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Fish Passage Center

Weekly Report #17–22

August 4, 2017

This Week's Highlights

Water Supply

There has been no precipitation throughout the Columbia Basin over August. Over the 2017 water year, precipitation has ranged between 103% and 131% of average.

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

Location	Water Year 2017 July 1-26, 2017		Water Year 2017 October 1, 2016 to August 3, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.00	2	37.3	110
Snake River Above Ice Harbor	0.00	0	24.8	119
Columbia Above The Dalles	0.00	1	28.2	111
Kootenai	0.01	3	38.0	111
Clark Fork	0.00	0	25.7	103
Flathead	0.00	1	38.3	116
Pend Oreille River Basin above Waneta Dam	0.00	0	33.4	112
Salmon River Basin	0.00	0	33.1	123
Upper Snake Tributaries	0.00	0	29.0	120
Clearwater	0.00	0	40.9	108
Willamette River above Portland	0.00	0	82.6	131

Table 2 displays the August 1st ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The August 1st ESP forecast at The Dalles between April and August is 109,405 Kaf (125% of average).

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

Location	August 1, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	125	109,405
Grand Coulee (Apr-Aug)	116	65,563
Libby Res. Inflow, MT (Apr-Aug)	120 129*	7,037 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	108	2,098
Lower Granite Res. Inflow (Apr- July)	144	28,636
Brownlee Res. Inflow (Apr-July)	182	9,981
Dworshak Res. Inflow (Apr-July)	119 116*	2,887 2,838*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,283.8 feet (8-03-17) and has drafted 2.4 feet over the last week. Outflows at Grand Coulee have ranged between 106.6 Kcfs and 114.2 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,448.5 feet (8-03-17) and has refilled 0.1 feet over the past week. Daily average outflows at Libby Dam have been 9.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,554.6 feet (8-03-17) and has drafted 1 foot over the last week. Outflows at Hungry Horse ranged between 2 and 3 Kcfs over the last week.

Dworshak is currently at an elevation of 1,568.9 feet (8-03-17) and has drafted 10.2 feet over the last week. Dworshak outflows over the last week have been 11.0 to 11.1 Kcfs.

The Brownlee Reservoir was at an elevation of 2,058.8 feet on August 3, 2017, and has drafted 2.7 feet last week. Outflows at Hells Canyon have ranged between 12.9 and 23.4 Kcfs over the last four days.

The Biological Opinion flow period began on April 3rd and ended on June 20th in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5th, 2017), the flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 140.5 Kcfs over the spring season.

The Summer Flow period began on June 21st at Lower Granite Dam, the flow objective this year is 55 Kcfs. Flows have averaged 38.8 Kcfs and 41.5 Kcfs over the last week.
Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives were 260 Kcfs at McNary Dam (began April 10th and ended June 30) and 135 Kcfs at Priest Rapids Dam (began April 10th). Over the spring season, flows at McNary Dam have been 378.4 Kcfs and Priest Rapids Dam flows were 237.4 Kcfs.

The Summer Flow period began on July 1st at McNary Dam, the flow objective this year is 200 Kcfs. Flows have averaged 150.2 Kcfs and 170.8 Kcfs over the last week.

Spill

Dworshak Dam is currently in its summer draft operation, with an average discharge volume of 11.1 Kcfs and an average spill volume of 6.7 Kcfs over the last week. Dworshak operations are currently to discharge cool water targeting tailrace gas levels no greater than 121% with the objective of reducing temperatures at the Lower Granite Dam tailrace. However, due to the limited powerhouse capacity at Dworshak this year, total outflows are limited to approximately 11.0 Kcfs (6.0-6.8 Kcfs spill) in order to not exceed the 121% TDG criteria. Outflows at Hells Canyon Dam ranging from 12.9 to 23.4 Kcfs over the last four days. Current outflow projections show flow in the Snake River and in the middle Columbia continuing to decrease as seasonal runoff declines.

The 2017 summer spill for fish passage began on June 21st and will continue through August 31st. Summer spill for fish passage at the Snake River projects is to occur at the following amounts described in the 2017 Fish Operations Plan (FOP).

Project	Spill Level Day/Night
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17Kcfs/17Kcfs
Ice Harbor	June 21-July 13: 30%/30% vs. 45 Kcfs/Gas Cap July 13-August 31: 45 Kcfs/Gas Cap

Spill at Lower Granite Dam was maintained at the target 18 Kcfs over the past week. Spill this week continued to occur through the traditional spillbays, with no spill through the Removable Spillway Weir. This operation was coordinated through TMT on July 12th, in an effort to reduce temperatures in the Lower Granite tailrace. Since this operation began on the afternoon of July 12th, temperatures in the Lower Granite tailrace have ranged from 67.9°F to 69.3°F. Spill operations at Little Goose Dam were modified on July 19th, when spill through the Temporary Spillway Weir was terminated. This modified operation was also coordinated through TMT on July 12th, with the goal of reducing temperatures below Little Goose Dam. The Biological Opinion spill for Little Goose Dam of 30% of flow was met over the past week. Spill at Lower Monumental Dam met the target 17 Kcfs over the past week. Finally, at Ice Harbor, the spill operation for the remainder of the season is 45 Kcfs/gas cap. At current flows, spill to these levels is not always possible. Instead, spill volumes are often limited to flows minus minimum generation requirements.

Summer spill for fish passage began on June 16th at the middle Columbia River projects. Spill for fish passage at the lower Columbia River projects at the following amounts described in the 2017 Fish Operations Plan.

Project	Spill Level Day/Night
McNary	June 16-Aug 31: 50%/50%
John Day	June 16-July 20: 30%/30% and 40%/40% July 20-August 31: 30%/30%
The Dalles	40%/40%
Bonneville	June 16 -Aug 31: 85Kcfs/121Kcfs and 95 Kcfs/95 Kcfs

The spring spill period ended on June 15th according to the COE's Fish Operation Plan. The original period for the spring spill to end in the Middle Columbia River was June 30th. Accommodations were made in past years to initiate summer spill earlier for testing purposes. This was done to assure adequate numbers of test fish were present to conduct the "performance tests". Since 2014 the earlier June 15th date has been included in the FOP as part of the roll-over operations associated with the FOP. The earlier start date for summer spill is also included in the 2014 Supplemental Biological Opinion.

At McNary Dam, spill averaged 50% of daily average flow over the past week. The spill operation at John Day Dam is 30%/30% for the remainder of the season. This spill operation was met over the past week. Spill at The Dalles Dam was 40% of average daily flow over the past week. Finally, at Bonneville Dam, the FOP spill levels of 85 Kcfs/121 Kcfs or 95 Kcfs/95 Kcfs were met over the last week.

At spill levels of 6.6 to 6.7 Kcfs over the last week, tailrace TDG levels at Dworshak Dam ranged from 118.9% to 119.8%. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 103.6% and 104.5% over the past week. Over the past week, the tailwater TDG supersaturation (average of 12 highest hourly levels in a calendar day) was below 120% at all the Snake and Mid-Columbia river projects. Similar to the federal hydrosystem, TDG supersaturation levels at the Upper Columbia River projects have been below 120% at the tailrace monitors.

Note: The State of Oregon TDG waiver only requires compliance with 120% TDG in the tailrace, while the State of Washington requires compliance with both a 115% TDG forebay requirement and a 120% tailrace TDG requirement. The State of Oregon and the State of Washington also use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day. The location of a TDG monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill will be decreased if needed.

Gas bubble trauma monitoring in smolts took place over the past week at Lower Granite, Little Goose, Lower Monumental, Bonneville, McNary, and Rock Island Dams. No fish were observed with signs of GBT this week at Little Goose, Lower Monumental, McNary, and Bonneville dams. It is worth noting that the GBT sample at Lower Granite on July 27th is the final sample from this site for this year. This is because the juvenile bypass system at this project is going to be taken out of service next week in order to allow for construction on the bypass system and juvenile fish facility. In addition, GBT sampling at Bonneville and McNary dams has been reduced from twice per week to once per week. This is due to the increased temperatures in the river and generally low TDG levels at these projects. GBT exams at MCN will now occur on Mondays or Tuesdays while exams at BON will occur on Saturdays or Sundays.

