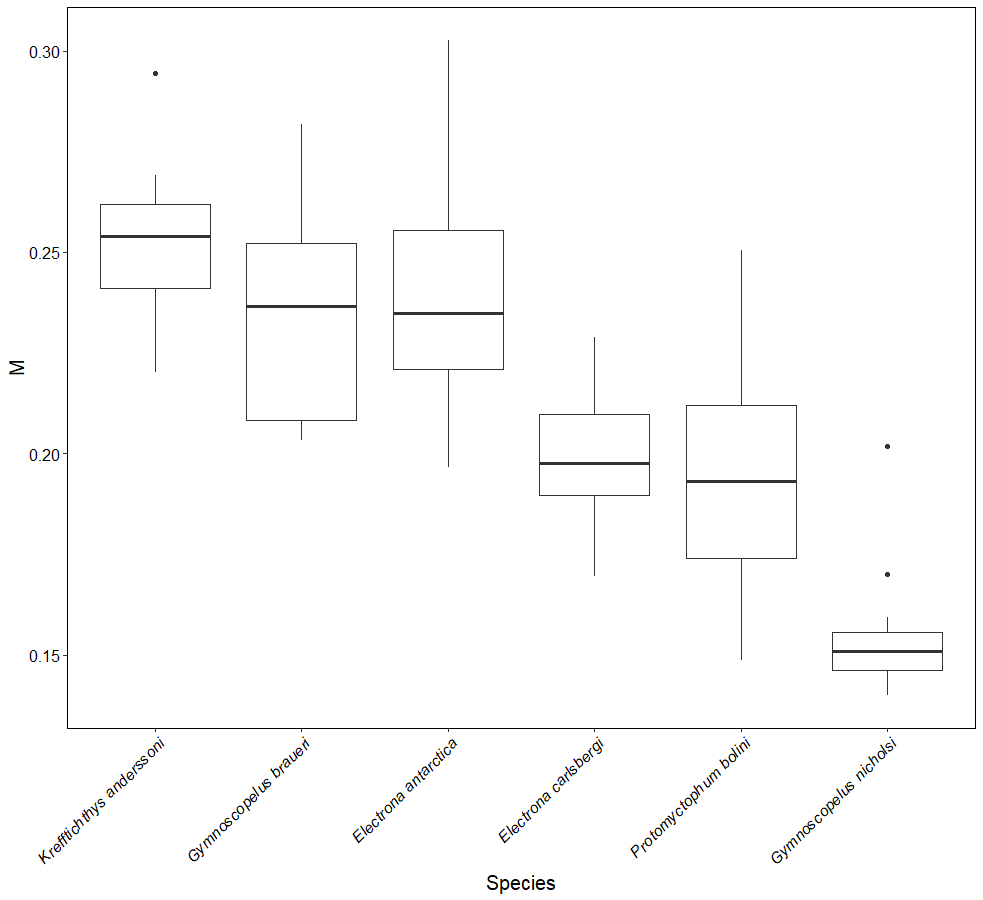
## Scotia Sea Myctophid Analysis

### Species

* M = 0.14 to 0.30
  + SD of estimates with 10,000 replicates: 0.02-0.04
* M is significantly different between species.
  + Kruskal-Wallis test (Chi-sq = 48.95, df = 5, P = 2.26e-8)



