



## FISH PASSAGE CENTER

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### MEMORANDUM

TO: FPAC

FROM: Gabe Scheer

DATE: August 2<sup>nd</sup>, 2021

SUBJECT: Snake River Sockeye Conversion Through the FCRPS

In response to your request, the Fish Passage Center has updated the summaries of Snake River sockeye conversion rates and travel times through the Columbia and Snake Rivers for 2021. These 2021 rates are compared to the in-season (as of August 2<sup>nd</sup>) conversion rates for years 2010-2020 to create comparable metrics. The following are our key findings.

- Conversion rates for Snake River Sockeye for Bonneville to McNary, Bonneville to Ice Harbor appear similar to previous years, albeit slightly lower than historic averages
- Conversion rates between Bonneville and Lower Granite are below the ten-year average (25% vs 40%, respectively), however, when 2015 is excluded from the dataset, conversion rates are substantially below average (25% vs 58%), although not as low as 2015.
- Travel times for Snake River Sockeye for Bonneville to McNary, Bonneville to Ice Harbor, are slightly faster than the 2010-2020 average, and substantially faster than the 2015 averages.
- Travel times for Snake River Sockeye from Ice Harbor to Lower Granite in 2021 are substantially slower than the 2010-2020 average, although not as slow as the 2015 average.

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 August 2<sup>nd</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 August 2<sup>nd</sup>. Average conversion on August 2<sup>nd</sup> between 2010-2020 is approximately 49%, compared to 55% 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 (55% vs 65%).

Travel times in 2021 between Bonneville and McNary are slightly faster than the ten year average, with an average travel time of 5.4 days compared with the 2010-2020 average of 6.4. The median travel time from Bonneville to McNary is also slightly faster than the ten year at 5.0 vs 5.5 days, respectively (Figure 2).