Two gas bubble trauma samples were conducted at Rock Island Dam this week. In these two exams (August 1 and August 3), 5% and 2% of fish were observed with signs of GBT. All but one of signs of GBT in these two exams were Rank 1 with one Rank 2 level in the fins. 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. The observed signs of GBT are presently below the action criteria that would be in place during the voluntary spill for fish passage program.

Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. Over the past week, forebay water temperatures at all four of these projects were above the 68°F temperature standard. In addition, the forebay water temperatures at all four of these projects are above their respective ten-year averages for this time. At Lower Granite, the daily average temperature in the Lower Granite forebay on August 3rd was 68.6°F, which

is about 2.3 degrees warmer than the ten-year average for this date. The forebay temperature at Ice Harbor Dam has exceeded the 68°F standard since July 9th. The daily average temperature in the Ice Harbor forebay was 72.0°F on August 3rd, which is about 1.9°F warmer than the ten-year average for this date. The forebay temperatures at McNary and Bonneville dams have exceeded the 68°F standard since July 12th. The August 3rd daily average forebay temperatures at these two projects were 71.3°F and 72.5°F, respectively. These forebay temperatures are about 2.0 – 2.6 degrees warmer than their respective ten-year averages.

Smolt Monitoring

Sampling for the Smolt Monitoring Program (SMP) is underway at all bypass facilities. This week's samples at the bypass facilities were dominated by subyearling Chinook. Passage of spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) remained low at all bypass facilities this week. Passage of subyearling Chinook decreased at all bypass facilities.

Sampling for the SMP at Bonneville Dam (BON) is now under the high temperature sampling protocol. Under this protocol, sampling at BON occurs every-other-day (24-hour sample) until temperatures in the BON forebay drop below 69.5° F. This week's samples at Bonneville Dam (BON) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was approximately 5,300 per day, which is a decrease from last week's daily average passage index of about 37,000. Very few spring migrants were collected in this week's samples at BON. In addition, no Pacific lamprey juveniles were encountered in this week's samples.

Similar to last year, sampling at John Day Dam (JDA) occurs every-other-day this year. However, the SMP at JDA is now operating under the high temperature sampling protocol. Under this protocol, sampling at JDA switches to a condition only sample twice per week. This condition only sample will be process on Tuesday's and Friday's and will consist of a sample of approximately six hours. Because these are not 24-hour samples, it is not appropriate to compare this week's passage numbers to previous weeks. The high temperature sampling protocol will remain in place until temperatures in the JDA forebay drop below 69.5° F. This week's samples at JDA were again dominated by subyearling Chinook. No spring migrants were encountered at JDA this week. Finally, pacific lamprey macropthalmia were encountered in two of this week's three samples. No ammocoetes were encountered in this week's samples.

Sampling at McNary Dam (MCN) is also every-other-day. The MCN juvenile fish facility has been operating under the high temperature sampling protocol since about July 12th. Under this protocol, sampling at MCN remains every-other-day (24-hour sample) but the target sample size is reduced to 100 fish per day. This protocol will remain in place until temperatures in the McNary Forebay drop below 68.0°F. This week's samples were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 18,500 per day, which is a decrease compared to last week's daily average passage index of about 58,500 per day. The only spring migrants that were encountered in this week's samples were sockeye. Finally, only Pacific lamprey macropthalmia were encountered in this week's samples. Macropthalmia were encountered in two of this week's three samples (July 22nd and 24th).

This week's samples at Lower Granite Dam (LGR) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 100 per day, which is a decrease from last week's daily average passage index of about 5,700 per day. There were no spring migrants detected this week, nor were Pacific lamprey ammocoetes encountered. Finally, sampling at LGR ended this week. This is earlier than past years and is due to construction activities to upgrade the juvenile bypass system and juvenile fish facility for next season.

Similar to recent years, sampling at Little Goose Dam (LGS) was every-other-day until the start of transportation, at which time sampling went to every day. This week's samples at LGS were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 1,650 per day, which is a decrease from last week's daily average passage index of about 5,850 per day. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were encountered in six of this week's samples, with a daily average collection of about 15 fish. No Pacific lamprey macropthalmia were encountered in this week's samples at LGS.

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from

April 1st to April 16th, every-other-day from April 16th until transportation began, at which time sampling switched to every day. This week's samples at LMN were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 230 per day, which is a decrease from last week's daily average passage index of about 1,100. Passage of spring migrants remained low this week. Finally, no Pacific lamprey ammocoetes were encountered in this week's samples.

This week's collections at Rock Island Dam (RIS) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 395 per day, which is a decrease from last week's daily average passage index of about 475 per day. Passage of spring migrants remained low this week. Finally, only one Pacific lamprey ammocoete was encountered this week (July 22nd). No macropthalmia were encountered this week.

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. No new releases were scheduled for this zone this week and no new releases are scheduled 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. No new releases were scheduled for this zone this week and no new releases are scheduled over the next two weeks.

Middle Columbia Zone: The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). No new releases were schedule for this zone this week and no new releases are scheduled over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. No new releases were schedule for this zone this week and no new releases are scheduled over the next two weeks.

Adult Passage

Daily passage numbers at Bonneville Dam ranged between 329 and 493 adult Chinook in the last week. Adult summer chinook passage counting at Bonneville Dam ends on July 31st each year. The 2017 summer Chinook count of 88,044 is about 73.6% of the 2016 count and 90.1% of the 10-year average. The 2017 summer Chinook jack count of 10,648 has 186 fewer fish than the 2016 count and about 48.2% of the 10-year average count. At Willamette Falls, 34,116 adult spring Chinook have been counted so far this year. In 2016, 30,117 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.13 times greater than the 2016, while having 358 fewer fish than the 10-year average count of 34,474. As of August 3rd, a total of 56,334 adult summer Chinook have been counted at McNary Dam and 8,671 have been counted at Lower Granite Dam. The 2017 McNary Dam adult summer Chinook count is about 68.5% of the 2016 count and 83.5% of the 10-year average count. The 2017 Lower Granite Dam adult summer Chinook count is about 80% of the 2016 count and 52.4% of the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 27,281 is about 41.1% of the 2016 count of 66,393 and 23.2% of the 10-year average count of 117,749. The 2017 Bonneville Dam adult unclipped steelhead count of 13,285 is about 52.7% of the 2016 count of 25,221 and 25.5% of the 10-year average count of 52,159. Daily adult steelhead counts at Lower Granite Dam ranged from 10 to 18 adults per day last week. This year's Lower Granite steelhead count of 7,636 has 503 fewer fish than the 2016 count of 8,139 and is 59.4% of the 10-year average count of 12,858. The 2017 Lower Granite Dam adult unclipped steelhead count of 3,278 has 1,207 fewer fish than the 2016 count of 4,485 and 1,904 fewer fish than the 10-year average count of 5,182. At Willamette Falls, the 2017 count for steelhead was 2,658 as of August 2nd. This year's steelhead count is about 10% of the 2016 count of 26,546 and 12.1% of the 10-year average count of 21,952.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 25 and 59 last week. The 2017 adult sockeye count at Bonneville Dam of 87,519 is about 25.6% of the 2016 count and 27.8% of the 10-year average count. The 2017 adult sockeye count at McNary Dam of 57,914 is about 22.2% of the 2016 count and 25.6% of the 10-year average count. The Lower Granite Dam 2017 adult sockeye count of 225 has 567 fewer fish than the 2016 count of 792 and 802 fewer fish than the 10-year average count of 1,032. As of August 3rd at Bonneville Dam, the adult shad count was 3,097,697. This year's shad count is about 1.8 times greater than the 2016 count of 1,765,819 and 1.5 times greater than the 10-year average count of 2,043,702. A total of 73,923 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 1.8 times greater than the 2016 count of 40,983 and 3.9 times greater than the 10-year average count of 18,912.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 7/22/2017 to 08/04/17

