**Name:**

**Population Modeling in Ecology**

**Spring 2023**

**Week 7 – Cormack-Jolly-Seber Model in RMark**

Complete the questions below and email to [gbarrile@uwyo.edu](mailto:gbarrile@uwyo.edu) with the subject line: **Week 7 Lab Report**

For this lab report, we are using the same dataset that we used in class: *BrookTrout\_EnergyDevelopment.csv*.

In 2017, there was a massive flood across the entire study area (i.e., in both the National Park and the land developed for energy extraction). It is possible that this flood influenced brook trout survival (and/or permanent emigration) between 2017–2018.

Add a factor variable to the design data for apparent survival that denotes before and after the flood.

Next, run a single model with (1) capture probability as a constant or null model (i.e., ~ 1) and (2) apparent survival as a function of before/after the flood.

**Answer the following questions:**

Were there any singular parameters in the model?

From the beta coefficients, was there any indication that apparent survival was different before versus after the flood?

From the real estimates, was there any indication that apparent survival was different before versus after the flood?

Use the delta method to create a 95% confidence interval around the difference in apparent survival before versus after the flood. What was the mean difference and 95% confidence interval? What would you conclude on the difference in survival before versus after the flood?

Create a plot displaying mean apparent survival (and 95% confidence intervals) before and after the flood. Paste that plot here.