847 NE 19th Ave., Suite 250
Portland, OR 97232
(503) 833-3900

Fish Passage Center

Weekly Report #17–08

April 28, 2017

This Week's Highlights

River Conditions

Flows in the Snake River remain high, and have increased 3 Kcfs as compared to last week. Dworshak Dam began its refill operation on April 15th, reducing outflows from 25 Kcfs to 7.2 Kcfs (approximately 2.5 Kcfs of spill). Hells Canyon Complex flows remain quite high, with outflows at Hells Canyon ranging between 58.2 and 68.5 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 23rd, 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 28, 2017): Units 5, 6 Out of Service.
4. McNary Dam (as of April 20, 2017): Units 2, 13 Out of Service.
5. Ice Harbor Dam (as of April 20, 2017): Units 2 and 4 Out of Service.
6. Lower Monumental Dam (as of April 20, 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 20, 2017): all units available.
8. Lower Granite Dam (as of April 20, 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 92% and 153% of average at individual sub-basins over April. Precipitation above The Dalles has been 139% of average over April. Over the 2017 water year, precipitation has ranged between 117% 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 1-26, 2017		Water Year 2017 October 1, 2016 to April 26, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	3.17	135	32.2	128
Snake River Above Ice Harbor	2.38	133	21.7	139
Columbia Above The Dalles	2.62	139	24.7	129
Kootenai	3.07	133	33.4	135
Clark Fork	1.91	92	20.1	117
Flathead	3.66	144	32.9	141
Pend Oreille River Basin above Waneta Dam	2.80	122	28.3	132
Salmon River Basin	2.85	119	28.3	144
Upper Snake Tributaries	3.16	148	25.2	144
Clearwater	3.10	102	36.0	125
Willamette River above Portland	7.25	153	77.1	141

Snowpack within the Columbia Basin has been above average. Average snowpack in the Columbia River for basins above the Snake River confluence is 122% of average, for Snake River Basins the average snowpack is 160% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 160% of average.

Table 2 displays the April 27th ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 27th ESP forecast at The Dalles between April and August is 109,974 Kaf (126% of average).

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

Location	April 27, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	126	109,974
Grand Coulee (Apr-Aug)	118	67,245
Libby Res. Inflow, MT (Apr-Aug)	123 122*	7,226 7,654*
Hungry Horse Res. Inflow, MT (Apr-Aug)	125	2,421
Lower Granite Res. Inflow (Apr- July)	146	28,888
Brownlee Res. Inflow (Apr-July)	205	11,208
Dworshak Res. Inflow (Apr-July)	115 122*	2,790 2,984*

* Denotes COE April Forecast

Grand Coulee Reservoir is at 1,232.7 feet (4-27-17) and has held steady over the last week. Outflows at Grand Coulee have ranged between 175.8 Kcfs and 183.2 Kcfs over the last week. The April 30th FC Elevation at Grand Coulee is 1,222.7 feet.

The Libby Reservoir is currently at elevation 2,363.0 feet (4-27-17) and has drafted 3.6 feet over the past week. Daily average outflows at Libby Dam have been 22.6 Kcfs to 23.2 Kcfs over the last week. The April 30th FC Elevation at Libby is 2,325.4 feet (based on COE April final Forecast of 7.654 Kaf).

Hungry Horse is currently at an elevation of 3,529.4 feet (4-27-17) and has drafted 0.6 feet last week. Outflows at Hungry Horse have been 8.5 Kcfs over the last week. The April 30th FC Elevation at Hungry Horse is 3,531.3 feet.

Dworshak is currently at an elevation of 1,521.1 feet (4-27-17) and has refilled 8.8 feet over the last week. Dworshak began to refill on April 15th, 2017. Dworshak outflows over the last week ranged between 7.2-7.5 Kcfs. The April 30th System FC Elevation is 1,448.2 feet (based on COE April final Forecast of 2.984 Kaf).

The Brownlee Reservoir was at an elevation of 2,012.3 feet on April 27, 2017, and drafted 3.0 feet last

week. Outflows at Hells Canyon have ranged between 58.8 and 68.5 Kcfs over the last four days. The minimum flow at Hells Canyon is 8.5 Kcfs. The April 30th FC Elevation at Brownlee is 2,012.6 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 129.2 last week and 134.5 Kcfs between April 3-27, 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). Over the last week, flows at McNary were 354.6 Kcfs and 212.0 Kcfs at Priest Rapids. Between April 10-27, flows at McNary Dam were 359.6 Kcfs and Priest Rapids Dam flows were

Spill

Flows in the Snake River remain high, and increased approximately 3 Kcfs over the past week at Lower Granite. Dworshak Dam began its refill operation on April 15th, reducing outflows from 25 Kcfs to 7.2 Kcfs. Hells Canyon Complex flows remain quite high, with outflows at Hells Canyon ranging between 58.2 and 68.5 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 52 to 61 Kcfs. At Little Goose Dam Biological Opinion spill is 30% of flow and ranged from 30% to 35% 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 all seven days last week; whereas, the tailrace exceeded TDG waivers over only one day last week. Spill at Lower Monumental Dam exceeded the 120% gas cap level late in the week (2 days); the forebay TDG waiver was exceeded from 4/22 to 4/27. At Ice Harbor spill ranged from 81 Kcfs to 92 Kcfs, only forebay TDG waivers were exceeded over three days last week.

Spill for fish passage began in the middle Columbia River on April 10th. Spill for fish passage began on April 10th at the lower Columbia River projects. Spill for fish passage at the lower Columbia River projects at the following amounts 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 eleven days has exceeded the planned spill for fish passage levels due to “involuntary” spill. At McNary Dam spill averaged 57-59% of daily average flow, with the tailrace TDG waivers being exceeded every day of last week and forebay TDG waivers being exceeded during all but one day last week. At John Day Dam spill averaged between 30 and 39% of average daily flow, with both tailrace and forebay TDG waivers being exceeded every day but one last week. At The

Dalles Dam spill ranged from 49 to 58% of average daily flow, with all tailrace and forebay waivers exceeded all week. Bonneville Dam spill was 157 to 174 Kcfs, with tailrace TDG waivers being exceeded every day of 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 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 this project). At Dworshak Dam, tailrace TDG levels have decreased to near 108% as a result of the project beginning refill on April 15th, 2017 and reduced outflows from 25 Kcfs to 7.2 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 105% to 109% over the past week.

Although Dworshak did begin refill operations two week ago, other flood control operations continuing 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 120% to 122% at Lower Granite Dam; 118% to 123% at Little Goose Dam; 120% to 121% at Lower Monumental Dam; and, 120% at Ice Harbor Dam. TDG supersaturation levels have also been high at the Middle Columbia projects, ranging from 120% to 122% at the tailwater of McNary Dam; 121% to 123% at The Dalles Dam; 119% to 128% below John Day Dam; and, 122% 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 117% to 113% in the forebay of Wells Dam). TDG downstream of Wells Dam was variable, near 125% (on average) in the tailraces of Rocky Reach and Rock Island dams. TDG was 121% (on average) in the tailraces of Wanapum and Priest Rapids dams. The TDG levels below Grand Coulee Dam have decreased from 133% two weeks ago, to as low as 110% this week. Grand Coulee spill levels have declined to an average of approximately 3 Kcfs over the last week.

