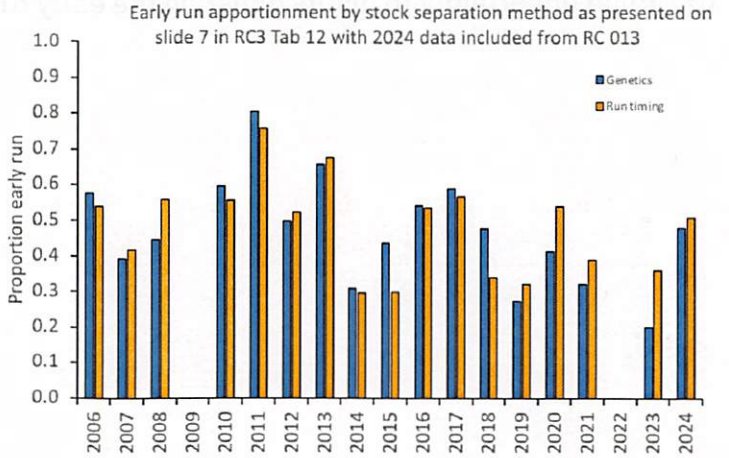
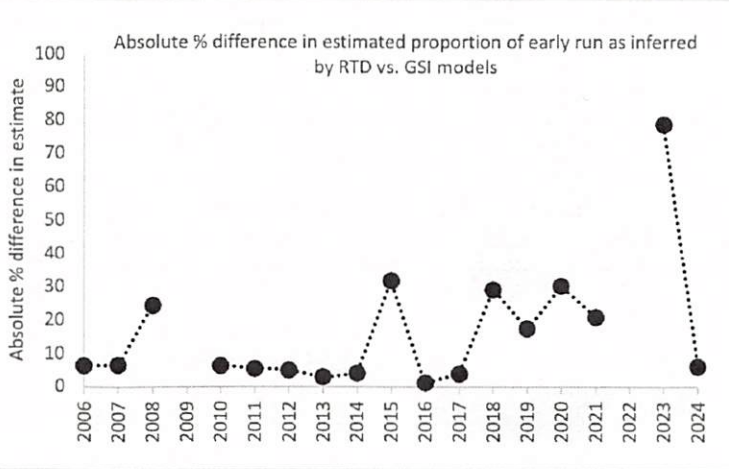
Alternative interpretation of RTD vs. GSI apportionment estimates for Chignik sockeye salmon





Accurate estimates of early and late run sockeye salmon escapement in Chignik depends on rigorous apportionment of the two stocks given they overlap in run timing, especially during the transition period of mid-summer. Two related, but distinctly different, approaches to estimate the proportion of each run are available. The first, a run timing distribution (RTD) model uses historical trends in stock proportions observed passing the Chignik weir as inferred from genetic stock analysis. This model allows managers to estimate what fraction of each run is predicted to be passing the weir on a given day of the run. In the top panel figure, the historical (2006-2024[1]) estimated proportion of the total run assigned to the early run is shown as yellow bars. The observed proportion of the total run assigned to early run based on genetics (the observed data used to generate the RTD) is shown as blue bars. The average absolute difference between the proportions is small (mean=0.06, min= 0.007, max= 0.16) but the absolute % difference in the estimates is markedly larger (mean= 15%, min=1.3%, max=79%) and can vary dramatically year to year. For example, in the two most recent years in which genetic stock proportions are available, the RTD and genetics estimates differed 79% (above average error) in 2023 and 6.3% (below average error) in 2024. The difference between RTD and genetics estimates of

[1] Data from RC3 Tab 12 and updated to include 2024 in RC 013

apportionment translated to 130,533 and 26, 585 fish being mis-apportioned between runs in 2023 and 2024, respectively.

Given the large interannual differences observed between RTD and genetics approaches and that genetics data from 2025 are currently unavailable believe there is too much uncertainty to justify delisting the early run as a stock of concern.