



Fish Passage Center

Weekly Report #17-07

April 21, 2017

This Week's Highlights

River Conditions

Flows in the Snake River remain high, but have decreased 14 Kcfs as compared to last week. The reduction in flows are primarily due to Dworshak Dam beginning its refill operation on April 15th, reducing outflows from 25 Kcfs to 7.5 Kcfs (approximately 2.5 Kcfs of spill). Hells Canyon Complex flows remain quite high, with outflows at Hells Canyon ranging between 68 and 76 Kcfs over the last four days. As Brownlee, Grand Coulee, Hungry Horse, and Libby begin the transition to refill, flows should continue a gradual decline, depending on snowmelt timing and duration. Both the Snake River and Upper Columbia River flows are contributing to the high flows in the middle Columbia River.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3rd. However, due to the high river flows, 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 April 8th, 2017): Units 7, 8, 16 Out of Service.
2. The Dalles Dam (as of April 22, 2017): Units 2, 3, 6, 9, 12, 15, 16, 21 Out of Service. Unit 6 is expected to return to service on April 27, 2017, Units 3, 9, 12, and 21 expected to return in May of 2017.
3. John Day Dam (as of April 20, 2017): Units 5, 6, 7 Out of Service. Unit 7 expected to be back in service April 20, 2017.

4. McNary Dam (as of April 13, 2017): Units 2, 7, 8, 13 Out of Service, all expected to be back in service by April 22, 2017.
5. Ice Harbor Dam (as of April 13, 2017): Units 2 and 4 Out of Service.
6. Lower Monumental Dam (as of April 13, 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 April 13, 2017): all units available.
8. Lower Granite Dam (as of April 13, 2017): Units 1 Out of service. Unit 1 expected back middle July 2017.

This year at Dworshak, Unit #3 is out of service for rehabilitation through at least the early summer period (latest update is late July). As Unit #3 is the largest in terms of outflow capacity of the three units at Dworshak, flow through the powerhouse is limited to 4.5-4.8 Kcfs. Any outflow beyond the constrained powerhouse capacity at Dworshak, must be spilled; creating concerns over TDG (Total Dissolved Gas supersaturation) in the river environment below Dworshak Dam and subsequently at Dworshak Hatchery as water to the hatchery is supplied by river water. Dworshak began its refill operation on April 15th, 2017 and has reduced outflows from 25 Kcfs to 7.5 Kcfs (approximately 2.5 Kcfs of spill). With spill levels around 2.5 Kcfs, TDG below Dworshak has been reduced to near 108%.

Water Supply

Precipitation throughout the Columbia Basin has varied between 80% and 134% of average at individual sub-basins over April. Precipitation above The Dalles has been 130% of average over April. Over the 2017 water year, precipitation has ranged between 116% and 144% of average.

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

Location	Water Year 2017 April 1-19, 2017		Water Year 2017 October 1, 2016 to April 19, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	2.28	134	31.3
Snake River Above Ice Harbor	1.46	111	20.7	137
Columbia Above The Dalles	1.80	130	23.9	128
Kootenai	2.19	130	32.5	135
Clark Fork	1.21	80	19.4	116
Flathead	2.31	125	31.5	139
Pend Oreille River Basin above Waneta Dam	1.81	108	27.3	131
Salmon River Basin	1.95	111	27.4	144
Upper Snake Tributaries	1.96	125	24.0	142
Clearwater	1.78	80	34.7	124
Willamette River above Portland	4.26	123	74.1	139

Snowpack within the Columbia Basin has been above average. Average snowpack in the Columbia River for basins above the Snake River confluence is 115% of average, for Snake River Basins the average snowpack is 145% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 139% of average.

Table 2 displays the April 20th ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 20th ESP forecast at The Dalles between April and August is 108,395 Kaf (124% of average).

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

Location	April 20, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	124	108,395
Grand Coulee (Apr-Aug)	118	66,869
Libby Res. Inflow, MT (Apr-Aug)	120 122*	7,067 7,654*
Hungry Horse Res. Inflow, MT (Apr-Aug)	121	2,346
Lower Granite Res. Inflow (Apr- July)	144	28,628
Brownlee Res. Inflow (Apr-July)	203	11,135
Dworshak Res. Inflow (Apr-July)	114 122*	2,759 2,984*

* Denotes COE April Forecast

Grand Coulee Reservoir is at 1232.6 feet (4-20-17) and has drafted 2.4 feet over the last week. Outflows at Grand Coulee have ranged between 172.4 Kcfs and 199.8 Kcfs over the last week. The April 30th FC Elevation at Grand Coulee is 1222.7 feet.

The Libby Reservoir is currently at elevation 2367.3 feet (4-20-17) and has drafted 5.3 feet over the past week. Daily average outflows at Libby Dam have been reduced slightly from 23.5 Kcfs to 22.5 Kcfs over the last week. The April 30th FC Elevation at Libby is 2325.4 feet (based on COE April final Forecast of 7.654 Kaf).

Hungry Horse is currently at an elevation of 3530.2 feet (4-20-17) and has drafted 1.8 feet last week. Outflows at Hungry Horse have been 8.8 Kcfs over the last week. The April 30th FC Elevation at Hungry Horse is 3531.3 feet.

Dworshak is currently at an elevation of 1510.9 feet (4-20-17) and has refilled 6.1 feet over the last week. Dworshak began to refill on April 15th, 2017. Dworshak outflows began the week at 25.0 Kcfs and ended at 7.5 Kcfs. The April 30th System FC Elevation is 1448.2 feet (based on COE April final Forecast of 2.984 Kaf).

The Brownlee Reservoir was at an elevation of 2016.6

feet on April 20, 2017, and drafted 3.1 feet last week. Outflows at Hells Canyon have ranged between 68.3 and 75.9 Kcfs over the last four days. The minimum flow at Hells Canyon is 8.5 Kcfs. The April 30th FC Elevation at Brownlee is 2012.6 feet.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5th, 2017), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 126.4 last week and 136.6 Kcfs between April 3-20, 2017.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Between April 10-20, flows at McNary Dam were 362.8 Kcfs and Priest Rapids Dam flows were 222.0 Kcfs.

Spill

Flows in the Snake River remain high, but averaged about 14 Kcfs less than last week. The reduction in flows are primarily due to Dworshak Dam beginning its refill operation on April 15th, reducing outflows from 25 Kcfs to 7.5 Kcfs. Hells Canyon Complex flows remain quite high, with outflows at Hells Canyon ranging between 68 and 76 Kcfs over the last four days. As Brownlee, Grand Coulee, Hungry Horse, and Libby begin the transition to refill, flows should continue a gradual decline, depending on snowmelt timing and duration. Both the Snake River and Upper Columbia River flows are contributing to the high flows in the middle Columbia River.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3rd. However, due to the high river flows, 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	45 Kcfs/Gas Cap

As a result of limited hydraulic capacity all of the Snake River projects are spilling above the levels targeted for fish spill. Spill at Lower Granite Dam exceeded the Biological Opinion level of 20 Kcfs, and ranged from 61 to 78 Kcfs. At Little Goose Dam Biological Opinion spill is 30% of flow and ranged from 30% to 42% of average daily flow over the past week. Little Goose Dam is presently the only Snake River project operating with a full powerhouse. At Little Goose Dam, the forebay TDG waiver was exceeded over six of seven days; whereas, the tailrace exceeded TDG waivers over two of seven days. Spill at Lower Monumental Dam exceeded the 120% gas cap level early in the week; however as flows decreased, only the forebay TDG waiver was exceeded from 4/16 to 4/20. At Ice Harbor spill ranged from 77 Kcfs to 92 Kcfs. Early in the week both tailrace and forebay TDG waivers were exceeded but later in the week either one or the other (but not both) of the tailrace and forebay waivers were exceeded on a daily basis.

Spill for fish passage began in the middle Columbia River on April 10th at the following amounts, as described in the 2016 Fish Operations Plan.

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

Spill that has occurred in the middle Columbia River over the past week days has exceeded the planned spill for fish passage levels due to “involuntary” spill. At McNary Dam, spill averaged 62-68% of daily average flow, with both tailrace and forebay TDG waivers being exceeded every day of last week. At John Day Dam, spill averaged between 38 and 46% of average daily flow, with both tailrace and forebay TDG waivers also being exceeded every day of the last week. At The Dalles Dam, spill ranged from 41 to 49% of average daily flow, with all tailrace and forebay waivers exceeded all week with the exception of the tailrace TDG on 4/20/17. Spill at Bonneville Dam ranged

between 151 and 188 Kcfs, with tailrace TDG waivers being exceeded every day of the last week. Similar to the Snake and Middle Columbia rivers, high spill levels are occurring at projects in the Upper Columbia River.

High total dissolved gas (TDG) supersaturation levels are occurring below the Hells Canyon Complex dams on the Snake River, due to discharge in excess of hydraulic capacity for flood control operations (TDG supersaturation is likely near or in excess of 125% below Hells Canyon Dam). At Dworshak Dam, tailrace TDG levels have decreased to near 108% as a result of the project beginning refill on April 15, 2017 and reduced outflows from 25 Kcfs to 7.5 Kcfs. With flood control operations continuing at the Hells Canyon Complex, the TDG supersaturation levels continue to be well in excess of 100% when the river water enters the mainstem Snake River hydrosystem. TDG supersaturation at the Lower Granite Dam forebay monitor has averaged about 106% to 110% over the past week.

Although Dworshak did begin refill operations last week, other flood control operations continue to elevate TDG supersaturation above the mainstem federal hydrosystem. The present uncontrolled spill, due to unit outages and flood control operations, has declined slightly over the last week, but elevated TDG supersaturation levels generally continue throughout the hydrosystem. (The present TDG criteria are noted below). Over the past week, the tailwater TDG supersaturation (average of 12 highest hourly levels in a calendar day) ranged from 116% to 121% at Lower Granite Dam; 117% to 123% at Little Goose Dam; 118% to 126% at Lower Monumental Dam; and, 120% to 121% at Ice Harbor Dam. TDG supersaturation levels have also been high at the Middle Columbia projects, ranging from 121% to 124% at the tailwater of McNary Dam; 119% to 122% at The Dalles Dam; 121% to 124% below John Day Dam; and 123% to 124% at the Cascade Island gage below Bonneville Dam. Similar to the federal hydrosystem, TDG supersaturation levels are also high prior to Wells Dam on the Upper Columbia River but have been reduced slightly over the last week (reduced from nearly 125% to 116% in the forebay of Wells Dam). Similar reductions in TDG were seen downstream of Wells Dam, beginning the week near 125% (on average) in the tailraces of the downstream projects and ending the week near 121% (on average) in the tailraces of downstream

projects. The TDG levels below Grand Coulee Dam have decreased from 133% early in the week to 117% later in the week. Generation flows at Grand Coulee have increased over the last week from approximately 145 Kcfs (during unit outage two weeks ago) to approximately 172 Kcfs last week (units back online). As a result, Grand Coulee spill levels have declined to at or below 11 Kcfs over the last three days.

