MEMORANDUM

TO: Charles Chamberlain, COE

FROM: Michele DeHart, FPC

DATE: November 6, 2019

RE: Comments on “Adult spring Chinook salmon passage at Little Goose Dam, 2018”

At your request, we have reviewed the draft report “Adult spring Chinook salmon passage at Little Goose Dam, 2018” (Harnish et al. 2019). Similarly to FPC analyses, the analyses in this report indicate that there is no impact on adult survival due to spill proportion at Little Goose Dam. However, there are several omissions in the report that minimize its usefulness to managers in assessing adult passage in the Snake and should be corrected in the final report. Our concerns are outlined below.

- The median travel time between Lower Monumental and Little Goose Dams increased from 0.9 days to 1.7 days during periods when spill at Little Goose was greater than 35%. The report does not put this increase into context or indicate if it is biologically significant.
  - Overall survival from tagging at Ice Harbor to Lower Granite Dam was 95.3%, including those that experienced high spill at Little Goose. This is similar to survivals generated with PIT-tag data, including years with and without high spill levels at Little Goose (FPC Memos February 5, 2018; March 6, 2018; July 3, 2019; July 17, 2019). It is also higher than other acoustic tag studies that include Little Goose passage.
  - Analyses including survival to tributaries indicates that longer travel times to pass Little Goose do not impact survival of hatchery Chinook to the natal stream. Wild fish show no impact of Little Goose passage times under 20 days (FPC Memos February 5, 2018; March 6, 2018; March 21, 2018; July 3, 2019).
• Ladder counts at Little Goose Dam are reported as evidence for increased adult passage with changing operations. However, these reports of untagged fish are provided without the context of run timing and counts at Lower Monumental Dam, and therefore are not informative of actual passage rates or response to operations.

• Proportional spillbay patterns have been shown to impact tailrace conditions to a greater extent than simple metrics of total spill proportion (FPC, Memo February 5, 2018). Not including spill operations variables in this analysis makes it impossible to determine if changes in fish passage are due primarily to proportion spill, or the operational circumstances. The final report should include an analysis of operational conditions beyond just total spill proportions.

• This paper explores diel variation in adult passage at Little Goose, along with spill proportion. Special operations restricted spill during some nighttime and morning hours. It is not clear from the description of the analyses if the confounding variable of restricted spill was incorporated.

• The described differences in tailrace behavior under different spill regimes are characterized by large numbers of detections at acoustic nodes. The differences in behavior under <35% spill and >35% are very small (generally less than 1%). These results are statistically significant due to the large number of node detections. However, detections are not independent, as they are all collected from ~360 tagged adults. The report does not make clear if these results are biologically significant or an artifact of statistical methodology.