	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Eagle Creek NFH	CO	UN	2017	141,000	04-15-17	06-01-17	Holmes Pond	Yakima River	MCOL
Yakama Tribe	Eagle Creek NFH	CO	UN	2017	141,000	04-15-17	06-01-17	Stiles Pond	Yakima River	MCOL
Yakama Tribe	Klickitat Hatchery	CH0	FA	2017	4,000,000	06-01-17	06-01-17	Klickitat Hatchery	Klickitat River	MCOL
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2017	250,000	04-15-17	06-01-17	Prosser Acclim Pond	Yakima River	MCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	32,195	04-27-17	06-01-17	Wenatchee River	Wenatchee River	UCOL
<b>Yakama Tribe Total</b>					<b>4,633,898</b>					
<b>Grand Total</b>					<b>21,347,970</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
05/12/2017	177.6	0.0	178.8	60.5	217.1	39.0	221.4	74.8	225.8	81.4	242.4	109.7	244.3	133.7
05/13/2017	185.0	3.3	182.8	73.3	216.1	42.3	221.9	77.1	229.0	86.6	249.5	131.7	249.7	125.0
05/14/2017	198.3	14.5	203.6	100.2	236.4	64.2	239.9	85.8	238.2	92.9	257.8	146.5	259.3	133.9
05/15/2017	218.2	48.7	216.9	122.2	238.6	59.2	244.9	87.4	242.1	97.8	259.9	127.8	260.1	166.8
05/16/2017	230.2	61.0	232.1	142.8	260.1	82.6	260.9	104.4	257.8	113.5	280.0	151.2	281.8	194.4
05/17/2017	235.7	64.7	245.9	147.5	269.0	92.6	270.8	114.2	261.7	122.1	295.0	175.2	300.0	204.3
05/18/2017	230.7	51.6	231.9	127.7	258.2	81.1	263.5	106.3	254.9	115.2	279.1	140.4	291.5	186.6
05/19/2017	224.2	24.2	233.1	128.7	257.5	79.5	260.3	108.3	247.7	106.7	279.5	153.6	273.8	154.9
05/20/2017	226.2	28.9	229.6	103.1	254.2	75.6	259.6	103.9	255.8	119.2	281.8	147.6	276.7	171.8
05/21/2017	226.3	26.7	228.9	105.3	254.5	75.9	258.0	103.1	252.9	111.3	276.5	150.1	277.6	157.1
05/22/2017	204.2	29.8	209.5	104.0	241.0	61.8	250.0	94.1	249.9	109.0	271.0	140.6	277.8	169.5
05/23/2017	192.7	19.8	191.3	90.7	224.9	45.1	239.1	85.4	243.9	109.8	271.0	174.3	276.7	162.4
05/24/2017	186.1	11.5	192.0	96.7	229.5	51.2	240.7	92.8	247.8	110.0	255.9	155.1	264.3	162.8
05/25/2017	193.6	8.3	194.7	93.6	236.1	56.1	240.5	83.7	242.7	101.7	260.1	131.7	263.7	158.4

## 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
05/12/2017	4.6	0.3	---	51.5	179.0	87.7	178.3	133.9	177.3	99.4	177.5	126.5
05/13/2017	6.0	1.5	---	50.9	182.6	91.2	181.0	120.1	184.0	106.3	182.8	127.8
05/14/2017	5.9	1.6	---	50.6	172.7	81.8	174.1	105.1	174.3	96.5	180.1	125.0
05/15/2017	6.0	1.5	---	50.8	158.7	68.3	154.0	84.0	153.4	75.7	155.3	100.8
05/16/2017	6.4	1.9	---	50.6	149.4	59.2	146.8	81.8	147.2	81.5	150.5	102.1
05/17/2017	6.4	1.9	---	44.5	141.1	50.9	137.2	64.4	137.6	75.3	144.8	95.8
05/18/2017	6.3	1.8	---	43.3	130.4	41.5	126.2	53.0	126.7	58.7	127.4	80.0
05/19/2017	6.3	1.8	---	41.7	123.3	36.6	120.0	38.1	122.6	53.7	126.8	84.2
05/20/2017	6.3	1.9	---	39.8	116.4	33.3	113.0	35.2	113.7	53.7	117.6	71.2
05/21/2017	6.3	1.8	---	38.2	115.6	42.0	112.9	33.9	113.0	53.1	115.1	60.5
05/22/2017	6.2	1.7	---	35.5	114.8	44.4	109.8	43.0	110.3	54.9	114.3	67.0
05/23/2017	6.2	1.9	---	33.2	123.6	43.7	119.3	43.2	119.6	60.8	121.3	78.3
05/24/2017	6.0	1.7	---	33.3	141.5	52.2	138.8	62.8	138.0	79.0	141.8	92.1
05/25/2017	6.2	1.8	---	31.8	158.6	68.3	155.8	74.6	157.0	88.1	156.6	101.2

## 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		
05/12/2017	432.1	285.2	439.1	176.1	425.7	220.4	450.4	253.0	73.8	111.3
05/13/2017	435.2	287.7	444.8	180.4	423.5	235.7	441.5	246.3	69.0	113.9
05/14/2017	422.8	275.7	434.1	169.3	419.4	250.5	438.5	239.1	72.3	114.7
05/15/2017	433.8	292.5	433.9	169.0	421.1	270.7	438.4	235.0	76.8	114.2
05/16/2017	423.8	278.3	423.5	159.3	408.7	270.5	435.7	234.4	76.4	112.5
05/17/2017	427.3	280.7	424.6	164.0	409.8	273.1	429.5	229.4	75.9	111.8
05/18/2017	420.8	273.9	434.7	190.1	426.5	280.7	434.2	231.5	75.6	114.7
05/19/2017	409.3	260.4	415.1	168.3	403.1	240.7	423.2	223.4	70.3	117.1
05/20/2017	394.3	243.3	406.0	150.2	389.7	229.4	410.0	209.6	70.3	117.8
05/21/2017	385.5	230.4	388.7	145.8	371.1	216.1	402.4	205.3	65.5	119.2
05/22/2017	393.5	235.9	389.1	162.7	371.1	220.9	391.7	200.3	59.0	120.0
05/23/2017	394.8	235.6	400.6	166.0	378.2	219.3	395.3	201.9	61.7	119.3
05/24/2017	404.4	244.2	402.5	167.8	392.3	222.5	405.7	213.1	63.3	117.0
05/25/2017	429.6	263.4	437.1	196.4	419.0	212.3	435.7	242.0	65.4	115.9

## Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and Columbia River

Site	Date	Species	Number of Fish	Number w/ GBT signs	Number w/ Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
<b>Lower Granite Dam</b>											
	05/18/17	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
	05/25/17	Chinook + Steelhead	101	3	3	2.97%	0.00%	3	0	0	0
<b>Little Goose Dam</b>											
	05/15/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	4	1	0	0
	05/22/17	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
<b>Lower Monumental Dam</b>											
	05/17/17	Chinook + Steelhead	100	10	10	10.00%	2.00%	8	0	2	0
<b>McNary Dam</b>											
	05/14/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	0	1	0	0
	05/16/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/22/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/24/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	05/13/17	Chinook + Steelhead	100	6	6	6.00%	0.00%	6	0	0	0
	05/16/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/20/17	Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0	0
	05/23/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	2	3	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>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>	
5/12	---	---	---	0	---	---	---	0	113.0	113.3	113.8	24	111.5	111.8	112.2	24	119.6	122.5	128.9	24
5/13	---	---	---	0	---	---	---	0	113.1	113.3	113.8	24	115.4	118.3	118.6	24	113.0	114.7	116.2	24
5/14	---	---	---	0	---	---	---	0	112.9	113.1	113.2	24	120.4	120.9	121.1	24	110.9	111.2	112.7	24
5/15	---	---	---	0	---	---	---	0	112.6	113.4	113.6	24	130.5	133.2	134.3	24	117.1	119.0	120.1	24
5/16	---	---	---	0	---	---	---	0	113.6	113.8	114.0	24	136.4	137.9	141.0	24	124.2	127.7	129.5	24
5/17	---	---	---	0	---	---	---	0	112.6	112.7	112.9	24	136.7	138.4	138.8	24	131.7	133.0	134.1	24
5/18	---	---	---	0	---	---	---	0	112.4	112.6	112.9	24	133.1	137.1	138.0	24	132.7	133.8	135.3	24
5/19	---	---	---	0	---	---	---	0	113.2	113.6	113.9	24	124.1	124.4	124.7	24	135.5	136.3	137.1	24
5/20	---	---	---	0	---	---	---	0	113.1	113.3	113.6	24	125.4	126.1	127.2	23	124.7	126.0	131.1	24
5/21	---	---	---	0	---	---	---	0	112.8	113.1	113.4	24	122.8	123.3	125.4	24	123.3	124.3	125.0	24
5/22	---	---	---	0	---	---	---	0	113.2	113.5	113.7	24	122.9	123.4	123.7	24	123.9	124.2	124.4	24
5/23	---	---	---	0	---	---	---	0	114.6	115.2	115.8	24	122.5	123.1	123.4	24	123.5	124.2	124.6	24
5/24	---	---	---	0	---	---	---	0	114.7	115.0	115.1	24	122.0	123.0	123.5	24	122.6	123.2	123.8	24
5/25	---	---	---	0	---	---	---	0	115.0	115.1	115.2	23	121.5	122.4	122.8	23	120.7	121.0	121.3	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>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>	
5/12	115.3	115.6	115.9	24	118.8	119.8	120.1	24	122.1	122.7	122.9	24	121.5	123.1	123.6	24	126.0	126.7	127.2	22
5/13	115.7	116.3	116.6	24	113.4	113.9	114.9	24	117.2	118.3	120.0	24	119.7	120.0	120.3	24	126.2	126.9	127.4	23
5/14	116.6	116.8	117.0	24	112.0	112.5	112.7	24	118.4	119.5	121.6	24	116.4	117.0	118.4	23	125.9	126.3	126.9	19
5/15	117.1	117.6	117.9	24	114.1	115.7	116.6	24	119.4	121.6	122.6	24	117.9	118.4	118.9	23	126.8	127.5	128.3	21
5/16	118.1	118.6	119.1	24	117.0	117.3	117.6	24	123.7	124.7	125.2	24	120.0	121.6	121.9	24	128.5	129.1	130.2	22
5/17	118.3	118.6	118.8	24	120.1	121.4	121.9	24	126.3	127.4	128.8	24	121.7	122.9	123.5	24	129.2	129.7	130.1	24
5/18	117.7	118.2	118.8	24	121.8	122.4	122.7	24	126.6	127.8	128.9	24	125.2	126.3	127.3	24	129.4	129.8	130.6	23
5/19	118.6	119.7	125.1	24	123.6	124.9	125.6	24	127.6	129.4	130.9	24	125.6	126.5	127.2	24	129.1	129.9	130.8	22
5/20	117.0	117.4	117.9	24	121.6	122.9	123.6	24	126.5	127.3	129.4	24	126.4	127.4	128.3	24	129.4	130.0	130.3	22
