



Fish Passage Center

Weekly Report #17-06

April 14, 2017

This Week's Highlights

River Conditions

Flows in the Snake River remain high, but have decreased 10-13 Kcfs as compared to last week. The high flows are primarily due to continued flood control operations at Dworshak Dam (25 Kcfs outflow) and the Hells Canyon Complex (releasing between 56-66 Kcfs last four days) and also, to a lesser extent, as a function of precipitation and some snowmelt. Flows in the Upper Columbia have also been high as Grand Coulee increased discharge to draft the reservoir for flood control management (end of April Flood Control 1222.7 feet and drafting nearly one-foot per day). 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.

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 continues to release a total outflow of 25 Kcfs, with spill levels around 20 Kcfs, which is producing TDG below Dworshak between 125-127%.

These conditions are expected to last for the foreseeable future, until the refill operation begins.

Water Supply

Precipitation throughout the Columbia Basin has varied between 60% and 149% of average at individual sub-basins over April. Precipitation above The Dalles has been 130% of average over April. Over the 2017 water year, precipitation has ranged between 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 1-12, 2017		Water Year 2017 October 1, 2016 to April 12, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.54	142	30.6	128
Snake River Above Ice Harbor	0.82	99	20.1	138
Columbia Above The Dalles	1.14	130	23.2	128
Kootenai	1.59	149	31.9	136
Clark Fork	0.57	60	18.8	117
Flathead	1.41	120	30.6	140
Pend Oreille River Basin above Waneta Dam	1.07	101	26.6	132
Salmon River Basin	1.02	92	26.5	144
Upper Snake Tributaries	1.37	139	23.4	143
Clearwater	1.01	72	34.0	125
Willamette River above Portland	2.29	105	72.1	139

Snowpack within the Columbia Basin has been above average. Average snowpack in the Columbia River for basins above the Snake River confluence is 109% of average, for Snake River Basins the average snowpack is 138% of average, and for lower Columbia Basins

between McNary and Bonneville Dam average snowpack is 129% of average.

Table 2 displays the April 13th ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 13th ESP forecast at The Dalles between April and August is 107,103 Kaf (122% of average).

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

Location	April 13, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	122	107,103
Grand Coulee (Apr-Aug)	117	66,231
Libby Res. Inflow, MT (Apr-Aug)	121 122*	7109 7,654*
Hungry Horse Res. Inflow, MT (Apr-Aug)	120	2,332
Lower Granite Res. Inflow (Apr- July)	144	28,620
Brownlee Res. Inflow (Apr-July)	203	11,138
Dworshak Res. Inflow (Apr-July)	112 122*	2,712 2,984*

* Denotes COE April Forecast

Grand Coulee Reservoir is at 1,235.8 feet (4-13-17) and has drafted 4.8 feet over the last week. Outflows at Grand Coulee have ranged between 197.2 Kcfs and 201.8 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 2373.6 feet (4-13-17) and has drafted 5.2 feet over the past week. Daily average outflows at Libby Dam have been 24 Kcfs over the last week. The April 30th FC Elevation at Libby is 2325.4 feet (based on COE April final Forecast of 7.654 Kaf).

Hungry Horse is currently at an elevation of 3,532.3 feet (4-13-17) and has drafted 1.5 feet last week. Outflows at Hungry Horse have been 8.8 Kcfs over the last week. The April 30th FC Elevation at Hungry Horse is 3,531.3 feet.

Dworshak is currently at an elevation of 1,506.0 feet (4-13-17) and has drafted 11.4 feet over the last week. Inflows to Dworshak ranged between 11.2 to 15.1 Kcfs last week. Dworshak outflows were 25.0 Kcfs last week. 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 2,019.7 feet on April 13, 2017, and drafted 0.6 feet last week. Outflows at Hells Canyon have ranged between 56.4 and 65.6 Kcfs over the last four days. The minimum flow at Hells Canyon is 8.5 Kcfs. The April 30th FC Elevation at Brownlee is 2012.6 feet.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5th, 2017), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 140.8 last week and 143.1 Kcfs between April 3-13, 2017.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Between April 10-13, flows at McNary Dam were 375.5 Kcfs and Priest Rapids Dam flows were 230.3 Kcfs.

Spill

Flows in the Snake River remain high, but averaged about 13 Kcfs less than last week. The high flows are primarily due to continued flood control operations at Dworshak Dam and the Hells Canyon Complex and also, to a lesser extent, as a function of precipitation and some snowmelt. Flows in the Upper Columbia have also been high as Grand Coulee increased discharge to draft the reservoir for flood control management. 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.

Project	Spill Level Day/Night
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	45 Kcfs/Gas Cap

As a result of limited hydraulic capacity all of the Snake River projects are spilling above the levels targeted for fish spill. Spill at Lower Granite Dam exceeded the Biological Opinion level of 20 Kcfs, and ranged from 61 to 78 Kcfs. At Little Goose Dam Biological Opinion spill is 30% of flow and ranged from 25.7% to 38% of average daily flow over the past week. Little Goose Dam is presently the only Snake River project operating with a full powerhouse, so whenever flows are low enough the COE is decreasing spill to less than the 30% to address TDG levels at the tailrace, or at the forebay of Lower Monumental Dam. Spill at Lower Monumental Dam exceeded the 120% gas cap level and ranged from 61 Kcfs to 92 Kcfs. At Ice Harbor spill ranged from 81 Kcfs to 101 Kcfs.

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 has occurred in the middle Columbia River over the past week and has exceeded the planned spill for fish passage levels due to “involuntary” spill. At McNary Dam spill averaged 67-68% of daily average flow. At John Day Dam spill averaged between 43 and 46% of average daily flow. At The Dalles Dam spill ranged from 50 to 53% of average daily flow, while at Bonneville Dam spill was 174 to 198 Kcfs.

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 Dworshak Dam, as well as at the Hells Canyon Complex dams on the Snake River, due

to discharge in excess of hydraulic capacity for flood control operations (TDG supersaturation is near, or in excess of, 125% below these projects). Consequently, due to flood control the TDG supersaturation levels are already 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 107% to 112% over the past week.

In addition to flood control operations elevating TDG supersaturation above the mainstem federal hydrosystem, the present uncontrolled spill due to unit outages has resulted in elevated TDG supersaturation levels 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 122% to 128% at Lower Granite Dam; 118% to 123% at Little Goose Dam; 121% to 125% at Lower Monumental Dam; and, 121% to 122% at Ice Harbor Dam. TDG supersaturation levels have also been high at the Middle Columbia projects, ranging from 123% to 126% at the tailwater of McNary Dam; 121% to 123% at The Dalles Dam; 122% to 123% below John Day Dam; and, 123% to 126% at the Warrendale gage below Bonneville Dam. Similar to the federal hydrosystem, TDG supersaturation levels are also high prior to Wells Dam on the Upper Columbia River (117% to 125% in the forebay of Wells Dam) and then often exceeded 125% in the tailraces of the downstream projects. The TDG levels below Grand Coulee Dam have been between 127% and 139% over the past week, where a unit went out of service last weekend resulting in higher levels of spill as the project drafts for flood control.

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 and McNary dams. At Lower Granite Dam 1% of the sample was observed with minor signs of GBT in their fins (likely as a result of the TDG levels encountered due to flood control operations). At Little Goose Dam 5% of the fish showed signs of GBT on 04/06/17, while no fish were detected with signs of GBT in the exam conducted on 04/09/17. At Lower Monumental Dam no fish were detected with signs of GBT, while at McNary Dam 2% of fish showed signs of GBT on 04/10/17 and no signs of GBT were detected in the sample taken 04/14/17. At Bonneville Dam, too few fish were intercepted in the samples to accurately predict the percent of the population affected. The observed signs of GBT are well below the action criteria that would be in place during the voluntary spill for fish passage program. 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 and Salmon river traps continued this week while sampling at the Imnaha River Trap has been suspended for much of the last 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 BON were dominated by subyearling Chinook. This week's daily average

passage index was about 118,000 fish per day, which is a substantial increase over last week's daily average passage index of about 3,100 per day. The large increase in subyearling Chinook passage was due to the release of approximately 6.0 million subyearling fall Chinook tules from Spring Creek NFH which began on the morning of April 10th. These subyearling Chinook began passing BON later that evening with peak passage occurring prior to 7:00 am Tuesday (April 11th) morning. The estimated passage index for the sample on April 11th was 753,700. The passage index declined dramatically after April 11th and was back to levels observed prior to the release by April 13th. Mortality rates for these subyearlings were slightly elevated (3.5%) for the sample on April 11th but declined soon thereafter. Yearling Chinook were the second most abundant species in this week's samples. This week's daily average passage index for yearling Chinook was about 9,200, whereas that for last week was about 1,050 per day. Coho, sockeye, and steelhead passage also increased this week when compared to the previous week. This week's daily average passage indices for these three species were about 5,500, 650, and 850, respectively. Last week's daily average passage indices were 3,250 for coho, 350 for sockeye, and about 540 for steelhead. Finally, Pacific lamprey macrophthalmia were encountered every day this week. This week's daily average collection for Pacific macrophthalmia was about 240, which is lower than last week's daily average collection of about 580 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 and steelhead. This week's daily average passage indices for these two species were about 8,550 fish per day for each species. This week's daily average passage index for yearling Chinook was an increase over last week's daily average of nearly 4,000 fish per day, while that for steelhead was a decrease over last week's daily average of about 18,560 per day. Subyearling Chinook and sockeye were also encountered in this week's samples but in relatively low numbers. All of the subyearling Chinook that were collected at JDA this week were fry. Finally, Pacific lamprey ammocoetes were encountered in one (April 12th) of this week's samples while Pacific macrophthalmia were encountered in all three of this week's samples. The daily average collection for Pacific

macrophthalmia was 1,650 per day, which is slightly lower than last week's daily average collection of about 1,700 per day.

