High Water Temperature at Lower Granite Dam Fishway Continues to Impact Adult Passage (see page 5)

Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has been below average over July, ranging between 2% and 45% of average at individual sub-basins. Precipitation above The Dalles has been 21% of average over July. Over the 2013 water year, precipitation has ranged between 67% and 103% of average.

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Water Year 2013</th>
<th>Water Year 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July 1-31, 2013</td>
<td>October 1, 2012 to</td>
</tr>
<tr>
<td></td>
<td>Observed (inches) %</td>
<td>July 31, 2013</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>% Average</td>
</tr>
<tr>
<td>Columbia above Coulee</td>
<td>0.51 20</td>
<td>32.7 95</td>
</tr>
<tr>
<td>Snake River above Ice Harbor</td>
<td>0.31 31</td>
<td>14.9 72</td>
</tr>
<tr>
<td>Columbia above The Dalles</td>
<td>0.31 21</td>
<td>21.0 82</td>
</tr>
<tr>
<td>Kootenai</td>
<td>0.58 20</td>
<td>36.4 103</td>
</tr>
<tr>
<td>Clark Fork</td>
<td>0.30 19</td>
<td>18.6 74</td>
</tr>
<tr>
<td>Flathead</td>
<td>0.32 14</td>
<td>31.5 95</td>
</tr>
<tr>
<td>Pend Oreille Basin</td>
<td>0.26 14</td>
<td>25.8 85</td>
</tr>
<tr>
<td>Snake Basin above Hells Canyon</td>
<td>0.36 45</td>
<td>11.9 69</td>
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<tr>
<td>Salmon River Basin</td>
<td>0.42 28</td>
<td>17.8 67</td>
</tr>
<tr>
<td>Clearwater</td>
<td>0.11 6</td>
<td>31.7 83</td>
</tr>
<tr>
<td>Willamette River above Portland</td>
<td>0.02 2</td>
<td>55.1 89</td>
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</tbody>
</table>

Grand Coulee Reservoir is at 1286.5 feet (8-1-13) and drafted 1.0 feet over the last week. Outflows at Grand Coulee have ranged between 115.5 and 137.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2454.4 feet (7-31-13) and has drafted 0.6 feet last week. Outflows at Libby Dam have been 14.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3557.5 feet (7-31-13) and has drafted 0.8 feet last week. Outflows at Hungry Horse Dam have been 2.8 to 3.1 Kcfs over the last week.

Dworshak is currently at an elevation of 1566.5 feet (8-1-13) and has drafted 6.7 feet last week. Outflows from Dworshak have ranged from 9.8 to 9.9 Kcfs over the last week for temperature and flow augmentation in the lower Snake River.

The Brownlee Reservoir was at an elevation of 2059.1 feet on August 1st, 2013, drafting 1.5 feet over the last week. Over the last week, inflows at Brownlee have ranged between 6.3 and 8.1 Kcfs.

The flow objective at Lower Granite over the summer period (June 21st to August 31st) is 50 Kcfs; over the summer period flows at Lower Granite have averaged 35.7 Kcfs and 24.9 Kcfs over the last week.

The flow objective at McNary over the summer period (July 1st to August 31st) is 200 Kcfs; over the summer period flows at McNary have averaged 212.0 Kcfs and over the last week have averaged 174.8 Kcfs.
**Spill:** Summer Spill began on June 20th at the lower Snake River projects and will extend through August 31st.

<table>
<thead>
<tr>
<th>Project</th>
<th>Spill Level Day/Night</th>
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</thead>
<tbody>
<tr>
<td>Lower Granite</td>
<td>18 Kcfs/18 Kcfs</td>
</tr>
<tr>
<td>Little Goose</td>
<td>30%/30%</td>
</tr>
<tr>
<td>Lower Monumental</td>
<td>17 Kcfs/17 Kcfs</td>
</tr>
<tr>
<td>Ice Harbor</td>
<td>30%/30% vs. 45 Kcfs/Gas Cap</td>
</tr>
</tbody>
</table>

Flow in the Snake River decreased a few Kcfs over the past week. This means that at times spill levels are likely going to be below the Court ordered amounts due to low flows and required powerhouse minimum flows at the Snake River projects.

