



## FISH PASSAGE CENTER

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### MEMORANDUM

TO: Charlie Morrill

FROM: Gabe Scheer

DATE: July 12, 2021

SUBJECT: Snake River Sockeye Conversion Through the FCRPS

In response to your request, the Fish Passage Center has summarized the Snake River sockeye conversion rates and travel times through the Columbia and Snake Rivers for 2021 for comparison with the years 2010-2020. The following are our key findings.

- Conversion rates for Snake River Sockeye for Bonneville to McNary, Bonneville to Ice Harbor, and Bonneville to Lower Granite Dams are all roughly similar to the 2010-2020 average, but substantially higher than 2015 levels.
- Travel times for Snake River Sockeye for Bonneville to McNary, Bonneville to Ice Harbor, and Ice Harbor to Lower Granite Dam are slightly faster than the 2010-2020 average, and substantially faster than the 2015 averages.

For this analysis PIT tagged data for hatchery and wild sockeye salmon originating in the Snake River were summarized between 2010-2021. Conversion rates were calculated through July 12<sup>th</sup> in prior years to compare equal in-season rates of sockeye conversion through the Columbia and Snake Rivers. Three reaches were examined: Bonneville to McNary, Bonneville to Ice Harbor and Bonneville to Lower Granite Dam. Similarly for travel times, three reaches were summarized and compared: Bonneville to McNary, Bonneville to Ice Harbor, and Ice Harbor to Lower Granite Dam.

Conversion from Bonneville to McNary in 2021 is slightly above average as of July 12<sup>th</sup>. Average conversion on July 12<sup>th</sup> between 2010-2020 is approximately 41%, compared to 46% in 2021 (Figure 1). However, 2015 has a large effect on this average both due to the large number of returning sockeye, as well as their abnormally low survival rates in that year. When 2015 is excluded, the conversion rate in 2021 would be slightly below the long term average (46% vs 52%).

Travel times in 2021 between Bonneville and McNary are slightly faster than the ten year average, with an average travel time of 5.5 days compared with the 2010-2020 average of 6.4. However, the median travel time from Bonneville to McNary looks similar to previous years (Figure 2).