Sampling at McNary Dam (MCN) began on April 6th, with the first sample being tallied and reported on April 7th. Like JDA, sampling at MCN is every-other-day. Yearling Chinook dominated this week's samples at MCN, with a daily average passage index of about 7,360. Steelhead were the second most abundant species in this week's samples, with a daily average passage index of just over 5,000 fish per day. The daily average passage index for subyearling Chinook at MCN was about 1,430 per day, all of which were fry. Sockeye were also encountered in this week's samples but in very low numbers. Finally, Pacific lamprey macrophthalmia were encountered in all three of this week's samples, with a daily average collection of 80 fish per day.

This week's samples at Lower Granite Dam (LGR) were dominated by yearling Chinook and steelhead. The daily average passage indices for these two species were about 25,000 and 23,000 per day, respectively. This represents an increase over last week's daily average passage indices of 11,600 per day for yearling Chinook and 14,800 for steelhead. Subyearling Chinook, coho, and sockeye were also encountered at LGR this week but in relatively low numbers. Most, if not all, of the sockeye juveniles encountered at LGR this week were likely kokanee that have escaped from Dworshak reservoir through spill. All of the subyearling Chinook that were collected this week were 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. Steelhead continued to dominate the samples at LGS this week, with a daily average passage index of about 28,000 per day. This is an increase over last week's daily average passage index of about 10,200 per day. Passage of yearling Chinook also increased this week when compared to last week. This week's daily average passage index was nearly 22,000 per day, whereas that for last week was about 4,500 per day. Coho and sockeye were also encountered in this week's samples but in relatively low numbers. No subyearling Chinook were encountered in this week's samples. Finally, no lamprey juveniles were encountered at LGS this week.

Similar to recent years, sampling at Lower Monumental Dam (LMN) will occur every-third-day through mid-April and switch to every-other-day from mid-April until transportation begins. Once transportation begins, sampling will occur every day. Yearling Chinook dominated this week's samples at LMN. This week's daily average passage index for yearling Chinook was just over 36,000 per day, which is an increase over last week's daily average passage index of about 1,325 per day. This week's daily average passage index for steelhead was about 15,000 per day, which is very similar to last week's daily average passage index. The only other species that was encountered in this week's samples at LMN were subyearling Chinook and sockeye. Passage of these two species was relatively low. No lamprey juveniles were encountered at LMN this week.

Chinook continued to dominate the samples at Rock Island Dam (RIS) this week. This week's daily average passage index for subyearling Chinook was 50 fish per day, which is a decrease from last week's average of about 70 fish per day. As with last week, all of the subyearling Chinook that were collected this week were fry. Yearling Chinook, steelhead, and sockeye were also collected this week, but in relatively low numbers. Pacific lamprey macrophthalmia were encountered in two of this week's samples (April 7th and 10th).

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer two in the Grande Ronde River. Yearling Chinook dominated this week's samples at GRN. This week's daily average collection for yearling Chinook was nearly 900 per day, which is an increase over last week's daily average collection of about 475 per day. This week's daily average collection for steelhead was about 250, which is similar to last week's daily average collection of about 270 per day. The only other salmonids that were encountered over this period were coho and subyearling Chinook. This week's daily average collection for coho was 35 fish per day, which is a decrease over last week's daily average collection of about 50 per day. These coho juveniles were likely part of a release of approximately 500,000 hatchery coho juveniles into the Lostine River on March 9th. No lamprey juveniles were encountered in this week's samples at GRN.

The Salmon River Trap at Whitebird (WTB) is

located at river kilometer 103 and is operated by Idaho Department of Fish and Game. Similar to the last two years, sampling at WTB started out at 5-days per week. However, due to the termination of sampling at the Snake River Trap and the suspension of sampling from March 17th to 26th, sampling frequency at WTB may be increased for at least a portion of the 2017 season. This week's collections at WTB have been dominated by yearling Chinook. This week's daily average collection for yearling Chinook at WTB was 1,740 fish per day, which is an increase over last week's daily average collection of about 1,470 per day. Approximately 87% of the yearling Chinook juveniles collected over this period were of known hatchery origin. Steelhead collections at WTB increased this week, with a daily average collection of about 380 per day. Of the steelhead collected at WTB this week, approximately 96% were clipped.

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

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. The FPC currently has data from IMN through April 11th. However, sampling has been suspended since April 8th due to high flows. Over the most recent 1-week period of sampling (April 1st-April 7th), collections at IMN were dominated by yearling Chinook. The daily average collection for yearling Chinook over this period was about 2,100 per day. Of these, approximately 95% were clipped. The daily average collection for steelhead over this same period was about 1,150 per day. Of these, approximately 98% were clipped.

Hatchery Release

Effective 2017, the FPC has reorganized our hatchery release zones in an effort to more closely match the geographical regions used by NOAA in their ESU designations. The new river zones are: 1) Lower Columbia, 2) Middle Columbia, 3) Upper Columbia,

and 4) Snake River. In addition, the FPC now provides a summary of hatchery releases below Bonneville Dam (i.e., Lower Columbia River Zone) in the weekly report.

Snake River Zone: The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. Approximately 150,000 yearling fall Chinook juveniles were scheduled to be released into the Clearwater River this week. In addition, 83,500 yearling spring Chinook were planned for release into Lolo Creek, a tributary of the Clearwater River. The only other releases that were scheduled to begin this week were of summer steelhead. In all, just over 3.3 million steelhead juveniles were scheduled to be released throughout the Snake River Zone this week. Of these, nearly 3.17 million (96%) were scheduled to be released into tributaries that empty into the Snake River above Lower Granite Dam, including the Clearwater, Salmon, Pahsimeroi, and Grande Ronde rivers. The remaining 135,000 (4%) were scheduled to be released either from Lyons Ferry Hatchery or into the Tucannon River, both of which are located between Lower Monumental and Little Goose dams.

Nearly 840,000 yearling spring Chinook juveniles are scheduled to be released to this zone over the next two weeks. These spring Chinook releases are scheduled to occur on the Grande Ronde River and its tributaries (77%) and tributaries of the Salmon River (23%). Nearly 1.24 million yearling summer Chinook juveniles are scheduled to be released into the Pahsimeroi River over the next two weeks. Approximately 735,000 sockeye juveniles are scheduled to be released into Redfish Lake Creek, beginning on or around April 17th. These sockeye releases are planned to run through early May and are about 2-3 weeks earlier than past years' releases. Finally, nearly 1.03 million summer steelhead juveniles are scheduled to be released to this zone over the next two weeks. Of these, approximately 95% are scheduled to be released into the Snake River, or its tributaries, above Lower Granite Dam. The remaining 5% are scheduled to be released into the Tucannon River.

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. No new releases were scheduled for this zone this week. Just over 3.15 million yearling spring

Chinook are scheduled to be released to this zone over the next two weeks. These releases are scheduled to occur throughout this river zone, including releases to the Okanogan (6%), Methow (19%), and Wenatchee (51%) rivers, as well as a release from Chief Joseph Hatchery just below Chief Joseph Dam (24%). In addition, nearly 2.68 million yearling summer Chinook are scheduled to be released into this zone over the next two weeks. These summer Chinook juveniles are also scheduled to be released throughout this river zone. Nearly 960,000 coho juveniles are scheduled to be released to this zone over the next two weeks. These coho releases are part of a Yakama Tribal program to reintroduce coho to the Methow and Wenatchee rivers. Of the coho juveniles scheduled to be released over the next two weeks, 40% are scheduled to be released into the Methow River and 60% are scheduled to be released into the Wenatchee River. Finally, about 763,500 summer steelhead juveniles are scheduled to be released to this zone over the next two weeks. These steelhead releases are scheduled to occur on the Okanogan (17%), Wenatchee (19%), and Methow (43%) rivers, as well as from Wells Hatchery just below Wells Dam (22%).

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 6.0 million subyearling fall Chinook juveniles were released from Spring Creek NFH, on April 10th. In addition, just over 2.58 million yearling spring Chinook juveniles were scheduled to be released into this zone this week. These spring Chinook releases were scheduled to occur in the Wind (49%), Little White Salmon (42%), and Deschutes (9%) rivers. Approximately 500,000 coho juveniles were scheduled to be released into the Umatilla River this week. Finally, 35,000 summer steelhead juveniles were scheduled to be released into the Walla Walla River this week.

