R Introduction/Review Assignment

The `RuffeBio.csv` file contains a variety of biological measurements from Ruffe (*Gymnocephalus cernuus*) captured in the St. Louis River Harbor. Use these data to answer the following questions.

1. How many variables are in this data frame?
2. Data was recorded for how many Ruffe?
3. Show the vector of *tl* measures?
4. What is the *tl* for the 17th Ruffe?
5. Show all information for the 20th Ruffe.
6. Create a new data frame of just female Ruffe. How many fish are in this data frame?
7. Create a new data frame excluding Ruffe of unknown sex. How many fish are in this data frame?
8. Create a new data frame of Ruffe greater than 110 mm. How many fish are in this data frame?
9. Create a new data frame of Ruffe between 80 and 120 mm. How many fish are in this data frame?
10. Create a new data frame of male Ruffe less than 100 mm. How many fish are in this data frame?
11. Create a new variable in the original data frame that is Fulton's condition factor (i.e., the weight of the fish divided by the cubed length of the fish multiplied by 100000).
12. Compute the mean Fulton's condition factor.
13. Compute the mean Fulton's condition factor separately for males and females.
14. Create a histogram of Fulton's condition factor.
15. Create a scatterplot of the relationship between Fulton's condition factor and total length.
16. Fit a model that can be used to predict Fulton's condition factor from total length. Find the model coefficients and r^2 value and construct a plot that shows the fitted model.