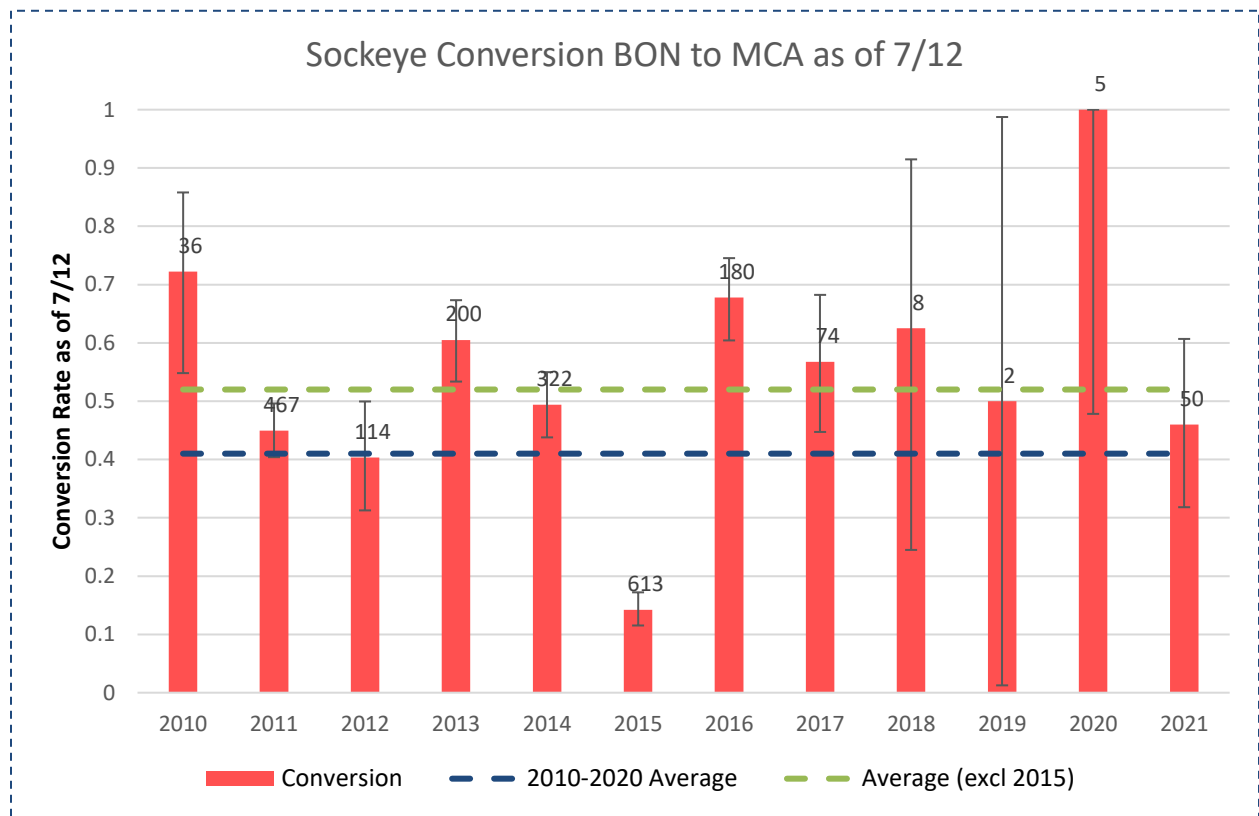


Figure 1: Conversion rates as of July 12th for Snake River Sockeye between Bonneville and McNary Dams 2010-2021