Approximately 265,000 yearling spring Chinook juveniles are scheduled to be released to this zone over the next two weeks. These releases are scheduled to occur in the Umatilla (62%), Deschutes (9%), and Hood (28%) rivers. In addition, about 532,000 coho juveniles are scheduled to be released into the Yakima River over the next two weeks. These coho releases are part of a Yakama Tribal Program to reintroduce coho to the Yakima River. About 436,000 summer steelhead

juveniles are scheduled to be released into this zone over the next two weeks. These summer steelhead juveniles are scheduled to be released throughout the Middle Columbia River Zone. Finally, about 70,000 winter steelhead juveniles are scheduled to be released into Hood River (71%) and Rock Creek (29%) over the next two weeks. Rock Creek is a tributary of the Columbia River that empties into the Columbia just above Bonneville Dam.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Approximately 243,000 yearling spring Chinook juveniles were scheduled to be released into the Willamette River this week. In addition, nearly 1.98 million coho juveniles were scheduled to be released throughout this zone this week. Among the places where these coho releases were scheduled to occur were the Sandy (10%), Clackamas (18%), and Klaskanine (10%) rivers, as well as Select Area net pens in the Columbia River estuary (62%). Approximately 360,000 winter steelhead juveniles were scheduled to be released into the Sandy (89%) and Klaskanine (11%) rivers this week.

Approximately 1.6 million subyearling fall Chinook juveniles are scheduled to be released from Bonneville Hatchery on or around April 18th. In addition, about 200,000 yearling spring Chinook juveniles are scheduled to be released from Select Area net pens at Tongue Point over the next two weeks. About 580,000 coho juveniles are also scheduled to be released into this zone over the next two weeks. Of these, about 500,000 (86%) are scheduled to be released into the Kalama River and 80,000 (14%) are scheduled to be released into the Grays River. About 105,000 sea-run cutthroat trout are scheduled to be released into the Cowlitz River, beginning on or around April 15th. Finally, nearly 1.7 million steelhead juveniles are scheduled to be released into this zone over the next two weeks. Of these, approximately 1.18 million (70%) are winter steelhead while the remaining 516,600 (30%) are summer steelhead. These steelhead releases are scheduled to occur throughout this river zone.

Adult Passage

Adult counts at Bonneville Dam have been updated through April 12, 2017. The 2017 adult spring Chinook count at Bonneville Dam of 305 is about 12.1% of the 2016 count of 2,515 and 9% of the 10-year average count of 3,372. At Willamette Falls 2 adult spring

Chinook have been counted so far this year.

At Bonneville Dam, daily adult steelhead counts ranged from 22 to 40 this week, with a cumulative total of 2,116 as of April 12th. This cumulative count is 64.8% of the 2016 count and 70.5% of the ten-year average. The Willamette Falls cumulative steelhead count from January 1st through April 12th is 529. The 2017 Willamette Falls winter steelhead count is about 10% of the 2016 count of 5,253 and 10.5% of the 10-year average count of 5,029. This year's Lower Granite steelhead count of 6,601 has 1,895 more fish than the 2016 count of 4,706 and 582 fewer fish than the 10-year average count of 7,183.

The Corp of Engineers adult count project and ladder queries are now available on FPC.org at the following url: <http://www.fpc.org/environment/home.asp>.

Hatchery Releases Last Two Weeks

Hatchery Release Summary										
From:		4/1/2017		to		04/14/17				
Agency	Hatchery	Species	Race	MiqYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2017	238,714	04-13-17	04-14-17	Redhouse (Sfk ClearH20 R)	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2017	594,369	04-10-17	04-12-17	Meadow Creek - CLES	S Fk Clearwater River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	93,338	04-13-17	04-14-17	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	155,680	04-14-17	04-18-17	Pahsimeroi River	Pahsimeroi River	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	187,154	04-05-17	04-07-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	217,796	04-10-17	04-12-17	Little Salmon River	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2017	281,898	04-03-17	04-06-17	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	McCall Hatchery	CH1	SU	2017	162,707	04-03-17	04-06-17	Knox Bridge	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2017	946,134	04-03-17	04-06-17	Knox Bridge	Salmon River (ID)	SNAK
Idaho Dept. of Fish and Game Total					3,503,760					
Nez Perce Tribe	Dworshak NFH	CO	UN	2017	550,000	04-05-17	04-05-17	Clear Creek Pittsburg Landing	Clearwater River M F	SNAK
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2017	150,000	04-07-17	04-07-17	Acclim Pond Big Canyon	Snake River	SNAK
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2017	150,000	04-10-17	04-14-17	(Clearwater River)	Clearwater River M F South Fork Salmon	SNAK
Nez Perce Tribe	McCall Hatchery	CH1	SU	2017	111,405	04-01-17	04-02-17	Johnson Cr Idaho	River	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2017	83,500	04-12-17	04-12-17	Lolo Creek	Clearwater River M F	SNAK
Nez Perce Tribe Total					1,044,905					
Oregon Dept. of Fish and Wildlife	Big Creek Hatchery	ST	WI	2017	60,000	04-07-17	04-07-17	Big Creek Hatchery	Big Creek	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	CH1	SP	2017	66,000	04-06-17	04-06-17	Bull Run Acclimation	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Clackamas Hatchery	ST	SU	2017	125,000	04-07-17	04-07-17	Clackamas Hatchery	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	200,000	04-14-17	04-14-17	S Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	400,000	04-14-17	04-14-17	Blind Slough	Col R Bel. Bon Dam	LCOL
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CO	UN	2017	825,000	04-14-17	04-14-17	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife	Enhancement Program	CH1	SP	2017	55,000	04-07-17	04-07-17	Clackamas River	Clackamas River	LCOL
Oregon Dept. of Fish and Wildlife	Gnat Creek Hatchery	ST	WI	2017	40,000	04-07-17	04-07-17	Gnat Creek Hatchery	Col R Bel. Bon Dam	LCOL
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	Irrigon Hatchery Complex	ST	SU	2017	320,000	04-01-17	04-03-17	Wallowa Acclim Pond	Wallowa River	SNAK
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	ST	WI	2017	40,000	04-14-17	04-14-17	Klaskanine Hatchery	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife	Leaburg Hatchery	ST	SU	2017	108,000	04-07-17	04-07-17	McKenzie River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2017	250,000	04-01-17	04-01-17	Lookingglass Creek	Grande Ronde River	SNAK
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2017	280,000	04-01-17	04-01-17	Imnaha Acclim Pond	Imnaha River	SNAK
Oregon Dept. of Fish and Wildlife	Roaring River Hatchery	ST	SU	2017	96,000	04-01-17	04-01-17	Willamette River	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2017	240,000	04-14-17	05-31-17	Deschutes River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2017	162,000	04-07-17	04-07-17	Deschutes River	Deschutes River	MCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	CO	UN	2017	200,000	04-14-17	04-14-17	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	WI	2017	160,000	04-13-17	04-13-17	Cedar Creek (Sandy R)	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	Sandy Hatchery	ST	WI	2017	160,000	04-13-17	04-13-17	Cedar Creek (Sandy R) South Santiam	Sandy River	LCOL
Oregon Dept. of Fish and Wildlife	South Santiam Hatchery	ST	SU	2017	161,500	04-03-17	04-03-17	Hatchery	Santiam River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	CH1	SP	2017	234,000	04-14-17	04-14-17	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife	Willamette Hatchery	ST	SU	2017	61,000	04-05-17	04-05-17	Dexter Pond	Willamette River	LCOL
Oregon Dept. of Fish and Wildlife Total					4,458,500					
U.S. Fish and Wildlife Service	Carson NFH	CH1	SP	2017	1,263,440	04-10-17	04-10-17	Carson Hatchery	Wind River	MCOL
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2017	1,040,000	04-10-17	04-10-17	Dworshak Hatchery	Clearwater River M F	SNAK
U.S. Fish and Wildlife Service	Eagle Creek NFH	CO	SO	2017	350,000	04-10-17	04-10-17	Eagle Creek Hatchery	Eagle Creek	LCOL
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2017	1,500,000	04-04-17	04-07-17	Sawtooth Hatchery	Salmon River (ID)	SNAK
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH1	SP	2017	1,080,000	04-12-17	04-12-17	Little White Salmon Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2017	6,000,000	04-10-17	04-10-17	Spring Creek Hatchery	Bonneville Pool	MCOL
U.S. Fish and Wildlife Service Total					11,233,440					
Umatilla Tribe	Cascade Hatchery	CO	UN	2017	500,000	04-11-17	04-11-17	Pendelton Acclim Pond	Umatilla River	MCOL
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2017	250,000	04-03-17	04-03-17	Imeques Acclim Pond	Umatilla River	MCOL
Umatilla Tribe Total					750,000					
Washington Dept. of Fish and Wildlife	COOP	CO	NO	2017	5,000	04-01-17	04-01-17	Cathlamet Channel Net Pen	Col R Bel. Bon Dam	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	NO	2017	900,000	04-01-17	04-10-17	Lewis River Hatchery	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lewis River Hatchery	CO	SO	2017	700,000	04-01-17	04-10-17	Lewis River Hatchery	Lewis River	LCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2017	110,000	03-29-17	04-05-17	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2017	460,000	04-01-17	04-06-17	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	25,000	04-10-17	04-10-17	Tucannon River	Tucannon River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	35,000	04-10-17	04-10-17	Walla Walla River	Walla Walla River	MCOL
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	110,000	04-10-17	04-10-17	Lyons Ferry Hatchery	Snake River	SNAK
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2017	200,000	04-10-17	04-17-17	Cottonwood Acclim Pond	Grande Ronde River	SNAK