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, and Rock Island Dams. At Lower Granite Dam 4% of the sample on 4/27/17 were observed with Rank 1 levels of GBT in their fins. At Little Goose Dam no fish were detected with signs of GBT in the exam conducted on 4/23/17. At Lower Monumental Dam, no fish were detected with signs of GBT on 4/27/17. At McNary Dam no fish showed signs of GBT on exams taken on 04/24/17 or 4/26/17. At Bonneville Dam, 3% of fish showed signs of Rank 1 GBT and 1% of the fish examined showed rank 4 signs of GBT on 4/22/17. During the 4/25/17 GBT exam at Bonneville, 6% of fish showed level one signs of GBT. The observed signs of GBT 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 4/25/17 showed 53% of signs of GBT (all at or below level 3, most Rank 1), the exam on 4/27/17 showed 41% signs of GBT with all of those at equal or less than level 2. The action criteria for

interruption of the voluntary spill for fish passage program is defined as either 15 percent of examined fish showing signs of gas bubble trauma in their non-paired fins, or five percent of the fish examined show signs of gas bubble trauma in their non-paired fins where more than 25 percent of the surface area of the fin is occluded by gas bubbles, corresponding to ranks greater than 2.

Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. Thus far, reported temperatures are close to

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 again dominated by yearling Chinook. This week's daily average passage index for yearling Chinook at BON was about 32,700 per day, which is similar to last week's daily average passage index of about 33,500 per day. Passage of subyearling Chinook decreased again this week, when compared to the previous week. This week's daily average passage index for subyearling Chinook was about 1,000 per day, whereas that for last week was about 3,400 per day. Coho passage this week was similar to last week, with a daily average passage of about 7,350 per day. Passage of sockeye and steelhead increased this week when compared to the previous week. This week's daily average passage indices for these two species were nearly 1,000 and 3,700 per day, respectively. Last week's daily average passage indices were 700 per day for sockeye and about 1,500 for steelhead. Finally, Pacific lamprey macropthalmia were encountered in five of this week's samples. This week's daily average collection for Pacific macropthalmia was about 40, which is slightly lower than last week's daily average collection of about 60 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 56,000 per day, which is an increase over last week's daily average passage index of about 23,000 per day. Steelhead passage also increased this week when compared to the previous week. This week's daily average passage index for steelhead was about 45,000 per day, whereas that for last week was only 17,600 per day. Sockeye passage increased this week, when compared to last week. This week's daily average passage index for sockeye was about 1,400 per day, whereas that for last week was only 200 per day. Subyearling Chinook and coho were also encountered in this week's samples but in relatively low numbers. So far for the year, nearly all of the subyearling Chinook that have been collected at JDA have been fry. Finally, Pacific lamprey ammocoetes were encountered in two (April 24th and 26th) of this week's samples while Pacific macropthalmia were encountered in all three of this week's samples. The daily average collection for Pacific macropthalmia was about 150 per day, which is slightly lower than last week's daily average collection of about 200 per day.

Sampling at McNary Dam (MCN) is also every-other-day. Yearling Chinook dominated this week's samples at MCN, with a daily average passage index of about 58,500 per day. This is a substantial increase over last week's daily average passage index of nearly 25,000 per day. Passage of steelhead, sockeye, subyearling Chinook, and coho also increased this week, when compared to the previous week. This week's daily average passage indices for these four species were nearly 31,000, 3,700, 2,900, and 1,000 per day, respectively. Last week's daily average passage indices were about 11,000 per day for steelhead, 500 for sockeye, 1,800 for subyearling Chinook, and 100 for coho. As with previous weeks, all of the subyearling Chinook encountered in this week's samples were fry. Finally, one Pacific lamprey ammocoete was encountered in this week's samples (April 27th). This was the first ammocoete encountered at MCN so far this year. Pacific lamprey macropthalmia were encountered in all four of this week's samples, with a daily average collection of nearly 500 fish per day. This is an increase over last week's daily average collection of about 280 Pacific macropthalmia 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 125,000 and 132,000 per day, respectively. This represents an increase over last week's daily average passage indices of 75,000 per day for yearling Chinook and 81,000 for steelhead. Coho passage increased this week, when compared to last week. This week's daily average passage index for coho was 700 per day, whereas that for last week was about 270 per day. Sockeye/kokanee passage decreased this week. This week's daily average passage index for sockeye/kokanee at LGR was about 1,100, whereas that for last week was 1,500 per day. As of the April 27 sample, no clipped sockeye have been collected at LGR. This indicates that the hatchery release at Redfish Lake Creek that began on April 18th has not arrived at LGR yet. PIT-tag data support this, as no PIT-tagged sockeye smolts from this release have been detected at LGR so far. Therefore, most, if not all, of the sockeye juveniles encountered at LGR this week were likely kokanee from the Dworshak reservoir. Subyearling Chinook were encountered in five of this week's samples but in relatively low numbers. 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. Transportation is expected to begin on or around May 1st. Yearling Chinook dominated the samples at LGS this week. This week's daily average passage index for yearling Chinook was about 135,000 per day, which is an increase over last week's daily average passage index of about 91,000 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 125,000 per day, whereas that for last week was about 79,000 per day. Sockeye/kokanee passage at LGS also increased this week. This week's daily average passage index for sockeye/kokanee at LGS was about 1,000 per day, whereas that for last week was less than 10 per day. Subyearling Chinook and coho were also encountered in this week's samples but in relatively low numbers. Finally, Pacific lamprey ammocoetes were encountered in one (April 24th) of this week's samples while no macropthalmia were encountered this week.

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from April 1st to April 16th. Beginning on April 16th, sampling switched to every-other-day where is it expected to remain until transportation begins on or around May 1st. Once transportation begins, sampling will occur every day. Steelhead dominated this week's samples at LMN. This week's daily average passage index for steelhead was nearly 156,000, which is a substantial increase over last week's daily average passage index of about 65,000 per day. Yearling Chinook passage also increased this week. This week's daily average passage index for yearling Chinook at LMN was nearly 100,000 per day, whereas that for last week was about 72,600 per day. Passage of sockeye/kokanee this week was similar to last week, with a daily average passage index of about 1,100 per day. No subyearling Chinook or coho juveniles were encountered in this week's samples at LMN. 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 just over 1,100 per day, which is an increase over last week's daily average passage index of 700 per day. Sockeye passage decreased this week, when compared to last week. This week's daily average passage index for sockeye smolts was about 60 per day, whereas that for last week was about 150 fish per day. Coho and steelhead passage increased this week. This week's daily average passage indices were about 50 fish per day for each species. Last week's daily average passage indices were about 15 for coho and 40 for steelhead. Finally, subyearling Chinook were also collected 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 ammocoetes was collected in the sample from April 25th and no Pacific macropthalmia were encountered 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. After several days of high collections of listed hatchery yearling Chinook, sampling at GRN was suspended from April 20th to April 23rd in order to reduce handling numbers of these listed fish. Sampling resumed for the sample on April 24th and has continued since. Since April 24th, yearling Chinook have dominated the samples at GRN. The daily average collection for the

period of April 24-27 was nearly 300 per day, which is much lower than the daily average collection for the period before trapping was suspended (1,400 per day). Steelhead collections over the April 24-27 period averaged 250 per day, which is an increase over what was collected just prior to the suspension in trapping (60 per day). The only other salmonids that were encountered in this week's collections were coho (approximately 40 per day) and one subyearling Chinook fry. The coho juveniles are 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 about 900 fish per day, which is a decrease from last week's daily average collection of about 1,500 per day. Approximately 92% of the yearling Chinook smolts collected this week were of known hatchery origin. Steelhead collections also decreased slightly this week. This week's daily average collection for steelhead was 250 per day, whereas that for last week was 300 per day. Of the steelhead collected at WTB this week, approximately 67% were clipped. One clipped sockeye was collected in the sample from April 27th.

