

# ALK Application Exercise

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Continue with the data.frames and age-length keys constructed in the previous exercise. You may either extend your previous script or create a new script that `source()`s the previous script.

1. Use the semi-random age assignment technique from Isermann and Knight (2005) and the **observed** age-length key to assign ages to the unaged fish in the length-sample. Combine the age-sample and the age-assigned length-sample into a single data frame, add a variable to this data.frame that contains the 10 mm TL categories, and use the combined data frame to answer the following questions.
  - a. How many fish are estimated to be age 5?
  - b. How many fish are estimated to be age 11?
  - c. Plot the age distribution for all fish.
  - d. How many fish are in the 150 mm TL interval?
  - e. What is the mean TL of age-5 fish?
  - f. Plot the length-at-age with the mean length-at-age superimposed for all fish.
  - g. Compare your results from questions a-f to someone else's results (or repeat those questions). Did you both get the *exact* same results? Why or why not? If not, how different were they?
  
2. [**Time Permitting**] Repeat the previous question but using the **smoothed** age-length key.