At Lower Granite Dam spill was below the Court ordered volumes due to low flow and powerhouse minimum requirements. Powerhouse minimum requirements were a function of which unit was operated. Because of concern over adult sockeye passage at the project, consideration was given to decreasing juvenile passage protection and operating Unit 1. The operation of Unit 1 requires a higher flow (16.9 Kcfs) to operate at the 1% efficiency range due to its fixed blade configuration. The extent to which the project was below the Court order was a function of whether the operations were according to the Fisheries Operations Plan, or due to the operation of Unit 1 for adult sockeye passage. At Little Goose Dam the low flows initiated a change in spill from the 30% of instantaneous flow to a constant spill level of 7–11 Kcfs. This change was initiated on the afternoon of July 18th. The project spilled an instantaneous amount of approximately 9 Kcfs over the past week. At Lower Monumental and Ice Harbor dams the Court ordered summer spill levels were not met due to low flows and powerhouse minimum requirements precluding spill at the amounts described in the table.

Summer spill for fish passage at the Lower Columbia projects began on July 1st, except at McNary Dam where summer spill began on June 20th and Bonneville Dam where summer spill began on June 16th. Spill will continue through August 31st.

<table>
<thead>
<tr>
<th>Project</th>
<th>Summer Spill Level Day/Night</th>
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</thead>
<tbody>
<tr>
<td>McNary</td>
<td>50%/50%</td>
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<tr>
<td>John Day</td>
<td>July 20–August 31: 30%/30%</td>
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<tr>
<td>The Dalles</td>
<td>40%/40%</td>
</tr>
<tr>
<td>Bonneville</td>
<td>July 21–August 31: 75 Kcfs/Gas Cap</td>
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</table>

All the middle Columbia River dams met the court-ordered summer spill levels described in the table.

There were no TDG exceedences observed in the system over the past week. Based on historic data collected since 1995 from the gas bubble trauma (GBT) monitoring program, we would not expect to see fish exhibit signs of GBT at the present TDG levels. Consistent with historic data, one fish at Little Goose Dam (7/29), two fish at McNary Dam (8/2), and two fish at Bonneville Dam (7/30) were detected with minor signs of GBT.

**Smolt Monitoring:** Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, and LGR). Collections from 2013 out-migration season at the Imnaha River Trap were terminated on July 18th.

Subyearling Chinook were the dominant species of salmonid at all SMP dams over the past week. Although subyearling Chinook dominated the collections, all of the SMP sites continue to collect a few spring migrants.

High temperature sampling protocols were in effect for most of this week at BON. Under these high temperature sampling protocols, daily index sampling occurred every other day. All fish were bypassed on non-sample days. Passage of subyearling Chinook increased slightly this week, when compared to last week. This week’s daily average passage index for subyearling Chinook was just over 15,000 per day. Last week’s daily average passage index for subyearling Chinook was nearly 13,000 per day. Sockeye were the
only spring migrants that were collected at BON this week. The only lamprey juveniles that were collected this week were Pacific macrophthalmia, which were only collected on two of the four sample days. As of today, high temperature sampling protocols have been reinstated and will remain in effect until temperatures decrease to safer levels.

Due to elevated temperatures in the juvenile facility, high temperature sampling protocols were initiated at JDA on Thursday, July 25th. Under these high temperature sampling protocols, the SMP crew at JDA samples for condition only on Tuesdays and Thursdays. It is important to note that sampling under the higher temperature protocols at JDA results in bias collection estimates, as sampling is not 24-hours. Therefore, it is not appropriate to compare passage index estimates during this period to those from previous weeks. Subyearling Chinook dominated the bypass samples at JDA this week. The only other species of salmonid that was collected in this week’s samples was sockeye. Finally, no lamprey juveniles were collected in this week’s samples. The high temperature sampling protocols will continue until temperatures decrease to safer levels.

Sampling at MCN for the 2013 season is every-other-day. Subyearling Chinook continued to dominate the bypass sample at MCN this week. This week’s daily average passage index for subyearling Chinook at MCN was nearly 34,800 per day. Last week’s daily average passage index for subyearling Chinook was about 54,600 per day. The only spring migrants that were collected at MCN this week were yearling Chinook and sockeye. Yearling Chinook were collected only on one day this week (July 30th) while sockeye were collected on every sample day this week. This week’s daily average passage index for sockeye was about 380 per day, which is a decrease from last week’s daily average passage index of about 480 per day. Pacific lamprey macrophthalmia continue to be the only species and life-stage of lamprey collected at MCN this season. This week’s daily average collection for Pacific lamprey macrophthalmia was about 100, which was higher than last week’s daily average collection of only 33 per day.