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 23rd. Over the most recent 1-week period of data (April 17th-April 23rd), collections at IMN were dominated by steelhead. The daily average collection for steelhead over this period was about 115 per day. Of the steelhead smolts that were collected over this period, approximately 65% were clipped. The daily average collection for yearling Chinook over this same period was nearly 80 day. Of the yearling Chinook smolts that were collected over this period, approximately 51% were clipped. Finally, one Pacific lamprey ammocoetes was collected in the sample from April 21st.

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. Although several volitional releases of spring Chinook, summer Chinook, sockeye, and steelhead were scheduled to end this week, only one new release was scheduled to occur this week. This single release was a release of 60,000 summer steelhead smolts to the East Fork Salmon River. These steelhead smolts are 100% unmarked. Three volitional releases of summer steelhead smolts that began in early to mid-April are scheduled to end over the next week or so. No new releases are scheduled to occur in this zone over the next two weeks.

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 1.2 million yearling spring Chinook smolts were scheduled to be released from Leavenworth NFH, on or around April 25th. Nearly 594,000 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, 15% were

scheduled to be released into the Methow River and 85% were scheduled to be released into the Wenatchee River. Finally, about 444,000 summer steelhead smolts were scheduled to be released to this zone this week. These steelhead releases were scheduled to occur on the Methow (74%) and Wenatchee (26%) rivers.

Several volitional releases of summer Chinook, coho, and steelhead are scheduled to end over the next two week. In additional to these volitional releases, there are a few new releases scheduled for this zone over the next two weeks. Approximately 125,000 summer steelhead smolts are scheduled to be released into the Wenatchee River, on or around May 1st. About 400 subyearling fall Chinook and 450 subyearling summer Chinook smolts are scheduled to be released throughout this river zone in early May. 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 25,000 summer steelhead smolts were scheduled to be released into tributaries of the Deschutes River this week. The only other release that was scheduled for this zone this week was a release of 50,000 winter steelhead smolts to Hood River. This Hood River release was scheduled to occur on or around April 28th.

Approximately 4.5 million subyearling fall Chinook tules are scheduled to be released from Spring Creek NFH on May 8th. In addition, about 20,375 subyearling fall Chinook are planned for release to the upper portion of this zone over the next two weeks. These releases to the upper portion of the Mid-Columbia River Zone are part of the WDFW Cooperative Program and will take place either into the Yakima River or into the Columbia River above McNary Dam. Approximately 1.0 million coho smolts are scheduled to be released into the Klickitat River, beginning on or around May 1st. Finally, about 25,000 summer steelhead smolts are scheduled to be released into tributaries of the Deschutes River, above Round Butte Dam, over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Only one new release was scheduled to occur in this zone this week. This was a release of approximately 80,000 coho smolts to the Grays River. Approximately 5.2 million subyearling fall Chinook smolts are scheduled to be released into this zone over the next two weeks. Of these, 3.1 million (60%) will be released into Big Creek while the remaining 2.1 million (40%) will be released into the South Fork Klaskanine River. 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. Nearly 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 in early May. 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 4/26/17. The 2017 adult spring Chinook count at Bonneville Dam of 2,344 is about 13.8% of the 2016 count of 16,983 and only 6.7% of the 10-year average count of 34,877. At Willamette Falls 16 adult spring Chinook have been counted so far this season. A total of 14 spring chinook have been counted at Lower Granite Dam as of April 26th.

The 2017 Bonneville Dam adult steelhead count of 2,409 has 1,192 fewer fish compared to the 2016 count of 3,601 and 1,141 fewer fish compared to the 10-year average count of 3,550. This year's Lower Granite steelhead count of 7,073 has 1,835 more fish than the 2016 count of 5,238, while being 83.8% of the 10-year average count of 8,435. At Willamette Falls, the 2017 count for steelhead was 565 as of April 26th. This year's WFA steelhead count is about 9% of the 2016 count of 6,228 and 8.8% of the 10-year average count of 6,421.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 4/15/2017 to 04/28/17

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2017	744,000	04-17-17	04-20-17	Chief Joseph Hatchery	Wells Pool	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					**1,103,000**					
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	92,204	04-18-17	04-19-17	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	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	207,846	04-17-17	04-21-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2017	213,421	04-10-17	04-17-17	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	Sawtooth Hatchery	CH1	SP	2017	188,280	04-18-17	04-19-17	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SU	2017	118,163	04-19-17	04-20-17	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					**6,477,889**					
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2017	250,000	04-20-17	04-20-17	Lostine Accim Pond	Wallowa River	SNAK
Nez Perce Tribe Total					**250,000**					
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	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	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2017	169,500	03-16-17	04-15-17	Big Canyon Acclim.Pd (Grande Ronde)	Wallowa River	SNAK
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	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	Cedar Creek (Sandy R)	Sandy 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	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	15,000	04-25-17	04-25-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					**2,481,000**					
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	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					**2,359,500**					
Umatilla Tribe	Cascade Hatchery	CO	UN	2017	487,190	04-18-17	04-18-17	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 Total					**887,190**					
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	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					**125,000**					
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	Chiwawa Hatchery	ST	SU	2017	117,000	04-24-17	05-01-17	Chiwawa Hatchery	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	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	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	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	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	Methow River	UCOL
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	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	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	SNAK
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	SNAK
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					**5,444,380**					
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	68,383	04-19-17	04-19-17	Leavenworth Hatchery	Wenatchee 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	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	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 Pond	Wenatchee River	UCOL
Yakama Tribe	Willard Hatchery	CO	UN	2017	106,937	04-26-17	06-10-17	Butcher Creek Acclim. 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					**1,490,250**					
Grand Total					**20,618,209**					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 4/29/2017 to 5/12/2017

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
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					**127,000**					
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	CH0	FA	2017	3,100,000	05-11-17	05-11-17	Big Creek Hatchery	Big Creek	LCOL
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	CO	UN	2018	4,000	05-12-17	05-12-17	Youngs Bay	Youngs River	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	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	05-05-17	05-05-17	Crooked River (OR)	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife Total					**9,114,000**					
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2017	4,500,000	05-08-17	05-08-17	Spring Creek Hatchery	Bonneville Pool	MCOL
U.S. Fish and Wildlife Service Total					**4,500,000**					
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		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		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	Tucannon Hatchery	ST	SU	2017	49,000	04-15-17	05-07-17	Curl Lake Acclim Pond	Tucannon River	SNAK
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					**4,864,064**					
Yakama Tribe	Cascade Hatchery	CO	UN	2017	50,203	04-21-17	05-03-17	Winthrop Hatchery	Methow 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	Winthrop NFH	CO	UN	2017	245,996	04-21-17	05-03-17	Winthrop Hatchery	Methow River	UCOL
Yakama Tribe Total					**1,296,199**					
Grand Total					**19,901,263**					

