**Purpose:** A function used to calculate the meat weight shell height relationship for the offshore data. Currently the model is fitted assuming the allometric relationship is but the exponent is rather variable and should be a free model parameter.

* Note: We need to align this function to match what we are doing for the inshore fishery, right now things are very different! I note the glmer function in trials seems to give good results with these data although depending on the bank/year combination this may or may not matter offshore. Also the Shell height really should be centered. One of numerous interesting questions to ask given the ridiculously good data we have…

**Version Control:** Multiple versions exist, usually duplicates of each other but no guarantees.

Required packages: nlme

**Function Arguments Summary**

1. wt.dat: The meat weight shell height data.
2. random.effect: What is the random effect. Anything is possible but "tow" and "year" are

most sensisble, “month’ has also been used in the base. Default is 'year' but

we appear to overwrite and use 'tow'. If using multiple years it really should be both year and tow (maybe even throw in month all possibly interesting).

1. verbose: Do we want to print the results to screen. (T/F) default is T
2. GBmodel: Not clear what this option is for, it combines the fixed and random effects into

one object for each parameter. (T/F) F = default

1. b.par: Do we want to use the data/model to 'estimate' the allometric relationship or

force it to be a specific number (i.e. 3). Default is 'estimate', but we are currently overwriting this and setting it to 3.Section 1

**Section 1**

Meat weight and shell height data/metadata is entered and a simple function is run to estimate the relationship. Any metadata in the object called to the function could be used an the random effect, *year* is default but generally *tow* is used. For multi-year data they probably both should be, although this is not possible with the current function structure. Additionally, the model currently assumes an allometric relationship of the form , this likely isn’t the best idea ever and it would be preferable (as we do inshore) to adjust our model to . The function returns the model fit data + the original data object (sometimes slightly altered) back to the function calling the data. This is one of those functions that we should consider overhauling.

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