Individual Growth Assignment

Wolfert (1980) examined the population of Rock Bass (*Ambloplites rupestris*) from Eastern Lake Ontario in the late 1970s. In his studies, he measured the total length of 1288 Rock Bass. Scales were removed for age assignment from as many as 10 fish from each 10-mm length interval. The lengths and ages (if they existed) from all 1288 fish are recorded in `RockBassLO2.csv` [Note: the filename contains an "oh" not a "zero".]. In the "Age-Length Key" assignment you predicted ages for all of the unaged fish to produce a data frame that had age "assignments" for all 1288 fish. You should start this analysis with that combined data frame (i.e., open and run your "Age-Length Key" assignment script and then continue with an analysis for the questions below.)

1. Plot length versus age. Observe the "shape" of the data (do the results look linear or like a von Bertalanffy growth curve, is there an obvious asymptote, are young fish well represented, how variable are lengths within ages).

2. Compute point estimates of L_∞, K, and t_0 for the typical von Bertalanffy parameterization. How realistic do these values seem?

3. Construct 95% boot-strapped confidence intervals for each parameter. Comment on the widths of these confidence intervals. What explains this?

4. Predict the mean length, with 95% confidence interval for an age-6 Rock Bass. Comment on the width of this confidence interval. What explains this?

5. Plot length versus age and superimpose the best-fit von Bertalanffy model. Comment on model fit.

6. Compute the correlation between parameter values. Comment.

7. (*Time Permitting*) Fit the Galucci and Quinn parameterization to find an estimate of the ω parameter.