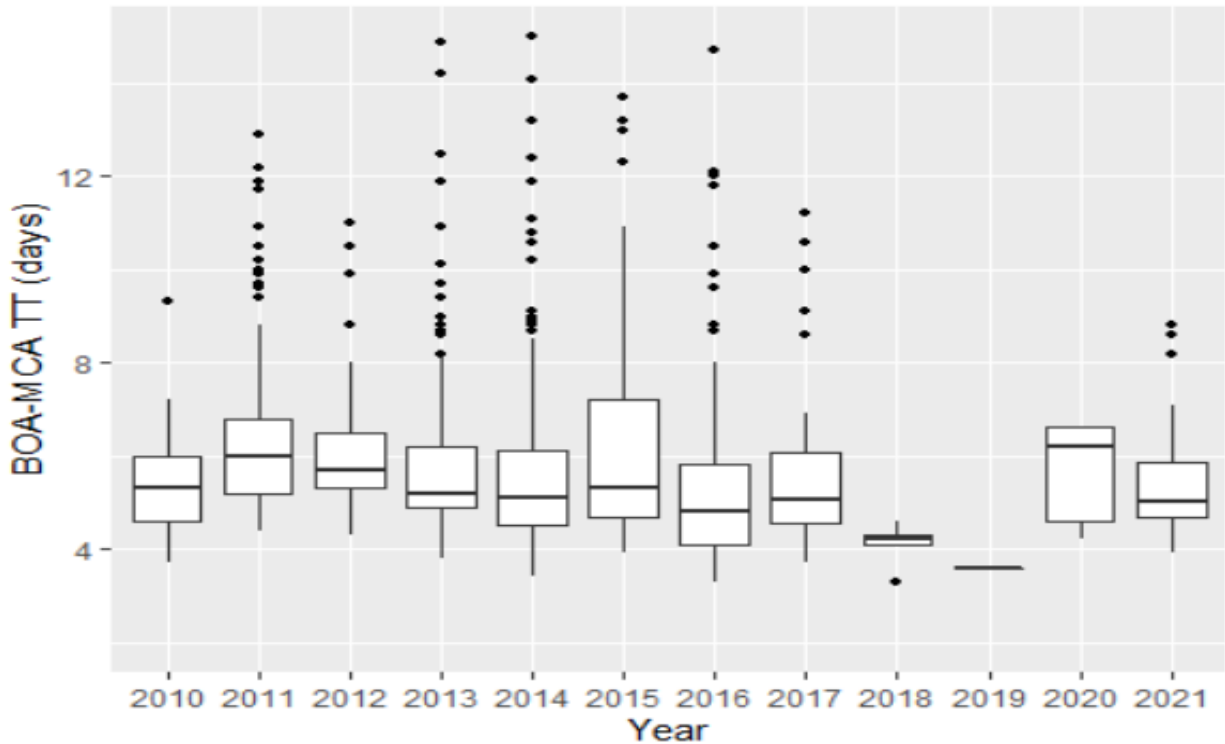


Figure 2: Median travel times for Snake River Sockeye between Bonneville and McNary Dams 2010-2021

Conversion from Bonneville to Ice Harbor in 2021 is about average as of July 12<sup>th</sup>. Average conversion on July 12<sup>th</sup> between 2010-2020 is approximately 31%, compared to 32% in 2021 (Figure 3). Again, when excluding 2015, the conversion rate in 2021 would be slightly below the long term average (32% vs 41%) but within the bounds of uncertainty.

Travel times in 2021 between Bonneville and Ice Harbor are slightly faster than the ten year average, with an average travel time of 6.6 days compared with the 2010-2020 average of 8.1. Median travel time in 2021 was slightly lower than 2010-2020 at 6.5 days vs 7.3 days, respectively (Figure 4).