5/21	117.1	117.9	118.6	24	118.7	119.2	119.5	24	124.3	126.0	127.0	24	124.9	125.2	125.5	24	128.8	129.5	130.1	22
5/22	116.8	117.3	117.8	24	119.5	119.8	120.0	24	123.8	125.2	126.6	24	124.1	125.3	126.0	23	128.4	129.4	130.2	23
5/23	116.1	116.3	116.6	24	118.8	119.1	119.2	24	121.8	122.1	122.8	24	123.5	124.5	125.2	24	128.2	128.6	130.1	21
5/24	116.3	116.9	118.3	24	116.6	116.9	117.8	24	120.5	121.5	122.5	24	119.1	120.2	122.1	24	127.2	127.8	128.3	20
5/25	116.3	117.0	117.2	23	115.8	116.1	116.4	23	120.2	121.8	124.3	23	118.3	118.8	119.3	23	126.5	127.4	128.4	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>			#
	<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>	
5/12	120.4	121.1	121.5	24	126.0	126.6	127.2	22	124.0	124.4	124.6	24	123.4	123.8	124.8	24	121.3	122.1	123.3	24
5/13	119.8	120.1	120.4	24	125.1	125.3	125.8	21	123.4	123.9	124.0	24	125.5	126.5	127.8	24	123.4	124.9	125.5	24
5/14	118.8	119.2	119.7	23	124.6	124.9	125.5	19	121.4	121.9	122.2	24	126.3	128.0	130.0	24	123.5	124.5	126.4	24
5/15	119.3	120.1	120.6	22	125.0	125.8	126.3	20	121.6	122.1	122.4	24	124.3	126.2	131.2	24	122.7	123.7	125.5	24
5/16	120.4	121.0	121.5	23	125.6	127.5	128.3	22	121.3	122.1	122.3	24	127.4	128.6	131.1	24	123.2	124.7	126.9	24
5/17	122.1	122.5	122.8	24	128.3	128.6	129.0	24	119.3	119.6	119.7	24	129.5	131.4	135.4	24	125.0	126.5	129.4	24
5/18	123.5	124.6	125.2	24	128.7	128.9	129.3	22	122.7	124.4	124.8	24	126.3	127.6	128.3	24	124.3	125.5	126.5	24
5/19	124.5	124.6	124.8	22	129.9	130.0	130.2	21	126.0	127.2	128.0	24	129.2	132.0	135.4	24	126.8	129.7	132.4	24
5/20	124.6	125.1	125.4	23	129.5	130.0	130.3	21	126.0	126.5	126.8	24	127.8	129.2	135.4	24	125.5	127.3	129.4	24
5/21	124.1	124.5	124.9	22	129.3	129.5	129.9	20	126.8	127.9	128.4	24	127.8	128.0	128.2	24	126.1	126.9	127.3	24
5/22	123.2	123.5	123.9	23	128.7	129.0	129.5	23	127.7	128.7	129.5	24	127.1	129.5	132.1	24	127.0	128.0	128.8	24
5/23	123.2	123.5	123.8	21	129.0	129.3	129.6	21	127.3	127.9	128.8	24	131.7	132.0	132.4	24	127.2	129.4	130.2	24
5/24	120.2	120.8	122.3	21	127.3	127.6	128.5	18	121.7	122.7	125.2	24	128.5	131.1	132.8	24	123.4	124.6	127.3	24
5/25	118.4	119.7	120.9	23	126.1	126.7	127.5	22	---	---	---	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>Clrwtr-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>	
5/12	121.3	121.5	121.7	24	---	---	---	0	102.6	103.8	106.2	24	102.0	102.3	102.5	24	109.0	109.3	109.5	24
5/13	121.8	122.2	122.7	24	---	---	---	0	104.9	105.8	108.5	24	103.0	103.8	104.2	24	110.0	110.4	110.8	24
5/14	122.1	122.8	123.4	24	---	---	---	0	106.0	107.0	108.3	24	103.2	103.9	104.4	24	110.1	110.7	111.1	24
5/15	122.7	123.0	123.6	24	---	---	---	0	105.4	106.1	106.6	24	103.2	104.1	104.8	24	109.6	110.2	110.6	24
5/16	123.7	124.0	124.3	24	---	---	---	0	107.5	107.8	108.7	24	102.7	103.0	103.5	24	108.4	108.9	109.4	24
5/17	124.1	124.4	124.8	24	---	---	---	0	106.5	106.8	107.0	24	101.6	101.8	102.0	24	107.1	107.2	107.4	24
5/18	124.0	124.9	125.4	24	---	---	---	0	106.2	106.6	107.0	24	102.9	104.0	104.6	24	107.5	108.4	109.0	24
5/19	125.1	126.1	127.0	24	---	---	---	0	106.5	107.1	108.6	24	103.3	104.1	105.0	24	107.6	108.3	108.9	24
5/20	123.6	124.1	124.8	24	---	---	---	0	107.0	107.8	108.4	24	103.0	103.5	104.5	24	106.7	107.0	107.3	24
5/21	124.0	124.3	124.6	24	---	---	---	0	105.8	106.3	106.7	24	103.0	104.1	104.8	24	106.7	107.5	108.2	24
5/22	124.3	124.9	125.2	24	---	---	---	0	105.9	106.5	107.0	24	103.2	104.3	104.9	24	106.7	107.4	108.0	24
5/23	124.2	125.1	126.0	24	---	---	---	0	107.1	108.3	109.9	24	103.9	105.1	105.7	24	106.8	107.6	108.2	24
5/24	122.5	122.9	123.8	24	---	---	---	0	107.3	108.5	109.5	24	103.6	104.4	104.7	24	106.5	107.0	107.6	23
5/25	---	---	---	0	---	---	---	0	106.9	107.2	107.4	23	103.2	103.7	103.9	23	107.2	107.6	107.9	23