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

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

	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
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	198.3	34.4	198.6	63.6	194.0	57.7	211.6	90.8	209.4	97.2
04/21/2017	183.2	9.0	183.4	90.5	191.1	11.7	197.8	70.1	196.5	64.6	209.4	81.7	206.6	96.3
04/22/2017	177.2	0.8	184.5	81.1	196.8	17.5	201.9	70.6	200.2	67.8	216.2	86.2	215.0	114.6
04/23/2017	177.1	0.0	176.4	71.5	190.6	10.9	197.8	60.7	195.5	64.8	213.1	82.4	213.3	118.4
04/24/2017	178.1	3.1	174.6	68.3	182.8	10.0	188.5	51.5	189.2	56.9	203.9	80.3	204.6	115.9
04/25/2017	182.6	5.5	188.1	81.2	198.2	19.2	199.6	74.1	195.1	62.1	216.3	102.6	216.3	126.8
04/26/2017	180.2	2.5	183.9	53.5	190.0	10.0	197.1	74.6	195.0	59.4	212.3	102.5	214.0	126.0
04/27/2017	175.8	0.7	173.4	52.6	186.4	10.0	194.1	78.6	195.9	61.1	215.3	108.1	214.0	122.2

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

	Dworshak		Brownlee	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
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
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
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
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
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
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
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
04/21/2017	7.5	2.5	---	71.7	134.0	61.4	129.4	48.0	133.1	55.9	137.3	87.4
04/22/2017	7.4	2.5	---	64.4	126.5	54.3	122.4	37.1	124.7	54.9	130.7	85.0
04/23/2017	7.4	2.5	---	61.0	120.5	54.0	118.6	35.6	120.5	54.8	122.5	81.2
04/24/2017	7.3	2.5	---	62.4	123.8	57.5	119.3	41.5	121.6	54.8	124.8	82.4
04/25/2017	7.3	2.5	---	62.3	130.9	58.6	127.0	38.3	128.2	54.9	133.0	86.2
04/26/2017	7.3	2.5	---	62.8	132.2	56.7	129.5	44.5	131.3	58.2	135.7	88.8
04/27/2017	7.2	2.3	---	63.2	136.7	52.1	133.1	44.6	133.3	56.9	136.9	91.5

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

	McNary		John Day		The Dalles		Bonneville			
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
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
04/21/2017	364.9	215.9	380.6	147.7	363.6	200.6	375.3	173.9	66.2	122.8
04/22/2017	354.9	205.0	366.9	119.8	355.4	204.6	380.4	171.7	77.8	118.5
04/23/2017	351.1	201.0	354.7	106.8	347.9	198.9	376.4	164.1	84.5	115.3
04/24/2017	348.4	198.0	352.4	106.6	335.4	188.2	361.1	156.9	73.0	118.8
04/25/2017	342.8	192.9	344.8	113.5	335.2	180.3	365.2	161.4	68.7	122.7
04/26/2017	362.6	213.3	369.1	130.9	358.1	176.3	377.3	165.6	74.3	125.0
04/27/2017	357.7	208.3	368.7	120.3	354.9	172.4	380.2	166.0	75.7	126.1

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										
	04/20/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/27/17 Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0	0
Little Goose Dam										
	04/17/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/23/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam										
	04/19/17 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	04/27/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam										
	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
	04/24/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/26/17 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam										
	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
	04/22/17 Chinook + Steelhead	100	4	4	4.00%	1.00%	3	0	0	1
	04/25/17 Chinook + Steelhead	100	6	6	6.00%	0.00%	6	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
	04/25/17 Chinook + Steelhead	100	53	53	53.00%	2.00%	45	6	2	0
	04/27/17 Chinook + Steelhead	100	41	41	41.00%	0.00%	35	6	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	111.0	111.4	111.6	24	117.5	118.4	119.4	24	117.0	117.9	118.5	24
4/21	---	---	---	0	---	---	---	0	110.6	111.5	112.4	24	116.8	118.0	118.3	24	115.1	115.5	115.9	24
4/22	---	---	---	0	---	---	---	0	111.1	111.4	111.7	24	111.2	112.9	115.6	24	118.2	119.1	119.3	24
4/23	---	---	---	0	---	---	---	0	111.6	112.0	112.7	24	109.7	110.0	110.2	24	116.9	118.0	119.1	24
4/24	---	---	---	0	---	---	---	0	111.8	112.1	112.4	24	113.7	116.7	116.9	24	110.6	111.3	112.8	24
4/25	---	---	---	0	---	---	---	0	111.5	112.0	112.3	24	116.6	118.6	119.6	24	109.7	110.0	111.1	24
4/26	---	---	---	0	---	---	---	0	112.0	112.3	112.7	24	113.8	117.0	117.5	24	115.1	116.1	116.3	24
4/27	---	---	---	0	---	---	---	0	111.2	111.4	111.8	23	111.1	112.3	116.4	23	113.9	116.4	117.3	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	Chief J. Dnst				Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	24	115.5	115.7	115.9	24	118.3	119.4	121.7	24	117.1	117.5	117.7	24	124.0	124.9	126.1	23
4/21	118.9	119.6	119.8	24	114.9	115.6	116.4	24	115.9	116.3	117.6	24	116.8	117.4	117.8	24	124.2	124.6	125.5	21
4/22	118.6	119.0	119.8	24	116.9	117.2	117.6	24	118.2	118.6	119.0	24	116.8	117.0	117.3	24	124.8	125.3	125.7	20
4/23	117.3	118.4	118.7	24	116.7	116.9	117.2	24	117.6	117.9	118.9	24	117.8	118.0	118.1	24	124.8	125.1	125.7	22
4/24	115.8	116.1	116.4	24	114.0	115.3	116.2	24	115.3	116.4	117.2	24	117.3	117.4	117.5	23	123.6	124.3	124.8	21
4/25	115.5	115.7	116.5	24	112.0	112.9	113.4	24	113.9	114.7	115.3	24	114.9	115.6	116.3	24	124.5	125.1	126.0	21
4/26	114.9	115.2	115.3	24	112.1	112.8	113.4	24	113.7	114.2	115.2	24	113.6	114.0	114.5	23	124.5	124.8	125.2	21
4/27	114.8	115.1	115.3	23	113.4	113.8	114.2	23	114.4	114.7	115.2	23	111.8	112.3	113.3	23	124.0	124.4	124.8	21