Passage of subyearling Chinook at LGR continued to decrease this week when compared to last week. This week’s daily average passage index for subyearling Chinook was about 1,900 per day. Last week’s daily average passage index was 2,400 per day. A very small number of yearling Chinook, sockeye, and steelhead were collected this week. No coho juveniles were collected this week. In addition, Pacific lamprey macrophthalmia were collected only one day this week (July 30th). Finally, due to the possible resampling of PIT-tagged research fish that were released into the gatewells, the estimated year-to-date collection and passage index totals for yearling Chinook, steelhead, subyearling Chinook, and Pacific lamprey macrophthalmia are likely inflated. The FPC is aware of this possible bias and is investigating ways to correct these inflated estimates after the season has ended. However, the magnitude of this bias is relatively low and is unlikely to skew estimates of timing for this species.

Subyearling Chinook passage at LGS increased slightly this week when compared to last week. This week’s daily average passage index for subyearling Chinook at LGS was nearly 2,100 per day. Last week’s daily average passage index was about 1,900 per day. Yearling Chinook and steelhead were the only spring migrants that were collected in this week’s samples. However, collections of yearling Chinook and steelhead were extremely low this week. Finally, only Pacific lamprey macrophthalmia were collected at LGS this week. Pacific lamprey macrophthalmia were sampled every day this week, with a daily average collection of about 15 per day.

Subyearling Chinook passage at LMN decreased this week when compared to last week. This week’s daily average passage index for subyearling Chinook at LMN was about 400 per day. Last week’s daily average passage index was nearly 840 per day. The only spring migrants that were collected this week were yearling Chinook and steelhead. Finally, only Pacific lamprey macrophthalmia were collected at LMN this week. Pacific lamprey macrophthalmia were collected nearly every day this week, although in very low numbers.
On the morning of July 29th, the adult ladder at RIS was dewatered for repairs. Dewatering of the adult ladder led to the suspension of juvenile sampling for the SMP. Collections will resume as soon as repairs are completed in the adult ladder. For the period of July 26th to July 29th, passage of subyearling Chinook had increased when compared to the previous week. The daily average passage index for subyearling Chinook at RIS over these four days was about 450 per day. Last week’s daily average passage index for subyearling Chinook was about 400 per day. Passage of yearling Chinook, coho, sockeye, and steelhead was extremely low over these four days. Finally, Pacific lamprey macropthalmia were collected on three of the four sample days this week, although in low numbers.

Collections at the Imnaha River Trap ended for the 2013 out-migration season on July 18th. Only yearling Chinook were collected during the last few days of sampling. However, it is unclear as to whether these Chinook juveniles were active migrants or pre-smolts that will rear elsewhere and out-migrate in 2014.

Hatchery Release

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. There were no new releases of juvenile salmonids scheduled for this zone this week. In addition, there are no new releases scheduled for this zone over the next two weeks.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. No new releases of juvenile salmonids were scheduled to begin in this zone this week. There are also no releases of juvenile salmonids in this zone over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No new releases of juvenile salmonids were scheduled for this zone this week. Furthermore, there are no new releases to this zone scheduled over the next two weeks.

Adult Fish Passage

Fall Chinook began to pass Bonneville Dam on August 1st. The adult fall Chinook count of 456 is about 63.1% of the 2012 count of 722, while being about 1.3 times greater than the 10-year average count of 339. The 2013 Bonneville Dam fall Chinook jack count of 63 is about 26.6% of the 2012 count of 237 and about 91.3% of the 10-year average count of 69. The 2013 summer Chinook count of 93,097 is about 1.14 times greater than the 2012 count of 81,663 and 1.06 times greater than the 10-year average count of 87,543. The 2013 Bonneville Dam summer Chinook jack count of 26,186 is 2.1 times greater than the 2012 count of 12,235 and 1.5 times greater than the 10-year average count of 17,586. At McNary Dam 72,753 adult summer Chinook have been counted. The 2013 adult summer Chinook count at McNary Dam is about 1.2 times greater than the 2012 count and 1.2 times greater than the 10-year average. The 2013 McNary Dam summer Chinook jack count of 14,158 is about 3 times greater than the 2012 count and 1.3 times greater than the 10-year average count. The 2013 summer Chinook jack count of 7,161 is about 4.4 times greater than the 2012 count and 1.3 times greater than the 10-year average count.