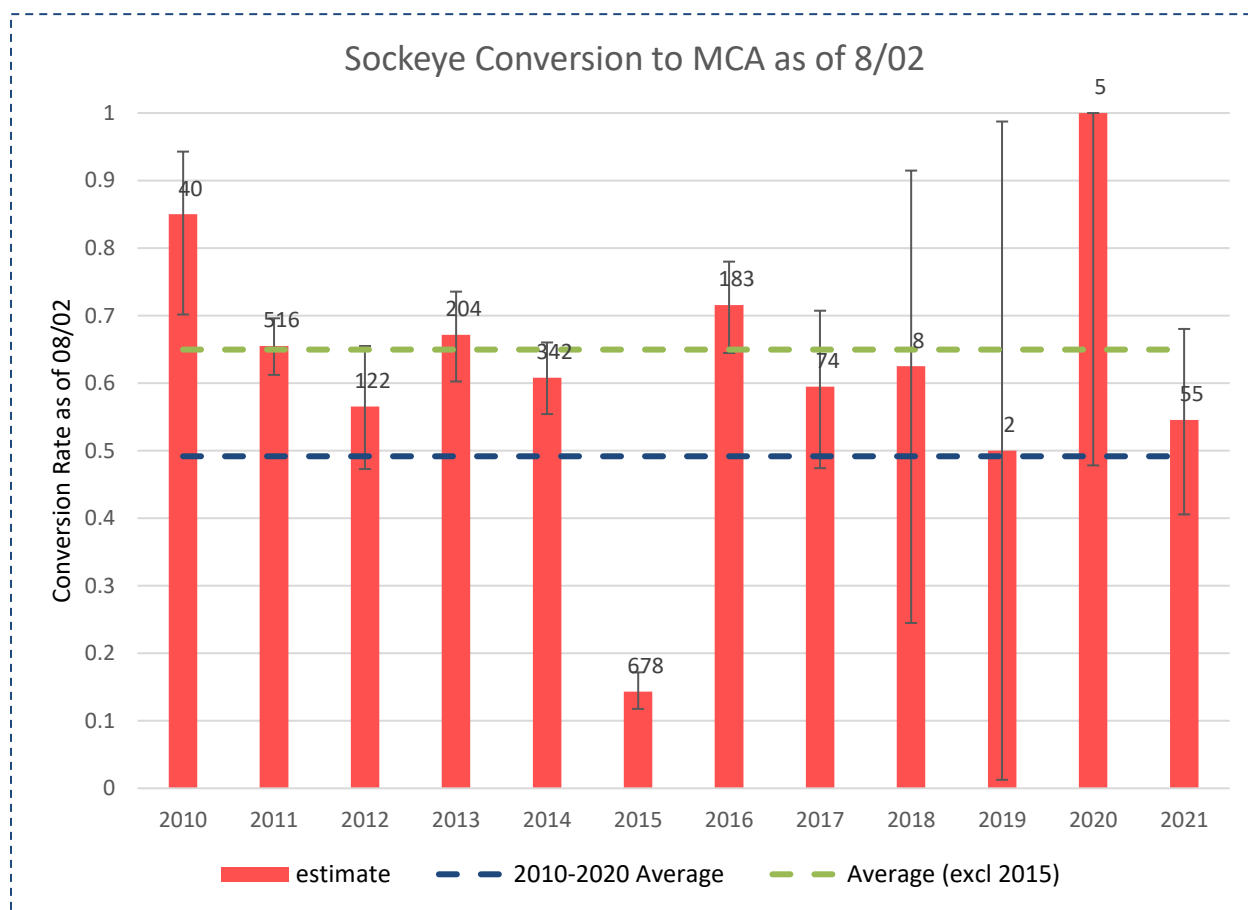


Figure 1: Conversion rates as of August 2<sup>nd</sup> for Snake River Sockeye between Bonneville and McNary Dams 2010-2021

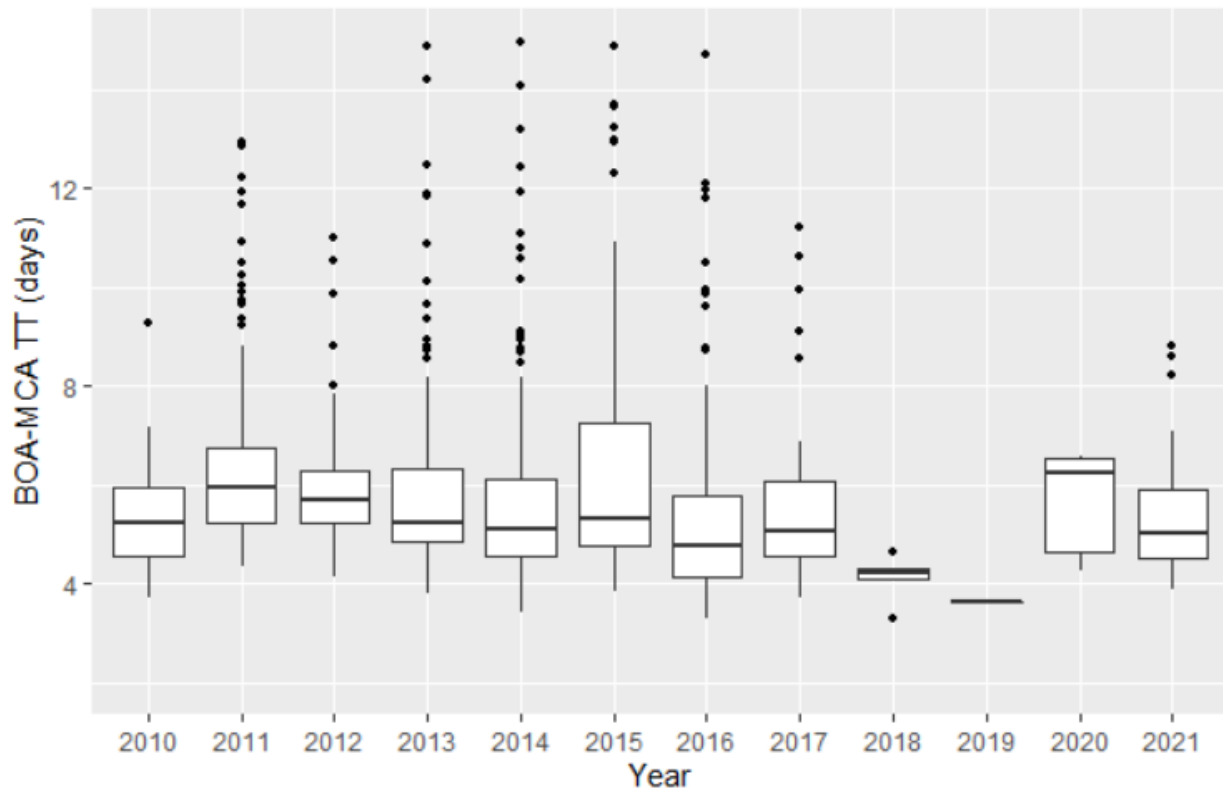


Figure 2: Median travel times for Snake River Sockeye between Bonneville and McNary Dams 2010-2021