Washington Dept. of Fish and Wildlife	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	Washougal Hatchery	CO	NO	2017	2,550,000	04-01-17	04-01-17	Klickitat River	Klickitat River	MCOL
Washington Dept. of Fish and Wildlife Total					5,335,000					
Grand Total					26,325,605					

Hatchery Releases Next Two Weeks

Hatchery Release Summary											
From:		4/15/2017			to			4/28/2017			
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone	
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2017	200,000	04-15-17	04-22-17	Okanogan River	Okanogan River	UCOL	
Colville Tribe	Chief Joseph Hatchery	CH1	SP	2017	744,000	04-15-17	04-21-17	Chief Joseph Hatchery	Wells Pool	UCOL	
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	150,000	04-15-17	04-22-17	Similkameen Acclim Pd	Okanogan River	UCOL	
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	210,000	04-15-17	04-22-17	Okanogan River	Okanogan River	UCOL	
Colville Tribe	Chief Joseph Hatchery	CH1	SU	2017	232,000	04-15-17	04-21-17	Chief Joseph Hatchery	Wells Pool	UCOL	
Colville Tribe	Wells Hatchery	ST	SU	2017	20,000	04-17-17	05-01-17	Omak Creek	Okanogan River	UCOL	
Colville Tribe	Wells Hatchery	ST	SU	2017	107,000	04-17-17	05-01-17	Okanogan River	Okanogan River	UCOL	
Colville Tribe Total					1,663,000						
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2017	145,295	04-15-17	04-15-17	Newsome Creek	S Fk Clearwater River	SNAK	
Idaho Dept. of Fish and Game	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	210,000	04-18-17	04-18-17	Little Salmon River	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2017	255,000	04-24-17	04-28-17	Little Salmon River	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	67,300	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2017	1,053,825	04-18-17	04-26-17	Pahsimeroi Hatchery	Pahsimeroi River	SNAK	
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2017	3,020,000	03-13-17	04-28-17	Rapid River Hatchery	Little Salmon River	SNAK	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2017	189,042	04-18-17	04-18-17	Yankee Fk (Salmon R)	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SU	2017	118,586	04-19-17	04-19-17	Pahsimeroi River	Pahsimeroi River	SNAK	
Idaho Dept. of Fish and Game	Springfield Hatchery	SO	UN	2017	735,200	04-17-17	05-05-17	Redfish Lake Creek	Salmon River (ID)	SNAK	
Idaho Dept. of Fish and Game Total					6,575,898						
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	04-25-17	04-25-17	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	Lookingglass Hatchery	CH1	SP	2017	150,000	04-20-17	04-20-17	Catherine Cr Acclim Pond	Grande Ronde River	SNAK	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2017	250,000	04-15-17	04-15-17	Grande Ronde Acclim Pond	Grande Ronde River	SNAK	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2017	165,000	04-17-17	04-17-17	Imeques Acclim Pond	Umatilla River	MCOL	
Umatilla Tribe Total					565,000						
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	LCOL	
Washington Dept. of Fish and Wildlife	Fallert Creek Hatchery	ST	SU	2017	24,600	04-15-17	05-15-17	Fallert Creek Hatchery	Kalama River	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	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	04-15-17	04-15-17	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		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	CH1	SU	2017	336,000	04-15-17	04-15-17	Wells Hatchery	Rocky Reach Pool	UCOL	
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2017	168,000	04-17-17	05-01-17	Wells Hatchery	Rocky Reach Pool	UCOL	
Washington Dept. of Fish and Wildlife Total					5,780,380						
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					21,290,028						

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/31/2017	207.8	35.1	214.1	114.2	223.7	74.2	228.1	91.6	220.1	70.7	247.9	102.8	250.3	147.6
04/01/2017	205.1	31.9	204.2	117.8	212.2	62.9	216.3	86.3	212.9	65.2	237.3	112.6	241.4	157.5
04/02/2017	204.5	28.7	209.7	122.8	217.8	68.9	217.8	93.3	213.0	61.8	229.3	102.8	231.7	149.7
04/03/2017	204.5	28.7	212.4	136.6	219.5	67.0	218.7	90.1	212.2	65.4	233.4	103.2	232.0	117.7
04/04/2017	207.0	31.6	204.6	109.8	217.8	65.9	225.6	88.6	218.2	69.7	236.7	82.9	234.5	128.8
04/05/2017	205.6	31.5	210.8	114.9	216.1	63.4	220.4	89.2	213.8	66.3	241.5	77.4	241.1	138.5
04/06/2017	199.3	27.2	205.9	92.6	215.0	63.2	217.4	82.8	209.3	64.2	230.2	58.3	227.2	127.9
04/07/2017	201.5	29.0	208.5	92.4	221.6	67.5	219.2	87.0	213.6	67.0	238.4	95.6	241.4	152.5
04/08/2017	198.9	37.1	200.1	86.9	215.7	61.6	216.1	80.9	210.2	66.2	232.8	77.2	232.8	148.8
04/09/2017	199.7	54.6	203.4	101.0	214.8	55.9	219.2	83.1	209.8	63.3	232.4	63.6	231.5	134.9
04/10/2017	203.8	58.6	202.6	96.1	213.5	71.6	215.5	81.6	210.3	63.5	237.8	82.1	232.9	126.0
04/11/2017	202.8	59.6	209.8	91.3	225.8	90.0	230.6	93.4	221.6	73.5	244.6	81.8	241.6	135.9
04/12/2017	197.2	51.2	189.9	88.8	197.4	62.8	202.1	66.6	198.6	53.7	218.4	59.1	217.2	121.4
04/13/2017	197.2	53.3	201.7	103.0	214.7	62.2	215.2	78.9	207.6	66.0	232.3	109.8	229.4	106.7

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

Date	Dworshak		Brownlee Inflow	Canyon Outflow	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill			Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/31/2017	25.0	20.1	---	74.1	167.7	80.2	169.0	54.9	180.6	112.7	182.3	126.1
04/01/2017	25.0	20.2	---	74.1	158.8	86.8	161.5	51.0	171.8	93.1	174.3	120.0
04/02/2017	25.0	20.2	---	72.5	155.8	84.4	151.0	42.4	156.1	77.4	158.4	104.7
04/03/2017	25.1	20.2	---	73.5	153.8	82.4	150.1	48.1	155.8	77.1	158.9	105.1
04/04/2017	24.8	19.9	---	73.1	150.1	78.7	146.0	41.6	151.8	73.1	157.4	103.8
04/05/2017	24.9	20.0	---	71.6	144.7	73.8	140.4	47.6	142.9	64.5	145.9	93.2
04/06/2017	24.9	19.9	---	66.8	140.5	69.7	139.0	50.4	141.6	63.5	146.8	93.2
04/07/2017	24.9	19.9	---	64.9	138.9	68.4	133.6	50.1	137.8	63.5	142.2	89.6
04/08/2017	25.1	20.1	---	66.1	143.5	77.3	141.3	49.1	143.7	65.6	146.1	92.4
04/09/2017	25.1	20.1	---	65.1	149.2	78.3	145.1	37.3	150.6	72.5	155.0	100.9
04/10/2017	25.2	20.1	---	64.7	143.4	72.3	135.9	37.4	140.3	62.7	145.8	91.8
04/11/2017	25.0	19.9	---	64.6	140.5	68.7	120.4	37.0	125.0	61.2	129.1	81.4
04/12/2017	25.2	20.0	---	64.2	136.0	62.8	134.9	47.4	142.9	92.1	144.2	94.1
04/13/2017	25.1	19.9	---	59.9	134.1	60.5	141.0	52.0	146.9	81.5	149.4	97.5