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone

No Releases Scheduled

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 8/5/2017 to 8/18/2017

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone

No Releases Scheduled

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
07/21/2017	106.9	0.1	98.1	0.0	98.6	8.4	101.5	12.9	100.4	20.2	118.5	16.3	111.9	19.9
07/22/2017	122.3	0.1	114.7	0.0	112.9	8.6	111.2	10.5	113.4	20.4	120.0	16.8	111.7	20.9
07/23/2017	100.7	0.1	108.6	0.0	115.0	8.7	109.2	9.1	114.9	19.7	109.7	17.6	99.6	23.6
07/24/2017	110.1	0.1	106.4	0.0	122.4	10.0	119.8	10.8	126.4	23.7	128.1	18.8	118.3	25.8
07/25/2017	106.6	0.1	105.4	0.0	110.4	8.5	109.8	9.0	114.4	22.1	126.0	13.7	124.9	24.4
07/26/2017	114.2	0.1	115.5	0.0	106.8	9.9	105.2	9.1	106.7	21.8	119.6	18.1	113.2	23.8
07/27/2017	105.2	0.1	108.8	0.0	119.6	11.1	114.9	9.1	116.4	21.6	102.5	19.1	90.4	26.6
07/28/2017	105.5	0.1	108.7	0.0	120.7	9.0	123.2	15.6	129.7	21.7	139.7	20.1	135.2	27.8
07/29/2017	88.0	0.1	86.0	0.0	90.0	6.7	85.8	9.4	88.6	21.5	114.2	18.9	110.8	26.1
07/30/2017	93.6	0.1	91.1	0.0	100.8	7.8	97.1	9.2	101.3	19.4	95.4	19.3	87.6	25.7
07/31/2017	110.8	0.1	112.8	0.0	116.5	9.1	111.8	11.7	116.0	24.5	128.3	19.3	119.7	28.7
08/01/2017	90.1	0.1	86.7	0.0	100.8	8.0	96.9	9.1	101.0	19.7	114.9	18.7	111.4	27.6
08/02/2017	88.4	0.1	90.8	0.0	88.9	6.6	86.7	8.3	92.7	19.5	117.2	18.0	114.1	25.8
08/03/2017	114.3	0.1	104.3	0.0	110.5	8.1	106.5	9.3	109.9	22.3	104.3	18.2	94.3	26.0

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
07/21/2017	11.2	6.8	---	15.3	43.1	18.1	40.6	12.3	40.2	17.0	42.2	32.2
07/22/2017	11.1	6.7	---	14.6	42.1	18.0	40.8	12.2	41.4	17.1	42.7	32.8
07/23/2017	11.2	6.8	---	15.6	39.3	18.1	35.8	10.7	34.6	16.9	34.9	25.0
07/24/2017	11.2	6.8	---	16.4	40.0	18.2	39.9	11.9	39.7	17.1	41.2	31.1
07/25/2017	11.1	6.7	---	16.7	41.6	18.1	40.8	12.2	40.2	16.7	42.3	32.1
07/26/2017	11.1	6.7	---	16.4	41.6	18.2	39.0	11.6	38.3	17.1	38.9	28.8
07/27/2017	11.0	6.6	---	17.2	38.0	18.1	35.8	10.7	36.6	16.7	38.5	28.6
07/28/2017	11.0	6.6	---	17.3	40.8	18.1	39.5	11.7	38.8	16.9	40.4	30.4
07/29/2017	11.0	6.6	---	16.9	41.0	18.1	40.2	11.9	40.5	16.6	42.5	32.3
07/30/2017	11.0	6.6	---	17.4	39.7	18.1	37.2	11.0	36.5	16.8	38.2	28.2
07/31/2017	11.2	6.8	---	18.8	41.0	18.0	39.5	11.7	39.5	16.5	39.8	29.7
08/01/2017	11.2	6.7	---	17.6	40.2	18.0	39.2	11.6	38.5	17.0	40.4	30.3
08/02/2017	11.2	6.7	---	17.6	40.8	18.1	39.7	11.8	39.6	16.7	42.1	31.7
08/03/2017	11.1	6.7	---	16.4	38.9	18.1	37.7	11.3	38.3	17.0	38.9	28.9

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
07/21/2017	177.0	88.5	173.3	52.0	159.9	63.5	175.2	94.8	0.8	67.2
07/22/2017	161.2	80.8	154.1	46.4	144.7	57.9	158.3	100.4	0.9	44.5
07/23/2017	149.7	75.2	137.8	41.4	131.0	52.4	146.1	96.2	0.9	36.6
07/24/2017	164.8	82.7	156.8	47.2	145.3	58.1	154.1	90.9	0.9	49.9
07/25/2017	170.8	85.9	154.3	46.1	141.2	56.4	157.4	95.1	0.8	49.1
07/26/2017	163.7	82.1	149.0	44.8	139.9	55.5	159.8	100.0	0.9	46.5
07/27/2017	150.3	75.5	143.0	43.0	129.8	51.8	145.4	95.2	0.9	36.9
07/28/2017	163.2	81.8	154.2	46.1	143.2	57.0	151.9	89.9	0.9	48.7
07/29/2017	180.8	90.6	175.1	52.5	164.6	65.7	178.4	95.1	0.9	70.0
07/30/2017	149.6	75.0	138.0	41.2	124.7	50.0	149.6	99.6	0.9	36.7
07/31/2017	157.9	79.1	158.1	47.1	149.2	59.9	160.6	93.8	0.9	53.6
08/01/2017	165.2	83.0	150.9	45.4	139.2	55.7	159.6	89.9	0.9	56.4
08/02/2017	168.3	84.6	161.5	48.4	148.6	59.4	165.5	95.2	0.9	57.0
08/03/2017	155.3	77.9	145.9	43.9	136.2	54.4	145.6	100.4	0.8	32.0