Conversion from Bonneville to Ice Harbor in 2021 is about average as of August 2<sup>nd</sup>. Average conversion on August 2<sup>nd</sup> between 2010-2020 is approximately 42%, compared to 44% in 2021 (Figure 3). Again, when excluding 2015, the conversion rate in 2021 would be considerably below the long term average (44% vs 57%).

Travel times in 2021 between Bonneville and Ice Harbor are slightly faster than the ten year average, with an average travel time of 7 days compared with the 2010-2020 average of 8.1. Median travel time in 2021 was slightly lower than 2010-2020 at 6.6 days vs 7.3 days, respectively (Figure 4).

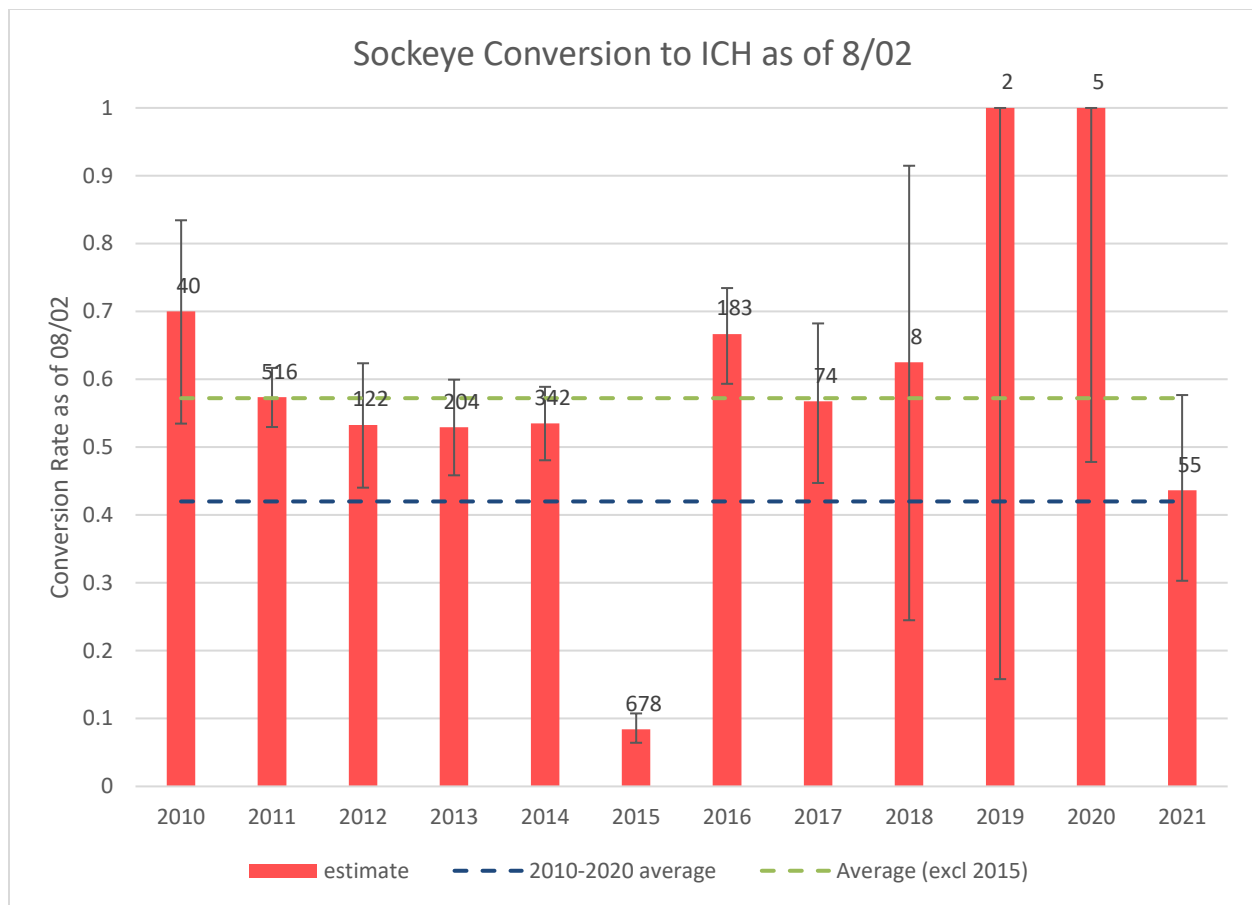