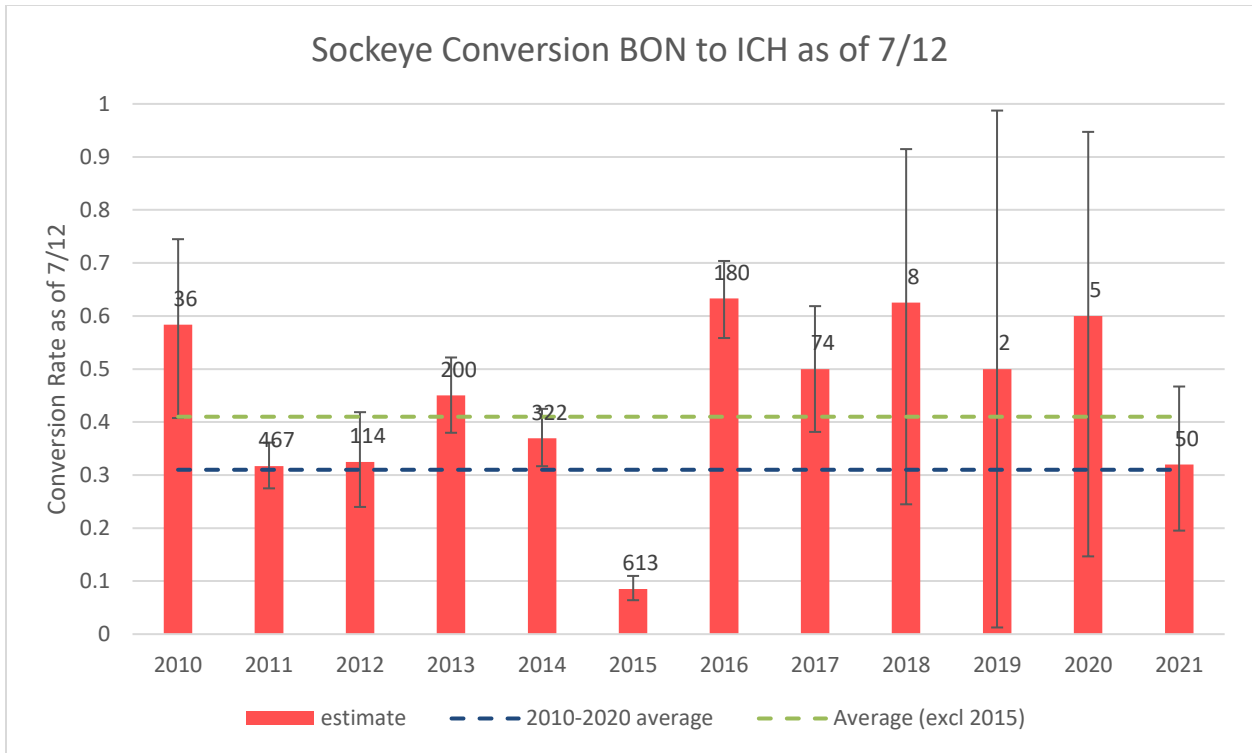


Figure 3: Conversion rates as of July 12th for Snake River Sockeye between Bonneville and Ice Harbor Dams 2010-2021

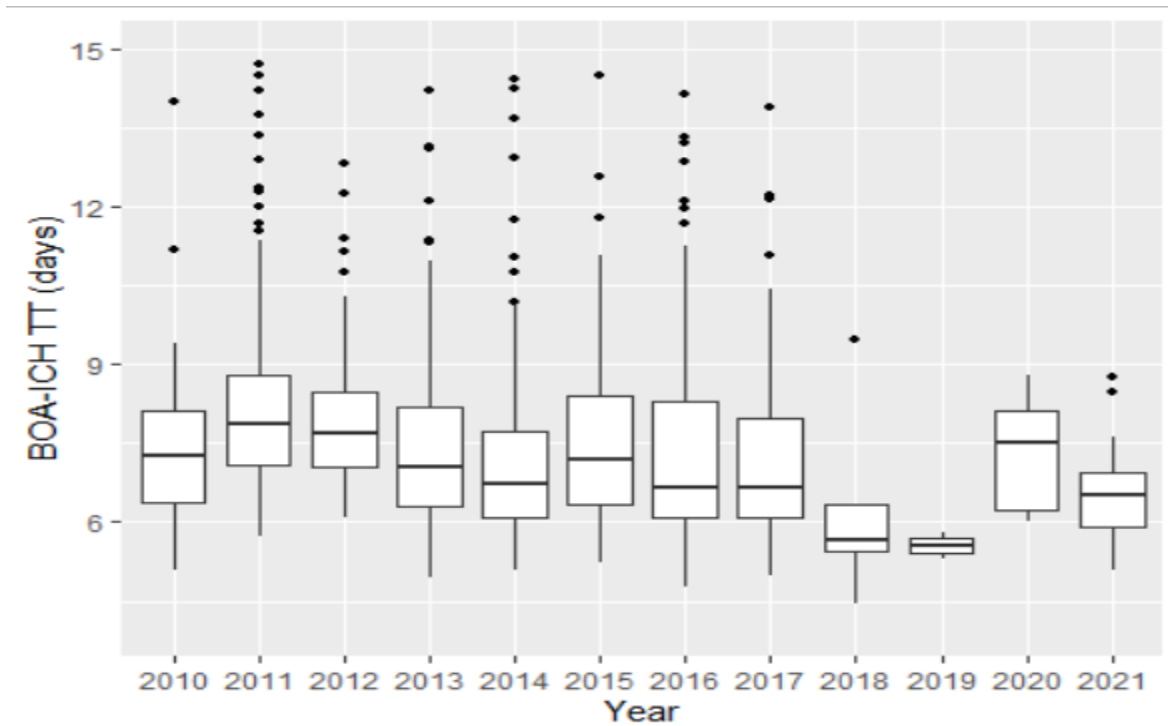


Figure 4: Median travel times for Snake River Sockeye between Bonneville and Ice Harbor Dams 2010-2021

Finally, conversion between Bonneville and Lower Granite dams is slightly below average so far in 2021 at 12% vs the 2010-2020 average of 17% (24% when 2015 is excluded)(Figure 5). However, this does not account for the late start to this years sockeye run, and this differential may be explained by a number of fish not yet having time to convert all the way up to Lower Granite. In other words, this would be expected given the time since many of these fish passed Bonneville (only a few days ago). If past years trends continue, we expect this low number is more an indication of run timing than a significant drop in conversion through the FCRPS at this time.