The 2013 Bonneville Dam adult steelhead count of 68,420 is about 74.2% of the 2012 count of 92,197 and 59.8% of the 10-year average count of 114,353. The 2013 Bonneville Dam adult wild steelhead count of 38,170 is about 95.7% of the 2012 count of 39,889 and 79.1% of the 10-year average count of 48,251. In the Snake River, this year’s Lower Granite steelhead count of 8,695 is about 62.5% of the 2012 count and 50.2% of the 10-year average count. The 2013 Lower Granite steelhead count of 3,858 is about 85.2% of the 2012 count of 4,528 and about 86.2% of the 10-year average count of 4,476. At Willamette Falls, the 2013 count for steelhead was 16,935 as of July 20th. This year’s steelhead count is about 55.5% of the 2012 count of 30,495 and about 68% of the 10-year average count of 24,909.
Daily adult sockeye passage numbers at Bonneville Dam ranged between 87 and 294 last week. The 2013 adult sockeye count at Bonneville Dam of 185,033 is about 35.9% of the 2012 count of 515,530, while being 1.04 times greater than the 10-year average count of 177,489. Two of the major spawning sites for sockeye in the Upper Columbia River zone are Lake Wenatchee and Lake Osoyoos (Okanogan basin). The 2013 McNary Dam adult sockeye count of 133,370 is about 36.6% of the 2012 count of 363,841, while being 1.06 times greater than the 10-year average count of 125,611. The Lower Granite Dam 2013 adult sockeye count of 695 is about 1.6 times greater than the 2012 count of 429 and 1.16 times greater than the 10-year average count of 599.

One adult coho has crossed Bonneville dam so far this year. As of August 1st at Bonneville Dam, the adult shad count was 3,748,555. This year’s shad count is about 1.5 times greater than the 2012 count of 2,429,461 and 1.3 times greater than the 10-year average count of 2,860,616.

Lower Granite Dam
Excessive Temperature Issue

Over the last week, adult passage concerns have continued at Lower Granite Dam. Of particular importance have been the very low daily passage numbers of sockeye and the discrepancy between the counts of sockeye reported at Little Goose Dam as compared to those reported at Lower Granite Dam.

The COE continues to utilize the emergency pumping system to moderate temperature in the Lower Granite ladder. The emergency pumps draw water from deeper in the forebay (cooler water) as compared to the other sources of water contributing to the upper ladder. The use of these pumps has cooled ladder temperatures near the fishway exit to a range of 69–72° F, which prior to using these pumps had been ranging between 72–76° F.

Adults passing through the ladder did seem to respond to the initiation of the emergency pumps and resulting cooler ladder water. However, early last week when unit priority was switched back to the Fish Operation Plan Unit #2 priority, daily fish counts at Lower Granite decreased despite the ladder remaining relatively cool. When Unit #2 was operating, project personnel did report an eddy that was thought to be impacting the attraction of adults into the fishway. Late Wednesday (7-31-13) morning the action agencies resorted back an operation that prioritized Unit #1, effectively moving more water through the powerhouse and less water over the spillway, with all spilled water moving over the RSW. Adult fish counts on July 31st did not improve, but on August 1st, 2013, adults did show an increase relative to counts over the previous several days. This operation will tentatively remain in place through the middle of next week, with a check-in on Monday.
### Hatchery Releases Last Two Weeks

<table>
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<tr>
<th>Agency</th>
<th>Hatchery</th>
<th>Species</th>
<th>Race</th>
<th>MigYr</th>
<th>NumRel</th>
<th>RelStart</th>
<th>RelEnd</th>
<th>RelSite</th>
<th>RelRiver</th>
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**From:** 7/19/2013 to 08/01/13

**From:** 8/2/2013 to 8/15/2013
### Daily Average Flow and Spill (in kcfs) at Mid-Columbia Projects

<table>
<thead>
<tr>
<th>Date</th>
<th>Grand Coulee Flow</th>
<th>Chief Joseph Spill</th>
<th>Wells Flow</th>
<th>Rocky Reach Spill</th>
<th>Rock Island Flow</th>
<th>Wanapum Spill</th>
<th>Priest Rapids Flow</th>
<th>Spill</th>
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<tbody>
<tr>
<td>07/19/2013</td>
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### Daily Average Flow and Spill (in kcfs) at Snake Basin Projects

<table>
<thead>
<tr>
<th>Date</th>
<th>Dworshak Flow</th>
<th>Brownlee Inflow</th>
<th>Hells Canyon Outflow</th>
<th>Little Goose Flow</th>
<th>Granite Flow</th>
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### Daily Average Flow and Spill (in kcfs) at Lower Columbia Projects

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

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### 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

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

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## Two-Week Summary of Passage Indices

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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. Two classes of fish counts are shown in these tables:

Two classes of fish counts are shown in these tables:
  - 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.

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.

†† Passage index for yearling Chinook, steelhead, and subyearling Chinook at LGR may be inflated in 2013 due to possible resampling of PIT-tagged research fish

† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

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: 8/2/13 7:23 AM

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Source: Fish Passage Center

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**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: 08/02/13