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/31/2017	421.1	222.4	420.5	148.5	409.8	254.3	439.7	221.1	100.1	106.1
04/01/2017	434.1	286.1	425.0	146.4	415.0	251.5	442.0	247.7	72.6	109.3
04/02/2017	410.2	264.2	445.8	170.2	435.3	272.9	448.8	252.9	71.3	112.2
04/03/2017	393.2	247.6	428.8	156.5	420.6	286.8	445.3	255.5	70.7	106.6
04/04/2017	407.5	262.2	427.3	155.0	417.3	289.6	439.7	248.8	71.8	106.7
04/05/2017	384.1	244.2	424.4	176.3	413.0	240.7	435.3	244.6	69.5	108.7
04/06/2017	383.8	263.1	403.8	154.4	379.3	201.0	420.4	223.7	73.8	110.5
04/07/2017	368.5	251.1	375.4	145.4	352.5	178.4	393.5	189.4	85.4	106.3
04/08/2017	392.3	267.8	392.2	159.6	371.2	191.7	384.5	176.9	87.8	107.4
04/09/2017	401.8	277.2	407.9	173.3	393.0	211.2	423.0	204.9	88.4	117.3
04/10/2017	365.3	243.3	381.1	170.9	372.0	191.4	399.8	180.7	81.1	125.5
04/11/2017	373.7	254.2	380.2	174.7	364.4	192.8	385.0	172.7	86.0	113.9
04/12/2017	377.5	258.2	385.7	164.1	369.3	194.1	386.8	179.3	87.5	107.7
04/13/2017	385.4	260.4	391.7	173.9	382.5	191.7	411.9	198.4	85.8	115.2

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											
	04/06/17	Chinook + Steelhead	103	2	2	1.94%	0.00%	2	0	0	0
	04/13/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
Little Goose Dam											
	04/07/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	4	1	0	0
	04/09/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	04/06/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/12/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	04/10/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	1	1	0	0
Bonneville Dam											
	04/08/17	Chinook + Steelhead	40*	0	0			0	0	0	0
	04/10/17	Chinook + Steelhead	41*	3	3			2	1	0	0
Rock Island Dam											

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

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			#	<u>Boundary</u>			#	<u>Grand Coulee</u>			#	<u>Grand C. Tlwr</u>			#	<u>Chief Joseph</u>			#
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/31	---	---	---	0	---	---	---	0	105.8	106.5	108.1	24	122.1	123.4	124.0	24	118.9	119.5	121.4	24
4/1	---	---	---	0	---	---	---	0	106.7	107.1	107.6	24	119.8	120.2	121.3	24	122.0	123.2	123.4	24
4/2	---	---	---	0	---	---	---	0	106.2	106.3	106.5	24	120.3	120.5	120.7	22	119.9	121.0	123.0	24
4/3	---	---	---	0	---	---	---	0	106.2	106.5	106.7	24	119.9	119.9	120.2	10	118.5	119.0	119.2	24
4/4	---	---	---	0	---	---	---	0	107.4	107.9	108.3	24	---	---	---	0	118.8	119.2	119.4	24
4/5	---	---	---	0	---	---	---	0	108.4	109.1	109.3	24	---	---	---	0	118.8	119.9	121.1	24
4/6	---	---	---	0	---	---	---	0	110.3	110.8	111.2	24	---	---	---	0	120.8	121.3	122.0	24
4/7	---	---	---	0	---	---	---	0	111.6	111.9	112.1	24	127.0	127.4	128.4	24	122.0	122.6	122.9	24
4/8	---	---	---	0	---	---	---	0	110.7	110.8	111.0	24	127.5	129.0	130.8	24	121.7	122.5	122.7	24
4/9	---	---	---	0	---	---	---	0	110.3	110.6	110.9	24	131.9	133.3	134.2	24	123.0	123.3	123.8	24
4/10	---	---	---	0	---	---	---	0	110.9	111.2	112.7	24	134.3	134.7	135.2	24	127.1	128.3	128.5	24
4/11	---	---	---	0	---	---	---	0	111.6	112.4	112.9	23	135.4	138.8	140.1	24	130.8	131.9	133.0	23
4/12	---	---	---	0	---	---	---	0	112.3	112.5	112.7	24	131.7	132.2	132.8	24	134.7	136.1	138.1	24
4/13	---	---	---	0	---	---	---	0	112.5	112.7	112.9	23	132.9	133.2	133.6	23	132.0	133.9	137.5	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			#	<u>Wells</u>			#	<u>Wells Dwnstrm</u>			#	<u>Rocky Reach</u>			#	<u>Rocky R. Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/31	116.7	117.0	117.7	24	117.7	118.0	118.3	24	123.7	124.7	125.5	24	121.9	122.5	123.0	24	127.1	127.6	128.3	22
4/1	116.7	117.2	117.8	24	118.2	118.8	119.2	24	122.9	123.5	124.4	24	123.9	124.3	125.0	24	127.0	127.6	128.4	20
4/2	116.8	117.1	117.4	24	118.1	118.4	119.1	24	123.4	123.7	124.1	24	121.6	122.0	122.6	24	126.7	126.8	127.2	20
4/3	117.5	118.3	118.7	24	116.9	117.5	118.1	24	122.4	123.6	126.4	24	122.5	123.2	123.7	24	126.7	127.1	127.6	20
4/4	116.6	117.1	117.7	24	117.5	117.7	117.9	24	123.0	124.4	126.0	24	122.4	123.3	124.9	24	126.9	127.7	127.9	24
4/5	116.7	117.2	118.3	24	117.7	118.0	118.4	24	123.0	124.2	125.3	24	123.1	123.8	124.4	23	126.8	127.5	128.2	21
4/6	116.3	116.6	116.9	24	118.3	118.6	119.1	24	123.6	125.1	127.1	24	124.1	124.6	125.1	24	126.4	127.2	128.4	22
4/7	116.6	116.8	117.2	24	118.5	119.4	119.6	24	123.7	124.2	126.0	24	124.1	124.7	125.7	24	126.4	127.1	127.5	23
4/8	116.2	116.7	117.1	24	116.6	116.8	117.2	24	121.7	122.6	124.6	24	121.2	121.6	122.2	24	126.4	126.9	127.7	21
4/9	116.3	116.9	117.4	24	117.8	118.3	118.6	24	121.3	122.5	123.7	24	120.0	120.7	121.6	24	126.1	126.9	127.9	24
4/10	116.1	116.7	117.1	24	118.9	119.2	119.6	24	123.8	125.4	127.9	24	120.9	121.8	122.6	24	126.3	126.7	127.7	22
4/11	116.2	116.7	117.1	23	121.4	122.2	123.3	20	127.4	128.4	129.2	20	123.3	124.9	127.2	24	127.3	127.7	128.3	23
4/12	116.0	116.6	117.3	24	123.0	123.1	123.7	16	126.4	127.1	128.9	16	127.1	127.6	128.0	24	126.7	127.8	128.2	23
4/13	116.8	117.1	117.4	23	124.1	124.9	125.5	22	125.9	126.7	129.2	22	125.4	126.0	126.5	23	127.2	127.7	128.3	21

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			#	<u>Rock I. Tlwr</u>			#	<u>Wanapum</u>			#	<u>Wanapum Tlwr</u>			#	<u>Priest Rapids</u>			#
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/31	121.7	122.6	123.4	24	125.6	126.4	127.6	19	---	---	---	0	---	---	---	0	---	---	---	0
4/1	122.7	123.2	124.0	22	126.7	127.1	127.5	19	---	---	---	0	---	---	---	0	---	---	---	0
4/2	121.6	121.9	122.3	22	126.1	126.4	126.8	20	---	---	---	0	---	---	---	0	---	---	---	0
4/3	121.9	122.3	123.2	22	126.1	126.8	127.4	20	---	---	---	0	---	---	---	0	---	---	---	0
4/4	122.1	122.4	122.8	24	125.4	125.6	126.0	22	---	---	---	0	---	---	---	0	---	---	---	0
4/5	123.1	123.5	123.9	22	125.9	126.1	126.8	19	---	---	---	0	---	---	---	0	---	---	---	0
4/6	123.0	123.7	124.6	23	125.9	126.3	126.7	20	---	---	---	0	---	---	---	0	---	---	---	0
4/7	122.9	124.2	125.4	24	126.0	126.8	127.8	23	---	---	---	0	---	---	---	0	---	---	---	0
4/8	121.0	121.6	121.9	23	124.6	125.2	125.6	21	---	---	---	0	---	---	---	0	---	---	---	0
4/9	120.1	120.5	121.0	24	123.9	124.3	124.6	24	---	---	---	0	---	---	---	0	---	---	---	0
4/10	120.6	121.2	121.7	24	124.4	124.7	125.3	20	---	---	---	0	---	---	---	0	---	---	---	0
4/11	121.3	123.0	123.9	23	125.2	125.7	126.6	20	---	---	---	0	---	---	---	0	---	---	---	0
4/12	124.0	124.3	125.2	24	125.6	126.5	127.3	23	---	---	---	0	---	---	---	0	---	---	---	0
4/13	123.8	124.4	125.1	23	126.5	126.8	127.2	21	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clrwr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
3/31	---	---	---	0	---	---	---	0	123.3	123.5	123.7	24	110.4	111.1	111.3	24	106.6	107.4	107.9	24
4/1	---	---	---	0	---	---	---	0	123.5	123.7	123.8	24	111.1	111.5	111.6	24	107.3	107.8	108.0	24
4/2	---	---	---	0	---	---	---	0	123.6	123.7	123.7	24	111.2	111.4	111.6	24	107.4	107.7	108.0	24
4/3	---	---	---	0	---	---	---	0	123.5	123.7	123.9	24	111.4	111.8	112.2	24	107.4	107.9	108.2	24
4/4	---	---	---	0	---	---	---	0	124.6	125.8	126.6	24	112.3	113.5	114.3	24	108.0	108.8	109.2	24
4/5	---	---	---	0	---	---	---	0	127.0	127.2	127.3	24	114.1	114.6	115.0	24	108.8	109.4	109.9	24
4/6	---	---	---	0	---	---	---	0	127.3	127.4	127.8	24	114.4	114.7	114.8	24	108.7	108.9	109.3	24
4/7	---	---	---	0	---	---	---	0	125.8	127.2	128.0	24	113.5	114.2	114.9	24	108.0	108.5	108.9	24
4/8	---	---	---	0	---	---	---	0	124.0	124.1	124.3	24	111.6	111.9	112.4	24	106.6	106.8	107.0	24
4/9	---	---	---	0	---	---	---	0	123.7	123.8	123.9	24	111.8	112.5	112.7	24	107.2	108.1	108.5	24
4/10	---	---	---	0	---	---	---	0	123.7	123.9	124.0	24	112.1	112.3	112.6	24	107.7	108.1	108.5	24
4/11	---	---	---	0	---	---	---	0	123.9	124.2	124.4	24	113.2	114.1	114.4	24	108.6	109.4	109.9	23
4/12	---	---	---	0	---	---	---	0	124.4	124.5	124.7	24	114.3	114.6	115.0	24	108.8	109.3	109.7	23
4/13	---	---	---	0	---	---	---	0	124.5	124.6	124.7	23	114.3	114.6	114.9	23	108.0	108.4	109.0	23