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, McNary, Bonneville, and Rock Island dams. At Lower Granite Dam none of the sample on 4/20/17 was observed with any signs of GBT in their fins. At Little Goose Dam no fish were detected with signs of GBT in the exams conducted on 4/17/17. At Lower Monumental Dam, 1% of the fish were seen with minor signs of GBT on 4/19/17. At McNary Dam no fish showed signs of GBT on exams taken on 4/14/17 or 4/16/17. At Bonneville Dam, 1% of the fish examined showed severe signs of GBT on 4/15/17. During the exam on 4/18/17 at BON, 3% of fish showed minor signs of GBT. The observed signs of GBT at the Snake and Middle Columbia sites are well below the action criteria that would be in place during the voluntary spill for fish passage program. At Rock Island Dam, the GBT exam on 4/18/17 had 31% of the sample with signs of GBT (all at or below Rank 2) while the exam

on 4/20/17 had 45% of sample with signs of GBT, with 2% exhibiting severe signs of GBT. The action criteria for interruption of the voluntary spill for fish passage program is defined as either 15 percent of examined fish showing any signs of gas bubble trauma in their non-paired fins, or five percent of the fish examined showing severe signs of gas bubble (Ranks 3 or 4).

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, Salmon, and Imnaha river traps continued this week. Due to high flows and debris loads, sampling at the Snake River Trap has been terminated for the 2017 season.

This week's samples at Bonneville Dam (BON) were dominated by yearling Chinook. This week's daily average passage index for yearling Chinook at BON was about 33,500 per day, which is a large increase over last week's daily average passage index of about 9,250 per day. Passage of subyearling Chinook decreased substantially this week, when compared to the previous week. This week's daily average passage for subyearling Chinook was about 3,400 per day, whereas that for last week was about 118,000 per day. The decrease in subyearling Chinook passage is due to the fact that subyearling fall Chinook from Spring Creek NFH quickly moved through system and were mostly past BON by sample on April 14th. Passage of coho and steelhead increased this week when compared to the previous week. This week's daily average passage indices for these two species were nearly 8,100 and 1,500 per day, respectively. Last week's daily average passage indices were 5,000 per day for coho and 850 per day for steelhead. Sockeye passage this week was similar to last week, with a daily average passage index of nearly 700 per day. Finally, Pacific lamprey macrophthalmia were encountered in four of this week's samples. This week's daily average collection for Pacific macrophthalmia was about 60, which is lower than last week's daily average collection of about 240 per day. No Pacific lamprey ammocoetes were encountered in this week's collections.

Similar to last year, sampling at John Day Dam (JDA) occurs every-other-day this year. This week's samples at JDA were dominated by yearling Chinook. This week's daily average passage index for yearling Chinook at JDA was nearly 23,000 per day, which is an increase over last week's daily average passage index of about 8,500 per day. Steelhead passage also increased this week when compared to the previous week. This week's daily average passage index for steelhead was 17,600 per day, whereas that for last week was only 8,500 per day. Subyearling Chinook, coho, and sockeye were also encountered in this week's samples but in relatively low numbers. So far for the year, all of the subyearling Chinook that have been collected at JDA have been fry. Finally, Pacific lamprey ammocoetes were encountered in two (April 18th and 20th) of this week's samples while Pacific macrophthalmia were encountered in all four of this week's samples. The daily average collection for Pacific macrophthalmia was just over 200 per day, which is lower than last week's daily average collection of about 1,650 per day.

Sampling at McNary Dam (MCN) began on April 6th, with the first sample being tallied and reported on April 7th. Sampling at MCN is also every-other-day. Yearling Chinook dominated this week's samples at MCN, with a daily average passage index of nearly 25,000 per day. This is a substantial increase over last week's daily average passage index of 8,900 per day. Passage of steelhead and sockeye also increased this week, when compared to the previous week. This week's daily average passage indices for these two species were nearly 11,000 per day and 500 per day, respectively. Last week's daily average passage indices were about 5,000 per day for steelhead and less than 50 for sockeye. The daily average passage index for subyearling Chinook at MCN was about 1,800 per day, all of which were fry. Coho were also encountered in this week's samples but in relatively low numbers. Finally, Pacific lamprey macrophthalmia were encountered in all four of this week's samples, with a daily average collection of 280 fish per day. This is an increase over last week's daily average collection of about 75 Pacific macrophthalmia per day.

This week's samples at Lower Granite Dam (LGR) were again dominated by yearling Chinook and steelhead. The daily average passage indices for these two species were about 75,000 and 81,000 per day, respectively. This represents an increase over last

week's daily average passage indices of 25,000 per day for yearling Chinook and nearly 23,000 for steelhead. Subyearling Chinook, coho, and sockeye were also encountered at LGR this week but in relatively low numbers. Most, if not all, of the sockeye juveniles encountered at LGR this week were likely kokanee from the Dworshak reservoir. All of the subyearling Chinook that have been collected so far this year have been fry. Finally, no Pacific lamprey juveniles were encountered in this week's samples at LGR.

Similar to recent years, sampling at Little Goose Dam (LGS) will be every-other-day until transportation begins, at which time sampling will occur every day. Yearling Chinook dominated the samples at LGS this week. This week's daily average passage index for yearling Chinook was nearly 91,500 per day, which is a large increase over last week's daily average passage index of about 22,000 per day. Steelhead passage also increased this week, when compared to the previous week. This week's daily average passage index for steelhead was nearly 79,000 per day, whereas that for last week was about 28,000 per day. Subyearling Chinook, coho, and sockeye were also encountered in this week's samples but in relatively low numbers. Finally, Pacific lamprey macrophthalmia were encountered in two (April 14th and 20th) of this week's samples, each of which had an estimated collection of 400 macrophthalmia.

Similar to recent years, sampling at Lower Monumental Dam (LMN) is every-third-day from April 1st to April 16th and every-other-day from April 16th to May 1st when transportation is expected to begin. Once transportation begins, sampling will occur every day. Yearling Chinook dominated this week's samples at LMN. This week's daily average passage index for yearling Chinook was nearly 73,000, which is an increase over last week's daily average passage index of about 36,000 per day. Steelhead passage also increased this week. This week's daily average passage index for steelhead was about 65,400 per day, whereas that for last week was about 15,000 per day. Subyearling Chinook, coho, and sockeye were also encountered in this week's samples at LMN, but in relatively low numbers. To date, no lamprey juveniles have been encountered at LMN this year.

Yearling Chinook dominated the samples at Rock Island Dam (RIS) this week. This week's daily average passage index for yearling Chinook was about 700 per

day, which is a substantial increase over last week's daily average passage index of only about 10 per day. The large increase in yearling Chinook passage this week is likely due to a large number of hatchery releases above RIS that have occurred over the last week or two. Sockeye passage has also increased over the last week. This week's daily average passage index for sockeye smolts is about 150 per day, whereas that for last week was only about 20 fish per day. Subyearling Chinook, coho, and steelhead were also observed in this week's samples, but in relatively low numbers. As with the last three weeks, all of the subyearling Chinook that were collected this week were fry. One Pacific lamprey macrophthalmia was collected in each of three (April 15th, 18th, and 19th) samples this week.

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. Yearling Chinook dominated this week's samples at GRN. This week's daily average collection for yearling Chinook was nearly 1,400 per day, which is an increase over last week's daily average collection of about 900 per day. After several days of high collections of listed hatchery yearling Chinook, sampling at GRN has been suspended since the sample on April 19th in order to reduce handling numbers of these listed fish. Steelhead collections decreased this week, when compared to the previous week. This week's daily average collection for steelhead was about 60 per day, whereas that for last week was about 250 per day. The only other salmonids that were encountered in this week's collections were coho. This week's daily average collection for coho was about 30 fish per day, which is similar to last week. These coho juveniles were likely part of a release of approximately 500,000 hatchery coho juveniles into the Lostine River on March 9th. No lamprey juveniles were encountered in this week's samples at GRN.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 and is operated by Idaho Department of Fish and Game. Similar to the last two years, sampling at WTB started out at 5-days per week. However, due to the termination of sampling at the Snake River Trap and the suspension of sampling from March 17th to 26th, sampling frequency at WTB may be increased for at least a portion of the 2017 season. This week's collections at WTB have been dominated

by yearling Chinook. This week's daily average collection for yearling Chinook at WTB was 1,560 fish per day, which is similar what was collected last week. Approximately 92% of the yearling Chinook smolts collected this week were of known hatchery origin. Steelhead collections at WTB decreased this week, with a daily average collection of about 300 per day. Of the steelhead collected at WTB this week, approximately 96% were clipped.

The Snake River Trap at Lewiston, ID (LEW) is located at river kilometer 225 and operated by Idaho Department of Fish and Game. Sampling at LEW began on March 5th but was suspended soon thereafter due to high flows and high debris levels. After several weeks of suspended sampling, it was decided that sampling at LEW would be terminated for the 2017 season. The risk of injury to the crew and damage to the trap from the high flows were too high to warrant continued efforts to sample fish at this site.

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 April 19th. Sampling was suspended due to high flows for the period of April 8th to April 11th. Over the most recent 1-week period of sampling (April 13th-April 19th), collections at IMN were dominated by yearling Chinook. The daily average collection for yearling Chinook over this period was about 340 per day. Of the yearling Chinook collected over this period, approximately 89% were clipped. The daily average collection for steelhead over this same period was just under 100 per day. Of the steelhead smolts that were collected over this period, approximately 72% were clipped.

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. Nearly 840,000 yearling spring Chinook were scheduled to be released into this zone this week. These spring Chinook releases were scheduled to occur on the Grande Ronde River and its tributaries (77%) and tributaries of the Salmon River (23%). In addition, nearly 1.24 million yearling summer Chinook smolts were scheduled to be released into the Pahsimeroi River this week. Releases of sockeye from Springfield Hatchery began this week. These sockeye releases are planned to run through April 28th and are expected to total nearly 735,200 fish. This year's sockeye release is occurring about 2-3 weeks earlier than past years' releases. Finally, about 1.8 million summer steelhead smolts were scheduled to be released to this zone this week. Of these, nearly 1.76 million (97%) were scheduled to be released into tributaries that empty into the Snake River above Lower Granite Dam, including the Clearwater, Salmon, Pahsimeroi, Grande Ronde, and Wallowa rivers. The remaining 49,000 (3%) were scheduled to be released into Curl Lake Acclimation Pond on the Tucannon River.

While there are several volitional releases that are scheduled to end over the next few weeks, there are only two new releases that are scheduled to begin in this zone over the next two weeks. These two releases include a release of 60,000 summer steelhead smolts to the East Fork Salmon River and 255,000 summer steelhead smolts to the Little Salmon River. The steelhead smolts that are planned for release into the East Fork Salmon River are 100% unmarked, while the release to the Little Salmon River are 100% adipose clipped.

