von Bertalanffy Growth Function - Walleye Exercise

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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. Comment on model fit.

    c. Compute the correlation between parameter values. Comment.

    d. Compute the parameter estimates. Carefully interpret the value of each parameter. Comment on how realistic these values are.

    e. Construct 95% likelihood profile and bootstrap confidence intervals. How do the relative widths of the confidence intervals compare (between methods).

    f. 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 parameterization (and estimates of the common parameters) compare with the results from the typical VBGF fit in the previous question?

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3. [*Time Permitting*] Repeat the first question but using either the Gompertz or logistic growth functions. [Note that you can declare a logistic growth function by using, for example, `lgf <- logisticFuns(msg=TRUE)`.]

    a. How does the fit of this growth function compare with the results from the typical VBGF fit in the first question?