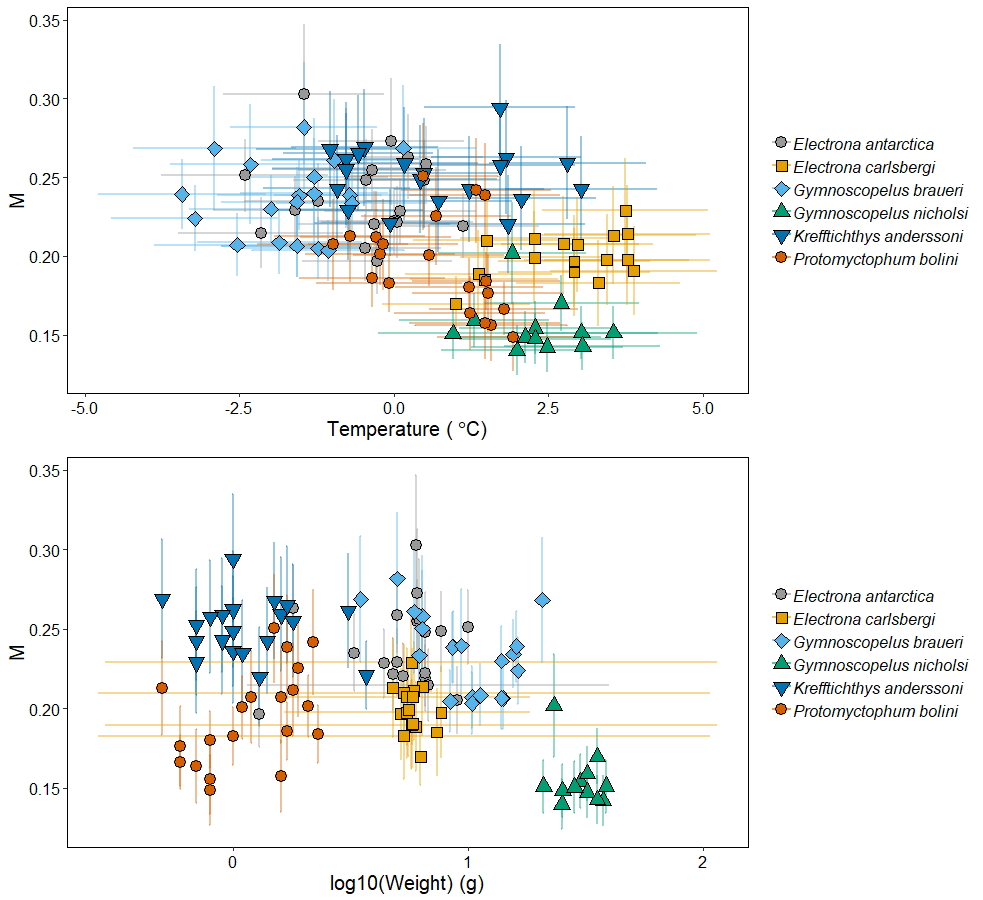
* Higher M
  + K. anderssoni (mean\_M = 0.25 sd\_M = 0.02)
  + E. Antarctica (mean\_M = 0.24 sd\_M = 0.03)
  + G. braueri (mean\_M = 0.24 sd\_M = 0.02)
* Lower M
  + E. carlsbergi (mean\_M = 0.20 sd\_M = 0.01)
  + P. bolini (mean\_M = 0.19 sd\_M = 0.03)
  + G. nicholsi (mean\_M = 0.15 sd\_M = 0.02)
* Dunn test with Bonferroni correction

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | E. antarctica | E. carlsbergi | G. braueri | G. nicholsi | P. bolini | K. anderssoni |
| E. Antarctica |  | 0.04  (0.00 to 1) | 1  (1 to 1) | 7.26e-6  (1.85e-3 to 3.08e-4) | 0.01  (2.64e-4 to 0.49) | 1  (1 to 1) |
| E. carlsbergi |  |  | 0.07  (0.01 to 1) | 0.01  (0.02 to 1) | 1  (1 to 1) | 3.06e-3  (1.74e-6 to 1.85e-1) |
| G. braueri |  |  |  | 9.40e-6  (4.93e-8 to 6.87e-4) | 0.03  (4.42e-5 to 0.80) | 1  (0.58 to 1) |
| G. nicholsi |  |  |  |  | 0.16  (0.05 to 1) | 2.87e-7  (1.03e-10 to 8.04e-6) |
| P. bolini |  |  |  |  |  | 7.35e-4  (1.80e-7 to 3.74e-2) |
| K. anderssoni |  |  |  |  |  |  |

### Temperature and log10(weight)

* No relationship between M, temperature, log10(weight) or the temp-weight interaction.