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. Approximately 1.95 million yearling spring Chinook smolts were scheduled to be released to this zone this week. Of these, approximately 744,000 (38%) were released from Chief Joseph Hatchery, which is located just below Chief Joseph Dam. The remaining 1.2 million were scheduled to be released through this river zone, including 601,500 (31%) to the Methow River, 200,000 (10%) to the Okanogan River, and 406,000 (21%) to the Wenatchee River. In addition, approximately 1.98 million yearling summer Chinook smolts were scheduled to be released throughout this zone this week. Release locations for these summer

Chinook smolts included Chief Joseph Hatchery (12%), the Okanogan River (7%), Chelan Falls Hatchery (23%), the Entiat River (23%), the Methow River (9%), and the Wenatchee River (27%). Approximately 365,000 coho smolts were scheduled to be released to this zone this week. These coho releases are part of a Yakama Tribal program to reintroduce coho to the Methow and Wenatchee rivers. Of the coho smolts scheduled to be released this week, 81% were scheduled to be released into the Methow River and 19% were scheduled to be released into the Wenatchee River. Finally, about 319,500 summer steelhead smolts were scheduled to be released to this zone this week. These steelhead releases were scheduled to occur on the Okanogan (40%) and Wenatchee (8%) rivers, as well as from Wells Hatchery just below Wells Dam (53%).

Approximately 1.2 million yearling spring Chinook smolts are scheduled to be released from Leavenworth NFH, on or around April 25th. In addition, nearly 594,000 coho smolts are scheduled to be released to this zone over the next two weeks. These coho releases are part of a Yakama Tribal program to reintroduce coho to the Methow and Wenatchee rivers. Of the coho smolts scheduled to be released over the next two weeks, 15% are scheduled to be released into the Methow River and 85% are scheduled to be released into the Wenatchee River. About 569,500 summer steelhead smolts are scheduled to be released to this zone over the next two weeks. These steelhead releases are scheduled to occur on the Methow (57%) and Wenatchee (43%) rivers. Finally, 400 subyearling fall Chinook and 450 subyearling summer Chinook are scheduled to be released throughout this river zone over the next two weeks. These subyearling releases will be conducted by several different groups that are part of the WDFW Cooperative Program.

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). Approximately 265,000 yearling spring Chinook smolts were scheduled to be released into this zone this week. These spring Chinook releases were scheduled to occur in the Umatilla (62%), Deschutes (9%), and Hood (28%) rivers. Approximately 532,000 coho smolts were scheduled to be released into the Yakima River this week. These coho releases are part of a Yakama Tribal Program to reintroduce coho to the Yakima River. Finally, 231,000 summer steelhead

and 20,000 winter steelhead smolts were scheduled to be released into this zone this week. The summer steelhead releases were scheduled to occur on the Touchet (61%), Klickitat (39%), and Deschutes (<1%) rivers. The winter steelhead smolts were all scheduled to be released into Rock Creek, a tributary of the Columbia River that empties into the Columbia just above Bonneville Dam.

Approximately 20,375 subyearling fall Chinook are planned for release into this zone over the next two weeks. These releases of fall Chinook subyearlings are part of the WDFW Cooperative Program and will take place either into the Yakima River or into the Columbia River above McNary Dam. In addition, about 1.0 million coho smolts are scheduled to be released into the Klickitat River, beginning on or around May 1st. About 50,000 summer steelhead smolts are scheduled into the Deschutes River, above Round Butte Dam, over the next two weeks. Finally, about 50,000 winter steelhead smolts are scheduled to be released into Hood River, on or around April 28th.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Approximately 1.6 million subyearling fall Chinook tules were scheduled to be released from Bonneville Hatchery on or around April 18th. In addition, about 200,000 yearling spring Chinook smolts were scheduled to be released from Select Area net pens at Tongue Point this week. About 500,000 coho smolts were scheduled to be released into the Kalama River this week. Sea-run cutthroat trout were also scheduled to be released into this zone this week. In all, just over 105,000 cutthroat trout were scheduled for release, all of which were going to be released into the Cowlitz River. Finally, nearly 1.7 million steelhead smolts were scheduled to be released into this zone this week. Of these, approximately 1.18 million (70%) were winter steelhead while the remaining 516,600 (30%) were summer steelhead. These steelhead releases were scheduled to occur throughout this river zone.

Approximately 2.1 million subyearling fall Chinook smolts are scheduled to be released into the South Fork Klaskanine River, beginning on or around May 1st. In addition, nearly 30,000 yearling spring Chinook smolts are scheduled to be released into the Lewis River over the next two weeks. These spring Chinook smolts will be released from acclimation facilities located above

Swift Creek Reservoir and are 100% unmarked. Just over 7.0 million coho smolts are also scheduled to be released into this zone over the next two weeks. These coho releases are scheduled to take place throughout the Lower Columbia River Zone. Finally, approximately 186,000 winter steelhead smolts are scheduled to be released into this zone over the next two weeks. Of these, approximately 135,000 (73%) are scheduled to be released into the Clackamas River while 51,000 (27%) are scheduled to be released into the North Fork Lewis River.

Adult Passage

Adult counts at Bonneville Dam have been updated through 4/20/17. The 2017 adult spring Chinook count at Bonneville Dam of 927 is about 14.3% of the 2016 count of 6,497 and only 5.6% of the 10-year average count of 16,678. At Willamette Falls 3 adult spring Chinook have been counted so far this season. A total of 4 spring chinook have been counted at Lower Granite Dam as of April 20th.

The 2017 Bonneville Dam adult steelhead count of 2,287 has 1,191 fewer fish compared to the 2016 count of 3,478 and 1,048 fewer fish compared to the 10-year average count of 3,335. This year's Lower Granite steelhead count of 6,922 has 1,871 more fish than the 2016 count of 5,051, while being 86.4% of the 10-year average count of 8,014. At Willamette Falls, the 2017 count for steelhead was 540 as of April 20th. This year's WFA steelhead count is about 10% of the 2016 count of 5,409 and 9.9% of the 10-year average count of 5,462.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 4/8/2017 to 04/21/17

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2017	200,000	04-14-17	04-17-17	Riverside Pond	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2017	744,000	04-17-17	04-20-17	Chief Joseph Hatchery Similkameen Acclim	Wells Pool	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	150,000	04-11-17	04-22-17	Pd	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	210,000	04-14-17	04-22-17	Omak Pond	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	232,000	04-17-17	04-18-17	Chief Joseph Hatchery	Wells Pool	UCOL
Colville Tribe	Wells Hatchery	ST	SU	2017	20,000	04-17-17	05-01-17	Omak Creek	Okanogan River	UCOL
Colville Tribe	Wells Hatchery	ST	SU	2017	107,000	04-17-17	05-01-17	Okanogan River	Okanogan River	UCOL
Colville Tribe Total					1,663,000					
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2017	145,295	04-15-17	04-15-17	Newsome Creek	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2017	594,369	04-10-17	04-12-17	Meadow Creek - CLES	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	93,338	04-13-17	04-14-17	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	155,680	04-14-17	04-18-17	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	217,796	04-10-17	04-12-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	625,970	04-12-17	04-25-17	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2017	210,000	04-18-17	04-18-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	67,300	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	1,053,825	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2017	189,042	04-18-17	04-18-17	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SU	2017	118,586	04-19-17	04-19-17	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Springfield Hatchery	SO	UN	2017	735,200	04-18-17	04-28-17	Redfish Lake Creek	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					4,206,401					
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2017	250,000	04-20-17	04-20-17	Lostline Accim Pond Big Canyon	Wallowa River	SNAK
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2017	150,000	04-10-17	04-14-17	(Clearwater River)	Clearwater River M F	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2017	83,500	04-12-17	04-12-17	Lolo Creek	Clearwater River M F	SNAK
Nez Perce Tribe Total					483,500					
Oregon Dept. of Fish and Wildlife	Bonneville Hatchery	CH0	FA	2017	1,600,000	04-18-17	04-18-17	Tanner Creek	Tanner Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH1	SP	2017	200,000	04-20-17	04-20-17	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	200,000	04-14-17	04-14-17	S Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	400,000	04-14-17	04-14-17	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	825,000	04-14-17	04-14-17	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	150,500	04-15-17	04-15-17	Big Canyon Acclim.Pd (Grande Ronde)	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	160,000	04-18-17	05-02-17	Wallowa Acclim Pond Big Canyon Acclim.Pd	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	169,500	03-16-17	04-15-17	(Grande Ronde)	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	ST	WI	2017	40,000	04-14-17	04-14-17	Klaskanine Hatchery	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Opal Springs Hatchery	ST	SU	2017	1,000	04-15-17	04-15-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2017	240,000	04-14-17	05-31-17	Deschutes River Cedar Creek (Sandy R)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	CO	UN	2017	200,000	04-14-17	04-14-17	R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	SU	2017	75,000	04-18-17	04-18-17	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	SU	2017	75,000	04-18-17	04-18-17	R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	WI	2017	160,000	04-13-17	04-13-17	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	WI	2017	160,000	04-13-17	04-13-17	R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2017	234,000	04-14-17	04-14-17	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2017	7,500	04-15-17	04-15-17	Metolius River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2017	7,500	04-15-17	04-15-17	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2017	10,000	04-15-17	04-15-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					4,915,000					
U.S. Fish and Wildlife Service	Carson NFH	CH1	SP	2017	1,263,440	04-10-17	04-10-17	Carson Hatchery	Wind River	MCOL
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2017	1,040,000	04-10-17	04-10-17	Dworshak Hatchery	Clearwater River M F	SNAK

