von Bertalanffy Growth Function

Exercise - Walleye

Answer the following questions by creating an R script and iteratively running the code in RStudio.

1. Load the `WalleyeErie2.csv` file into a data.frame object and restrict the data to Walleye captured from location 1 in 2013. Use these data for the following questions.

    a. Examine the plot of length versus age. Do the data look linear or curved, is there an obvious asymptote, are young fish well represented, how variable are lengths within ages?

    b. Fit the typical parameterization of the VBGF to these data. Construct a fitted-line plot (i.e., superimpose the fitted VBGF onto the length versus age plot) and a residual plot and comment on model fit.

    c. Compute the correlation between parameter values. Comment

    d. Construct a table of parameter estimates with 95% bootstrap confidence intervals. Carefully interpret the value of each parameter. Comment on how realistic you think each estimate is and the relative widths of the confidence intervals.

    e. Predict the mean length, with 95% confidence interval, for an age-3 Walleye. Comment on the width of this confidence interval?

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2. [*Time Permitting*] Repeat the previous question but using either the original, Gallucci and Quinn, or Mooij parameterizations of the VBGF. [Note that you can see the equations for these VBGFs with, for example, `growthFunShow("vonBertalanffy",param="GallucciQuinn",plot=TRUE)`. You can declare a function for these VBGFs by using, for example, `vb <- vbFuns("GallucciQuinn")`.]

    a. How does the fit of this model (and estimates of the common parameters) compare with the results from the typical VBGF fit in the previous question?