Travel time between Ice Harbor and Lower Granite is slightly faster than the 2010-2020 average at 4.8 days vs 6.2, respectively. Median travel time look very similar to the long term average at 4.5 days vs 4.7 days, respectively (figure 6). This is also substantially faster than the 8.9 day median observed in 2015.

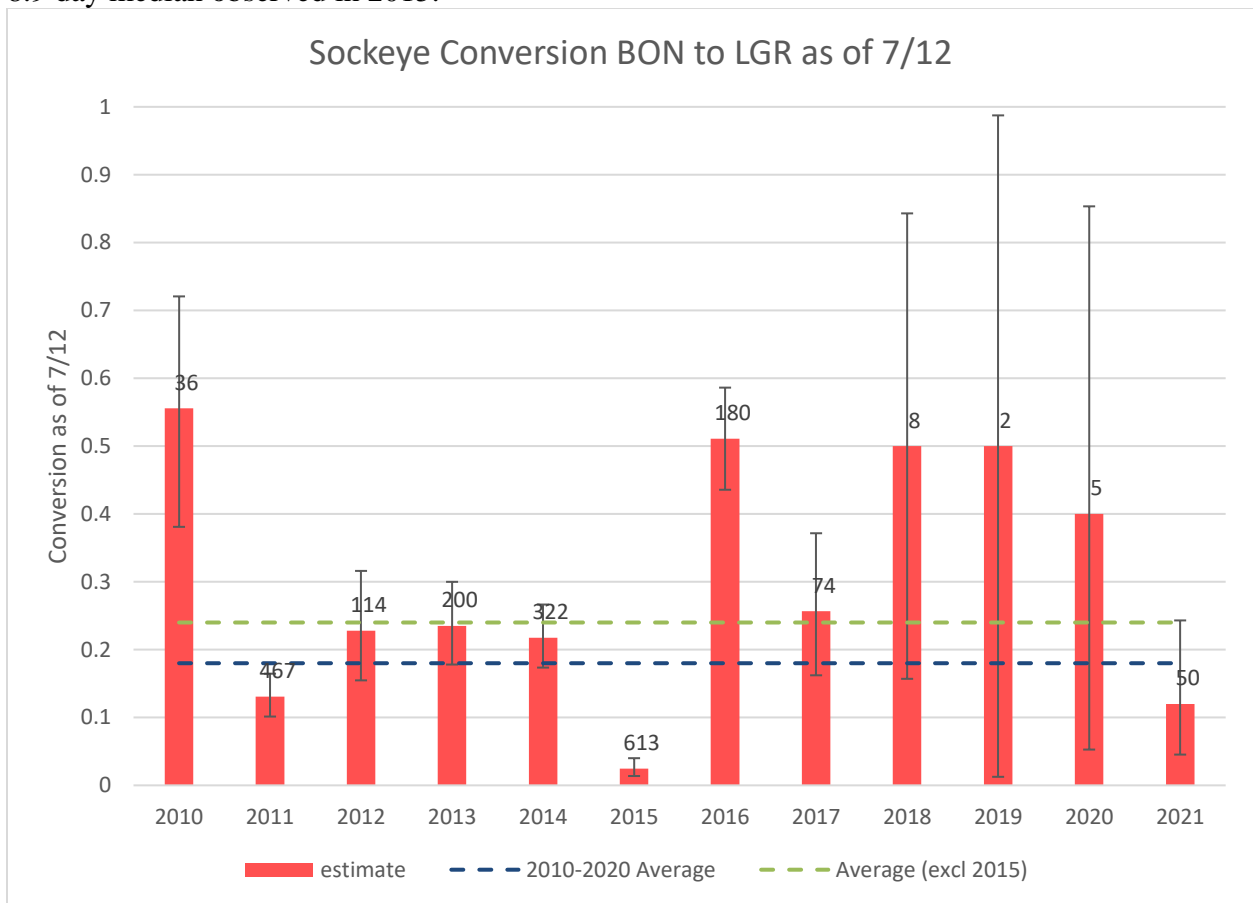


Figure 5: Conversion rates as of July 12th for Snake River Sockeye between Bonneville and Lower Granite Dams 2010-2021