Figure 3: Conversion rates as of August 2<sup>nd</sup> for Snake River Sockeye between Bonneville and Ice Harbor Dams 2010-2021

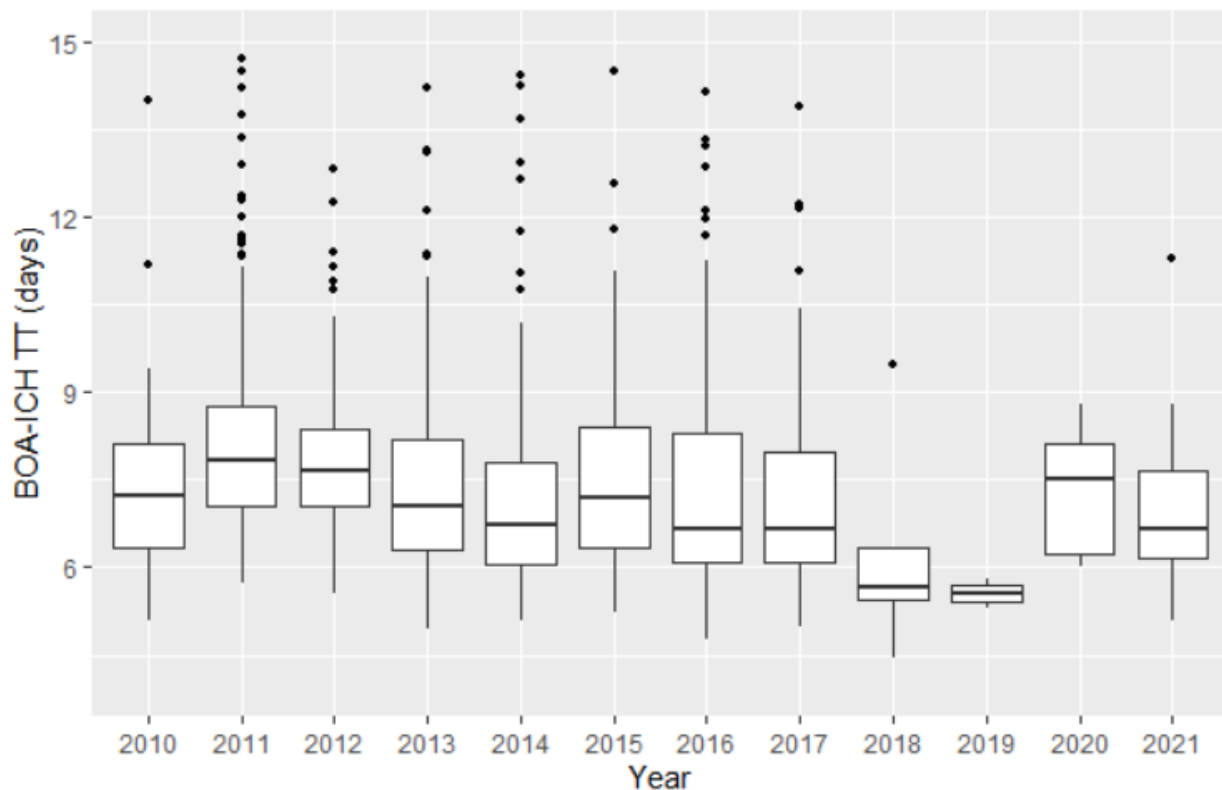


Figure 4: Median travel times for Snake River Sockeye between Bonneville and Ice Harbor Dams 2010-2021

Finally, conversion between Bonneville and Lower Granite dams is below average so far in 2021 at 25% vs the 2010-2020 average of 41% (58% when 2015 is excluded)(Figure 5). We do not expect substantial conversion after this date due to no additional PIT tagged sockeye having passed Ice Harbor in the past two weeks. These conversion rates are therefore likely to be the final year end conversion rates.