U.S. Fish and Wildlife Service	Eagle Creek NFH	CO	SO	2017	350,000	04-10-17	04-10-17	Eagle Creek Hatchery	Eagle Creek	LCOL
U.S. Fish and Wildlife Service	Entiat Hatchery	CH1	SU	2017	460,000	04-15-17	04-15-17	Entiat Hatchery	Entiat River	UCOL
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH1	SP	2017	1,080,000	04-12-17	04-12-17	Little White Salmon Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2017	6,000,000	04-10-17	04-10-17	Spring Creek Hatchery	Bonneville Pool	MCOL
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2017	424,500	04-15-17	04-26-17	Winthrop Hatchery	Methow River	UCOL
U.S. Fish and Wildlife Service Total					10,617,940					
Umatilla Tribe	Cascade Hatchery	CO	UN	2017	500,000	04-11-17	04-11-17	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2017	150,000	04-20-17	04-20-17	Catherine Cr Acclim Pond	Grande Ronde River	SNAK
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2017	250,000	04-15-17	04-15-17	Grande Ronde Acclim Pond	Grande Ronde River	SNAK
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2017	165,000	04-17-17	04-17-17	Imeques Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					1,065,000					
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2017	75,000	04-15-17	04-15-17	W Fk Hood River	Hood River	MCOL
Warm Springs Tribe Total					75,000					
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	SU	2017	30,000	04-15-17	04-15-17	Beaver Creek Hatchery	Elochoman River	LCOL
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	WI	2017	34,000	04-15-17	04-15-17	Beaver Creek Hatchery	Elochoman River	LCOL
Washington Dept. of Fish and Wildlife	Beaver Creek Hatchery	ST	WI	2017	104,000	04-15-17	04-15-17	Beaver Creek Hatchery	Elochoman River	LCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2017	163,000	04-15-17	04-22-17	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2017	243,000	04-15-17	04-22-17	Nason Creek	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	COOP	CT	UN	2017	10,080	04-15-17	04-15-17	Cowlitz River	Cowlitz River	LCOL
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	Eastbank Hatchery	CH1	SU	2017	460,000	04-15-17	04-15-17	Chelan Falls	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2017	529,000	04-20-17	04-30-17	Dryden Acclim Pond	Wenatchee River	UCOL
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	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	CO	NO	2017	500,000	04-15-17	04-15-17	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Kalama Falls Hatchery	ST	SU	2017	55,000	04-15-17	04-15-17	Kalama Falls 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	Kalama Falls Hatchery	ST	WI	2017	45,300	04-15-17	04-15-17	Kalama Falls Hatchery	Kalama River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	NO	2017	900,000	04-01-17	04-10-17	Lewis River Hatchery	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	SO	2017	700,000	04-01-17	04-10-17	Lewis River Hatchery	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	25,000	04-10-17	04-10-17	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	35,000	04-10-17	04-10-17	Walla Walla River	Walla Walla River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	55,000	04-15-17	04-20-17	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	85,000	04-15-17	04-20-17	Dayton Acclim Pond	Touchet River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	110,000	04-10-17	04-10-17	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	200,000	04-10-17	04-17-17	Cottonwood Acclim Pond	Grande Ronde River	SNAK
Washington Dept. of Fish and Wildlife	Merwin Hatchery	ST	SU	2017	60,000	04-15-17	04-15-17	Echo Net Pens	Lewis 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	Methow Hatchery	CH1	SP	2017	41,000	04-15-17	04-15-17	Twisp Acclim Pond	Methow River	UCOL
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2017	136,000	04-15-17	04-20-17	Methow Hatchery	Methow River	UCOL
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2017	170,000	04-15-17	04-20-17	Carlton Acclim Pond Ringold Springs	Methow River	UCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2017	180,000	04-12-17	04-24-17	Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Similkameen Hatchery	CH1	SU	2017	131,000	04-15-17	04-15-17	Similkameen River	Okanogan River	UCOL
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	39,000	04-16-17	04-22-17	Salmon Creek (WA)	Col R Bel. Bon Dam	LCOL
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	Tucannon Hatchery	CH1	SP	2017	240,000	04-01-17	04-15-17	Curl Lake Acclim Pond	Tucannon River	STAK
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2017	49,000	04-15-17	05-07-17	Curl Lake Acclim Pond	Tucannon River	STAK
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2017	336,000	04-08-17	04-09-17	Wells Hatchery	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2017	168,000	04-17-17	05-01-17	Wells Hatchery	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife Total					7,241,380					
Yakama Tribe	Cascade Hatchery	CO	UN	2017	50,203	04-21-17	05-03-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Cascade Hatchery	CO	UN	2017	68,383	04-19-17	04-19-17	Leavenworth Hatchery	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	Prosser Acclim. Pond	CO	UN	2017	250,000	04-15-17	06-01-17	Prosser Acclim Pond	Yakima River	MCOL
Yakama Tribe	Winthrop NFH	CO	UN	2017	245,996	04-21-17	05-03-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe Total					896,582					
Grand Total					31,163,803					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 4/22/2017 to 5/5/2017

Agency	Hatchery	Species	Race	MiqYr	NumRel	RelStart	RelEnd	RelSite Similkameen Acclim	RelRiver	Zone
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	150,000	04-11-17	04-22-17	Pd	Okanogan River	UCOL
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	210,000	04-14-17	04-22-17	Omak Pond	Okanogan River	UCOL
Colville Tribe	Wells Hatchery	ST	SU	2017	20,000	04-17-17	05-01-17	Omak Creek	Okanogan River	UCOL
Colville Tribe	Wells Hatchery	ST	SU	2017	107,000	04-17-17	05-01-17	Okanogan River	Okanogan River	UCOL
Colville Tribe Total					487,000					
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	625,970	04-12-17	04-25-17	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2017	255,000	04-24-17	04-28-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	67,300	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	1,053,825	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2017	3,020,000	03-13-17	04-28-17	Rapid River Hatchery	Little Salmon River	SNAK
Idaho Dept. of Fish and Game	Springfield Hatchery	SO	UN	2017	735,200	04-18-17	04-28-17	Redfish Lake Creek	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					5,757,295					
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	CO	UN	2017	535,000	05-02-17	05-02-17	Big Creek Hatchery	Big Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2017	50,000	05-02-17	05-02-17	Clackamas Hatchery	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	WI	2017	60,000	05-02-17	05-02-17	Clackamas Hatchery	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH0	FA	2017	2,100,000	05-01-17	05-01-17	S Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	200,000	05-02-17	05-02-17	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	200,000	05-02-17	05-02-17	S Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	400,000	05-04-17	05-04-17	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	540,000	05-02-17	05-02-17	Tongue Pt	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	ST	WI	2017	25,000	05-01-17	05-01-17	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	160,000	04-18-17	05-02-17	Wallowa Acclim Pond	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	215,000	04-01-17	04-30-17	Little Sheep Creek	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2017	500,000	04-30-17	04-30-17	Klaskanine Hatchery	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2017	500,000	04-30-17	04-30-17	N Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CO	UN	2017	500,000	04-30-17	04-30-17	N Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2017	10,000	04-25-17	04-25-17	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2017	10,000	05-05-17	05-05-17	Wychus Creek	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2017	15,000	04-25-17	04-25-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	ST	SU	2017	15,000	05-05-17	05-05-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					6,035,000					
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2017	60,000	04-28-17	04-28-17	East Fk Salmon River	Salmon River (ID)	SNAK
U.S. Fish and Wildlife Service	Leavenworth NFH	CH1	SP	2017	1,200,000	04-25-17	04-26-17	Leavenworth Hatchery	Wenatchee River	UCOL
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2017	424,500	04-15-17	04-26-17	Winthrop Hatchery	Methow River	UCOL
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2017	215,000	04-24-17	05-19-17	Winthrop Hatchery	Methow River	UCOL
U.S. Fish and Wildlife Service Total					1,899,500					
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2017	50,000	04-28-17	04-28-17	E Fk Irrig Dist Sand Trap	Hood River	MCOL
Warm Springs Tribe Total					50,000					
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2017	163,000	04-15-17	04-22-17	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2017	243,000	04-15-17	04-22-17	Nason Creek	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2017	117,000	04-24-17	05-01-17	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	ST	SU	2017	125,000	05-01-17	05-05-17	Chiwawa Hatchery	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2017	175	05-01-17	05-01-17	Wenatchee River	Wenatchee River	UCOL

Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2017	225	05-01-17	05-01-17	Sand Hollow	Wanapum Pool	UCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2017	2,800	05-01-17	05-01-17	Above McNary Dam	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2017	3,975	05-01-17	05-01-17	Above McNary Dam	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2017	13,600	05-01-17	05-01-17	Yakama River	Yakima River	MCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	05-01-17	05-01-17	Similkameen River	Okanogan River	UCOL
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	05-01-17	05-01-17	Methow River	Methow River	UCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CO	NO	2017	1,174,989	05-01-17	05-01-17	Cowlitz Salmon	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Cowlitz Salmon	CO	NO	2017	1,202,450	05-01-17	05-01-17	Cowlitz Salmon	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2017	529,000	04-20-17	04-30-17	Dryden Acclim Pond	Wenatchee River	UCOL
Washington Dept. of Fish and Wildlife	Grays River Hatchery	CO	NO	2017	80,000	04-24-17	04-30-17	Grays River Hatchery	Grays River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2017	4,850	05-01-17	05-01-17	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2017	10,050	05-01-17	05-01-17	Lewis River	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CH1	SP	2017	15,000	05-01-17	05-01-17	Lewis River	Lewis River	LCOL
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	Methow Hatchery	ST	SU	2017	112,000	04-25-17	05-07-17	Methow Hatchery	Methow River	UCOL
Washington Dept. of Fish and Wildlife	North Toutle Hatchery	CO	SO	2017	150,000	05-01-17	05-01-17	Green River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2017	180,000	04-12-17	04-24-17	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2017	39,000	04-16-17	04-22-17	Salmon Creek (WA)	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2017	157,500	05-01-17	05-01-17	Washougal Hatchery	Washougal River	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	SO	2017	437,000	05-01-17	05-05-17	Deep River Net Pens	Grays River	LCOL
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	SO	2017	460,000	05-01-17	05-05-17	Deep River Net Pens	Grays River	LCOL
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2017	168,000	04-17-17	05-01-17	Wells Hatchery	Rocky Reach Pool	UCOL
Washington Dept. of Fish and Wildlife Total					5,440,064					
Yakama Tribe	Cascade Hatchery	CO	UN	2017	46,218	04-24-17	04-25-17	Twisp Acclim Pond	Methow River	UCOL
Yakama Tribe	Cascade Hatchery	CO	UN	2017	50,203	04-21-17	05-03-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Cascade Hatchery	CO	UN	2017	69,703	04-27-17	06-01-17	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Cascade Hatchery	CO	UN	2017	195,154	04-25-17	04-25-17	Leavenworth Hatchery	Wenatchee River	UCOL
Yakama Tribe	Klickitat Hatchery	CO	NO	2017	1,000,000	05-01-17	05-01-17	Klickitat Hatchery	Klickitat River	MCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	32,195	04-27-17	06-01-17	Wenatchee River	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	41,097	04-24-17	05-20-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	102,364	04-26-17	05-20-17	Rolfings Acclim. Butcher Creek Acclim.	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	106,937	04-26-17	06-10-17	Pond	Wenatchee River	UCOL
Yakama Tribe	Winthrop NFH	CO	UN	2017	245,996	04-21-17	05-03-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe Total					1,889,867					
Grand Total					21,558,726					

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
04/07/2017	201.5	29.0	208.5	92.4	221.6	67.5	219.2	87.0	213.6	67.0	238.4	95.6	241.4	152.5
04/08/2017	198.9	37.1	200.1	86.9	215.7	61.6	216.1	80.9	210.2	66.2	232.8	77.2	232.8	148.8
04/09/2017	199.7	54.6	203.4	101.0	214.8	55.9	219.2	83.1	209.8	63.3	232.4	63.6	231.5	134.9
04/10/2017	203.8	58.6	202.6	96.1	213.5	71.6	215.5	81.6	210.3	63.5	237.8	82.1	232.9	126.0
04/11/2017	202.8	59.6	209.8	91.3	225.8	90.0	230.6	93.4	221.6	73.5	244.6	81.8	241.6	135.9
04/12/2017	197.2	51.2	189.9	88.8	197.4	62.8	202.1	66.6	198.6	53.7	218.4	59.1	217.2	121.4
04/13/2017	197.2	53.3	201.7	103.0	214.7	62.2	215.2	78.9	207.6	66.0	232.3	109.8	229.4	106.7
04/14/2017	199.8	29.2	205.7	115.2	220.6	61.5	221.9	88.2	214.9	65.5	237.1	112.4	236.3	117.4
04/15/2017	196.0	23.9	201.3	99.3	212.3	51.0	217.1	81.5	210.4	63.1	228.1	77.0	225.2	100.4
04/16/2017	193.3	21.1	193.5	89.6	206.5	46.6	207.8	70.4	204.5	58.7	224.9	69.5	223.5	114.4
04/17/2017	193.1	19.0	192.4	93.4	204.9	48.6	208.0	73.3	204.0	69.1	224.7	66.8	222.7	116.4
04/18/2017	173.6	11.1	175.7	81.4	187.1	29.0	192.3	55.7	191.2	62.1	210.8	71.1	208.9	93.5
04/19/2017	172.4	4.8	169.1	50.8	181.1	26.0	182.5	45.9	181.8	47.3	198.4	65.9	195.7	66.7
04/20/2017	179.5	9.3	186.3	83.4	197.1	32.8	198.6	63.6	194.0	57.7	211.6	90.8	209.4	97.2