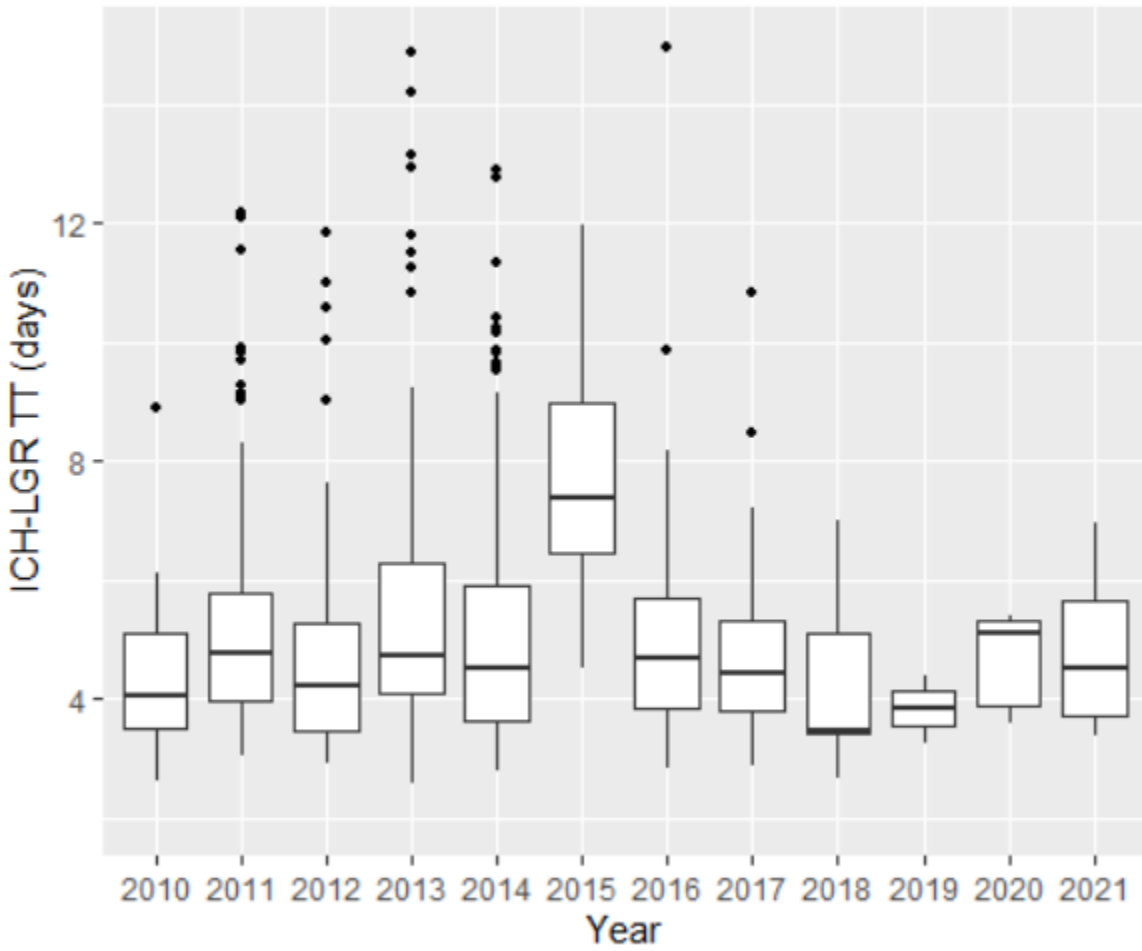


Figure 6: Median travel times for Snake River Sockeye between Ice Harbor and Lower Granite Dams 2010-2021