Further Model Development –

Further improvements can be made to improve the model methodology and the inference from parameter estimates.

Some theoretical assumptions about particular variables, such as the treatment of weight as choice variables, may be inaccurate for a model so refitting/retreating variables and comparing models to others which have new theoretical assumptions can be integral for selecting the one which is most appropriate. Certain variables in experimental trials may have some question with regard to their treatment in a model (continuous variable, conditional variable, binary variables, etc.) and due to this different treatments maybe determined based on theoretical or practical assumptions.

Local regression (weighted) scatterplot smoothing or LOESS/LOWESS could be used to address additional variability at the tail ends of the curve. As the length-class for carapace length have less observations associated with them at the tail ends of the curve, the addition of LOESS/LOWESS smoothers can have more variability associated with them. [Why did we not use LOESS/LOWESS?]

Additional interactions terms were experimented with as particular aspects of trial’s data were identified. Interactions between carapace length, net position and weight all improved model fitting significantly; the interaction terms included where carapace length \* PI/SI/SO and carapace length \* weight. These interactions have been included to identified, in the case of carapace length and net position, that for a particular net position, the carapace length class retention had increased or decreased.

An extension of our methodology would be to include a random effect for the slope of the model. This would allow the estimated mean value of Y to be based on not just a varying group intercept but on a varying slope for each group also.