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

Date	<u>Clrwtr-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>	
5/12	101.2	101.4	101.6	24	106.7	106.9	107.3	24	128.7	129.3	131.3	24	119.0	119.3	119.6	24	128.7	129.0	129.9	24
5/13	101.8	102.6	103.1	24	106.4	106.5	106.6	24	129.6	129.7	129.9	24	119.4	120.0	120.2	24	128.9	129.5	129.9	24
5/14	102.7	103.6	104.7	23	107.2	107.8	108.0	24	127.9	128.8	129.2	24	120.4	120.9	121.0	24	127.6	128.0	128.2	24
5/15	110.5	118.9	124.1	24	108.6	109.3	109.6	24	125.7	126.3	129.3	24	121.7	122.2	122.5	24	125.0	125.4	125.8	24
5/16	99.5	100.3	101.2	24	108.8	109.0	109.3	24	123.4	123.9	125.3	24	121.9	122.3	122.4	24	124.6	124.8	125.0	24
5/17	98.6	101.4	105.6	24	106.0	106.7	107.8	24	120.0	121.1	122.5	24	117.7	118.7	120.2	24	121.6	123.2	124.2	24
5/18	98.4	101.0	102.2	24	104.5	104.9	105.3	24	117.5	117.7	118.4	24	115.5	115.7	116.0	23	118.7	120.6	122.8	24
5/19	101.1	102.8	105.2	22	105.9	106.4	107.2	24	116.7	117.3	117.8	24	116.0	116.3	116.5	24	116.7	116.8	117.0	24
5/20	102.4	103.3	104.5	24	106.9	107.2	107.7	24	115.5	117.5	117.6	24	115.0	115.4	116.2	24	116.1	116.4	116.6	24
5/21	102.7	104.4	105.6	24	106.1	106.4	106.7	24	117.7	119.4	119.6	24	113.6	113.9	114.2	24	116.3	116.6	116.7	24
5/22	102.9	104.3	105.8	23	105.9	106.0	106.5	24	118.9	119.4	119.5	24	114.6	114.8	115.0	24	117.7	119.1	121.5	24
5/23	103.4	104.9	105.8	24	107.2	107.4	107.7	24	118.3	119.0	119.6	24	116.3	118.7	120.4	24	118.1	118.9	120.1	24
5/24	102.6	103.3	104.2	24	107.1	107.4	107.8	24	120.3	122.7	125.5	24	117.4	118.1	119.4	24	121.3	122.9	124.5	24
5/25	102.6	103.4	104.4	23	105.2	105.5	106.5	23	123.9	124.3	124.5	23	114.6	115.1	115.9	23	123.6	124.7	125.0	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>	
5/12	129.5	129.9	130.4	24	126.9	127.6	128.8	24	122.5	122.7	123.1	24	127.4	130.1	131.4	24	---	---	---	0
5/13	130.4	130.6	130.9	24	127.0	127.6	128.6	24	122.8	123.1	123.3	24	127.6	130.5	131.6	24	---	---	---	0
5/14	129.3	129.7	130.2	24	125.7	126.6	128.4	24	122.9	123.3	123.6	24	126.9	128.3	132.1	24	---	---	---	0
5/15	129.6	129.8	130.0	24	123.5	124.5	125.4	24	123.8	124.1	124.3	24	122.6	123.6	124.8	24	---	---	---	0
5/16	127.4	128.4	129.0	24	123.5	124.6	125.2	24	123.1	124.1	124.3	24	122.4	123.3	123.7	24	---	---	---	0
5/17	124.2	124.6	125.5	24	122.3	123.7	125.0	24	119.6	119.8	120.5	24	120.9	121.5	122.8	24	---	---	---	0
5/18	123.7	124.2	124.6	24	120.8	121.8	123.8	24	120.1	121.0	121.3	24	119.2	119.9	120.2	24	---	---	---	0
5/19	121.7	123.2	125.7	24	120.4	120.6	122.8	24	121.0	121.3	121.5	24	119.4	119.9	120.1	24	---	---	---	0
5/20	119.1	119.6	120.5	24	119.9	120.3	120.6	24	120.1	120.4	121.0	24	118.7	119.6	120.1	24	---	---	---	0
5/21	117.3	117.5	117.9	24	119.7	119.9	120.2	24	119.0	119.2	119.6	24	117.3	118.4	119.0	24	---	---	---	0
5/22	117.3	117.7	118.0	24	119.6	119.9	120.1	24	119.0	119.3	119.5	24	118.5	119.0	119.7	24	---	---	---	0
5/23	119.5	120.9	123.2	24	121.1	121.7	123.4	24	119.8	120.3	120.8	24	119.2	119.8	120.3	24	---	---	---	0
5/24	119.0	119.4	121.0	24	123.0	123.6	125.6	24	119.4	119.6	120.0	24	121.0	121.9	126.8	24	---	---	---	0
5/25	121.2	122.7	124.5	23	124.9	126.4	126.8	23	119.3	119.9	121.0	23	122.6	124.1	126.5	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>	
	<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>	
5/12	116.1	116.5	117.1	24	127.5	129.0	129.2	24	123.6	123.8	124.5	24	131.8	132.7	133.0	24	122.0	122.6	123.3	24
5/13	116.5	117.0	117.2	24	127.0	129.0	129.3	24	120.8	121.6	122.8	24	132.5	134.0	134.4	24	120.6	120.9	121.6	24
5/14	116.3	116.6	116.8	24	124.2	124.4	124.5	24	117.9	118.2	118.7	24	131.0	131.1	131.4	24	119.2	119.7	120.6	24
5/15	117.6	118.2	118.5	24	127.9	129.7	130.4	24	117.3	117.6	117.9	24	131.0	131.2	131.5	24	118.8	119.6	120.3	24
5/16	117.6	118.3	118.5	24	125.5	126.2	128.0	24	117.7	118.2	118.3	24	129.0	130.0	130.5	24	118.2	119.4	119.8	24
5/17	113.4	113.8	114.4	24	124.3	124.5	124.8	24	115.7	116.1	116.4	24	129.0	130.3	133.9	24	115.0	115.3	115.7	24
5/18	115.2	116.8	117.7	24	124.1	124.4	124.8	24	114.8	115.0	115.3	24	133.0	133.7	134.0	24	118.1	120.2	121.0	24
5/19	118.3	119.2	120.0	24	123.7	124.3	125.1	24	114.9	115.9	116.6	24	130.1	132.0	133.9	24	118.5	119.2	120.1	24
5/20	119.3	119.6	119.6	24	123.2	123.7	124.4	24	118.3	119.3	120.4	24	127.6	127.7	127.9	24	117.4	118.2	118.9	24
5/21	119.1	119.6	119.9	24	122.1	122.3	122.5	24	121.6	122.3	122.7	24	126.7	127.7	128.3	24	119.8	120.7	121.2	24
5/22	119.4	120.0	120.7	24	122.3	122.9	123.4	24	122.5	123.0	123.6	24	126.0	129.2	131.4	24	121.5	122.7	123.7	24
5/23	120.8	121.3	121.6	24	123.1	123.4	123.6	24	123.8	124.0	124.4	24	122.0	122.9	123.1	24	120.9	121.6	122.9	24
5/24	118.4	119.1	120.7	24	123.3	123.6	123.8	24	119.3	120.6	122.5	24	122.1	122.8	123.6	22	116.3	116.8	118.7	24
5/25	117.4	117.6	118.1	23	124.3	125.1	128.9	23	116.7	117.0	117.2	23	125.0	125.9	126.5	23	118.8	118.8	122.1	4