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											
	07/27/17	Chinook + Steelhead	33*	0	0			0	0	0	0
Little Goose Dam											
Lower Monumental Dam											
	07/24/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam	07/31/17	Chinook + Steelhead	91*	0	0			0	0	0	0
	08/01/17	Chinook + Steelhead	9*	0	0			0	0	0	0
	07/25/17	Chinook + Steelhead	61*	0	0			0	0	0	0
	07/26/17	Chinook + Steelhead	39*	0	0			0	0	0	0
Bonneville Dam											
	07/23/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/25/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/31/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	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
7/21	---	---	---	0	---	---	---	0	111.9	112.0	112.4	24	111.1	111.8	113.0	24	111.6	112.0	112.3	24
7/22	---	---	---	0	---	---	---	0	111.8	112.1	112.5	24	110.7	111.3	112.7	24	112.1	112.6	113.1	24
7/23	---	---	---	0	---	---	---	0	112.5	112.6	112.8	24	111.4	112.4	113.6	24	113.1	113.7	114.2	24
7/24	---	---	---	0	---	---	---	0	111.8	112.0	112.3	24	111.1	111.5	112.2	24	111.8	112.1	112.5	24
7/25	---	---	---	0	---	---	---	0	111.5	111.6	111.7	24	110.7	111.3	112.6	24	111.0	111.7	112.1	24
7/26	---	---	---	0	---	---	---	0	111.4	111.6	112.0	24	110.0	110.8	112.0	24	111.7	112.2	112.7	24
7/27	---	---	---	0	---	---	---	0	111.1	111.3	111.7	24	110.1	110.7	111.6	24	111.8	112.3	112.6	24
7/28	---	---	---	0	---	---	---	0	110.6	110.8	111.3	24	109.7	110.3	111.6	24	111.3	111.8	112.3	24
7/29	---	---	---	0	---	---	---	0	109.9	110.1	110.6	24	109.5	110.1	111.3	24	110.7	111.3	111.7	24
7/30	---	---	---	0	---	---	---	0	109.5	109.7	109.9	24	109.1	109.7	110.6	24	110.8	111.1	111.6	24
7/31	---	---	---	0	---	---	---	0	109.1	109.3	109.5	24	108.4	109.0	110.0	24	110.3	110.7	111.1	24
8/1	---	---	---	0	---	---	---	0	109.0	109.2	109.6	24	108.6	109.3	110.4	24	110.5	110.8	111.0	24
8/2	---	---	---	0	---	---	---	0	108.8	109.1	109.6	24	109.0	109.7	111.1	24	110.3	110.6	111.0	24
8/3	---	---	---	0	---	---	---	0	108.9	109.3	109.7	23	109.1	109.7	110.6	23	110.1	110.5	110.9	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
7/21	110.7	111.1	111.4	24	111.3	112.0	112.3	24	113.5	113.7	113.8	24	111.6	111.8	112.0	24	113.5	114.3	115.2	22
7/22	111.2	111.7	112.0	24	111.8	112.5	113.0	24	113.6	113.9	114.0	24	111.3	111.6	112.0	24	113.8	115.0	116.1	22
7/23	112.3	112.9	113.4	24	112.7	113.4	113.8	24	114.2	114.6	114.8	24	112.4	112.9	113.2	24	114.5	115.5	116.2	23
7/24	111.1	111.7	112.1	24	112.2	112.9	113.5	24	114.0	114.2	114.4	24	112.4	112.7	113.0	23	115.1	116.0	116.3	23
7/25	110.4	111.0	111.2	24	112.0	112.8	113.4	24	113.7	113.7	114.3	13	112.5	112.9	113.3	24	114.3	115.1	115.6	21
7/26	110.8	111.3	111.6	23	111.8	112.6	113.1	24	---	---	---	0	113.1	113.5	113.8	24	114.2	115.2	115.7	23
7/27	111.3	111.6	112.0	24	111.9	112.4	112.9	24	---	---	---	0	113.0	113.2	113.4	24	114.5	115.4	115.7	22
7/28	110.8	111.3	111.8	24	111.5	111.9	112.5	23	---	---	---	0	112.4	112.7	112.9	24	115.5	116.5	120.0	20
7/29	109.8	110.4	110.8	24	111.4	112.3	112.9	24	---	---	---	0	112.4	112.7	113.3	24	112.8	113.8	114.2	22
7/30	109.9	110.2	110.5	24	110.5	111.1	111.9	24	---	---	---	0	111.8	112.1	112.4	24	113.1	114.0	114.8	23
7/31	109.5	109.8	110.1	24	110.4	111.3	111.8	24	---	---	---	0	111.0	111.4	111.7	24	113.9	115.1	115.7	21
8/1	109.9	110.3	110.6	24	110.2	111.1	111.7	24	94.8	94.8	95.0	11	111.2	111.6	112.3	24	113.2	115.0	116.8	24
8/2	109.3	109.9	110.2	24	109.9	111.3	112.0	24	94.7	95.0	95.1	24	111.3	111.7	111.9	24	113.0	114.1	115.0	20
8/3	109.3	109.6	109.7	23	110.7	111.7	112.3	23	105.6	113.2	113.5	23	111.6	112.0	112.4	23	113.6	115.4	115.9	22

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
7/21	111.3	111.8	112.3	23	114.9	115.4	115.8	22	108.5	108.9	109.9	24	108.8	109.0	109.2	24	106.5	107.0	107.4	24
7/22	111.2	112.0	112.5	23	114.5	115.0	115.5	21	110.0	111.3	112.2	24	109.9	110.7	111.1	24	107.3	108.8	109.6	24
7/23	111.9	112.6	113.2	23	115.0	115.6	115.9	23	110.7	111.6	111.9	24	111.1	111.8	112.3	24	109.1	109.8	110.9	24
7/24	111.9	112.8	113.6	23	115.4	116.4	117.1	21	110.1	112.2	112.8	24	110.9	111.5	111.8	24	108.4	109.0	109.3	24
7/25	112.2	112.8	113.3	22	115.3	116.2	116.7	20	112.2	113.1	114.2	24	111.7	112.0	112.2	24	110.3	110.8	111.3	24
7/26	112.4	113.2	113.7	24	115.6	116.2	116.4	22	111.9	112.6	113.4	24	111.4	111.8	112.1	24	110.2	110.6	110.9	24
7/27	112.1	112.7	113.2	24	115.4	115.9	116.0	22	110.0	110.3	110.9	24	111.0	111.3	111.6	24	109.0	109.8	110.6	24
7/28	112.6	113.3	114.4	18	115.4	116.1	116.8	17	---	---	---	0	---	---	---	0	---	---	---	0
7/29	111.7	112.2	112.5	22	115.2	115.7	116.0	21	110.2	111.0	111.7	24	110.8	111.1	111.4	24	107.7	108.7	109.1	24
7/30	110.8	111.6	111.9	24	114.1	114.8	115.3	21	---	---	---	0	---	---	---	0	---	---	---	0
7/31	110.9	111.5	112.2	22	114.8	115.3	115.8	21	---	---	---	0	---	---	---	0	---	---	---	0
8/1	111.1	111.7	112.6	24	114.2	114.6	115.6	24	112.5	113.5	114.8	24	111.7	111.9	112.1	24	109.7	110.7	111.5	24
8/2	110.9	111.4	111.9	23	113.6	113.9	115.1	18	113.8	114.4	115.0	24	112.0	112.3	112.6	24	111.0	111.3	111.6	24
8/3	111.3	112.0	113.1	23	113.7	114.1	114.3	21	113.9	115.3	116.6	24	111.9	112.7	113.0	24	111.5	112.0	112.6	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
7/21	---	---	---	0	---	---	---	0	119.0	119.3	119.7	24	115.6	116.9	118.0	24	103.3	105.3	108.2	24
7/22	---	---	---	0	---	---	---	0	118.7	119.0	119.2	24	115.6	116.8	117.8	24	103.2	105.6	108.7	24
7/23	---	---	---	0	---	---	---	0	119.3	119.5	119.7	24	116.2	117.4	118.5	24	103.3	105.7	108.7	24
7/24	---	---	---	0	---	---	---	0	119.4	119.6	119.8	24	116.3	117.3	118.1	24	111.9	113.5	114.3	24
7/25	---	---	---	0	---	---	---	0	119.3	119.6	119.9	24	116.0	117.1	118.0	24	112.2	113.0	113.2	24
7/26	---	---	---	0	---	---	---	0	119.4	119.6	119.8	24	115.9	116.9	118.1	24	111.6	112.3	112.8	24
7/27	---	---	---	0	---	---	---	0	119.2	119.5	119.8	24	115.8	116.9	118.0	24	112.0	112.8	113.9	24
7/28	---	---	---	0	---	---	---	0	119.3	119.7	120.1	24	116.0	117.4	118.4	24	112.5	113.4	114.3	24
7/29	---	---	---	0	---	---	---	0	119.1	119.5	119.9	24	116.0	117.3	118.3	24	112.3	113.3	114.3	24
7/30	---	---	---	0	---	---	---	0	118.9	119.3	119.7	24	115.8	117.1	118.2	24	111.9	112.7	113.3	24
7/31	---	---	---	0	---	---	---	0	119.2	119.5	119.9	24	116.0	117.3	118.4	24	108.6	113.1	114.7	24
8/1	---	---	---	0	---	---	---	0	119.2	119.6	120.0	24	116.0	117.3	118.4	24	102.9	104.4	106.0	24
8/2	---	---	---	0	---	---	---	0	119.3	119.6	120.0	24	116.0	117.2	118.3	24	102.7	104.2	105.9	23
8/3	---	---	---	0	---	---	---	0	119.4	119.8	120.1	23	116.1	117.4	118.3	23	102.8	104.2	105.7	22

