RespirationRates_Analysis

Samuel Gurr

2022-11-30

F1 DATA ANALYSIS

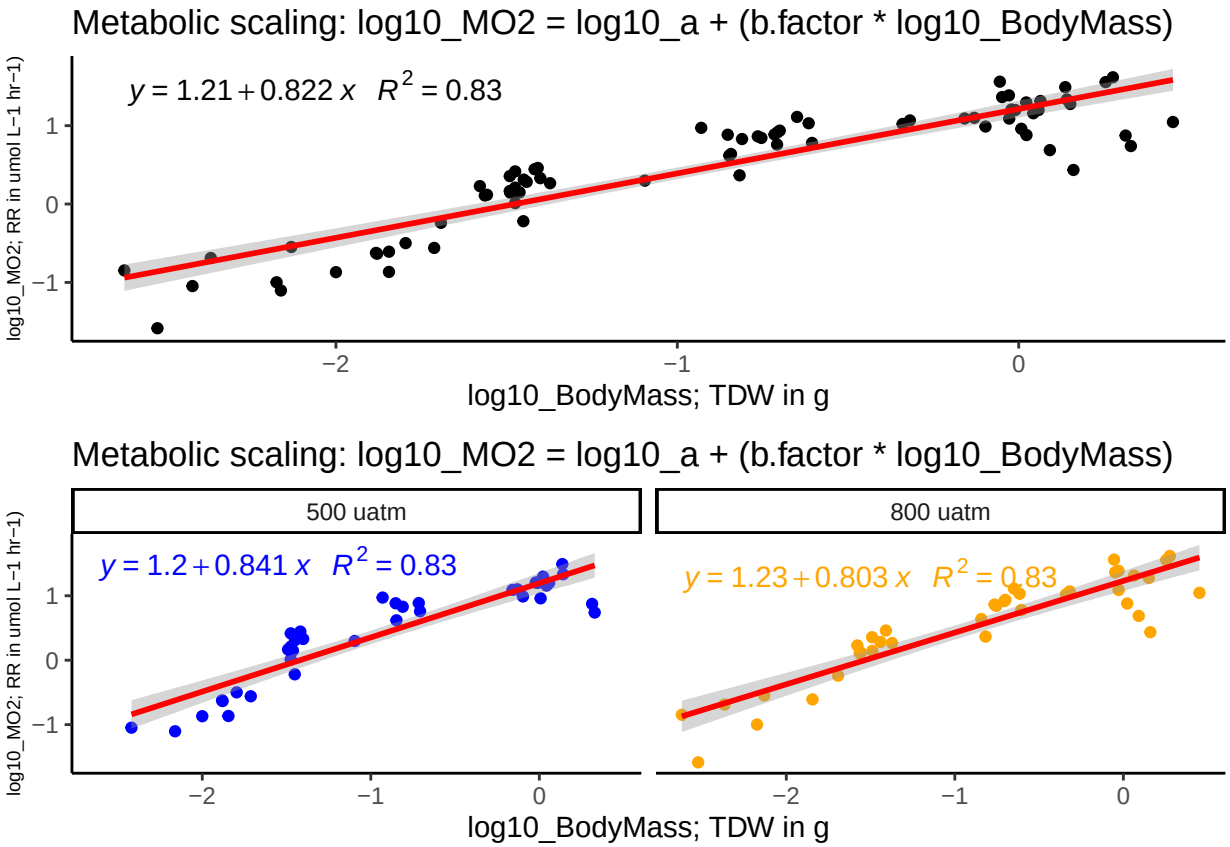
Summary tables

```
##         Date Age  N Length_mm        sd        se        ci
## 1  9/14/2021  50 21  2.414776 0.4240019 0.0925248 0.1930034
## 2  9/30/2021  66 35  3.945210 0.8163304 0.1379850 0.2804193
## 3 10/26/2021  92 14 10.795714 2.3840583 0.6371664 1.3765143
## 4   2/2/2022 191 18 14.138889 0.5860023 0.1381221 0.2914121
## 5   3/1/2022 218 18 22.447222 1.2939307 0.3049824 0.6434566
## 6  9/22/2022 423 14 43.471429 2.6738559 0.7146181 1.5438384
## 7 10/26/2022 457 13 49.210000 4.6337710 1.2851768 2.8001598
```

```
##          Date Age     pCO2  N Length_mm        sd        se        ci
## 1   9/14/2021  50 500 uatm  9  2.352277 0.4612761 0.1537587 0.3545682
## 2   9/14/2021  50 800 uatm 12  2.461650 0.4080804 0.1178027 0.2592819
## 3   9/30/2021  66 500 uatm 20  3.857843 0.9116213 0.2038447 0.4266519
## 4   9/30/2021  66 800 uatm 15  4.061699 0.6819730 0.1760847 0.3776641
## 5  10/26/2021  92 500 uatm  8 11.765000 2.1020534 0.7431881 1.7573606
## 6  10/26/2021  92 800 uatm  6  9.503333 2.2547964 0.9205168 2.3662637
## 7    2/2/2022 191 500 uatm  9 14.261111 0.3586239 0.1195413 0.2756627
## 8    2/2/2022 191 800 uatm  9 14.016667 0.7533260 0.2511087 0.5790576
## 9    3/1/2022 218 500 uatm  9 21.922222 1.3720676 0.4573559 1.0546645
## 10   3/1/2022 218 800 uatm  9 22.972222 1.0271657 0.3423886 0.7895495
## 11  9/22/2022 423 500 uatm  7 44.371429 1.6780090 0.6342278 1.5518995
## 12  9/22/2022 423 800 uatm  7 42.571429 3.2840342 1.2412483 3.0372251
## 13 10/26/2022 457 500 uatm  6 49.271667 4.6938232 1.9162453 4.9258654
## 14 10/26/2022 457 800 uatm  7 49.157143 4.9574816 1.8737519 4.5849058
```