### 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>	
	<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>	
5/12	123.5	124.0	124.4	24	123.4	123.9	124.3	24	127.1	127.3	127.6	24	124.8	125.2	125.6	24	126.8	127.2	127.4	24
5/13	123.0	123.3	123.7	24	123.0	123.2	123.6	24	126.9	127.2	127.8	24	124.1	124.3	124.8	24	126.3	126.8	127.6	24
5/14	122.5	122.9	123.2	24	122.7	123.2	123.4	24	126.4	126.7	126.9	24	124.7	124.9	125.0	24	125.6	125.9	126.8	24
5/15	121.6	121.9	122.3	24	122.5	122.9	123.1	24	126.1	126.3	126.5	24	124.9	125.4	125.8	24	125.4	125.6	125.7	24
5/16	121.4	122.1	122.8	23	121.1	121.8	122.2	24	125.2	125.6	126.0	23	122.6	123.4	124.6	24	125.4	125.6	125.8	24
5/17	119.8	120.1	120.5	24	117.0	117.4	118.4	24	122.6	123.0	123.8	24	120.9	121.2	121.4	24	124.4	124.8	125.1	24
5/18	121.2	122.2	123.2	24	119.5	121.3	122.0	24	124.1	125.5	126.0	24	121.9	123.0	123.8	24	124.8	125.5	125.8	24
5/19	122.7	123.0	123.8	24	123.1	123.5	123.7	24	125.8	126.3	126.6	24	124.6	125.4	126.2	24	124.6	125.0	125.3	24
5/20	122.0	122.4	122.8	24	121.4	122.0	123.4	24	124.2	124.8	125.9	24	123.5	123.9	124.6	24	123.7	124.3	125.0	24
5/21	123.2	123.7	124.0	24	122.7	123.9	124.8	24	124.8	125.2	125.3	24	122.8	123.8	124.3	24	123.4	123.6	123.7	24
5/22	124.1	124.6	125.3	24	124.8	125.3	125.9	24	125.7	125.8	125.9	24	124.1	125.0	125.5	24	123.1	123.2	123.3	24
5/23	123.9	124.3	125.1	24	125.1	125.9	126.1	24	126.0	126.5	127.3	24	124.3	125.1	126.1	24	123.5	123.8	125.4	24
5/24	121.2	121.8	123.3	24	118.1	118.8	120.9	24	123.1	123.4	124.0	24	120.9	121.3	121.7	24	123.2	123.4	123.7	24
5/25	121.1	122.6	123.7	23	119.4	120.4	121.0	23	125.7	126.5	126.7	23	122.3	124.0	124.7	23	125.6	126.2	126.5	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 5/26/2017 9:52

### 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/currentsmpsubmitdata.asp>

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
05/12/2017	---	---	120	---	93,468	30,262	200,942	1,359	---	129,693	51,917
05/13/2017	---	---	282	---	61,735	53,733	206,887	1,210	88,546	---	39,541
05/14/2017	---	---	152	---	27,826	61,718	146,479	950	---	144,266	38,181
05/15/2017 *	---	13	136	---	12,340	60,177	89,546	1,051	101,954	---	41,082
05/16/2017 *	---	18	86	---	18,712	30,284	32,991	875	---	122,993	33,753
05/17/2017 *	---	20	83	---	8,022	30,791	17,106	711	73,555	---	38,697
05/18/2017	---	20	114	---	13,920	32,882	15,285	1,003	---	98,695	29,458
05/19/2017	---	16	69	---	10,215	18,346	12,515	720	62,621	---	31,657
05/20/2017 *	---	10	68	---	6,371	21,331	16,195	578	---	46,377	24,596
05/21/2017 *	---	1	79	---	5,968	14,990	6,155	473	33,483	---	24,566
05/22/2017	---	---	73	---	4,550	11,370	6,155	308	---	37,507	28,707
05/23/2017	---	---	79	---	4,909	10,835	2,802	325	30,758	---	23,956
05/24/2017	---	---	82	---	6,595	7,655	3,780	295	---	19,134	20,207
05/25/2017	---	---	79	---	10,171	5,702	3,138	216	20,201	---	12,489
05/26/2017	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>98</b>	<b>1,502</b>	<b>0</b>	<b>284,802</b>	<b>390,076</b>	<b>759,976</b>	<b>10,074</b>	<b>411,118</b>	<b>598,665</b>	<b>438,807</b>
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>14</b>	<b>107</b>	<b>0</b>	<b>20,343</b>	<b>27,863</b>	<b>54,284</b>	<b>720</b>	<b>58,731</b>	<b>85,524</b>	<b>31,343</b>
<b>YTD</b>	<b>33,704</b>	<b>22,188</b>	<b>21,036</b>	<b>8</b>	<b>3,957,066</b>	<b>2,359,965</b>	<b>2,841,849</b>	<b>49,916</b>	<b>1,537,217</b>	<b>1,663,530</b>	<b>1,890,503</b>