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
7/21	108.2	110.8	112.6	24	103.1	103.5	103.8	24	107.5	109.6	110.3	24	106.6	106.8	107.3	24	108.6	109.0	109.3	24
7/22	108.4	111.1	112.9	24	102.7	102.9	103.4	24	107.6	110.0	110.4	24	105.9	106.3	106.6	24	108.6	108.9	109.3	20
7/23	108.9	111.6	113.2	24	103.1	103.3	103.4	24	108.0	109.3	110.6	24	106.2	106.7	107.4	24	108.6	108.7	109.4	15
7/24	108.7	111.2	113.1	24	102.7	102.9	103.3	24	107.8	109.1	110.6	24	106.2	106.5	106.9	24	108.3	108.3	108.5	5
7/25	108.4	111.1	112.9	24	102.5	102.8	103.2	24	108.6	109.9	110.6	24	106.8	107.3	108.4	24	109.6	109.6	110.0	13
7/26	108.1	110.5	112.0	24	104.1	104.9	105.3	24	109.7	112.0	112.6	24	106.8	107.1	107.4	24	109.5	110.0	110.3	24
7/27	108.1	110.6	112.6	24	104.5	104.6	104.9	24	112.1	112.4	112.6	24	108.0	108.4	108.9	24	109.4	109.7	109.9	24
7/28	108.4	111.0	112.8	24	104.0	104.2	104.4	24	111.9	112.2	112.4	24	108.5	109.0	109.3	24	109.4	109.9	110.3	24
7/29	108.3	110.7	112.6	24	103.6	103.7	103.8	24	111.8	112.1	112.3	24	107.9	108.1	108.6	24	109.3	109.7	110.1	24
7/30	108.1	110.6	112.5	24	103.5	103.7	103.8	24	111.6	112.0	112.3	24	107.7	107.9	108.2	24	109.2	109.5	109.9	24
7/31	108.2	110.8	112.6	24	103.5	103.8	104.0	24	111.8	112.2	112.5	24	106.9	107.3	107.8	24	109.1	109.5	109.8	24
8/1	108.2	110.7	112.6	24	104.0	104.3	104.5	24	112.0	112.3	112.5	24	107.4	108.0	108.6	24	109.3	109.8	110.3	24
8/2	108.2	110.6	112.4	24	104.1	104.4	104.6	24	112.0	112.2	112.4	24	108.0	108.3	108.9	24	109.5	109.9	110.4	24
8/3	108.2	110.5	112.2	23	104.2	104.5	104.9	23	112.4	112.9	113.3	23	108.1	108.3	108.8	22	109.4	109.7	110.0	22

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
7/21	108.7	108.9	109.2	24	115.9	116.3	116.9	24	111.6	111.8	112.2	24	112.9	113.5	114.4	24	---	---	---	0
7/22	107.5	107.8	108.2	24	115.7	116.0	116.4	24	110.6	110.9	111.4	24	112.9	113.8	114.6	24	---	---	---	0
7/23	106.8	106.9	107.1	24	115.6	116.0	116.1	24	110.9	111.2	111.4	24	113.1	113.8	114.6	24	---	---	---	0
7/24	107.1	107.2	107.3	24	115.7	116.0	116.6	24	110.8	111.1	111.4	24	112.7	113.4	114.1	24	---	---	---	0
7/25	107.1	107.3	107.5	24	115.3	115.9	116.3	24	111.9	112.3	112.6	24	113.4	114.4	115.3	24	---	---	---	0
7/26	106.5	106.7	107.2	24	115.5	115.8	116.2	24	112.9	113.2	113.6	24	112.9	113.6	114.8	24	---	---	---	0
7/27	105.7	106.0	106.2	24	115.2	115.6	115.9	24	112.6	112.8	113.2	24	113.5	114.2	114.7	24	---	---	---	0
7/28	106.1	106.5	107.2	24	116.0	116.3	116.5	24	112.3	112.6	112.8	24	112.6	113.2	113.6	24	---	---	---	0
7/29	106.7	106.9	107.2	24	115.4	115.9	116.4	24	112.1	112.3	112.6	24	113.1	113.4	114.4	24	---	---	---	0
7/30	106.0	106.1	106.3	24	115.4	115.5	115.7	24	111.5	111.6	111.9	24	113.4	114.0	114.5	24	---	---	---	0
7/31	106.3	106.6	106.8	24	115.3	115.7	116.1	24	111.7	112.1	112.6	24	112.7	113.3	114.2	23	---	---	---	0
8/1	106.7	106.8	106.9	24	115.4	115.6	115.9	24	112.5	112.9	113.2	24	112.1	112.6	113.4	24	---	---	---	0
8/2	106.4	106.5	106.7	24	115.1	115.6	116.5	24	112.8	113.1	113.9	24	112.6	113.3	114.1	24	---	---	---	0
8/3	107.1	107.4	107.6	23	115.5	115.8	116.4	23	113.7	114.2	114.9	23	112.4	112.9	113.4	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
7/21	107.9	108.2	108.7	24	115.0	115.2	115.5	24	104.5	104.9	105.2	24	113.8	114.4	114.9	24	107.5	108.0	108.3	24
7/22	107.8	108.2	108.5	24	114.1	114.7	115.1	24	105.2	105.8	106.2	24	114.0	114.6	115.2	24	107.1	107.3	107.8	24
7/23	109.0	109.8	110.6	24	114.0	114.3	114.6	24	106.4	106.7	107.0	24	114.0	114.3	114.5	24	108.5	108.9	109.0	24
7/24	110.1	111.4	112.6	24	115.1	116.0	116.8	24	106.0	106.5	107.2	24	113.6	114.1	114.5	24	107.2	107.6	108.2	24
7/25	110.2	111.1	112.7	24	114.9	115.7	116.5	24	106.1	106.4	106.7	24	113.4	114.1	114.7	24	108.9	109.2	109.5	24
7/26	109.9	110.3	111.5	24	114.3	115.0	115.8	24	105.8	106.1	106.8	24	113.2	114.0	114.7	24	107.9	108.1	108.3	24
7/27	109.4	109.7	109.8	24	113.9	114.4	115.2	24	105.4	105.9	106.4	24	113.5	113.9	114.2	24	106.2	106.5	106.9	24
7/28	109.6	109.9	110.2	24	114.5	115.8	116.3	24	105.6	106.0	106.7	24	113.6	114.3	114.7	24	105.9	106.3	106.6	24
7/29	109.4	109.9	110.3	24	115.4	116.1	116.7	24	105.7	106.0	106.2	24	113.4	113.6	113.9	24	106.4	106.7	107.0	24
7/30	109.0	109.3	109.6	24	113.8	114.1	115.3	24	105.2	105.3	105.4	24	112.2	112.6	112.9	24	105.9	106.1	106.7	24
7/31	109.0	109.6	110.8	24	114.5	115.6	116.5	24	105.1	105.5	106.0	24	112.3	112.9	113.9	24	106.6	107.7	108.6	24
8/1	110.8	111.4	113.4	24	113.6	113.8	116.2	15	105.6	105.8	106.2	24	112.7	113.2	113.7	24	109.4	109.8	110.1	24
8/2	111.2	111.7	112.4	24	116.2	116.4	117.0	14	105.9	106.3	106.8	24	113.2	113.5	113.9	24	109.1	109.5	109.8	24
8/3	111.7	112.2	112.8	23	114.9	115.8	116.7	23	107.1	107.8	108.7	23	113.3	113.7	114.5	23	109.2	109.5	109.7	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
7/21	112.3	112.9	113.3	24	107.9	108.3	108.5	24	115.6	116.4	117.0	24	111.9	114.1	115.6	24	115.1	115.7	117.0	24
7/22	111.7	112.3	112.6	24	109.0	109.8	110.1	24	117.3	118.4	118.7	24	113.7	116.0	117.8	24	116.8	117.0	117.3	24
7/23	112.4	113.1	113.5	24	109.5	109.8	110.0	24	116.5	117.1	117.8	24	114.8	115.4	115.9	24	117.0	117.1	117.2	24
7/24	111.7	112.3	112.8	24	108.3	108.9	109.5	24	116.4	117.5	118.1	24	114.7	116.5	117.5	24	115.0	115.8	116.9	24
7/25	112.3	113.0	113.6	24	109.1	110.0	110.6	24	116.7	117.3	117.7	24	114.5	116.0	117.1	24	115.1	115.7	116.9	24
7/26	112.3	113.1	113.4	24	109.0	109.3	109.5	24	116.5	117.2	117.7	24	114.3	115.6	116.5	24	116.9	117.0	117.1	24
7/27	111.5	112.0	112.5	24	107.0	107.4	107.8	24	115.8	116.5	116.9	24	112.7	114.3	115.1	24	116.8	116.9	117.0	24
7/28	111.1	111.9	112.2	24	106.0	106.3	106.8	24	114.9	115.6	116.0	24	113.8	115.1	116.3	24	114.5	115.4	116.9	24
7/29	111.9	112.4	112.9	24	105.1	105.5	105.8	24	114.3	115.5	117.1	24	112.1	113.9	115.6	24	114.6	115.3	116.5	24
7/30	112.1	112.5	112.8	24	105.6	106.1	106.6	24	116.3	117.0	117.3	24	111.1	113.7	115.7	24	116.4	116.5	116.6	24
7/31	112.4	113.8	114.8	24	106.8	107.5	108.0	24	116.2	117.3	118.6	24	114.4	116.2	117.0	24	116.1	116.3	116.8	24
8/1	113.6	114.4	115.1	24	108.9	110.1	110.6	24	115.7	117.1	118.1	24	113.8	114.8	115.4	24	114.6	115.3	116.7	24
8/2	113.9	114.6	115.5	24	111.5	112.4	113.1	24	117.0	118.1	118.9	24	115.1	116.7	118.1	24	115.0	115.9	117.0	24
8/3	113.3	114.0	114.8	23	113.1	113.8	114.2	23	118.5	119.2	119.9	23	114.9	116.8	118.8	23	116.8	116.9	117.1	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 8/4/2017 12:02