Total Dissolved Gas Saturation at Mid Columbia River Sites

	Rock Island				Rock I. Tlwr				Wanapum				Wanapum Tlwr				Priest Rapids			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	118.3	119.3	24	123.0	123.5	124.0	20	121.0	122.2	122.8	24	120.5	121.9	122.5	24	118.1	118.5	119.3	24
4/21	118.1	119.2	120.2	23	123.3	123.9	124.6	19	119.0	120.1	120.8	24	118.6	120.0	122.2	24	119.2	120.3	121.4	24
4/22	118.9	119.4	120.5	21	124.1	124.5	125.4	19	121.0	121.4	121.9	24	120.5	121.2	121.5	24	118.9	120.0	120.3	24
4/23	118.2	119.0	119.3	24	124.2	124.6	124.8	22	120.9	121.0	121.1	24	120.0	121.2	122.4	24	119.3	120.4	121.4	24
4/24	117.9	118.2	118.6	21	123.5	123.9	124.3	18	121.1	121.2	121.4	21	120.0	120.5	121.8	21	118.6	118.9	119.1	21
4/25	117.8	118.8	119.7	24	123.9	124.6	125.5	21	119.6	119.8	120.3	24	122.0	123.5	125.8	24	118.5	120.2	122.8	24
4/26	116.5	116.9	117.3	23	123.1	123.4	123.8	21	---	---	---	0	---	---	---	0	120.2	120.7	122.6	24
4/27	116.2	116.6	116.9	22	122.6	123.0	123.5	21	---	---	---	0	---	---	---	0	119.1	119.8	119.9	24

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

	Priest R. Dnst				Pasco				Dworshak				Clrwtr-Peck				Anatone			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	118.7	119.7	121.0	24	---	---	---	0	108.1	108.5	108.8	24	103.5	103.8	104.2	24	108.6	109.0	109.3	24
4/21	120.2	120.5	121.0	24	---	---	---	0	107.8	108.1	108.7	24	102.8	103.2	103.4	24	109.3	110.2	110.8	23
4/22	120.8	121.5	121.9	24	---	---	---	0	108.6	109.2	110.0	24	104.2	104.7	104.9	24	109.4	109.8	110.1	24
4/23	120.7	121.0	121.1	24	---	---	---	0	108.9	109.5	110.0	24	104.7	105.0	105.2	24	108.3	108.7	109.0	24
4/24	120.5	120.7	121.1	21	---	---	---	0	109.6	110.0	110.3	24	105.4	105.6	105.7	24	108.0	108.4	108.7	24
4/25	120.2	120.8	121.4	24	---	---	---	0	108.5	108.8	109.4	24	104.7	104.8	105.0	24	107.7	108.2	108.4	24
4/26	---	---	---	0	---	---	---	0	108.8	109.1	109.4	24	104.9	105.0	105.1	24	107.7	107.9	108.3	24
4/27	---	---	---	0	---	---	---	0	108.3	108.7	109.3	23	104.2	104.4	104.7	23	107.1	107.6	107.8	23

Total Dissolved Gas Saturation Data at Snake River Sites

	Clrwtr-Lewiston				Lower Granite				L. Granite Tlwr				Little Goose				L. Goose Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	24	107.1	107.3	107.4	24	120.9	121.1	121.6	24	115.9	116.2	116.4	24	119.8	122.5	123.4	24
4/21	101.9	103.3	104.1	24	106.8	107.1	107.3	24	121.7	122.2	123.2	24	114.9	115.2	115.5	24	119.6	121.1	122.5	24
4/22	102.9	103.9	104.8	24	108.4	109.0	109.5	24	120.3	121.1	121.5	24	117.0	117.4	118.2	24	117.4	117.9	118.2	24
4/23	102.2	102.8	103.7	24	109.5	109.7	109.8	24	120.6	122.0	123.3	24	119.6	120.1	120.3	24	117.4	117.7	117.9	24
4/24	102.3	103.0	103.7	24	108.6	108.9	109.3	24	121.5	122.5	123.5	24	118.8	119.1	119.5	24	118.1	119.0	119.3	24
4/25	101.7	102.3	103.0	24	107.0	107.3	107.7	24	121.7	122.2	123.0	24	117.1	117.4	117.5	24	117.1	118.0	118.8	24
4/26	101.7	102.1	102.6	24	106.7	106.8	107.1	24	121.3	122.2	123.3	24	116.8	117.1	117.4	24	117.8	118.5	118.7	24
4/27	101.3	101.9	102.6	23	105.7	105.9	106.3	23	119.4	119.9	120.0	23	115.2	115.4	116.0	23	117.5	118.0	118.3	23

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

	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	24	118.6	119.5	120.2	24	115.1	115.3	115.5	24	119.2	119.9	120.3	24	---	---	---	0
4/21	117.5	120.0	122.3	24	119.9	120.1	120.2	24	114.5	115.4	116.5	24	119.6	120.2	120.4	24	---	---	---	0
4/22	122.1	122.8	123.6	24	120.0	120.4	120.6	24	118.1	118.7	118.8	24	119.6	120.1	120.4	24	---	---	---	0
4/23	118.9	119.4	120.2	24	119.9	120.1	120.3	24	119.0	119.2	119.4	24	119.0	119.8	120.0	24	---	---	---	0
4/24	117.8	118.2	118.5	24	120.0	120.2	120.5	24	117.9	118.2	118.8	24	119.4	119.9	120.1	24	---	---	---	0
4/25	117.2	117.7	118.2	24	120.1	120.3	120.7	24	116.0	116.3	116.6	24	119.6	120.1	120.3	24	---	---	---	0
4/26	117.6	118.2	118.3	24	120.3	120.6	120.9	24	116.2	116.4	116.5	24	119.8	120.0	120.4	24	---	---	---	0
4/27	115.8	116.2	116.6	23	120.3	120.6	121.2	23	115.2	115.3	115.5	23	120.0	120.3	120.7	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	McNary-Wash				McNary Tlwr				John Day				John Day Tlwr				The Dalles			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
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	114.1	114.7	115.0	24	120.3	120.5	120.8	24	117.2	117.6	118.2	24	123.3	123.6	125.8	24	116.4	116.8	117.5	24
4/21	112.3	112.9	113.6	24	120.9	122.0	122.7	24	116.6	117.3	117.6	24	126.7	127.5	128.1	24	117.3	119.0	119.6	24
4/22	114.1	114.8	115.8	24	120.6	120.7	120.8	24	117.0	117.4	117.6	24	122.1	122.4	122.7	24	117.6	118.7	119.5	24
4/23	116.7	117.0	117.3	24	120.5	120.6	120.8	24	115.3	115.6	115.7	24	119.0	119.5	121.2	24	115.2	115.4	115.6	24
4/24	115.8	116.1	116.4	24	120.5	120.7	120.8	24	117.0	117.6	117.9	24	119.0	119.3	119.8	24	115.2	115.7	116.0	24
4/25	113.8	114.0	114.3	24	120.0	120.3	121.2	24	115.6	115.9	116.8	24	120.4	121.2	126.8	24	114.3	115.1	115.7	24
4/26	113.0	113.3	113.5	24	121.1	121.5	121.9	24	115.1	115.5	115.6	24	124.1	126.4	127.7	24	115.3	115.9	116.7	24
4/27	110.8	111.1	111.5	23	120.3	120.5	120.8	23	111.7	112.4	113.3	23	121.8	122.0	122.3	23	111.8	112.2	112.7	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	The Dalles Dnst				Bonneville				Warrendale				Camas\Washougal				Cascade Island			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
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	24	120.2	121.1	123.1	24	121.1	121.7	122.6	24	120.1	120.6	121.0	24	123.3	123.5	123.8	24
4/21	121.4	122.4	123.0	24	119.3	120.4	123.4	24	121.7	122.9	123.6	24	118.9	119.6	120.3	24	122.7	123.1	123.4	24
4/22	122.1	122.6	122.9	24	123.8	124.4	124.7	24	123.7	123.9	124.1	24	119.4	120.4	120.9	24	123.3	124.1	124.6	24
4/23	121.1	121.5	121.9	24	123.7	124.2	124.8	24	123.5	124.0	124.3	24	122.1	122.5	122.7	24	122.2	122.5	122.8	24
4/24	120.8	121.2	122.3	24	122.3	123.0	123.1	24	122.5	122.9	123.5	24	120.2	121.0	121.3	24	123.5	124.3	125.3	24
4/25	120.3	120.8	121.5	24	120.5	121.1	122.2	24	121.6	121.9	122.1	24	119.9	120.4	120.7	24	122.7	123.3	123.5	24
4/26	120.6	120.9	121.2	24	120.5	121.5	122.3	24	121.5	122.2	123.0	24	119.4	119.8	120.1	24	122.0	122.3	122.7	24
4/27	118.7	119.3	119.9	23	117.1	117.5	118.1	23	119.4	119.7	119.9	23	117.4	117.7	118.3	23	121.9	122.3	122.6	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 4/28/2017 10:55