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	
04/07/2017	24.9	19.9	---	64.9	138.9	68.4	133.6	50.1	137.8	63.5	142.2	89.6	142.2
04/08/2017	25.1	20.1	---	66.1	143.5	77.3	141.3	49.1	143.7	65.6	146.1	92.4	146.1
04/09/2017	25.1	20.1	---	65.1	149.2	78.3	145.1	37.3	150.6	72.5	155.0	100.9	155.0
04/10/2017	25.2	20.1	---	64.7	143.4	72.3	135.9	37.4	140.3	62.7	145.8	91.8	145.8
04/11/2017	25.0	19.9	---	64.6	140.5	68.7	120.4	37.0	125.0	61.2	129.1	81.4	129.1
04/12/2017	25.2	20.0	---	64.2	136.0	62.8	134.9	47.4	142.9	92.1	144.2	94.1	144.2
04/13/2017	25.1	19.9	---	59.9	134.1	60.5	141.0	52.0	146.9	81.5	149.4	97.5	149.4
04/14/2017	25.0	19.8	---	63.6	135.9	50.8	130.7	45.0	132.1	54.5	135.7	84.4	135.7
04/15/2017	9.1	4.0	---	65.5	129.0	38.8	124.8	49.2	128.9	51.7	134.3	86.4	134.3
04/16/2017	7.8	2.8	---	67.9	121.0	31.7	117.9	35.5	119.7	42.6	123.6	81.5	123.6
04/17/2017	7.6	2.6	---	70.3	119.9	46.0	115.0	35.0	116.1	39.2	120.4	77.0	120.4
04/18/2017	7.5	2.5	---	70.2	124.6	52.0	120.2	36.2	124.0	46.3	129.5	88.9	129.5
04/19/2017	7.4	2.4	---	70.5	126.2	53.8	122.5	36.7	124.7	46.9	130.0	91.5	130.0
04/20/2017	7.5	2.5	---	72.9	128.0	55.3	124.2	52.6	124.2	47.2	127.6	85.3	127.6

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
04/07/2017	368.5	251.1	375.4	145.4	352.5	178.4	393.5	189.4	85.4	106.3
04/08/2017	392.3	267.8	392.2	159.6	371.2	191.7	384.5	176.9	87.8	107.4
04/09/2017	401.8	277.2	407.9	173.3	393.0	211.2	423.0	204.9	88.4	117.3
04/10/2017	365.3	243.3	381.1	170.9	372.0	191.4	399.8	180.7	81.1	125.5
04/11/2017	373.7	254.2	380.2	174.7	364.4	192.8	385.0	172.7	86.0	113.9
04/12/2017	377.5	258.2	385.7	164.1	369.3	194.1	386.8	179.3	87.5	107.7
04/13/2017	385.4	260.4	391.7	173.9	382.5	191.7	411.9	198.4	85.8	115.2
04/14/2017	378.2	256.5	387.0	176.0	375.8	182.0	403.7	188.2	87.4	115.8
04/15/2017	374.4	251.8	392.3	170.4	372.4	181.1	399.1	182.8	88.2	115.7
04/16/2017	365.5	241.5	368.8	150.7	359.9	165.7	386.7	173.7	80.7	119.8
04/17/2017	343.1	222.3	358.5	148.5	343.2	155.7	365.1	171.0	60.0	121.7
04/18/2017	363.3	241.7	370.7	145.2	359.3	173.5	379.3	182.0	65.5	119.5
04/19/2017	329.9	210.5	338.6	129.5	327.6	142.1	359.7	162.8	62.8	121.7
04/20/2017	334.3	208.6	331.2	130.7	315.2	130.6	345.7	151.1	59.4	122.9

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
Lower Granite Dam											
	04/13/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	04/20/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam											
	04/07/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	4	1	0	0
	04/09/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/17/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	04/12/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/19/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
McNary Dam											
	04/10/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	1	1	0	0
	04/14/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/16/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	04/08/17	Chinook + Steelhead	40*	0	0			0	0	0	0
	04/10/17	Chinook + Steelhead	41*	3	3			2	1	0	0
	04/15/17	Chinook + Steelhead	100	1	1	1.00%	1.00%	0	0	0	1
	04/18/17	Chinook + Steelhead	100	3	3	3.00%	0.00%	3	0	0	0
Rock Island Dam											
	04/18/17	Chinook + Steelhead	100	31	31	31.00%	0.00%	30	1	0	0
	04/20/17	Chinook + Steelhead	100	46	45	45.00%	2.00%	40	3	2	0

Samples marked with an asterisk indicate the sample size criteria of 100 fish was not met due to insufficient numbers of fish to sample that day. The inability to collect an adequate sample precludes the accurate estimation of the percentage of fish with GBT, and no estimate is provided.