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)
07/21/2017		---	---	---	---	0	0	35	0	---	0	0
07/22/2017		---	---	---	---	0	0	0	0	0	---	0
07/23/2017		---	---	---	---	0	0	36	0	---	0	0
07/24/2017		---	---	---	---	0	0	19	0	0	---	---
07/25/2017	*	---	---	---	---	0	0	18	0	---	0	0
07/26/2017		---	---	---	---	0	0	0	0	0	---	---
07/27/2017		---	---	---	---	0	0	0	0	---	---	0
07/28/2017	*	---	---	---	---	0	0	0	0	0	0	---
07/29/2017		---	---	---	---	0	0	0	0	---	---	0
07/30/2017		---	---	---	---	0	0	7	0	0	---	---
07/31/2017		---	---	---	---	0	0	0	0	---	---	0
08/01/2017	*	---	---	---	---	0	0	0	0	0	0	---
08/02/2017		---	---	---	---	0	0	0	0	---	---	0
08/03/2017		---	---	---	---	---	0	7	0	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	0	0
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**122**	**0**	**0**	**0**	**0**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**
YTD		**33,704**	**22,233**	**21,106**	**8**	**3,998,337**	**2,400,545**	**2,885,789**	**50,596**	**1,583,272**	**1,720,241**	**1,947,910**

				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)
07/21/2017		---	---	---	---	7,691	3,743	2,150	428	---	20,149	51,750
07/22/2017		---	---	---	---	6,878	2,961	763	578	71,639	---	53,193
07/23/2017		---	---	---	---	3,744	8,471	1,405	472	---	7,635	18,349
07/24/2017		---	---	---	---	6,095	5,948	972	495	26,040	---	---
07/25/2017	*	---	---	---	---	5,980	8,680	984	372	---	1,237	25,164
07/26/2017		---	---	---	---	3,743	7,490	898	466	77,850	---	---
07/27/2017		---	---	---	---	5,518	3,679	354	501	---	---	36,413
07/28/2017	*	---	---	---	---	3,698	2,801	296	630	31,486	2,068	---
07/29/2017		---	---	---	---	3,127	2,572	202	766	---	---	25,034
07/30/2017		---	---	---	---	1,700	2,469	204	382	23,948	---	---
07/31/2017		---	---	---	---	1,425	1,272	339	467	---	---	16,887
08/01/2017	*	---	---	---	---	1,013	961	192	411	18,811	1,294	---
08/02/2017		---	---	---	---	1,349	772	279	304	---	---	10,254
08/03/2017		---	---	---	---	---	694	118	165	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	430	4,027
Total:		**0**	**0**	**0**	**0**	**51,961**	**52,513**	**9,156**	**6,437**	**249,774**	**32,813**	**241,071**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**3,997**	**3,751**	**654**	**460**	**35,682**	**5,469**	**26,786**
YTD		**0**	**11**	**40**	**0**	**1,020,549**	**1,055,750**	**654,264**	**70,876**	**2,432,882**	**1,066,683**	**4,036,603**

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)
07/21/2017		---	---	---	---	0	0	0	0	---	0	0
07/22/2017		---	---	---	---	0	0	0	1	0	---	0
07/23/2017		---	---	---	---	0	0	0	0	---	0	16
07/24/2017		---	---	---	---	0	0	0	0	0	---	---
07/25/2017	*	---	---	---	---	0	0	0	0	---	0	0
07/26/2017		---	---	---	---	0	0	0	0	0	---	---
07/27/2017		---	---	---	---	0	0	0	0	---	---	0
07/28/2017	*	---	---	---	---	0	0	0	0	0	0	---
07/29/2017		---	---	---	---	0	0	0	0	---	---	0
07/30/2017		---	---	---	---	0	0	0	0	0	---	---
07/31/2017		---	---	---	---	0	0	0	0	---	---	0
08/01/2017	*	---	---	---	---	0	0	0	1	0	0	---
08/02/2017		---	---	---	---	0	0	0	0	---	---	0
08/03/2017		---	---	---	---	---	0	0	0	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	0	0
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**16**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
YTD		**0**	**0**	**2,232**	**0**	**128,502**	**86,636**	**69,601**	**35,299**	**86,630**	**96,620**	**356,042**

				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)
07/21/2017		---	---	---	---	0	0	0	3	---	0	0
07/22/2017		---	---	---	---	0	0	0	0	0	---	0
07/23/2017		---	---	---	---	0	11	0	0	---	0	0
07/24/2017		---	---	---	---	38	0	0	3	0	---	---
07/25/2017	*	---	---	---	---	36	0	0	1	---	0	0
07/26/2017		---	---	---	---	36	0	0	1	0	---	---
07/27/2017		---	---	---	---	0	29	18	0	---	---	0
07/28/2017	*	---	---	---	---	0	0	0	0	0	0	---
07/29/2017		---	---	---	---	0	14	0	0	---	---	0
07/30/2017		---	---	---	---	0	11	0	0	0	---	---
07/31/2017		---	---	---	---	0	0	0	0	---	---	0
08/01/2017	*	---	---	---	---	0	0	0	0	0	0	---
08/02/2017		---	---	---	---	0	6	0	0	---	---	0
08/03/2017		---	---	---	---	---	6	0	0	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	0	0
Total:		**0**	**0**	**0**	**0**	**110**	**77**	**18**	**8**	**0**	**0**	**0**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**8**	**6**	**1**	**1**	**0**	**0**	**0**
YTD		**7,117**	**15,916**	**7,614**	**1**	**4,065,200**	**1,853,132**	**2,517,507**	**32,130**	**442,839**	**1,317,075**	**264,513**

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)
07/21/2017		---	---	---	---	0	34	0	5	---	0	0
07/22/2017		---	---	---	---	0	0	0	0	206	---	182
07/23/2017		---	---	---	---	0	0	0	0	---	0	0
07/24/2017		---	---	---	---	0	0	0	0	0	---	---
07/25/2017	*	---	---	---	---	0	1	0	3	---	0	58
07/26/2017		---	---	---	---	36	1	0	4	207	---	---
07/27/2017		---	---	---	---	0	0	0	1	---	---	0
07/28/2017	*	---	---	---	---	0	0	0	1	0	0	---
07/29/2017		---	---	---	---	0	0	0	3	---	---	0
07/30/2017		---	---	---	---	0	0	0	0	0	---	---
07/31/2017		---	---	---	---	0	0	0	0	---	---	16
08/01/2017	*	---	---	---	---	0	0	0	0	0	0	---
08/02/2017		---	---	---	---	0	0	0	3	---	---	0
08/03/2017		---	---	---	---	---	0	0	1	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	0	0
Total:		**0**	**0**	**0**	**0**	**36**	**36**	**0**	**21**	**413**	**0**	**256**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**3**	**3**	**0**	**2**	**59**	**0**	**28**
YTD		**6**	**0**	**0**	**0**	**61,191**	**24,457**	**34,028**	**11,171**	**156,287**	**117,048**	**145,226**

