Tag growth

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1 Introduction

Dissostichus mawsoni

Key words: Antarctic toothfish, Ross Sea

2 Simulation

Simulated 315 individuals, the same number as in the actual toothfish data set. The next step was to simulate sex, Age1, Age2 and time at liberty. What I did in the current simulation run was:

- Sampled sex from the observed sexes of individuals (with replacement).
- Sampled Age1, Age2 and time at liberty independently (with replacement) from those observed. Randomly selected one of these variables and calculated this values given the other two.
- Rounded Age1, Age2 and time at liberty off to the nearest integer.

This is a bit of a hack I know, but the alternative did not yeild realistic looking Age1, Age2, liberty samples.

I also tried this:

- Sampled sex using a binomial distribution.
- Fit lognormal distributions to Age1 and time at liberty and simulate independently from the distributions.
- Calculate Age2 given Age1 and time at liberty.
- Rounded Age1, Age2 and time at liberty off to the nearest integer.

But this resulted in unrealistic Age2's (i.e. when a long time at liberty is added to an already old fish), the plots just looked a bit silly.

Below are some exmaple plots using the first sampling approach above then running these through our simulation model.

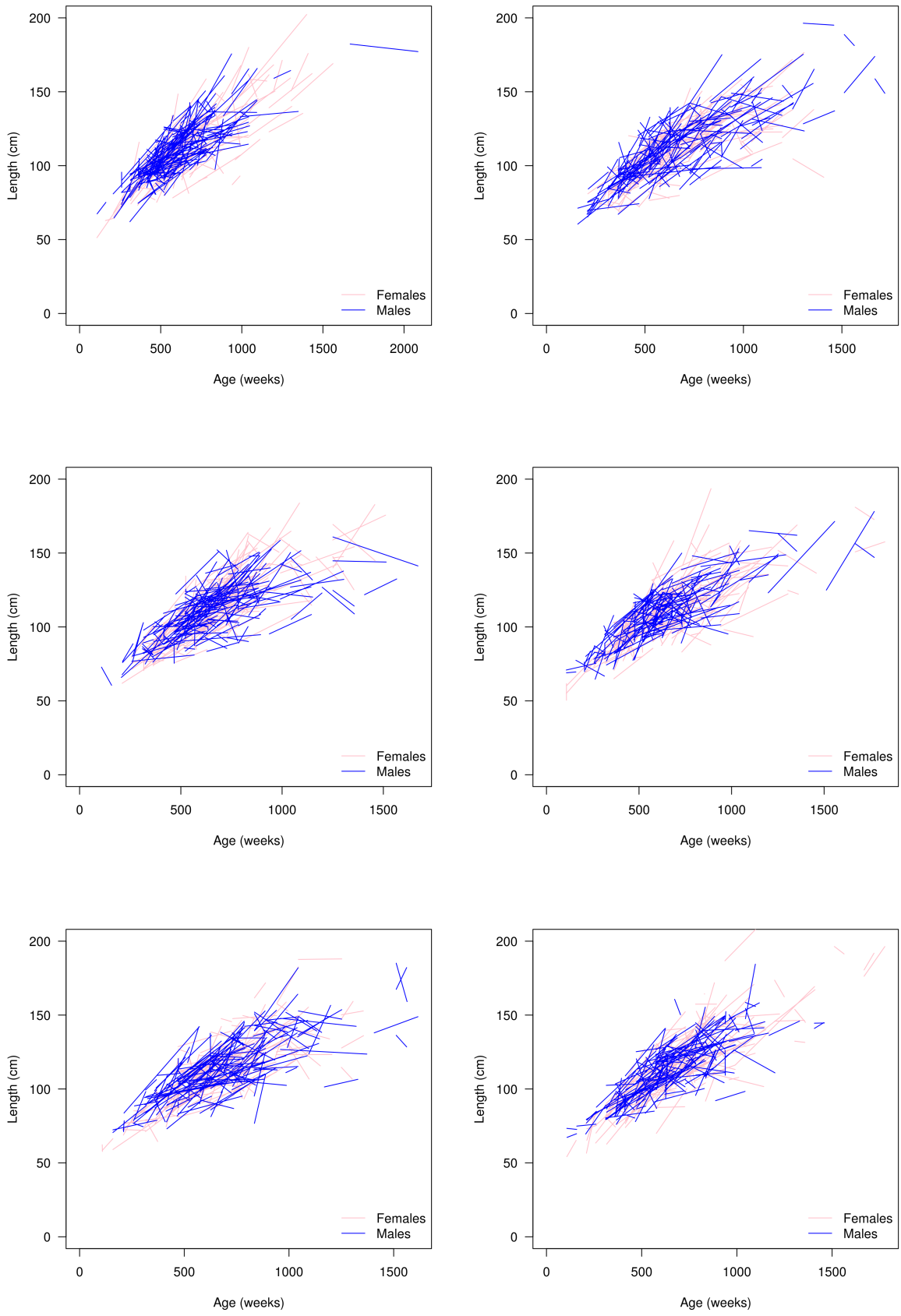

Figure 1: Data sets for two models that were not pdH [top, simulations 1 and 2], failed to converge [middle, simulations 6 and 45] and the only two datasets that were pdH [bottom, simulations 20 and 29].