COMBINED SUBYEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
05/12/2017	---	---	2	---	375	0	0	32	---	3,472	6,632
05/13/2017	---	---	0	---	396	0	467	31	5,348	---	2,066
05/14/2017	---	---	0	---	1,193	137	0	46	---	5,049	1,386
05/15/2017 *	---	0	1	---	748	0	415	66	15,464	---	618
05/16/2017 *	---	0	9	---	0	220	440	38	---	3,028	3,778
05/17/2017 *	---	0	5	---	164	224	0	25	5,367	---	3,266
05/18/2017	---	1	4	---	382	0	332	90	---	2,617	2,942
05/19/2017	---	0	2	---	73	346	176	54	5,170	---	4,113
05/20/2017 *	---	0	4	---	217	0	0	135	---	3,246	4,040
05/21/2017 *	---	0	3	---	402	0	0	67	6,545	---	3,058
05/22/2017	---	---	2	---	343	0	0	196	---	4,626	4,113
05/23/2017	---	---	1	---	1,267	830	0	95	2,812	---	5,243
05/24/2017	---	---	1	---	1,841	326	0	974	---	2,273	8,402
05/25/2017	---	---	1	---	4,835	97	251	1,239	8,580	---	6,071
05/26/2017	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>1</b>	<b>35</b>	<b>0</b>	<b>12,236</b>	<b>2,180</b>	<b>2,081</b>	<b>3,088</b>	<b>49,286</b>	<b>24,311</b>	<b>55,728</b>
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>874</b>	<b>156</b>	<b>149</b>	<b>221</b>	<b>7,041</b>	<b>3,473</b>	<b>3,981</b>
<b>YTD</b>	<b>0</b>	<b>2</b>	<b>37</b>	<b>0</b>	<b>20,892</b>	<b>2,968</b>	<b>6,264</b>	<b>5,751</b>	<b>94,040</b>	<b>34,278</b>	<b>1,451,190</b>



## 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)
05/12/2017	---	---	61	---	9,750	912	4,923	1,192	---	4,465	5,870	
05/13/2017	---	---	107	---	10,289	4,959	12,609	1,391	5,942	---	3,749	
05/14/2017	---	---	104	---	4,373	4,513	6,007	954	---	5,771	2,052	
05/15/2017 *	---	0	64	---	3,739	5,339	5,804	1,322	4,163	---	3,969	
05/16/2017 *	---	0	49	---	3,090	4,391	2,639	1,696	---	6,756	4,911	
05/17/2017 *	---	0	39	---	1,965	5,833	1,894	952	10,132	---	4,005	
05/18/2017	---	0	46	---	3,748	5,477	1,329	2,489	---	6,421	3,929	
05/19/2017	---	0	22	---	2,399	3,803	4,407	2,017	10,052	---	6,233	
05/20/2017 *	---	0	16	---	1,665	3,971	3,313	2,138	---	8,116	5,027	
05/21/2017 *	---	0	8	---	939	3,171	993	1,950	6,278	---	4,670	
05/22/2017	---	---	12	---	1,460	1,749	1,154	1,817	---	7,270	5,676	
05/23/2017	---	---	9	---	1,504	2,160	801	1,476	4,840	---	6,211	
05/24/2017	---	---	40	---	2,761	2,607	1,437	1,457	---	5,621	5,598	
05/25/2017	---	---	63	---	6,336	2,513	251	1,219	7,020	---	4,317	
05/26/2017	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>640</b>	<b>0</b>	<b>54,018</b>	<b>51,398</b>	<b>47,561</b>	<b>22,070</b>	<b>48,427</b>	<b>44,420</b>	<b>66,217</b>	
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>3,858</b>	<b>3,671</b>	<b>3,397</b>	<b>1,576</b>	<b>6,918</b>	<b>6,346</b>	<b>4,730</b>	
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>2,211</b>	<b>0</b>	<b>107,864</b>	<b>67,838</b>	<b>58,804</b>	<b>27,215</b>	<b>70,010</b>	<b>74,741</b>	<b>335,502</b>	