Travel time between Ice Harbor and Lower Granite are slower than the 2010-2020 average at 6.4 days vs 6.2, respectively. Median travel time is also slower than the long term average at 6.5 days vs 4.7 days, respectively (figure 6). This is slightly faster than the 8.9 day median observed in 2015.

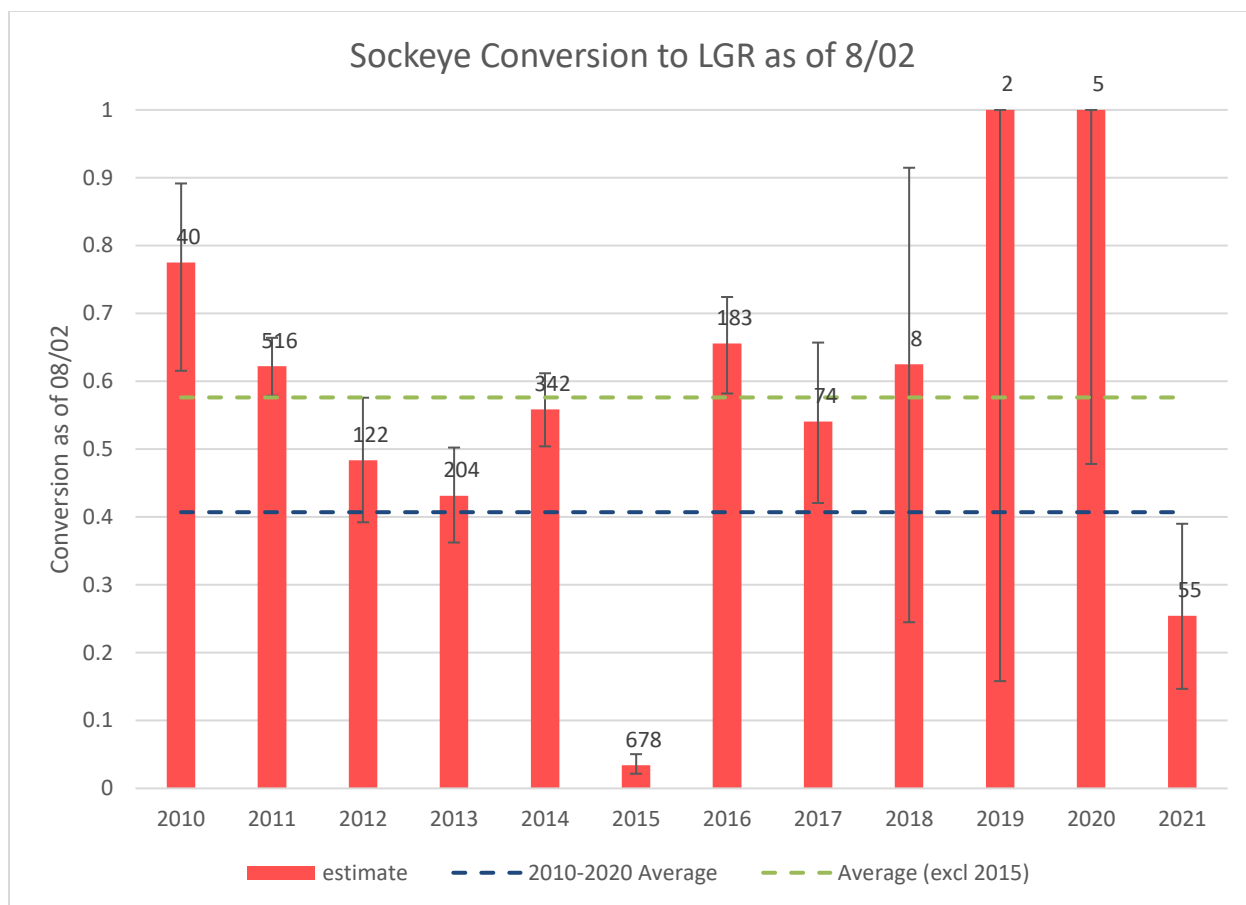


Figure 5: Conversion rates as of August 2<sup>nd</sup> for Snake River Sockeye between Bonneville and Lower Granite Dams 2010-2021