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>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/7	---	---	---	0	---	---	---	0	111.6	111.9	112.1	24	127.0	127.4	128.4	24	122.0	122.6	122.9	24
4/8	---	---	---	0	---	---	---	0	110.7	110.8	111.0	24	127.5	129.0	130.8	24	121.7	122.5	122.7	24
4/9	---	---	---	0	---	---	---	0	110.3	110.6	110.9	24	131.9	133.3	134.2	24	123.0	123.3	123.8	24
4/10	---	---	---	0	---	---	---	0	110.9	111.2	112.7	24	134.3	134.7	135.2	24	127.1	128.3	128.5	24
4/11	---	---	---	0	---	---	---	0	111.6	112.4	112.9	23	135.4	138.8	140.1	24	130.8	131.9	133.0	23
4/12	---	---	---	0	---	---	---	0	112.3	112.5	112.7	24	131.7	132.2	132.8	24	134.7	136.1	138.1	24
4/13	---	---	---	0	---	---	---	0	112.4	112.7	112.9	24	132.9	133.2	133.6	24	131.9	133.9	137.5	24
4/14	---	---	---	0	---	---	---	0	111.9	111.9	112.7	10	125.8	128.2	133.0	24	129.0	129.3	129.6	24
4/15	---	---	---	0	---	---	---	0	---	---	---	0	123.2	123.4	123.8	24	127.9	129.0	129.2	23
4/16	---	---	---	0	---	---	---	0	---	---	---	0	121.6	123.0	123.6	24	122.9	123.4	123.9	21
4/17	---	---	---	0	---	---	---	0	112.8	113.1	114.1	20	120.1	120.3	120.5	24	123.6	123.9	124.1	24
4/18	---	---	---	0	---	---	---	0	112.3	112.6	113.2	24	118.6	119.7	120.1	24	119.6	120.5	122.2	24
4/19	---	---	---	0	---	---	---	0	111.4	111.6	112.0	23	116.3	116.4	116.6	24	118.1	118.3	118.4	22
4/20	---	---	---	0	---	---	---	0	111.1	111.4	111.6	23	117.5	118.3	119.4	23	117.0	117.9	118.5	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>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/7	116.6	116.8	117.2	24	118.5	119.4	119.6	24	123.7	124.2	126.0	24	124.1	124.7	125.7	24	126.4	127.1	127.5	23
4/8	116.2	116.7	117.1	24	116.6	116.8	117.2	24	121.7	122.6	124.6	24	121.2	121.6	122.2	24	126.4	126.9	127.7	21
4/9	116.3	116.9	117.4	24	117.8	118.3	118.6	24	121.3	122.5	123.7	24	120.0	120.7	121.6	24	126.1	126.9	127.9	24
4/10	116.1	116.7	117.1	24	118.9	119.2	119.6	24	123.8	125.4	127.9	24	120.9	121.8	122.6	24	126.3	126.7	127.7	22
4/11	116.2	116.7	117.1	23	121.4	122.2	123.3	20	127.4	128.4	129.2	20	123.3	124.9	127.2	24	127.3	127.7	128.3	23
4/12	116.0	116.6	117.3	24	123.0	123.1	123.7	16	126.4	127.1	128.9	16	127.1	127.6	128.0	24	126.7	127.8	128.2	23
4/13	116.8	117.1	117.4	24	123.9	124.9	125.5	24	125.7	126.7	129.2	24	125.3	126.0	126.5	24	127.1	127.7	128.3	22
4/14	116.8	117.2	118.1	24	120.5	120.8	121.1	24	123.6	124.7	126.7	24	123.5	124.2	125.3	24	127.0	127.5	128.3	24
4/15	116.4	116.6	116.8	24	120.5	121.5	121.8	24	123.0	123.7	124.7	24	121.8	122.7	123.6	24	126.2	126.8	127.1	21
4/16	115.7	116.0	116.4	24	119.8	120.1	121.4	24	122.4	123.1	123.6	24	122.4	123.0	124.6	24	126.0	126.4	127.4	22
4/17	116.1	116.9	118.2	24	118.8	119.1	119.8	24	121.7	122.3	123.4	24	122.8	123.7	124.6	23	126.5	127.1	127.6	19
4/18	115.4	116.2	116.6	24	117.7	118.3	118.6	24	119.7	120.8	121.5	24	120.7	121.0	121.5	24	124.4	126.1	126.9	24
4/19	115.1	115.2	115.4	23	115.3	115.7	115.9	24	117.5	117.7	117.9	24	118.9	119.4	119.8	24	123.0	123.8	124.3	21
4/20	116.4	117.4	118.4	23	115.5	115.7	115.9	22	118.2	119.0	121.3	22	117.2	117.5	117.7	23	124.0	124.9	126.1	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>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/7	122.9	124.2	125.4	24	126.0	126.8	127.8	23	124.5	125.6	126.1	24	122.5	125.3	126.6	24	121.5	122.7	123.3	24
4/8	121.0	121.6	121.9	23	124.6	125.2	125.6	21	120.2	121.1	122.2	24	118.9	120.3	122.1	24	117.4	118.3	119.9	24
4/9	120.1	120.5	121.0	24	123.9	124.3	124.6	24	118.5	119.3	119.7	24	117.3	118.0	119.9	24	116.8	117.6	119.0	24
4/10	120.6	121.2	121.7	24	124.4	124.7	125.3	20	120.1	120.4	120.6	24	119.0	119.6	123.0	24	117.4	118.4	120.9	24
4/11	121.3	123.0	123.9	23	125.2	125.7	126.6	20	120.5	121.4	121.6	24	119.5	120.8	123.0	24	118.7	120.3	122.6	24
4/12	124.0	124.3	125.2	24	125.6	126.5	127.3	23	122.1	122.5	123.2	24	119.3	119.7	121.4	24	118.7	119.2	120.6	24
4/13	123.8	124.4	125.1	24	126.5	126.8	127.2	22	122.8	123.2	123.4	24	123.7	123.9	124.2	24	120.5	121.7	122.0	24
4/14	122.7	123.3	123.8	24	125.4	125.9	126.4	23	121.2	121.5	121.7	24	123.0	123.8	124.5	24	121.6	122.0	122.6	24
4/15	121.7	122.3	122.7	23	124.7	125.1	125.5	21	120.4	121.1	121.5	24	119.9	120.6	121.6	24	120.3	121.0	122.4	24
4/16	121.4	122.2	122.8	23	125.3	125.6	126.3	18	122.1	122.8	123.1	24	119.8	120.0	120.2	24	120.0	120.7	121.1	24
4/17	121.9	122.2	122.8	20	126.0	126.2	126.5	17	122.6	122.6	123.0	5	119.8	119.8	120.5	5	119.4	119.4	120.2	5
4/18	120.2	121.2	121.6	24	125.2	125.7	126.2	21	121.7	121.9	122.2	24	119.2	119.9	122.6	24	118.5	118.8	120.7	24
4/19	118.8	119.3	119.5	22	123.6	123.9	124.3	18	122.0	123.0	123.3	24	118.6	119.3	120.4	24	118.0	118.9	121.1	24
4/20	117.6	118.2	119.3	23	123.0	123.5	124.0	20	---	---	---	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>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/7	122.1	122.7	123.0	24	---	---	---	0	125.8	127.2	128.0	24	113.5	114.2	114.9	24	108.0	108.5	108.9	24
4/8	120.6	120.9	121.2	24	---	---	---	0	124.0	124.1	124.3	24	111.6	111.9	112.4	24	106.6	106.8	107.0	24
4/9	120.1	120.3	121.0	24	---	---	---	0	123.7	123.8	123.9	24	111.8	112.5	112.7	24	107.2	108.1	108.5	24
4/10	120.3	120.6	121.1	24	---	---	---	0	123.7	123.9	124.0	24	112.1	112.3	112.6	24	107.7	108.1	108.5	24
4/11	121.2	121.9	122.3	24	---	---	---	0	123.9	124.2	124.4	24	113.2	114.1	114.4	24	108.6	109.4	109.9	23
4/12	120.7	121.9	122.4	24	---	---	---	0	124.4	124.5	124.7	24	114.3	114.6	115.0	24	108.8	109.3	109.7	23
4/13	120.8	121.1	121.2	24	---	---	---	0	124.5	124.6	124.7	24	114.3	114.6	114.9	24	108.0	108.4	109.0	24
4/14	121.2	121.6	121.9	24	---	---	---	0	124.1	124.2	124.3	24	113.2	113.4	113.6	24	106.8	107.3	107.4	24
4/15	120.7	121.3	121.5	24	---	---	---	0	112.0	113.6	123.1	24	105.0	106.3	112.5	24	108.0	108.8	109.0	24
4/16	121.1	121.5	121.8	24	---	---	---	0	110.2	110.4	110.8	24	104.9	105.6	106.0	24	109.1	110.1	110.4	24
4/17	120.7	120.7	120.9	5	---	---	---	0	109.8	110.3	110.7	24	105.5	105.7	106.2	24	109.2	109.6	109.8	24
4/18	119.6	120.5	120.7	24	---	---	---	0	108.6	108.8	109.0	24	104.1	104.6	105.5	24	108.8	109.1	109.6	24
4/19	117.9	118.2	118.5	24	---	---	---	0	107.9	108.1	108.4	24	103.4	103.9	104.1	24	108.9	109.8	110.0	24
4/20	---	---	---	0	---	---	---	0	108.2	108.5	108.8	23	103.5	103.8	104.2	23	108.6	109.0	109.3	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>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/7	109.5	110.1	110.3	24	111.0	111.7	112.1	24	123.8	124.2	124.3	24	122.0	123.1	123.6	24	120.8	121.2	122.3	24
4/8	107.7	107.9	108.1	24	108.3	108.9	109.5	24	125.3	126.6	127.4	24	118.1	119.2	120.1	24	120.1	121.2	121.8	24
4/9	108.0	109.1	109.8	24	106.2	106.6	106.9	24	127.1	128.4	129.2	24	116.2	116.8	117.8	24	117.3	117.6	117.8	24
4/10	108.3	108.8	109.3	24	107.7	108.3	108.7	24	124.5	125.4	125.5	24	117.9	118.1	118.4	24	118.0	118.1	118.2	24
4/11	109.0	110.2	111.1	24	108.8	109.3	109.6	24	123.2	123.5	123.7	24	118.9	119.3	119.4	24	118.9	119.4	119.8	24
4/12	109.2	109.6	110.1	24	109.8	110.2	110.8	24	121.8	122.2	122.6	24	119.9	120.3	120.9	24	121.7	122.5	122.7	24
4/13	108.7	108.9	109.1	24	109.5	110.0	110.9	24	121.6	121.9	122.5	24	120.0	120.6	121.3	24	121.2	122.1	123.4	24
4/14	108.0	108.4	108.8	24	107.5	107.9	108.6	24	119.5	120.0	121.2	16	116.9	117.6	118.6	24	118.7	120.0	124.0	24
4/15	105.2	106.6	107.4	24	106.7	107.1	107.4	24	115.2	115.3	117.0	15	115.4	115.7	116.0	24	119.5	122.4	124.1	24
4/16	103.0	104.2	105.1	24	108.5	109.4	110.0	24	115.5	115.5	116.1	12	115.7	116.1	116.6	24	116.7	117.0	117.4	24
4/17	102.2	102.7	103.3	24	108.7	109.1	110.0	24	118.2	119.3	119.5	24	114.7	115.8	116.6	24	116.2	116.8	117.4	24
4/18	101.5	102.0	102.7	24	107.9	108.3	108.7	24	119.7	120.2	120.7	24	111.8	112.1	112.6	24	116.1	116.3	116.5	24
4/19	102.0	103.4	104.3	24	107.0	107.2	107.5	24	120.4	120.9	121.1	24	114.2	115.5	116.2	24	117.0	117.3	117.6	24
4/20	101.3	101.6	102.0	23	107.1	107.3	107.4	23	120.9	121.0	121.5	23	116.0	116.2	116.4	23	119.6	122.2	123.4	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>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/7	123.0	124.4	124.9	24	121.0	121.4	122.3	24	120.2	121.3	121.6	24	120.6	121.2	122.2	24	---	---	---	0
4/8	119.1	119.6	120.1	24	120.9	121.3	121.5	24	116.3	116.9	118.0	24	120.7	121.4	122.1	24	---	---	---	0
4/9	117.9	118.3	118.6	24	121.7	122.2	122.5	24	115.8	116.8	117.9	24	121.8	122.3	122.6	24	---	---	---	0
4/10	116.3	116.6	116.9	24	120.5	120.7	121.3	24	117.6	118.0	118.4	24	120.5	120.8	121.0	24	---	---	---	0
4/11	117.2	118.2	118.9	24	120.0	120.8	121.5	24	117.0	117.7	118.0	24	119.2	120.1	120.7	24	---	---	---	0
4/12	119.9	120.2	120.4	24	123.3	125.4	126.1	24	118.3	118.8	119.3	24	120.9	122.4	123.1	24	---	---	---	0
4/13	121.8	122.3	122.7	24	123.3	125.0	126.2	24	120.1	120.7	121.1	24	121.7	122.3	122.9	24	---	---	---	0
4/14	119.8	120.5	121.0	24	120.5	120.5	120.9	7	119.2	119.2	119.7	6	119.4	119.5	121.1	13	---	---	---	0
4/15	116.9	117.3	118.1	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/16	122.2	123.8	124.8	24	118.6	118.8	120.4	16	118.4	118.8	119.2	19	119.4	119.9	120.3	19	---	---	---	0
4/17	117.6	118.4	119.6	24	117.0	117.8	118.6	24	118.0	118.3	118.5	24	119.2	120.1	120.3	24	---	---	---	0
4/18	115.5	115.8	116.2	24	118.5	118.8	119.4	24	116.3	116.9	118.0	24	119.6	120.1	120.4	24	---	---	---	0
4/19	114.7	115.1	115.2	24	118.7	119.4	120.1	24	115.3	115.5	115.7	24	120.0	120.6	122.4	24	---	---	---	0
4/20	115.6	115.9	116.2	23	118.5	119.3	120.2	23	115.1	115.3	115.5	23	119.2	119.8	120.3	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#					
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		AVG	High			
4/7	117.4	118.9	119.3	24	123.3	123.6	124.4	24	123.7	125.0	125.5	24	121.0	121.4	122.3	24	119.7	121.1	122.2	24
4/8	112.7	113.9	114.4	24	123.7	124.5	124.8	24	118.9	120.1	121.3	24	121.6	122.0	122.2	24	116.2	116.4	116.8	23
4/9	111.5	112.5	113.5	24	123.7	124.7	125.8	24	115.6	115.8	116.2	24	122.4	122.8	123.4	24	117.1	117.9	118.4	23
4/10	113.6	114.1	114.5	24	122.3	122.9	123.1	24	113.6	113.9	114.9	24	121.6	122.2	122.3	24	116.1	116.8	117.6	24
4/11	114.4	114.8	115.2	24	124.0	124.9	125.6	24	114.6	115.7	117.0	24	122.2	122.5	122.7	24	118.4	119.2	119.9	24
4/12	115.8	116.2	116.5	24	124.9	125.8	126.1	24	118.7	119.4	119.7	24	121.8	122.2	122.4	24	118.4	118.7	119.0	24
4/13	115.8	116.2	116.4	24	124.8	125.6	125.9	24	119.1	119.3	119.5	24	122.7	123.2	123.7	24	118.6	119.0	119.5	24
4/14	113.5	114.2	115.3	24	122.6	122.8	123.1	24	118.5	119.0	119.3	24	123.2	124.1	124.3	24	118.6	119.7	120.4	24
4/15	112.6	113.2	114.1	24	122.5	122.8	123.0	24	117.8	118.4	118.8	24	122.5	122.8	123.1	24	119.0	120.2	120.7	24
4/16	115.7	116.5	116.8	24	122.9	123.5	123.9	24	118.5	118.7	118.8	24	120.9	121.0	121.2	24	119.8	120.1	120.4	24
4/17	116.2	116.4	116.7	24	121.4	121.7	122.3	24	117.3	117.7	118.5	24	120.7	120.8	121.5	24	118.2	118.6	119.1	24
4/18	115.2	115.5	115.9	24	122.7	123.0	123.2	24	119.0	119.2	119.4	24	121.2	121.8	122.1	24	118.5	119.3	119.8	24
4/19	114.8	115.0	115.2	24	120.7	120.9	121.2	24	118.8	119.0	119.4	24	122.3	123.9	124.5	24	117.4	117.8	118.4	24
4/20	114.2	114.7	115.0	23	120.4	120.5	120.8	23	117.3	117.6	118.2	23	123.2	123.4	123.6	23	116.4	116.8	117.5	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>	#					
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		AVG	High			
4/7	121.9	123.5	125.3	24	125.3	126.3	126.6	24	125.2	126.3	127.1	24	122.5	124.6	126.3	24	123.9	124.5	124.9	24
4/8	120.1	120.5	121.1	24	120.7	121.6	123.3	24	122.0	122.8	123.5	24	119.9	120.3	120.7	24	122.6	123.0	123.8	24
4/9	121.7	122.4	123.1	24	121.2	122.3	123.4	24	123.5	124.1	124.3	24	120.8	122.0	122.2	24	123.7	123.9	124.1	24
4/10	120.9	121.4	122.2	24	122.4	123.1	123.6	24	123.2	124.0	124.4	24	121.7	122.0	122.2	24	123.1	123.6	124.0	24
4/11	122.6	123.3	123.8	24	121.6	122.3	122.8	24	122.7	123.0	123.5	24	119.8	120.3	120.8	24	122.3	122.4	122.5	24
4/12	120.7	122.5	123.2	13	123.9	124.4	124.8	24	124.0	124.5	124.8	24	120.5	121.6	122.0	24	122.7	122.9	123.8	24
4/13	121.4	121.4	122.0	12	122.5	122.9	123.7	24	124.1	124.6	124.8	24	122.3	122.7	123.1	24	123.7	124.1	124.3	24
4/14	120.7	121.1	121.3	24	120.6	120.8	121.0	24	122.2	122.5	122.8	24	120.5	120.8	121.5	24	123.0	123.2	123.4	24
4/15	120.5	121.0	121.4	24	122.0	123.5	124.1	24	123.0	123.9	124.2	24	121.3	122.4	122.9	24	122.7	122.9	123.1	24
4/16	120.8	121.2	121.6	24	123.5	124.1	124.6	24	123.6	123.9	124.3	24	120.4	121.1	122.4	24	122.7	122.8	122.9	24
4/17	120.1	120.5	121.1	24	124.1	124.7	125.1	24	124.1	124.3	124.4	24	121.7	122.9	123.3	24	123.8	124.3	124.5	24
4/18	121.2	121.5	122.0	24	122.5	122.7	123.2	24	123.6	123.8	124.0	24	121.9	122.5	123.0	24	122.7	123.1	124.2	24
4/19	119.3	119.8	121.2	24	123.2	123.7	124.0	24	123.2	123.4	123.7	24	120.5	121.3	121.9	24	123.6	124.0	124.3	24
4/20	117.5	117.8	118.3	23	120.2	121.1	123.1	23	121.2	121.7	122.6	23	120.2	120.6	121.0	23	123.4	123.5	123.8	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 4/21/2017 11:49

Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
04/07/2017 *	1,076	5,843	353	---	9,185	---	40,381	8	2,455	---	1,159
04/08/2017	---	---	549	---	11,501	11,576	---	8	---	2,110	1,706
04/09/2017	---	---	1,398	---	14,848	---	---	12	7,618	---	1,866
04/10/2017	2,286	---	1,066	---	32,241	23,512	23,597	10	---	5,991	1,407
04/11/2017	2,781	---	1,039	---	37,814	---	---	14	12,002	---	1,645
04/12/2017 *	826	2,970	1,082	---	35,145	30,573	---	18	---	17,546	27,642
04/13/2017 *	567	921	756	---	34,415	---	44,405	23	13,274	---	29,275
04/14/2017 *	1,134	772	---	---	53,048	44,487	---	117	---	17,226	46,552
04/15/2017 *	---	269	1,846	---	81,556	---	---	555	19,963	---	48,495
04/16/2017 *	---	115	361	---	59,142	146,670	49,634	855	---	18,976	46,061
04/17/2017	1,082	107	511	---	64,653	---	---	456	26,131	---	23,110
04/18/2017 *	3,462	66	1,698	---	104,001	75,407	91,778	1,359	---	23,153	23,416
04/19/2017	1,127	107	2,583	---	66,915	---	---	585	28,655	---	24,249
04/20/2017	560	---	---	---	97,177	99,193	76,480	977	---	32,542	22,652
04/21/2017	---	---	---	---	---	---	---	---	41,687	---	---
Total:	14,901	11,170	13,242	0	701,641	431,418	326,275	4,997	151,785	117,544	299,235
# Days:	10	9	12	0	14	7	6	14	8	7	14
Average:	1,490	1,241	1,104	0	50,117	61,631	54,379	357	18,973	16,792	21,374
YTD	27,218	21,295	16,535	8	822,701	444,999	328,925	5,064	151,785	129,385	312,274

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)
04/07/2017 *	0	0	0	---	49	---	184	28	1,312	---	3,788
04/08/2017	---	---	0	---	0	0	---	59	---	799	3,154
04/09/2017	---	---	1	---	222	---	---	42	1,172	---	2,371
04/10/2017	0	---	0	---	104	0	190	74	---	554	950
04/11/2017	0	---	0	---	0	---	---	47	1,822	---	753,700
04/12/2017 *	0	0	0	---	0	0	---	48	---	289	61,317
04/13/2017 *	0	0	0	---	186	---	0	52	1,046	---	2,286
04/14/2017 *	0	0	---	---	180	0	---	52	---	539	13,460
04/15/2017 *	---	0	0	---	618	---	---	44	1,352	---	2,719
04/16/2017 *	---	0	0	---	0	0	157	69	---	131	1,739
04/17/2017	0	0	0	---	280	---	---	88	2,029	---	1,638
04/18/2017 *	0	0	0	---	0	0	0	134	---	515	1,986
04/19/2017	0	0	0	---	690	---	---	70	2,089	---	958
04/20/2017	0	---	---	---	0	1	0	25	---	263	1,087
04/21/2017	---	---	---	---	---	---	---	---	2,338	---	---
Total:	0	0	1	0	2,329	1	531	832	13,160	3,090	851,153
# Days:	10	9	12	0	14	7	6	14	8	7	14
Average:	0	0	0	0	166	0	89	59	1,645	441	60,797
YTD	0	1	1	0	3,673	161	1,149	1,245	13,160	4,081	958,282

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)	
04/07/2017	*	0	0	59	---	49	---	0	0	---	6,048	
04/08/2017		---	---	24	---	50	319	---	0	---	7,399	
04/09/2017		---	---	40	---	0	---	0	0	---	6,284	
04/10/2017		0	---	41	---	0	135	0	0	---	6,544	
04/11/2017		0	---	36	---	0	---	---	0	0	6,540	
04/12/2017	*	0	0	27	---	0	0	---	0	---	3,518	
04/13/2017	*	0	0	18	---	0	---	0	65	---	2,286	
04/14/2017	*	0	0	---	---	0	0	---	0	---	8,262	
04/15/2017	*	---	0	49	---	0	---	---	0	0	10,198	
04/16/2017	*	---	0	10	---	274	604	0	0	---	10,841	
04/17/2017		0	0	19	---	560	---	---	0	0	6,341	
04/18/2017	*	0	0	30	---	0	0	622	0	---	8,136	
04/19/2017		0	0	46	---	345	---	---	10	298	7,317	
04/20/2017		0	---	---	---	699	572	0	87	---	5,439	
04/21/2017		---	---	---	---	---	---	---	---	390	---	
Total:		0	0	399	0	1,977	1,630	622	97	753	400	95,153
# Days:		10	9	12	0	14	7	6	14	8	7	14
Average:		0	0	33	0	141	233	104	7	94	57	6,797
YTD		0	0	736	0	3,541	1,790	622	97	753	509	118,910

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)	
04/07/2017	*	191	836	336	---	11,098	---	10,567	0	4,439	---	629
04/08/2017		---	---	241	---	14,489	20,489	---	2	---	8,312	569
04/09/2017		---	---	517	---	29,584	---	---	8	2,865	---	708
04/10/2017		439	---	214	---	19,616	28,787	13,701	4	---	10,354	563
04/11/2017		362	---	217	---	27,383	---	---	2	7,787	---	982
04/12/2017	*	530	174	139	---	37,463	34,857	---	2	---	7,018	1,006
04/13/2017	*	453	31	69	---	20,649	---	20,905	4	4,577	---	1,550
04/14/2017	*	675	59	---	---	32,345	47,573	---	6	---	10,393	464
04/15/2017	*	---	109	127	---	80,011	---	---	36	11,256	---	904
04/16/2017	*	---	112	4	---	43,809	149,080	49,005	28	---	13,916	2,249
04/17/2017		329	100	13	---	45,901	---	---	25	10,095	---	819
04/18/2017	*	225	82	86	---	80,627	65,670	58,178	56	---	19,937	1,986
04/19/2017		415	157	67	---	90,369	---	---	50	11,341	---	2,101
04/20/2017		253	---	---	---	191,906	52,640	88,895	51	---	26,152	1,796
04/21/2017		---	---	---	---	---	---	---	---	15,974	---	---
Total:		3,872	1,660	2,030	0	725,250	399,096	241,251	274	68,334	96,082	16,326
# Days:		10	9	12	0	14	7	6	14	8	7	14
Average:		387	184	169	0	51,804	57,014	40,209	20	8,542	13,726	1,166
YTD		4,122	9,030	3,756	1	1,103,647	429,686	270,904	284	68,334	151,769	20,276

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)
04/07/2017 *	0	0	0	---	245	---	0	0	67	---	578
04/08/2017	---	---	0	---	299	159	---	42	---	32	467
04/09/2017	---	---	0	---	111	---	---	8	33	---	463
04/10/2017	0	---	0	---	730	141	0	2	---	35	493
04/11/2017	0	---	0	---	702	---	---	43	0	---	711
04/12/2017 *	0	0	0	---	386	586	---	24	---	0	1,509
04/13/2017 *	0	0	0	---	1,488	---	305	12	65	---	355
04/14/2017 *	0	0	---	---	540	0	---	22	---	144	405
04/15/2017 *	---	0	0	---	1,545	---	---	150	294	---	1,587
04/16/2017 *	---	0	0	---	1,643	0	157	316	---	218	724
04/17/2017	0	0	0	---	2,519	---	---	358	418	---	206
04/18/2017 *	0	0	0	---	1,694	1	1,244	131	---	172	595
04/19/2017	0	0	0	---	345	---	---	20	746	---	847
04/20/2017	0	---	---	---	2,447	11	1,592	48	---	263	519
04/21/2017	---	---	---	---	---	---	---	---	1,299	---	---
Total:	0	0	0	0	14,694	898	3,298	1,176	2,922	864	9,459
# Days:	10	9	12	0	14	7	6	14	8	7	14
Average:	0	0	0	0	1,050	128	550	84	365	123	676
YTD	0	0	0	0	16,629	1,341	3,298	1,184	2,922	1,015	12,783