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)
05/12/2017	---	---	76	---	71,346	28,064	115,911	1,171	---	61,748	7,401	
05/13/2017	---	---	329	---	43,135	26,980	98,073	1,369	10,102	---	5,559	
05/14/2017	---	---	282	---	58,037	23,659	55,449	1,240	---	82,232	5,479	
05/15/2017 *	---	160	146	---	34,403	32,990	51,821	1,191	14,923	---	6,829	
05/16/2017 *	---	179	42	---	35,535	30,190	47,947	1,227	---	61,263	8,818	
05/17/2017 *	---	259	47	---	19,646	26,481	27,174	806	8,398	---	7,083	
05/18/2017	---	257	71	---	28,528	26,017	15,949	998	---	43,997	5,034	
05/19/2017	---	245	35	---	20,822	11,750	13,749	705	6,327	---	2,741	
05/20/2017 *	---	229	26	---	20,705	15,288	13,619	853	---	23,420	3,591	
05/21/2017 *	---	56	35	---	14,619	11,100	10,721	1,018	5,496	---	3,848	
05/22/2017	---	---	29	---	10,475	17,198	7,886	819	---	24,784	2,632	
05/23/2017	---	---	26	---	11,796	17,230	9,008	656	3,877	---	1,533	
05/24/2017	---	---	29	---	15,798	12,703	8,267	582	---	12,973	2,373	
05/25/2017	---	---	57	---	22,092	8,698	7,281	669	6,580	---	2,451	
05/26/2017	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>1,385</b>	<b>1,230</b>	<b>0</b>	<b>406,937</b>	<b>288,348</b>	<b>482,855</b>	<b>13,304</b>	<b>55,703</b>	<b>310,417</b>	<b>65,372</b>	
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	
<b>Average:</b>	<b>0</b>	<b>198</b>	<b>88</b>	<b>0</b>	<b>29,067</b>	<b>20,596</b>	<b>34,490</b>	<b>950</b>	<b>7,958</b>	<b>44,345</b>	<b>4,669</b>	
<b>YTD</b>	<b>7,117</b>	<b>15,496</b>	<b>7,576</b>	<b>1</b>	<b>3,903,361</b>	<b>1,753,239</b>	<b>2,412,567</b>	<b>27,297</b>	<b>418,894</b>	<b>1,252,176</b>	<b>241,937</b>	

## Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
05/12/2017	---	---	0	---	3,375	23	448	570	---	8,928	4,336
05/13/2017	---	---	0	---	2,770	222	467	470	21,393	---	4,392
05/14/2017	---	---	0	---	1,193	1,009	5,545	568	---	16,590	3,184
05/15/2017 *	---	0	0	---	3,739	978	1,244	568	17,843	---	7,075
05/16/2017 *	---	0	0	---	1,030	902	1,320	476	---	11,647	7,054
05/17/2017 *	---	0	0	---	819	702	1,894	375	6,556	---	6,788
05/18/2017	---	0	0	---	1,530	1,208	332	228	---	11,891	9,206
05/19/2017	---	0	0	---	1,018	871	1,234	213	14,073	---	4,985
05/20/2017 *	---	0	0	---	869	1,479	2,208	244	---	7,189	4,488
05/21/2017 *	---	0	0	---	805	1,441	397	154	8,635	---	6,281
05/22/2017	---	---	0	---	859	1,166	577	129	---	4,296	5,077
05/23/2017	---	---	0	---	238	996	400	95	4,585	---	5,485
05/24/2017	---	---	0	---	690	655	332	84	---	4,324	4,255
05/25/2017	---	---	0	---	584	580	126	146	4,162	---	3,851
05/26/2017	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19,519</b>	<b>12,232</b>	<b>16,524</b>	<b>4,320</b>	<b>77,247</b>	<b>64,865</b>	<b>76,397</b>
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</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>0</b>	<b>1,394</b>	<b>874</b>	<b>1,180</b>	<b>309</b>	<b>11,035</b>	<b>9,266</b>	<b>5,457</b>
<b>YTD</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>57,893</b>	<b>19,000</b>	<b>29,965</b>	<b>9,850</b>	<b>143,483</b>	<b>106,947</b>	<b>132,605</b>

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
05/12/2017	---	---	0	---	1	150	0	0	---	858	67
05/13/2017	---	---	0	---	1	300	400	0	800	---	33
05/14/2017	---	---	0	---	1	150	200	0	---	715	73
05/15/2017 *	---	0	0	---	2	200	200	0	6,800	---	0
05/16/2017 *	---	0	0	---	4	0	1,000	0	---	3,143	133
05/17/2017 *	---	1	0	---	1	0	200	0	1,600	---	20
05/18/2017	---	0	0	---	1	200	0	0	---	15,143	267
05/19/2017	---	0	0	---	1	0	100	1	400	---	400
05/20/2017 *	---	0	0	---	0	100	0	0	---	1,286	1,025
05/21/2017 *	---	0	0	---	0	0	0	0	300	---	640
05/22/2017	---	---	0	---	0	0	0	0	---	500	375
05/23/2017	---	---	0	---	0	100	0	0	400	---	225
05/24/2017	---	---	0	---	1	200	0	0	---	1,313	238
05/25/2017	---	---	0	---	0	50	0	1	0	---	33
05/26/2017	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>1,450</b>	<b>2,100</b>	<b>2</b>	<b>10,300</b>	<b>22,958</b>	<b>3,529</b>
<b># Days:</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</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>0</b>	<b>1</b>	<b>104</b>	<b>150</b>	<b>0</b>	<b>1,471</b>	<b>3,280</b>	<b>252</b>
<b>YTD</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>46</b>	<b>3,050</b>	<b>2,100</b>	<b>26</b>	<b>17,380</b>	<b>39,156</b>	<b>37,446</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.

Three 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:

