Exercise 4: Condition, mortality, and stock-recruitment

1. Calculate standard weight and relative weight of Cisco using the “CiscoTL” data set in the FSAdata package. Add these two columns to the data frame. Load the “CiscoTL” data set using:

CiscoTL <- FSAdata::CiscoTL

1. Use the following data to determine instantaneous total mortality (Z)

|  |  |
| --- | --- |
| age | ct |
| 1 | 74 |
| 2 | 210 |
| 3 | 165 |
| 4 | 92 |
| 5 | 82 |
| 6 | 50 |
| 7 | 25 |
| 8 | 10 |

1. Create a scatterplot and determine parameters of the von Bertalanffy growth model with 95% confidence intervals using “Bonito” data set in the FSAdata package. Bonito length is recorded as “fl”.
2. Estimate parameters of the Ricker stock-recruitment model using the HerringBWE data set from the FSAdata package.  
   HerringSR <- FSAdata::HerringBWE
3. Create a scatterplot with predictions of the Ricker model fit in 4 above. Note, select an appropriate break in the range of spawning stock biomass for predictions.