Chapter 4 Computer Exercise

1. We will be working with the Horseshoe crab data, with **Weight** as the explanatory variable rather than **Width**. You may want to skim the article on horseshoe crabs from the course website and review the slides from Chapter 14 of STAT 705 to get an idea about life history, and the significance of horseshoe crab spawning. Refer to the code from **HorseshoeZIP.sas** and the tab-delimited data set **HorseshoeCrab.txt** to complete the exercise; upload both to a directory in SAS Studio (SAS On Demand) before proceeding.

2. Run code to import the data set into SAS's WORK directory. Run the first section of code to create a binary responses **y** from **Satellite** and to standardize **Weight**. Generate scatterplots of **Weight** versus **Satellite** and **Weight** versus **y**; use a **LOESS** statement to run smoothers through each of them. Comment.

3. Run Poisson GLIM models of **Satellite** versus **Weight** using both identify and log links. Interpret the slope parameter estimates and comment on the fit by studying the deviance.

4. There seem to be a lot of sampling zeroes for the response variable. Let us study this with the binary response variable **y**.

5. Refer to the plot of **y** versus **Weight** you created earlier. Does a logistic model seem appropriate?

6. Run a binary GLIM model with logit link in SAS using PROC GENMOD; be sure to include AGGREGATE=WEIGHT as an option in the MODEL statement to obtain the deviance. Interpret the slope parameter estimates and comment on the fit by studying the deviance.