Two-Week Summary of Passage Indices

* One or more of the sites on this date had an incomplete or biased sample.
See Sampling Comments: http://www.fpc.org/currentDaily/smpcomments.htm
For clip information see: http://www.fpc.org/CurrentDaily/catch.htm
For sockeye and yearling chinook (Snake only) race information see: http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp

				COMBINED YEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
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	68	---	---	97,177	99,193	76,480	977	---	32,542	22,652
04/21/2017	*	1,439	63	---	---	130,388	---	---	848	41,687	---	25,683
04/22/2017	*	---	70	---	---	116,468	114,427	98,068	916	---	36,150	43,486
04/23/2017	*	---	64	---	---	86,580	---	---	799	49,366	---	28,970
04/24/2017		1,240	---	201	---	94,155	125,080	78,189	1,353	---	58,178	27,221
04/25/2017		684	---	302	---	139,627	---	---	1,325	61,431	---	35,848
04/26/2017		798	---	283	---	189,995	165,602	117,225	1,375	---	72,816	36,722
04/27/2017		967	---	385	---	118,656	---	---	1,337	81,651	---	31,010
04/28/2017		---	---	---	---	---	---	---	---	---	108,664	---
Total:		**12,493**	**1,701**	**8,170**	**0**	**1,402,361**	**770,866**	**511,374**	**12,857**	**308,884**	**367,705**	**463,475**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**1,249**	**170**	**908**	**0**	**100,169**	**110,124**	**85,229**	**918**	**44,126**	**45,963**	**33,105**
YTD		**32,346**	**21,560**	**17,706**	**8**	**1,698,570**	**850,108**	**622,407**	**13,017**	**344,233**	**405,193**	**541,214**

				COMBINED SUBYEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
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	---	---	0	1	0	25	---	263	1,087
04/21/2017	*	0	0	---	---	358	---	---	100	2,338	---	1,698
04/22/2017	*	---	0	---	---	370	608	0	22	---	158	1,454
04/23/2017	*	---	0	---	---	0	---	---	32	4,816	---	1,704
04/24/2017		0	---	0	---	0	0	0	19	---	0	1,089
04/25/2017		0	---	0	---	765	---	---	30	2,340	---	148
04/26/2017		0	---	0	---	363	0	0	19	---	461	533
04/27/2017		0	---	1	---	338	---	---	29	1,940	---	293
04/28/2017		---	---	---	---	---	---	---	---	---	635	---
Total:		**0**	**0**	**1**	**0**	**3,962**	**609**	**157**	**733**	**16,904**	**2,702**	**30,506**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**0**	**0**	**0**	**0**	**283**	**87**	**26**	**52**	**2,415**	**338**	**2,179**
YTD		**0**	**1**	**2**	**0**	**5,867**	**769**	**1,149**	**1,496**	**22,256**	**5,335**	**965,201**

Two-Week Summary of Passage Indices

				COMBINED COHO								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/14/2017	*	0	0	---	---	0	0	---	0	---	72	8,262
04/15/2017	*	---	0	49	---	0	---	---	0	0	---	10,198
04/16/2017	*	---	0	10	---	274	604	0	0	---	44	10,841
04/17/2017		0	0	19	---	560	---	---	0	0	---	6,341
04/18/2017	*	0	0	30	---	0	0	622	0	---	86	8,136
04/19/2017		0	0	46	---	345	---	---	10	298	---	7,317
04/20/2017	*	0	0	---	---	699	572	0	87	---	198	5,439
04/21/2017	*	0	0	---	---	0	---	---	75	390	---	8,118
04/22/2017	*	---	0	---	---	370	0	0	47	---	79	10,017
04/23/2017	*	---	0	---	---	0	---	---	39	482	---	8,204
04/24/2017		0	---	26	---	362	1,148	0	65	---	269	5,911
04/25/2017		0	---	43	---	0	---	---	32	936	---	6,196
04/26/2017		0	---	53	---	1,816	574	0	54	---	922	6,661
04/27/2017		0	---	45	---	2,366	---	---	74	1,940	---	6,290
04/28/2017		---	---	---	---	---	---	---	---	---	3,381	---
Total:		**0**	**0**	**321**	**0**	**6,792**	**2,898**	**622**	**483**	**4,046**	**5,051**	**107,931**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**0**	**0**	**36**	**0**	**485**	**414**	**104**	**35**	**578**	**631**	**7,709**
YTD		**0**	**0**	**903**	**0**	**8,455**	**3,512**	**622**	**483**	**4,111**	**5,160**	**170,307**

				COMBINED STEELHEAD								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
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	95	---	---	191,906	52,640	88,895	51	---	26,152	1,796
04/21/2017	*	312	142	---	---	269,245	---	---	25	15,974	---	2,523
04/22/2017	*	---	107	---	---	126,821	109,488	194,744	54	---	20,241	3,163
04/23/2017	*	---	129	---	---	103,204	---	---	45	22,636	---	2,169
04/24/2017		302	---	14	---	113,710	147,410	109,464	45	---	37,177	2,800
04/25/2017		158	---	748	---	87,218	---	---	57	32,386	---	3,983
04/26/2017		186	---	140	---	120,972	117,744	163,111	66	---	77,117	4,159
04/27/2017		344	---	93	---	103,782	---	---	58	51,984	---	7,021
04/28/2017		---	---	---	---	---	---	---	---	---	127,691	---
Total:		**3,199**	**1,092**	**1,292**	**0**	**1,489,920**	**689,605**	**663,397**	**602**	**155,672**	**332,624**	**36,137**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**320**	**109**	**144**	**0**	**106,423**	**98,515**	**110,566**	**43**	**22,239**	**41,578**	**2,581**
YTD		**5,424**	**9,503**	**4,751**	**1**	**2,028,599**	**804,328**	**738,223**	**634**	**175,340**	**413,995**	**46,094**