5/26/17 9:52 AM

		05/12/17	TO	05/26/17			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	7,350	158,576	30,950	235,424	11,250	443,550
	Sum of NumberBarged	7,293	153,586	30,745	220,261	11,088	422,973
	Sum of NumberBypassed	16	4,390	169	15,106	78	19,759
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	5	10	2	7	3	27
	Sum of FacilityMorts	36	572	34	48	81	771
	Sum of ResearchMorts	0	18	0	2	0	20
	Sum of TotalProjectMorts	41	600	36	57	84	818
<b>LGS</b>	Sum of NumberCollected	1,200	171,789	25,605	135,339	6,875	340,808
	Sum of NumberBarged	1,194	171,220	25,595	135,311	6,766	340,086
	Sum of NumberBypassed	4	0	0	0	0	4
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	9	1	3	3	16
	Sum of FacilityMorts	2	560	9	25	106	702
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2	569	10	28	109	718
<b>LMN</b>	Sum of NumberCollected	1,000	342,984	22,350	221,516	7,800	595,650
	Sum of NumberBarged	999	342,539	22,312	221,351	7,760	594,961
	Sum of NumberBypassed	0	0	0	1	0	1
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	8	0	8	0	16
	Sum of FacilityMorts	1	437	38	156	40	672
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	445	38	164	40	688
Total Sum of NumberCollected		9,550	673,349	78,905	592,279	25,925	1,380,008
Total Sum of NumberBarged		9,486	667,345	78,652	576,923	25,614	1,358,020
Total Sum of NumberBypassed		20	4,390	169	15,107	78	19,764
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		5	27	3	18	6	59
Total Sum of FacilityMorts		39	1,569	81	229	227	2,145
Total Sum of ResearchMorts		0	18	0	2	0	20
Total Sum of TotalProjectMorts		44	1,614	84	249	233	2,224

**YTD Transportation Summary**

Source: Fish Passage Center

Updated:

5/26/17 9:52 AM

TO: 05/26/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	12,408	2,338,490	62,150	33,544	2,233,667	4,680,259
	Sum of NumberBarged	8,811	955,353	51,200	17,722	860,626	1,893,712
	Sum of NumberBypassed	3,545	1,380,609	10,900	15,644	1,372,865	2,783,563
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	10	89	3	10	51	163
	Sum of FacilityMorts	42	2,421	47	168	123	2,801
	Sum of ResearchMorts	0	18	0	0	2	20
	Sum of TotalProjectMorts	52	2,528	50	178	176	2,984
<b>LGS</b>	Sum of NumberCollected	1,707	1,314,727	32,721	10,628	1,008,950	2,368,733
	Sum of NumberBarged	1,194	472,541	29,493	7,046	257,210	767,484
	Sum of NumberBypassed	504	837,161	3,200	3,296	751,526	1,595,687
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	29	1	6	9	45
	Sum of FacilityMorts	9	4,996	27	280	205	5,517
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	9	5,025	28	286	214	5,562
<b>LMN</b>	Sum of NumberCollected	3,200	1,435,581	27,950	15,200	1,241,119	2,723,050
	Sum of NumberBarged	2,599	907,956	27,112	10,496	656,477	1,604,640
	Sum of NumberBypassed	600	489,493	800	4,597	560,085	1,055,575
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	36	0	4	26	66
	Sum of FacilityMorts	1	1,029	38	103	353	1,524
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	1,065	38	107	379	1,590
Total Sum of NumberCollected		17,315	5,088,798	122,821	59,372	4,483,736	9,772,042
Total Sum of NumberBarged		12,604	2,335,850	107,805	35,264	1,774,313	4,265,836
Total Sum of NumberBypassed		4,649	2,707,263	14,900	23,537	2,684,476	5,434,825
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		10	154	4	20	86	274
Total Sum of FacilityMorts		52	8,446	112	551	681	9,842
Total Sum of ResearchMorts		0	18	0	0	2	20
Total Sum of TotalProjectMorts		62	8,618	116	571	769	10,136

**Cumulative Adult Passage at Mainstem Dams Through: 05/25**

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/25	69046	14122	128949	10216	141414	23259	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/25	41271	7567	94444	8709	107129	18871	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/25	29183	6420	81985	6963	91300	16953	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/25	17611	2105	72279	5776	79116	12565	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/25	10188	1109	55320	3724	56052	7774	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/25	9008	1017	52675	4359	53264	6394	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/25	5834	704	47936	4201	46763	6428	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/25	5059	481	42093	3040	43019	6224	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/24	1631	33	11025	511	12386	830	0	0	0	0	0	0	0	0	0	0	0	0
WAN	05/24	1352	37	11522	345	12084	805	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/24	983	9	10601	304	10929	871	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/24	536	0	4289	159	4148	324	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/24	198	2	2985	204	2716	265	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/23	9987	478	14354	583	19540	553	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey				
		2017		2016		10-Yr Avg.		10-Yr		10-Yr			Unclipped		Unclipped		10-Yr		10-Yr		
		Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016
BON	05/25	0	0	0	0	0	0	3	29	3	3049	4903	5024	996	1849	1558	1396	1810	597		
TDA	05/25	0	0	0	0	0	0	0	2	0	1252	339	2635	433	180	1068	0	8	0		
JDA	05/25	0	0	0	0	0	1	1	0	0	523	379	5158	336	253	2062	140	315	52		
MCN	05/25	0	0	0	0	1	0	0	1	0	2530	462	6438	757	293	2117	2	35	5		
IHR	05/25	0	0	0	0	0	0	0	0	0	1061	1358	5554	499	705	1559	-2	3	0		
LMN	05/25	0	1	0	0	0	0	0	0	0	1427	1428	8223	689	989	2805	0	1	0		
LGS	05/25	0	0	0	0	0	0	0	0	0	1480	3401	5051	654	1969	2538	0	0	0		
LGR	05/25	0	0	0	0	0	0	0	0	0	7291	5467	9022	3038	3112	3582	0	-1	0		
PRD	05/24	0	0	0	0	0	0	0	2	0	43	18	46	0	0	0	17	101	4		
WAN	05/24	0	0	0	0	0	0	0	1	0	29	26	94	0	0	0	1	59	1		
RIS	05/24	0	0	0	0	0	0	0	1	0	53	38	109	16	19	56	0	0	0		
RRH	05/24	0	0	0	0	0	0	0	1	0	116	84	308	25	26	207	0	0	0		
WEL	05/24	0	0	0	0	0	0	0	0	0	31	57	65	20	24	45	0	1	0		
WFA	05/23	0	0	0	0	0	0	0	0	0	1060	12060	11030	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.