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
3/31	107.0	108.0	108.7	24	106.8	107.1	107.5	24	126.9	127.8	129.5	24	118.5	119.1	119.8	24	121.5	121.7	122.9	24
4/1	107.5	108.0	108.4	24	107.9	108.5	108.8	24	128.1	129.1	129.4	24	120.6	120.8	121.1	24	120.8	121.3	121.5	24
4/2	107.6	108.1	108.4	24	108.2	108.4	108.7	24	127.1	127.2	127.4	24	119.5	119.8	120.2	24	118.7	119.3	119.4	24
4/3	107.7	108.4	109.1	24	107.7	107.9	108.1	24	127.1	127.3	127.6	24	118.9	119.3	119.9	24	119.8	120.8	122.8	24
4/4	108.2	109.1	109.9	24	107.9	108.4	108.7	24	126.8	127.4	127.7	24	120.0	120.3	120.8	24	119.0	119.8	122.4	24
4/5	109.8	110.5	111.2	24	109.1	109.6	110.1	24	125.4	125.5	125.7	24	121.6	122.0	122.5	24	120.2	121.4	122.3	24
4/6	109.8	110.1	110.3	24	110.5	110.8	111.6	24	123.8	124.2	125.7	24	122.6	122.8	123.3	24	121.0	121.3	121.5	24
4/7	109.5	110.1	110.3	24	111.0	111.7	112.1	24	123.8	124.2	124.3	24	122.0	123.1	123.6	24	120.8	121.2	122.3	24
4/8	107.7	107.9	108.1	24	108.3	108.9	109.5	24	125.3	126.6	127.4	24	118.1	119.2	120.1	24	120.1	121.2	121.8	24
4/9	108.0	109.1	109.8	24	106.2	106.6	106.9	24	127.1	128.4	129.2	24	116.2	116.8	117.8	24	117.3	117.6	117.8	24
4/10	108.3	108.8	109.3	24	107.7	108.3	108.7	24	124.5	125.4	125.5	24	117.9	118.1	118.4	24	118.0	118.1	118.2	24
4/11	109.0	110.2	111.1	24	108.8	109.3	109.6	24	123.2	123.5	123.7	24	118.9	119.3	119.4	24	118.9	119.4	119.8	24
4/12	109.2	109.6	110.1	24	109.8	110.2	110.8	24	121.8	122.2	122.6	24	119.9	120.3	120.9	24	121.7	122.5	122.7	24
4/13	108.7	108.9	109.1	23	109.5	110.0	110.9	23	121.6	121.9	122.5	23	120.1	120.6	121.3	23	121.3	122.1	123.4	23

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
3/31	120.6	121.6	122.1	24	127.8	129.8	133.1	24	118.7	119.8	120.6	24	126.4	127.6	127.8	24	---	---	---	0
4/1	122.0	122.3	122.6	24	125.9	126.7	127.4	24	124.5	125.9	127.3	24	125.7	125.9	126.1	24	---	---	---	0
4/2	120.0	120.8	121.3	24	122.7	123.6	124.6	24	121.4	122.0	122.6	24	123.0	123.7	125.4	24	---	---	---	0
4/3	118.0	118.5	118.9	24	122.8	123.9	124.5	24	119.5	119.7	119.9	24	122.9	123.5	123.7	24	---	---	---	0
4/4	120.2	121.1	121.6	24	121.7	122.4	122.6	24	119.7	120.1	120.4	24	122.9	123.7	123.9	24	---	---	---	0
4/5	120.9	121.4	122.0	24	121.0	121.3	122.0	24	120.7	121.0	121.2	24	121.0	121.8	122.4	24	---	---	---	0
4/6	122.5	123.7	124.6	24	121.1	121.4	121.7	24	120.9	121.0	121.4	24	121.0	121.2	121.4	24	---	---	---	0
4/7	123.0	124.4	124.9	24	121.0	121.4	122.3	24	120.2	121.3	121.6	24	120.6	121.2	122.2	24	---	---	---	0
4/8	119.1	119.6	120.1	24	120.9	121.3	121.5	24	116.3	116.9	118.0	24	120.7	121.4	122.1	24	---	---	---	0
4/9	117.9	118.3	118.6	24	121.7	122.2	122.5	24	115.8	116.8	117.9	24	121.8	122.3	122.6	24	---	---	---	0
4/10	116.3	116.6	116.9	24	120.5	120.7	121.3	24	117.6	118.0	118.4	24	120.5	120.8	121.0	24	---	---	---	0
4/11	117.2	118.2	118.9	24	120.0	120.8	121.5	24	117.0	117.7	118.0	24	119.2	120.1	120.7	24	---	---	---	0
4/12	119.9	120.2	120.4	24	123.3	125.4	126.1	24	118.3	118.8	119.3	24	120.9	122.4	123.1	24	---	---	---	0
4/13	121.8	122.3	122.7	23	123.4	125.0	126.2	23	120.1	120.7	121.1	23	121.7	122.3	122.9	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#					
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		AVG	High			
3/31	116.0	117.0	117.4	24	124.2	124.5	124.7	24	116.8	117.4	117.6	24	120.7	121.2	121.7	24	116.2	117.0	117.9	24
4/1	118.1	118.8	119.1	24	127.6	128.6	128.8	24	117.6	118.1	118.2	24	120.3	120.6	121.4	24	115.8	116.3	116.6	24
4/2	117.4	117.7	118.3	24	126.8	127.1	128.0	24	115.7	116.1	116.7	24	121.9	122.1	122.8	24	114.8	115.6	116.2	24
4/3	116.1	116.6	116.9	24	125.3	126.3	126.5	24	117.1	118.1	119.2	24	121.4	121.9	122.3	24	116.4	117.2	117.7	24
4/4	116.2	116.5	116.9	24	123.9	124.5	124.8	24	120.2	121.0	121.4	24	121.6	122.4	124.4	24	117.6	118.4	118.9	24
4/5	117.3	118.0	118.3	24	123.1	123.3	123.5	24	122.9	123.8	124.7	24	123.4	124.3	124.6	24	120.6	121.6	122.2	24
4/6	118.6	119.1	119.4	24	124.0	124.3	125.1	23	124.8	125.0	125.3	24	121.9	122.1	122.3	24	121.7	122.2	122.5	23
4/7	117.4	118.9	119.3	24	123.3	123.6	124.4	24	123.7	125.0	125.5	24	121.0	121.4	122.3	24	119.7	121.1	122.2	24
4/8	112.7	113.9	114.4	24	123.7	124.5	124.8	24	118.9	120.1	121.3	24	121.6	122.0	122.2	24	116.2	116.4	116.8	23
4/9	111.5	112.5	113.5	24	123.7	124.7	125.8	24	115.6	115.8	116.2	24	122.4	122.8	123.4	24	117.1	117.9	118.4	23
4/10	113.6	114.1	114.5	24	122.3	122.9	123.1	24	113.6	113.9	114.9	24	121.6	122.2	122.3	24	116.1	116.8	117.6	24
4/11	114.4	114.8	115.2	24	124.0	124.9	125.6	24	114.6	115.7	117.0	24	122.2	122.5	122.7	24	118.4	119.2	119.9	24
4/12	115.8	116.2	116.5	24	124.9	125.8	126.1	24	118.7	119.4	119.7	24	121.8	122.2	122.4	24	118.4	118.7	119.0	24
4/13	115.8	116.2	116.4	23	124.9	125.6	125.9	23	119.1	119.3	119.5	23	122.7	123.2	123.7	23	118.6	119.0	119.5	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Camas\Washougal</u>			<u>Cascade Island</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#					
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		AVG	High			
3/31	120.4	121.1	121.8	24	118.9	119.6	120.3	24	122.0	122.4	122.8	24	121.9	122.2	122.4	24	124.3	124.5	124.6	24
4/1	120.1	120.9	121.5	24	120.8	121.3	121.5	24	125.1	125.6	125.7	24	122.7	123.7	124.1	24	125.9	126.1	126.4	24
4/2	118.4	119.0	119.7	24	117.9	118.4	119.3	24	123.9	124.2	124.6	24	122.7	123.0	123.3	24	125.7	125.9	126.3	24
4/3	120.2	121.0	121.5	24	120.0	121.2	122.1	24	125.6	126.1	126.4	24	123.6	125.1	125.5	24	126.4	126.5	126.8	24
4/4	121.7	122.7	124.3	24	122.0	122.4	122.8	24	126.4	126.6	126.9	24	123.7	124.0	125.0	24	126.2	126.4	126.5	24
4/5	123.1	123.8	124.4	24	123.2	124.2	124.5	24	127.3	127.7	128.1	24	124.4	125.6	126.7	24	126.1	126.6	126.8	24
4/6	124.5	125.2	126.0	24	125.2	126.0	126.8	24	127.2	127.5	127.7	24	125.7	126.8	128.0	24	125.2	125.7	125.8	24
4/7	121.9	123.5	125.3	24	125.3	126.3	126.6	24	125.2	126.3	127.1	24	122.5	124.6	126.3	24	123.9	124.5	124.9	24
4/8	120.1	120.5	121.1	24	120.7	121.6	123.3	24	122.0	122.8	123.5	24	119.9	120.3	120.7	24	122.6	123.0	123.8	24
4/9	121.7	122.4	123.1	24	121.2	122.3	123.4	24	123.5	124.1	124.3	24	120.8	122.0	122.2	24	123.7	123.9	124.1	24
4/10	120.9	121.4	122.2	24	122.4	123.1	123.6	24	123.2	124.0	124.4	24	121.7	122.0	122.2	24	123.1	123.6	124.0	24
4/11	122.6	123.3	123.8	24	121.6	122.3	122.8	24	122.7	123.0	123.5	24	119.8	120.3	120.8	24	122.3	122.4	122.5	24
4/12	120.7	122.5	123.2	13	123.9	124.4	124.8	24	124.0	124.5	124.8	24	120.5	121.6	122.0	24	122.7	122.9	123.8	24
4/13	121.5	121.5	122.0	11	122.5	122.9	123.7	23	124.1	124.6	124.8	23	122.4	122.7	123.1	23	123.7	124.1	124.3	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 4/14/2017 14:27

Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/31/2017 *	1,760	113	---	---	10,061	---	---	---	---	---	436
04/01/2017 *	1,664	85	195	---	16,302	---	---	8	---	---	1,137
04/02/2017 *	---	66	270	---	12,048	1,426	1,256	15	---	3,675	785
04/03/2017 *	3,434	92	925	---	12,399	---	---	4	---	---	1,063
04/04/2017 *	322	1,635	938	---	11,016	4,424	1,394	20	---	4,498	1,500
04/05/2017 *	1,490	5,243	324	---	8,195	---	---	14	---	---	1,190
04/06/2017 *	144	1,817	188	---	11,366	7,682	---	6	---	3,668	1,219
04/07/2017 *	1,076	5,843	353	---	9,185	---	40,381	8	2,455	---	1,159
04/08/2017	---	---	549	---	11,501	11,576	---	8	---	2,110	1,706
04/09/2017	---	---	1,398	---	14,848	---	---	12	7,618	---	1,866
04/10/2017	2,286	---	1,066	---	32,241	23,512	23,597	10	---	5,991	1,407
04/11/2017	2,781	---	1,039	---	37,814	---	---	14	12,002	---	1,645
04/12/2017 *	826	2,970	1,082	---	35,145	30,573	---	18	---	17,546	27,642
04/13/2017	567	---	756	---	34,415	---	44,405	23	---	---	29,275
04/14/2017	---	---	---	---	53,048	44,487	---	117	---	17,226	46,552
Total:	16,350	17,864	9,083	0	309,584	123,680	111,033	277	22,075	54,714	118,582
# Days:	11	9	13	0	15	7	5	14	3	7	15
Average:	1,486	1,985	699	0	20,639	17,669	22,207	20	7,358	7,816	7,905
YTD	19,853	18,938	9,536	8	349,257	123,680	111,033	277	22,075	54,714	124,291

COMBINED SUBYEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/31/2017 *	0	0	---	---	0	---	---	---	---	---	2,704
04/01/2017 *	0	0	0	---	0	---	---	113	---	---	3,270
04/02/2017 *	---	0	0	---	0	0	419	120	---	258	3,533
04/03/2017 *	0	1	0	---	0	---	---	50	---	---	1,833
04/04/2017 *	0	0	0	---	216	0	199	37	---	233	4,058
04/05/2017 *	0	0	0	---	0	---	---	39	---	---	3,150
04/06/2017 *	0	0	0	---	51	160	---	54	---	500	3,051
04/07/2017 *	0	0	0	---	49	---	184	28	1,312	---	3,788
04/08/2017	---	---	0	---	0	0	---	59	---	799	3,154
04/09/2017	---	---	1	---	222	---	---	42	1,172	---	2,371
04/10/2017	0	---	0	---	104	0	190	74	---	554	950
04/11/2017	0	---	0	---	0	---	---	47	1,822	---	753,700
04/12/2017 *	0	0	0	---	0	0	---	48	---	289	61,317
04/13/2017	0	---	0	---	186	---	0	52	---	---	2,286
04/14/2017	---	---	---	---	180	0	---	52	---	539	13,460
Total:	0	1	1	0	1,008	160	992	815	4,306	3,172	862,625
# Days:	11	9	13	0	15	7	5	14	3	7	15
Average:	0	0	0	0	67	23	198	58	1,435	453	57,508
YTD	0	1	1	0	2,085	160	992	815	4,306	3,172	948,155

Two-Week Summary of Passage Indices

COMBINED COHO												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/31/2017	*	0	0	---	---	104	---	---	---	---	---	218
04/01/2017	*	0	0	33	---	395	---	---	0	---	---	1,990
04/02/2017	*	---	0	36	---	442	0	0	---	31	---	2,316
04/03/2017	*	0	0	14	---	109	---	---	0	---	---	3,208
04/04/2017	*	0	0	85	---	324	0	0	---	78	---	5,615
04/05/2017	*	0	0	81	---	0	---	---	0	---	---	4,397
04/06/2017	*	0	0	38	---	0	160	0	---	0	---	4,991
04/07/2017	*	0	0	59	---	49	---	0	0	---	---	6,048
04/08/2017		---	---	24	---	50	319	---	0	---	0	7,399
04/09/2017		---	---	40	---	0	---	---	0	---	---	6,284
04/10/2017		0	---	41	---	0	135	0	---	0	---	6,544
04/11/2017		0	---	36	---	0	---	---	0	0	---	6,540
04/12/2017	*	0	0	27	---	0	0	---	0	---	0	3,518
04/13/2017		0	---	18	---	0	---	0	---	---	---	2,286
04/14/2017		---	---	---	---	0	0	---	0	---	72	8,262
<hr/>												
Total:		0	0	532	0	1,473	614	0	0	0	181	69,616
# Days:		11	9	13	0	15	7	5	14	3	7	15
Average:		0	0	41	0	98	88	0	0	0	26	4,641
YTD		0	0	582	0	1,663	614	0	0	0	181	70,638

COMBINED STEELHEAD												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/31/2017	*	21	41	---	---	14,707	---	---	---	---	---	44
04/01/2017	*	23	27	120	---	35,272	---	---	2	---	---	102
04/02/2017	*	---	267	103	---	19,344	17,686	20,096	2	---	31,142	412
04/03/2017	*	76	2,121	199	---	15,118	---	---	2	---	---	690
04/04/2017	*	37	2,713	261	---	5,184	6,186	9,557	2	---	16,208	654
04/05/2017	*	62	1,421	614	---	5,031	---	---	0	---	---	859
04/06/2017	*	9	622	322	---	8,971	6,711	---	2	---	8,337	997
04/07/2017	*	191	836	336	---	11,098	---	10,567	0	4,439	---	629
04/08/2017		---	---	241	---	14,489	20,489	---	2	---	8,312	569
04/09/2017		---	---	517	---	29,584	---	---	8	2,865	---	708
04/10/2017		439	---	214	---	19,616	28,787	13,701	4	---	10,354	563
04/11/2017		362	---	217	---	27,383	---	---	2	7,787	---	982
04/12/2017	*	530	174	139	---	37,463	34,857	---	2	---	7,018	1,006
04/13/2017		453	---	69	---	20,649	---	20,905	4	---	---	1,550
04/14/2017		---	---	---	---	32,345	47,573	---	6	---	10,393	464
<hr/>												
Total:		2,203	8,222	3,352	0	296,254	162,289	74,826	38	15,091	91,764	10,229
# Days:		11	9	13	0	15	7	5	14	3	7	15
Average:		200	914	258	0	19,750	23,184	14,965	3	5,030	13,109	682
YTD		2,225	8,380	3,459	1	571,024	162,289	74,826	38	15,091	91,764	10,421