Two-Week Summary of Passage Indices

				COMBINED SOCKEYE								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
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	0	---	---	2,447	11	1,592	48	---	263	519
04/21/2017	*	0	0	---	---	1,432	---	---	33	1,299	---	1,238
04/22/2017	*	---	0	---	---	1,849	619	1,391	43	---	473	676
04/23/2017	*	---	0	---	---	0	---	---	76	5,779	---	477
04/24/2017		0	---	0	---	362	582	1,117	69	---	1,520	622
04/25/2017		0	---	0	---	1,913	---	---	67	2,342	---	590
04/26/2017		0	---	0	---	1,090	1,736	717	58	---	2,304	1,539
04/27/2017		1	---	0	---	1,014	---	---	60	5,336	---	1,170
04/28/2017		---	---	---	---	---	---	---	---	---	4,651	---
Total:		**1**	**0**	**0**	**0**	**18,393**	**2,949**	**6,218**	**1,451**	**16,214**	**9,745**	**11,195**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**0**	**0**	**0**	**0**	**1,314**	**421**	**1,036**	**104**	**2,316**	**1,218**	**800**
YTD		**1**	**0**	**0**	**0**	**24,289**	**4,278**	**6,523**	**1,590**	**16,379**	**9,963**	**19,095**

				COMBINED LAMPREY JUVENILES								
		WTB	IMN	GRN	LEW	LGR†	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(Samp)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
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	---	---	0	400	0	0	---	240	67
04/21/2017	*	0	1	---	---	0	---	---	0	250	---	67
04/22/2017	*	---	0	---	---	0	0	0	0	---	200	83
04/23/2017	*	---	0	---	---	0	---	---	0	800	---	0
04/24/2017		0	---	0	---	0	400	0	0	---	126	50
04/25/2017		0	---	0	---	0	---	---	1	300	---	0
04/26/2017		0	---	0	---	0	0	0	0	---	300	55
04/27/2017		0	---	0	---	0	---	---	0	800	---	50
04/28/2017		---	---	---	---	---	---	---	---	---	857	---
Total:		**0**	**1**	**0**	**0**	**0**	**1,200**	**0**	**4**	**2,980**	**2,403**	**709**
# Days:		**10**	**10**	**9**	**0**	**14**	**7**	**6**	**14**	**7**	**8**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**171**	**0**	**0**	**426**	**300**	**51**
YTD		**0**	**1**	**4**	**0**	**13**	**1,200**	**0**	**12**	**3,280**	**12,768**	**33,567**

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 macropthalmia, 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: 4/28/17 10:57 AM

04/14/17 TO 04/28/17

		Species					
Site	Data	**CH0**	**CH1**	CO	ST	SO	**Grand Total**
LGR	Sum of NumberCollected	2,300	813,103	4,000	859,398	11,100	1,689,901
	Sum of NumberBarged	127	30,333	130	24,198	298	55,086
	Sum of NumberBypassed	2,169	782,634	3,868	835,184	10,786	1,634,641
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	2	20	0	13	1	36
	Sum of FacilityMorts	2	116	2	3	15	138
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	4	136	2	16	16	174
LGS	Sum of NumberCollected	401	526,125	2,001	469,323	2,031	999,881
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	400	525,692	2,000	469,298	1,999	999,389
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	6	0	1	1	8
	Sum of FacilityMorts	1	427	1	24	31	484
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	433	1	25	32	492
LMN	Sum of NumberCollected	100	302,450	400	386,250	3,700	692,900
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	100	302,442	400	386,243	3,697	692,882
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	8	0	7	3	18
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	8	0	7	3	18
Total Sum of NumberCollected		2,801	1,641,678	6,401	1,714,971	16,831	3,382,682
Total Sum of NumberBarged		127	30,333	130	24,198	298	55,086
Total Sum of NumberBypassed		2,669	1,610,768	6,268	1,690,725	16,482	3,326,912
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		2	34	0	21	5	62
Total Sum of FacilityMorts		3	543	3	27	46	622
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		5	577	3	48	51	684

YTD Transportation Summary

Source: Fish Passage Center Updated: 4/28/17 10:57 AM

TO: 04/28/17

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	3,258	960,424	4,800	14,094	1,131,133	2,113,709
	Sum of NumberBarged	127	41,669	130	470	34,099	76,495
	Sum of NumberBypassed	3,124	918,582	4,668	13,591	1,096,999	2,036,964
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	5	35	0	7	30	77
	Sum of FacilityMorts	2	138	2	26	5	173
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	7	173	2	33	35	250
LGS	Sum of NumberCollected	501	580,444	2,401	2,936	548,043	1,134,325
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	500	579,889	2,400	2,896	547,996	1,133,681
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	7	0	3	3	13
	Sum of FacilityMorts	1	548	1	37	44	631
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	555	1	40	47	644
LMN	Sum of NumberCollected	600	352,655	400	3,800	420,445	777,900
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	600	352,645	400	3,797	420,438	777,880
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	10	0	3	7	20
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	10	0	3	7	20
Total Sum of NumberCollected		4,359	1,893,523	7,601	20,830	2,099,621	4,025,934
Total Sum of NumberBarged		127	41,669	130	470	34,099	76,495
Total Sum of NumberBypassed		4,224	1,851,116	7,468	20,284	2,065,433	3,948,525
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		5	52	0	13	40	110
Total Sum of FacilityMorts		3	686	3	63	49	804
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		8	738	3	76	89	914

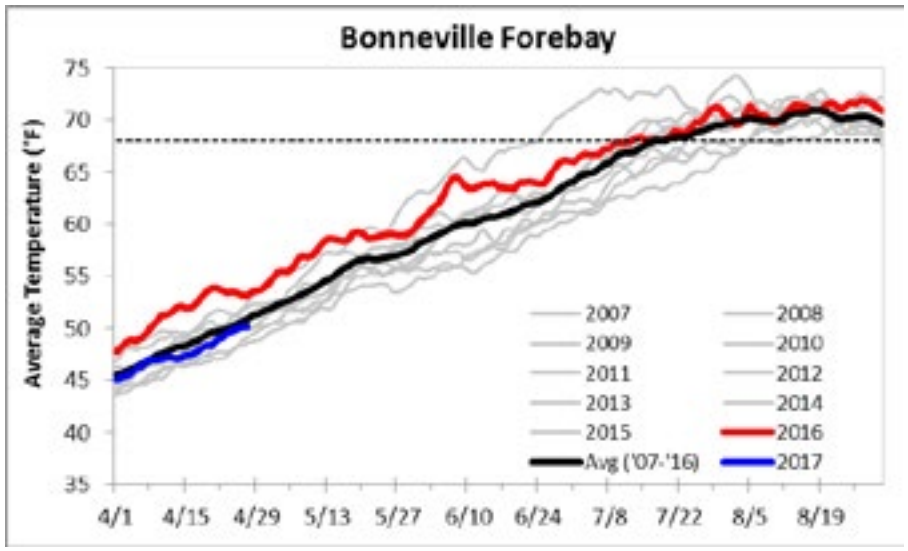
Cumulative Adult Passage at Mainstem Dams Through: 04/27