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR [†] (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
04/07/2017 *	0	0	0	---	1	---	0	1	110	---	243
04/08/2017	---	---	0	---	0	0	---	0	---	2,760	200
04/09/2017	---	---	0	---	0	---	---	0	70	---	126
04/10/2017	0	---	0	---	0	0	0	1	---	1,640	70
04/11/2017	0	---	0	---	0	---	---	0	60	---	774
04/12/2017 *	0	0	0	---	0	0	---	0	---	580	143
04/13/2017 *	0	0	0	---	0	---	0	0	60	---	143
04/14/2017 *	0	0	---	---	0	400	---	0	---	280	67
04/15/2017 *	---	0	0	---	0	---	---	1	420	---	0
04/16/2017 *	---	0	0	---	0	0	0	0	---	175	133
04/17/2017	0	0	0	---	0	---	---	0	160	---	133
04/18/2017 *	0	0	0	---	0	0	0	1	---	225	0
04/19/2017	0	0	0	---	0	---	---	1	250	---	4
04/20/2017	0	---	---	---	0	400	0	0	---	240	67
04/21/2017	---	---	---	---	---	---	---	---	250	---	---
Total:	0	0	0	0	1	800	0	5	1,380	5,900	2,103
# Days:	10	9	12	0	14	7	6	14	8	7	14
Average:	0	0	0	0	0	114	0	0	173	843	150
YTD	0	0	4	0	13	800	0	11	1,380	11,285	33,262

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.

IMN data collected for the FPC by the Nez Perce Tribe.

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

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

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

4/21/17 11:50 AM

04/07/17 TO 04/21/17

		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	1,375	415,598	1,250	424,180	8,925	851,328
	Sum of NumberBarged	61	22,948	30	22,280	296	45,615
	Sum of NumberBypassed	1,314	392,580	1,219	401,891	8,609	805,613
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	19	0	7	4	30
	Sum of FacilityMorts	0	51	1	2	16	70
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	70	1	9	20	100
LGS	Sum of NumberCollected		293,774	1,100	270,384	613	565,871
	Sum of NumberBarged		0	0	0	0	0
	Sum of NumberBypassed		293,441	1,100	270,348	598	565,487
	Sum of Numbertrucked		0	0	0	0	0
	Sum of SampleMorts		5	0	1	1	7
	Sum of FacilityMorts		328	0	35	14	377
	Sum of ResearchMorts		0	0	0	0	0
	Sum of TotalProjectMorts		333	0	36	15	384
LMN	Sum of NumberCollected	300	187,555	400	144,245	2,000	334,500
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	300	187,547	400	144,244	2,000	334,491
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	8	0	1	0	9
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	8	0	1	0	9
Total Sum of NumberCollected		1,675	896,927	2,750	838,809	11,538	1,751,699
Total Sum of NumberBarged		61	22,948	30	22,280	296	45,615
Total Sum of NumberBypassed		1,614	873,568	2,719	816,483	11,207	1,705,591
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		0	32	0	9	5	46
Total Sum of FacilityMorts		0	379	1	37	30	447
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		0	411	1	46	35	493

YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/21/17 11:50 AM

TO: 04/21/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	2,058	474,767	2,000	9,894	616,089	1,104,808
	Sum of NumberBarged	61	22,948	30	296	22,280	45,615
	Sum of NumberBypassed	1,994	451,744	1,969	9,576	593,784	1,059,067
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	3	24	0	6	23	56
	Sum of FacilityMorts	0	51	1	16	2	70
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3	75	1	22	25	126
LGS	Sum of NumberCollected	101	302,586	1,200	914	291,184	595,985
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	100	302,241	1,200	897	291,147	595,585
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	5	0	2	2	9
	Sum of FacilityMorts	1	340	0	15	35	391
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	345	0	17	37	400
LMN	Sum of NumberCollected	600	188,855	400	2,000	158,645	350,500
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	600	188,847	400	2,000	158,644	350,491
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	8	0	0	1	9
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	8	0	0	1	9
Total Sum of NumberCollected		2,759	966,208	3,600	12,808	1,065,918	2,051,293
Total Sum of NumberBarged		61	22,948	30	296	22,280	45,615
Total Sum of NumberBypassed		2,694	942,832	3,569	12,473	1,043,575	2,005,143
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		3	37	0	8	26	74
Total Sum of FacilityMorts		1	391	1	31	37	461
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		4	428	1	39	63	535

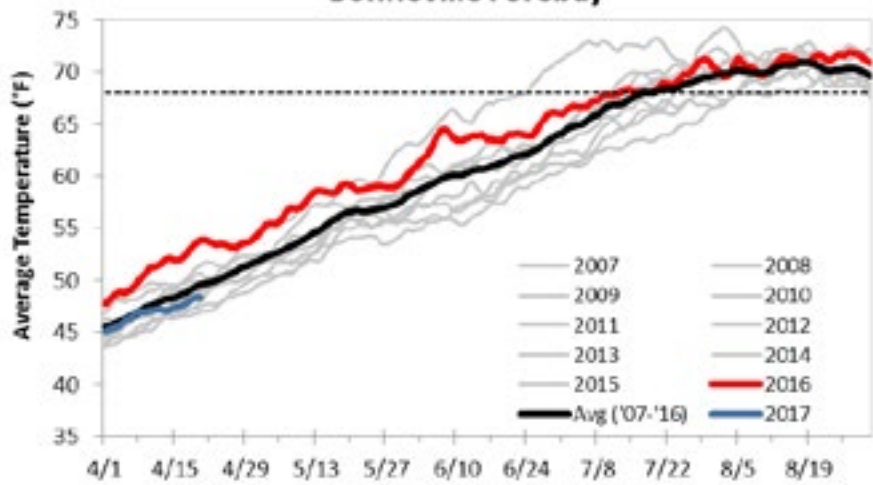
Cumulative Adult Passage at Mainstem Dams Through: 04/20

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	04/20	927	0	6497	32	16678	78	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/20	164	5	2667	54	8014	38	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/20	75	6	1854	20	5093	37	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/20	26	-2	953	2	1880	7	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/19	14	0	342	8	651	2	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/20	17	0	266	0	412	1	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/20	8	1	163	2	192	3	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/20	4	0	104	1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	04/19	0	0	8	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	04/19	0	0	4	1	0	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	04/17	3	0	1262	1	977	1	0	0	0	0	0	0	0	0	0	0	0	0

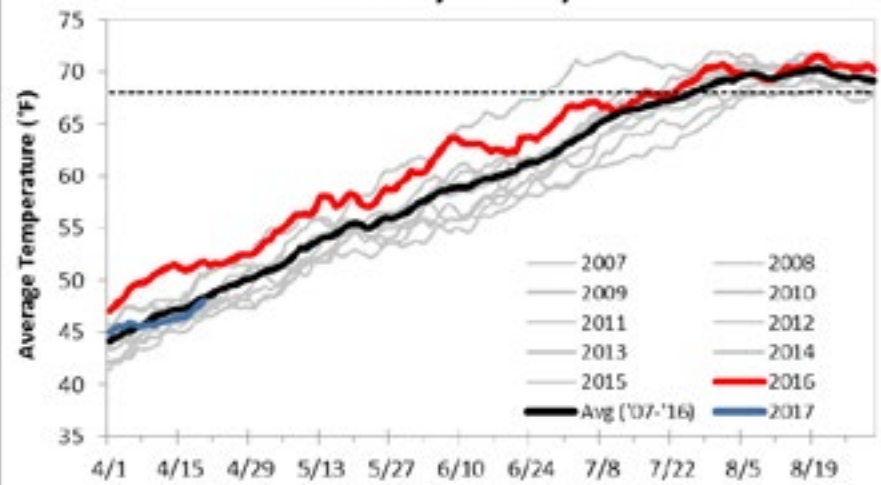
DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey				
		2017		2016		10-Yr Avg.		10-Yr		10-Yr			Unclipped		Unclipped		10-Yr		10-Yr		
		Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016
BON	04/20	0	0	0	0	0	0	0	1	0	2287	3478	3335	813	1508	1204	0	1	0		
TDA	04/20	0	0	0	0	0	0	0	0	0	1199	258	2283	403	152	964	0	0	0		
JDA	04/20	0	0	0	0	0	1	0	0	0	364	288	4610	236	207	1802	0	10	-1		
MCN	04/20	0	0	0	0	1	0	0	1	0	2374	433	6023	669	302	1921	0	2	0		
IHR	04/19	0	0	0	0	0	0	0	0	0	802	1065	5005	394	592	1312	0	1	0		
LMN	04/20	-1	0	0	0	0	0	0	0	0	1118	1117	7440	533	771	2340	-1	0	0		
LGS	04/20	0	0	0	0	0	0	0	0	0	1125	2999	4173	496	1685	2010	0	0	0		
LGR	04/20	-7	0	0	0	0	0	0	0	0	6922	5051	8014	2832	2800	2948	0	0	0		
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
RIS	04/19	0	0	0	0	0	0	0	0	0	18	15	33	3	9	19	0	0	0		
RRH	04/19	0	0	0	0	0	0	0	0	0	39	32	87	7	12	60	0	0	0		
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
WFA	04/17	0	0	0	0	0	0	0	0	0	540	5409	5462	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.

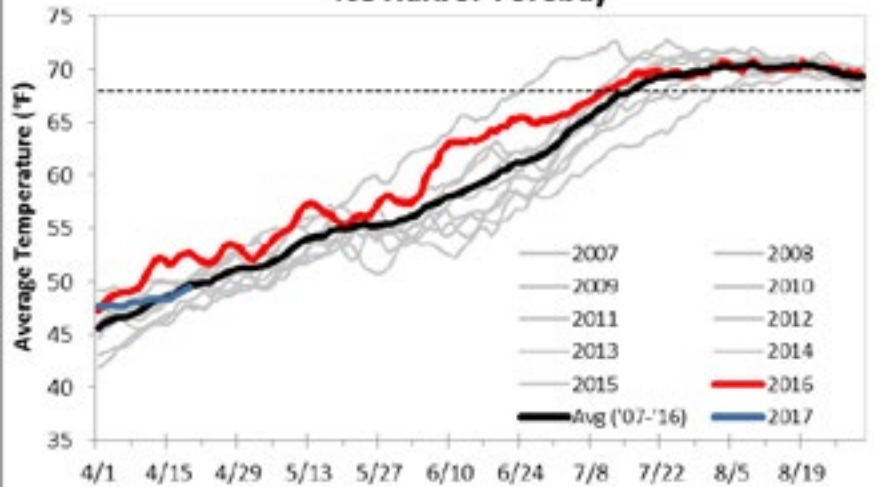
Bonneville Forebay



McNary Forebay



Ice Harbor Forebay



Lower Granite Forebay