Two-Week Summary of Passage Indices

		COMBINED SOCKEYE										
Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/31/2017	*	0	0	---	---	0	---	---	---	---	---	262
04/01/2017	*	0	0	0	---	99	---	---	0	---	---	244
04/02/2017	*	---	0	0	---	0	1	0	0	---	31	314
04/03/2017	*	0	0	0	---	109	---	---	0	---	---	501
04/04/2017	*	0	0	0	---	216	442	0	2	---	78	409
04/05/2017	*	0	0	0	---	52	---	---	2	---	---	282
04/06/2017	*	0	0	0	---	459	0	---	4	---	42	442
04/07/2017	*	0	0	0	---	245	---	0	0	67	---	578
04/08/2017		---	---	0	---	299	159	---	42	---	32	467
04/09/2017		---	---	0	---	111	---	---	8	33	---	463
04/10/2017		0	---	0	---	730	141	0	2	---	35	493
04/11/2017		0	---	0	---	702	---	---	43	0	---	711
04/12/2017	*	0	0	0	---	386	586	---	24	---	0	1,509
04/13/2017		0	---	0	---	1,488	---	305	12	---	---	355
04/14/2017		---	---	---	---	540	0	---	22	---	144	405
Total:		0	0	0	0	5,436	1,329	305	161	100	362	7,435
# Days:		11	9	13	0	15	7	5	14	3	7	15
Average:		0	0	0	0	362	190	61	12	33	52	496
YTD		0	0	0	0	6,436	1,329	305	161	100	362	8,305

		COMBINED LAMPREY JUVENILES										
Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR† (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
03/31/2017	*	0	0	---	---	0	---	---	---	---	---	1,090
04/01/2017	*	0	0	0	---	0	---	---	0	---	---	1,320
04/02/2017	*	---	0	1	---	0	0	0	3	---	2,460	610
04/03/2017	*	0	0	1	---	0	---	---	2	---	---	385
04/04/2017	*	0	0	0	---	3	0	0	0	---	1,550	307
04/05/2017	*	0	0	0	---	0	---	---	1	---	---	257
04/06/2017	*	0	0	0	---	0	0	---	0	---	1,375	100
04/07/2017	*	0	0	0	---	1	---	0	1	110	---	243
04/08/2017		---	---	0	---	0	0	---	0	---	2,760	200
04/09/2017		---	---	0	---	0	---	---	0	70	---	126
04/10/2017		0	---	0	---	0	0	0	1	---	1,640	70
04/11/2017		0	---	0	---	0	---	---	0	60	---	774
04/12/2017	*	0	0	0	---	0	0	---	0	---	580	143
04/13/2017		0	---	0	---	0	---	0	0	---	---	143
04/14/2017		---	---	---	---	0	400	---	0	---	280	67
Total:		0	0	2	0	4	400	0	8	240	10,645	5,835
# Days:		11	9	13	0	15	7	5	14	3	7	15
Average:		0	0	0	0	0	57	0	1	80	1,521	389
YTD		0	0	4	0	13	400	0	8	300	10,645	32,925

Two-Week Summary of Passage Indices

* See sampling comments

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

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's), subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles.

Three classes of fish counts are shown in these tables:

Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details †.

Collection counts (Coll), which account for sample rates but are not adjusted for flow;

Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.

Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations.

The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, pacific lamprey macrophthalmia, and unidentified lamprey species.

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection. Therefore, only sample counts are provided in this report.

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts

IMN (Collection) = Imnaha River Trap : Collection Counts

GRN (Collection) = Grande Ronde River Trap : Collection Counts

LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

4/14/17 2:29 PM

03/31/17 TO 04/14/17

		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	500	156,457	700	147,621	2,775	308,053
	Sum of NumberBarged	0	11,336	0	9,901	172	21,409
	Sum of NumberBypassed	500	145,086	700	137,712	2,586	286,584
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	13	0	6	6	25
	Sum of FacilityMorts	0	22	0	2	11	35
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	35	0	8	17	60
LGS	Sum of NumberCollected	100	83,121	400	109,520	905	194,046
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	100	82,993	400	109,498	897	193,888
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	3	0	2	2	7
	Sum of FacilityMorts	0	125	0	20	6	151
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	128	0	22	8	158
LMN	Sum of NumberCollected	500	50,205		34,195	100	85,000
	Sum of NumberBarged	0	0		0	0	0
	Sum of NumberBypassed	500	50,203		34,195	100	84,998
	Sum of Numbertrucked	0	0		0	0	0
	Sum of SampleMorts	0	2		0	0	2
	Sum of FacilityMorts	0	0		0	0	0
	Sum of ResearchMorts	0	0		0	0	0
	Sum of TotalProjectMorts	0	2		0	0	2
Total Sum of NumberCollected		1,100	289,783	1,100	291,336	3,780	587,099
Total Sum of NumberBarged		0	11,336	0	9,901	172	21,409
Total Sum of NumberBypassed		1,100	278,282	1,100	281,405	3,583	565,470
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		0	18	0	8	8	34
Total Sum of FacilityMorts		0	147	0	22	17	186
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		0	165	0	30	25	220

YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/14/17 2:29 PM

TO: 04/14/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	1,058	176,767	800	3,294	289,689	471,608
	Sum of NumberBarged	0	11,336	0	172	9,901	21,409
	Sum of NumberBypassed	1,055	165,392	800	3,105	279,769	450,121
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	3	17	0	6	17	43
	Sum of FacilityMorts	0	22	0	11	2	35
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3	39	0	17	19	78
LGS	Sum of NumberCollected	100	83,121	400	905	109,520	194,046
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	100	82,993	400	897	109,498	193,888
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	3	0	2	2	7
	Sum of FacilityMorts	0	125	0	6	20	151
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	128	0	8	22	158
LMN	Sum of NumberCollected	500	50,205		100	34,195	85,000
	Sum of NumberBarged	0	0		0	0	0
	Sum of NumberBypassed	500	50,203		100	34,195	84,998
	Sum of NumberTrucked	0	0		0	0	0
	Sum of SampleMorts	0	2		0	0	2
	Sum of FacilityMorts	0	0		0	0	0
	Sum of ResearchMorts	0	0		0	0	0
	Sum of TotalProjectMorts	0	2		0	0	2
Total Sum of NumberCollected		1,658	310,093	1,200	4,299	433,404	750,654
Total Sum of NumberBarged		0	11,336	0	172	9,901	21,409
Total Sum of NumberBypassed		1,655	298,588	1,200	4,102	423,462	729,007
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		3	22	0	8	19	52
Total Sum of FacilityMorts		0	147	0	17	22	186
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		3	169	0	25	41	238

Cumulative Adult Passage at Mainstem Dams Through: 04/13

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/12	305	0	2515	10	3372	5	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/12	58	0	1195	25	1202	7	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/12	9	4	611	1	514	7	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/12	10	-2	179	0	179	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/12	4	0	77	7	87	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/12	0	0	63	-1	31	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/12	0	0	35	2	16	1	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/12	1	0	21	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/12	2	0	1073	0	449	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.		2017	2016	10-Yr Avg.	10-Yr		Unclipped		Unclipped		10-Yr		
		Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	04/12	0	0	0	0	0	0	0	1	0	2116	3263	3000	740	1414	1088	0	-1	0
TDA	04/12	0	0	0	0	0	0	0	0	0	1179	189	2067	395	120	857	0	0	0
JDA	04/12	0	0	0	0	0	1	0	0	0	230	206	4173	147	146	1543	0	0	-1
MCN	04/12	0	0	0	0	1	0	0	1	0	2246	314	5634	595	224	1709	0	1	0
IHR	04/12	0	0	0	0	0	0	0	0	0	651	758	4485	311	433	1093	0	0	0
LMN	04/12	-1	0	0	0	0	0	0	0	0	896	789	6625	430	527	1900	-1	0	0
LGS	04/12	0	0	0	0	0	0	0	0	0	849	2621	3405	360	1393	1617	0	0	0
LGR	04/12	0	0	0	0	0	0	0	0	0	6601	4706	7183	2624	2534	2539	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/12	0	0	0	0	0	0	0	0	0	529	5253	5029	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.