					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)
07/21/2017		---	---	---	---	2	16	0	0	---	150	0
07/22/2017		---	---	---	---	3	8	0	1	100	---	0
07/23/2017		---	---	---	---	4	24	20	0	---	160	0
07/24/2017		---	---	---	---	0	30	0	0	0	---	---
07/25/2017	*	---	---	---	---	1	0	10	0	---	0	0
07/26/2017		---	---	---	---	4	30	0	0	100	---	---
07/27/2017		---	---	---	---	1	0	0	0	---	---	0
07/28/2017	*	---	---	---	---	0	10	0	0	200	0	---
07/29/2017		---	---	---	---	0	30	0	1	---	---	0
07/30/2017		---	---	---	---	0	16	0	0	0	---	---
07/31/2017		---	---	---	---	0	8	0	0	---	---	0
08/01/2017	*	---	---	---	---	0	0	0	0	0	0	---
08/02/2017		---	---	---	---	0	12	0	0	---	---	0
08/03/2017		---	---	---	---	---	12	0	0	0	---	---
08/04/2017	*	---	---	---	---	---	---	---	---	---	0	0
Total:		**0**	**0**	**0**	**0**	**15**	**196**	**30**	**2**	**400**	**310**	**0**
# Days:		**0**	**0**	**0**	**0**	**13**	**14**	**14**	**14**	**7**	**6**	**9**
Average:		**0**	**0**	**0**	**0**	**1**	**14**	**2**	**0**	**57**	**52**	**0**
YTD		**0**	**3**	**4**	**0**	**287**	**7,123**	**2,980**	**58**	**32,805**	**62,483**	**42,204**

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: 8/4/17 12:03 PM

07/21/17 TO 08/04/17

		Species				
Site	Data	**CH0**	**CH1**	ST	SO	**Grand Total**
LGR	Sum of NumberCollected	29,001		60	20	29,081
	Sum of NumberBarged	15,031		38	20	15,089
	Sum of NumberBypassed	17,950		20	25	17,995
	Sum of Numbertrucked	0		0	0	0
	Sum of SampleMorts	30		0	0	30
	Sum of FacilityMorts	164		2	0	166
	Sum of ResearchMorts	0		0	0	0
	Sum of TotalProjectMorts	194		2	0	196
LGS	Sum of NumberCollected	36,603		54	26	36,683
	Sum of NumberBarged	22,167		42	0	22,209
	Sum of NumberBypassed	16,786		12	22	16,820
	Sum of Numbertrucked	0		0	0	0
	Sum of SampleMorts	37		0	2	39
	Sum of FacilityMorts	250		1	2	253
	Sum of ResearchMorts	0		0	0	0
	Sum of TotalProjectMorts	287		1	4	292
LMN	Sum of NumberCollected	5,128	68	10		5,206
	Sum of NumberBarged	2,369	15	9		2,393
	Sum of NumberBypassed	4,916	69	0		4,985
	Sum of Numbertrucked	0	0	0		0
	Sum of SampleMorts	4	0	0		4
	Sum of FacilityMorts	14	0	1		15
	Sum of ResearchMorts	0	0	0		0
	Sum of TotalProjectMorts	18	0	1		19
Total Sum of NumberCollected		70,732	68	124	46	70,970
Total Sum of NumberBarged		39,567	15	89	20	39,691
Total Sum of NumberBypassed		39,652	69	32	47	39,800
Total Sum of Numbertrucked		0	0	0	0	0
Total Sum of SampleMorts		71	0	0	2	73
Total Sum of FacilityMorts		428	0	4	2	434
Total Sum of ResearchMorts		0	0	0	0	0
Total Sum of TotalProjectMorts		499	0	4	4	507

YTD Transportation Summary

Source: Fish Passage Center Updated: 8/4/17 12:03 PM

TO: 08/04/17

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	628,393	2,362,698	74,225	35,589	2,329,514	5,430,419
	Sum of NumberBarged	601,027	978,688	63,247	19,699	949,358	2,612,019
	Sum of NumberBypassed	21,922	1,381,285	10,900	15,670	1,379,888	2,809,665
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	252	90	5	11	53	411
	Sum of FacilityMorts	5,180	2,609	73	209	193	8,264
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	5,444	2,725	78	220	268	8,735
LGS	Sum of NumberCollected	611,801	1,337,946	43,198	13,718	1,065,044	3,071,707
	Sum of NumberBarged	591,157	495,706	39,956	10,026	313,248	1,450,093
	Sum of NumberBypassed	17,361	837,161	3,201	3,318	751,538	1,612,579
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	121	29	1	10	10	171
	Sum of FacilityMorts	2,689	5,050	40	364	244	8,387
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,810	5,079	41	374	254	8,558
LMN	Sum of NumberCollected	329,881	1,459,190	33,440	17,200	1,293,660	3,133,371
	Sum of NumberBarged	338,894	931,882	32,959	12,568	710,510	2,026,813
	Sum of NumberBypassed	5,516	489,562	800	4,597	560,085	1,060,560
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	48	37	2	5	31	123
	Sum of FacilityMorts	306	1,089	39	120	387	1,941
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	354	1,126	41	125	418	2,064
Total Sum of NumberCollected		1,570,075	5,159,834	150,863	66,507	4,688,218	11,635,497
Total Sum of NumberBarged		1,531,078	2,406,276	136,162	42,293	1,973,116	6,088,925
Total Sum of NumberBypassed		44,799	2,708,008	14,901	23,585	2,691,511	5,482,804
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		421	156	8	26	94	705
Total Sum of FacilityMorts		8,175	8,748	152	693	824	18,592
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		8,608	8,930	160	719	940	19,357

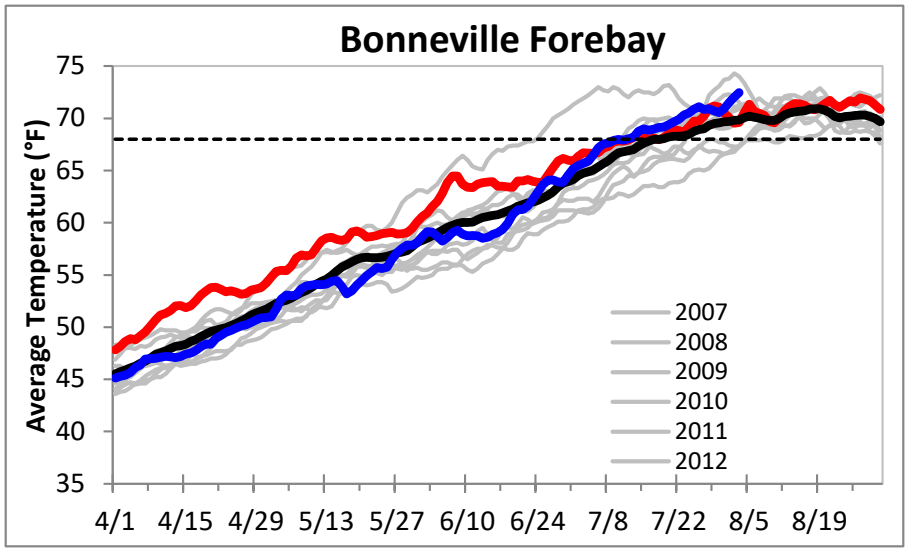
Cumulative Adult Passage at Mainstem Dams Through: 08/03