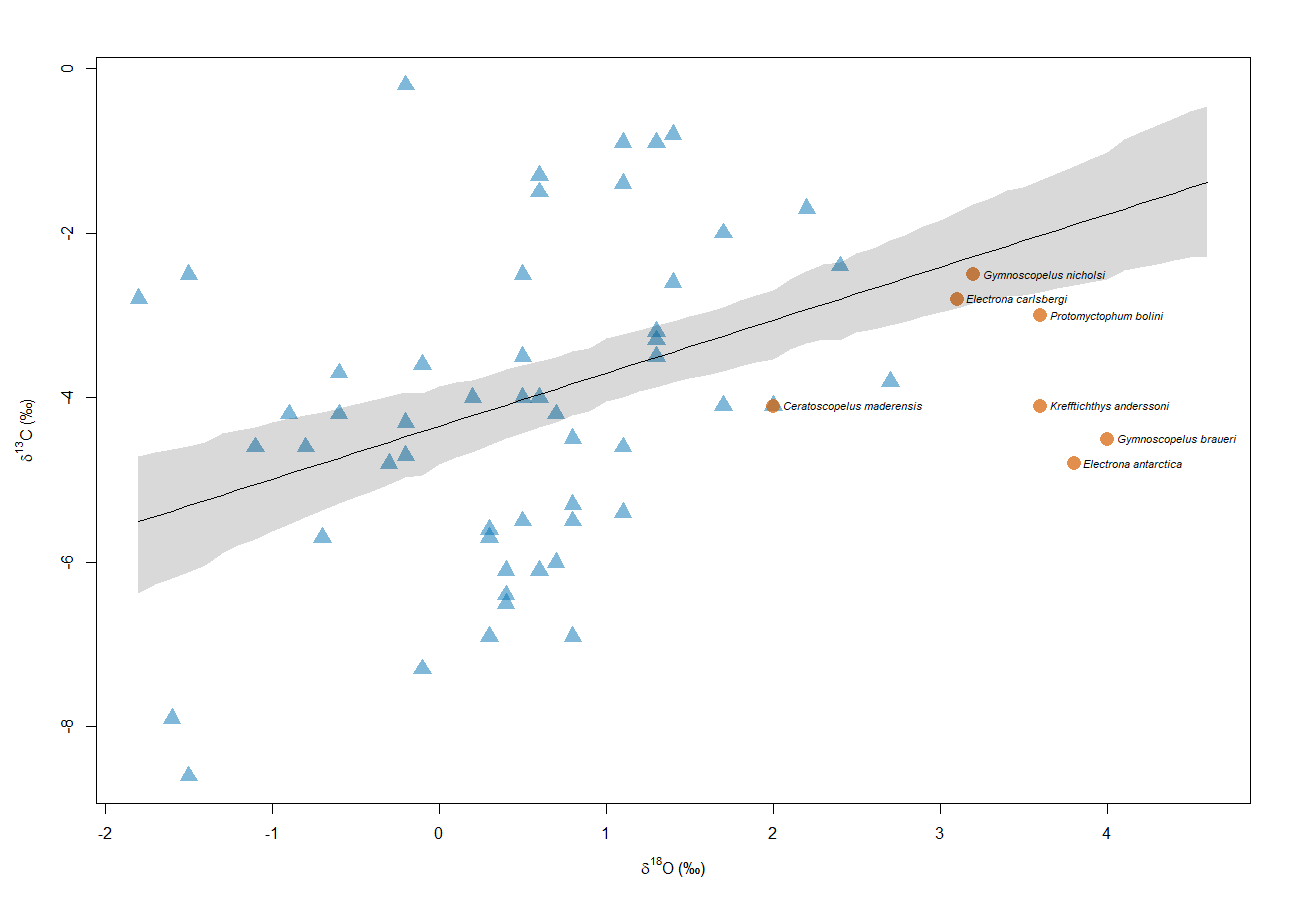
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model** | **a** | **b** | **R-Squared** | **p-Value** |
| **M ~ Temperature + (1|Species)** | 0.21 | 0.00 | 0.48 | 0.20 |
| **M ~ log10(Weight) + (1|Species)** | 0.21 | 0.00 | 0.50 | 0.69 |
| **M ~ Temperature \* log10(Weight) +(1|Species)** | 0.22 | **T**  0.00 | 0.40 | **T**  0.10 |
| **W**  0.00 |
| **W**  0.16 |
| **T\*W**  0.00 | **T\*W**  0.36 |



## Myctophid Comparison

### D18O

* Higher d18O than Sherwood & Rose fishes.
  + At lower temperatures.
* G. nicholsi and E. carlsbergi plot within 95% HDPI.
* K. anderssoni, E. Antarctica and G. braueri (and P. bolini, just) all plotting below the line.
  + Lower d13C than expected given d18O.
  + High metabolic rate for temperature.



### Caudal Aspect Ratio

* All species, except G. nicholsi, plot outside 95% HDPI, but within range of other species.
  + Lower d13C than expected given K\_caud.
  + High metabolic rate for activity level.
  + C. maderensis is also below the line.