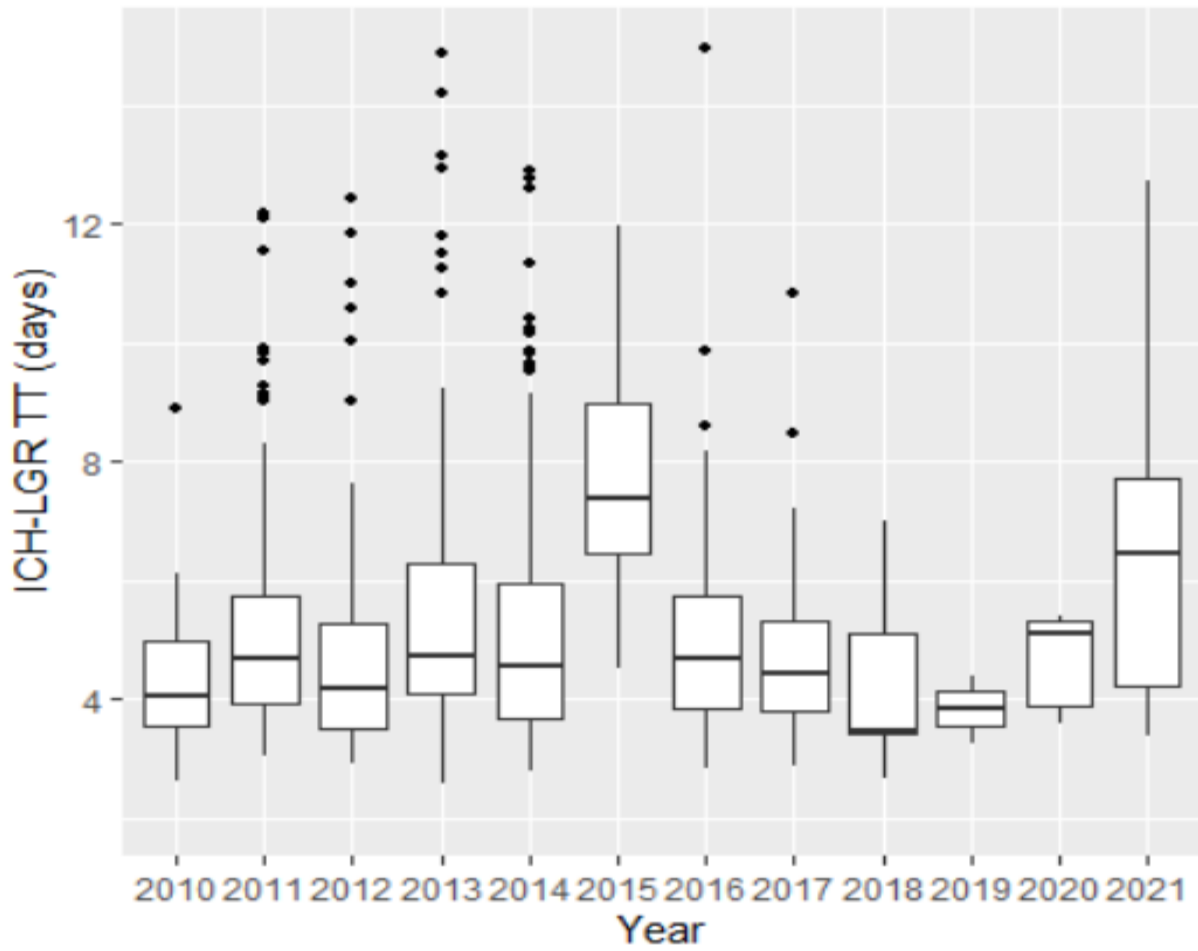


Figure 6: Median travel times for Snake River Sockeye between Ice Harbor and Lower Granite Dams 2010-2021