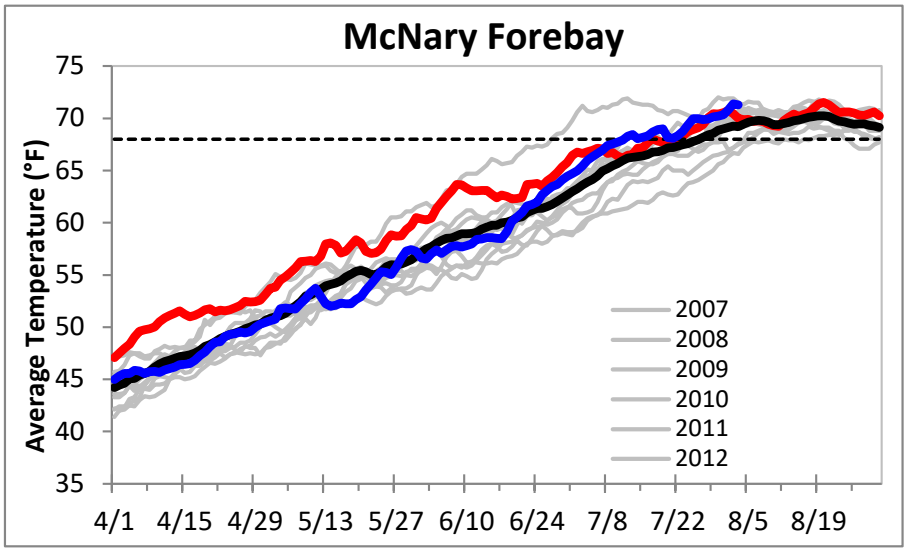
		Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
dam	enddate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	08/03	83624	18110	137215	11145	150783	25708	88044	10648	119591	10834	97732	22097	1243	148	1857	204	1311	314
TDA	08/03	58308	12497	105504	9999	118766	22002	69246	9277	95764	8800	81601	17760	0	0	0	0	0	0
JDA	08/03	46675	12475	93659	8262	103450	20515	60195	7313	89686	7649	72500	17006	0	0	0	0	0	0
MCN	08/03	44292	7020	87191	7374	93925	16835	56334	4525	82180	6334	67469	12587	0	0	0	0	0	0
IHR	08/03	28306	6949	67484	5029	68114	11248	9127	2070	13214	1457	18458	4800	0	0	0	0	0	0
LMN	08/03	28545	8270	66115	6266	68087	10905	8035	3335	11528	2214	19419	5697	0	0	0	0	1	0
LGS	08/03	26598	8335	62597	6365	63765	12007	8930	3702	11455	1836	18499	6213	0	0	0	0	0	0
LGR	08/03	27357	8256	62050	5480	62403	13092	8671	3572	10835	1956	16542	6648	0	0	0	0	0	0
PRD	08/02	7268	783	16843	1003	17901	1826	51234	1489	76659	4643	53800	2197	0	0	0	0	0	0
WAN	08/02	6612	484	17164	919	17602	2161	47580	1178	76090	3690	51287	1798	0	0	0	0	0	0
RIS	08/02	8080	564	18646	715	18006	2748	53222	972	74163	2587	51167	4240	0	0	0	0	0	0
RRH	08/02	5864	406	9449	351	7849	1209	39514	663	52732	1953	39174	2854	0	0	0	0	0	0
WEL	08/02	6589	820	11789	833	8215	1601	26608	740	37448	1829	28453	2431	0	0	0	0	0	0
WFA	08/02	34116	2428	30117	2114	34474	1435	0	0	0	0	0	0	0	0	0	0	0	0

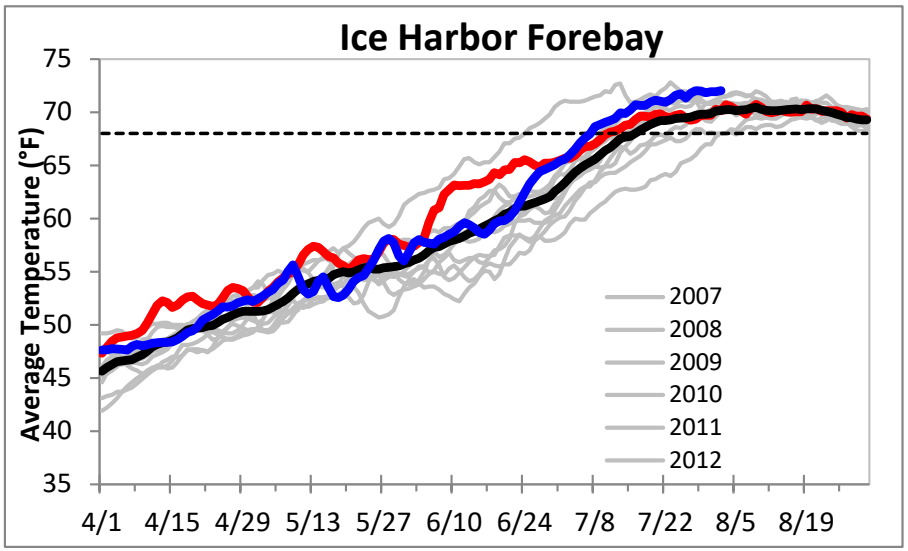
		Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.				10-Yr			10-Yr	Unclipped	Unclipped	10-Yr			10-Yr
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	08/03	0	0	0	0	0	0	87519	341842	315277	27281	66393	117749	13285	25221	52159	73923	40983	18912
TDA	08/03	0	0	0	0	0	0	63821	287693	268773	7367	22741	60760	3956	10684	29125	24900	7798	4675
JDA	08/03	0	0	0	0	0	1	65802	289198	259983	4185	14059	43206	2796	7330	19685	17636	6316	3411
MCN	08/03	0	0	0	0	1	0	57914	261123	225845	4878	11807	31730	2178	5708	12877	1505	818	615
IHR	08/03	0	0	0	0	0	0	390	890	914	2111	7175	18032	1081	3153	5498	809	569	159
LMN	08/03	0	0	0	0	0	0	345	997	1082	2388	6394	18614	1279	3399	6533	222	156	34
LGS	08/03	0	0	0	0	0	0	285	924	1005	1933	6768	10013	953	3700	4488	339	107	16
LGR	08/03	0	0	0	0	0	0	225	792	1032	7636	8139	12858	3278	4485	5182	201	54	4
PRD	08/02	0	0	0	1	0	0	66522	310297	265688	507	1794	2923	0	0	0	11745	3329	1193
WAN	08/02	0	0	0	0	0	0	75761	321495	234498	384	1602	2875	0	0	0	8020	1554	518
RIS	08/02	0	0	0	0	0	0	72784	308508	256982	370	1259	1935	214	561	1001	3369	393	131
RRH	08/02	0	0	0	0	0	0	46319	234096	215634	256	849	1429	94	335	701	2947	270	101
WEL	08/02	0	0	0	0	0	0	41758	213546	203801	166	597	652	98	235	323	14	1	0
WFA	08/02	0	0	0	0	0	0	0	0	0	2658	26546	21952	0	0	0	0	0	0

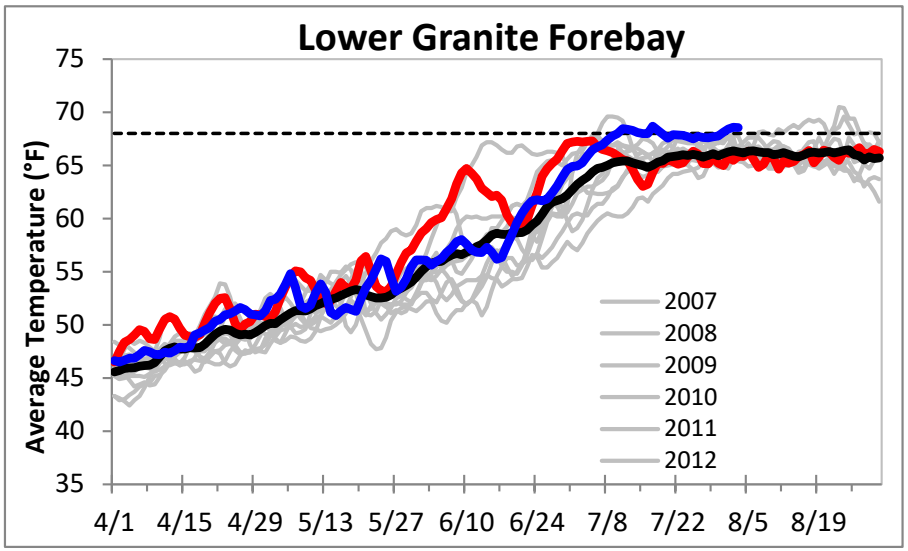
PRD does not post wild steelhead numbers.
These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.
Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.
Historic counts (pre-1996) were obtained from CRITFC and compiled by the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

Page last updated on: 08/04/17


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


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


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


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