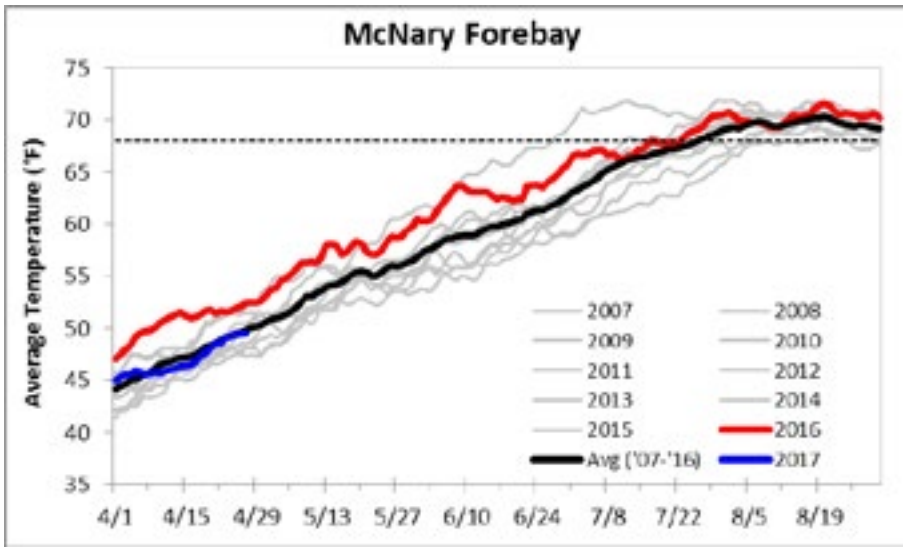
		Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
dam	enddate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/26	2344	7	16983	104	34877	328	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/26	367	6	7462	121	19281	172	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/26	202	7	5051	51	14448	152	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/26	96	1	2356	22	8391	84	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/26	65	1	1112	8	4662	14	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/26	52	1	857	15	2800	15	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/26	31	2	634	6	1679	29	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/26	14	0	376	5	903	11	0	0	0	0	0	0	0	0	0	0	0	0
PRD	04/24	1	0	91	-1	341	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN	04/25	0	0	65	0	279	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	04/26	0	0	52	0	152	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	04/26	0	0	16	1	17	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/26	16	0	4074	48	4426	56	0	0	0	0	0	0	0	0	0	0	0	0

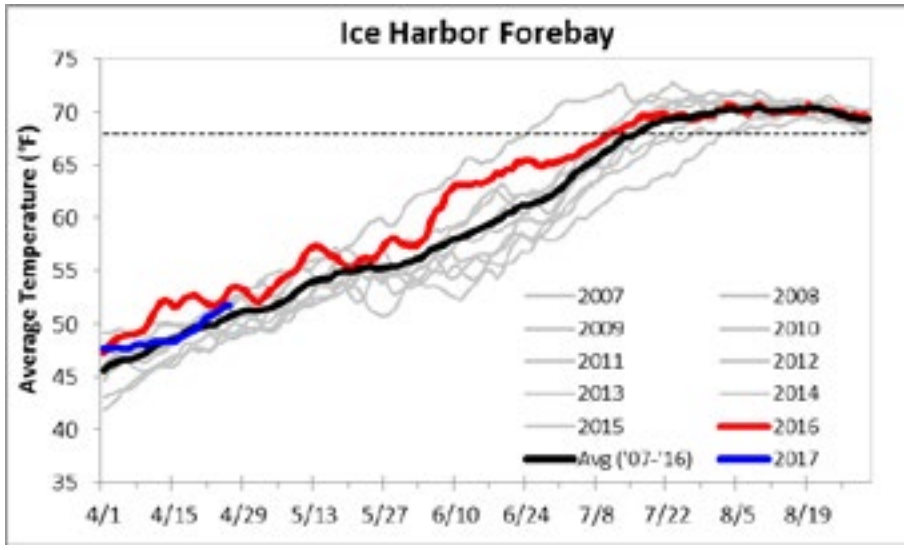
		Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.				10-Yr			10-Yr	Unclipped	Unclipped	10-Yr			10-Yr
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	04/26	0	0	0	0	0	0	0	1	0	2409	3601	3550	852	1555	1266	0	6	0
TDA	04/26	0	0	0	0	0	0	0	0	0	1211	280	2366	412	161	1005	0	0	0
JDA	04/26	0	0	0	0	0	1	0	0	0	465	323	4758	298	222	1892	0	15	-1
MCN	04/26	0	0	0	0	1	0	0	1	0	2474	502	6187	721	339	2019	0	2	0
IHR	04/26	0	0	0	0	0	0	0	0	0	928	1210	5257	446	653	1434	0	1	0
LMN	04/26	0	0	0	0	0	0	0	0	0	1256	1260	7768	594	873	2541	0	0	0
LGS	04/26	0	0	0	0	0	0	0	0	0	1266	3193	4551	565	1828	2229	0	0	0
LGR	04/26	0	0	0	0	0	0	0	0	0	7073	5238	8435	2915	2944	3189	0	0	0
PRD	04/24	0	0	0	0	0	0	0	0	0	12	8	19	0	0	0	0	3	0
WAN	04/25	0	0	0	0	0	0	0	0	0	9	9	54	0	0	0	0	0	0
RIS	04/26	0	0	0	0	0	0	0	0	0	33	21	67	10	12	35	0	0	0
RRH	04/26	0	0	0	0	0	0	0	0	0	74	49	182	10	17	124	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/26	0	0	0	0	0	0	0	0	0	565	6228	6421	0	0	0	0	0	0

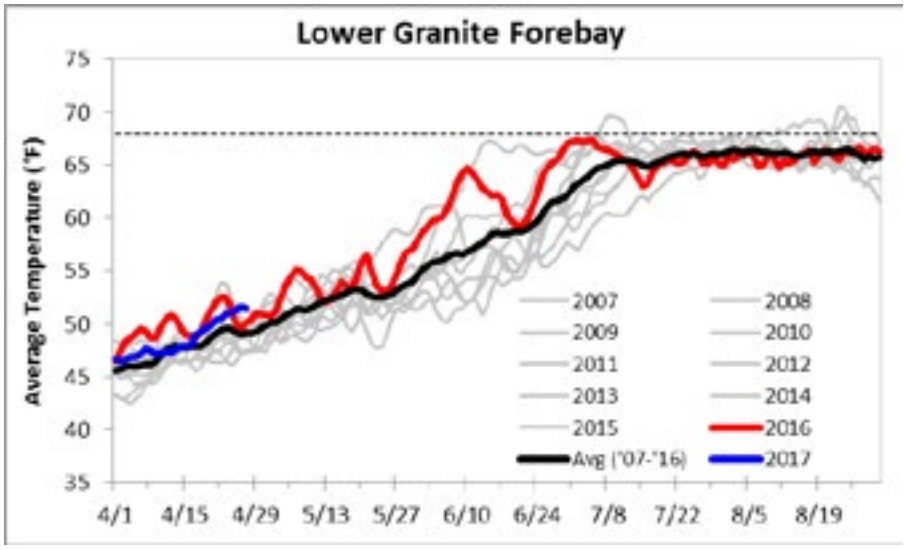
PRD does not post wild steelhead numbers.
These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.
Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.
Historic counts (pre-1996) were obtained from CRITFC and compiled by the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

Page last updated on: 04/28/17


Bonneville Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


McNary Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


Ice Harbor Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


Lower Granite Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017