ALOMETRIC COEFFICIENT (b factor)

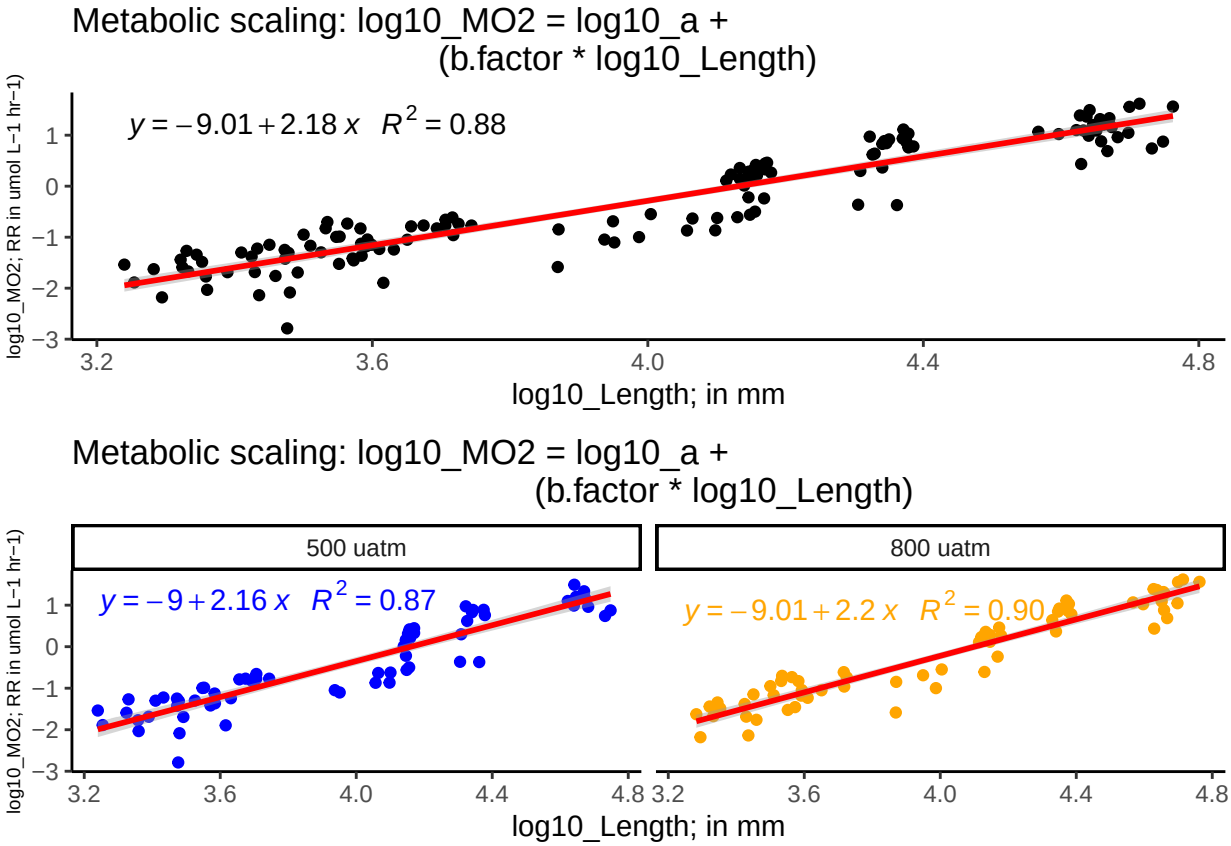
by TISSUE DRY WEIGHT ::::::::::



summary:

- TDW b factor total = 0.822
- TDW b factor pCO2 high = 0.803
- TDW b factor pCO2 low = 0.841 - two outliers removed here

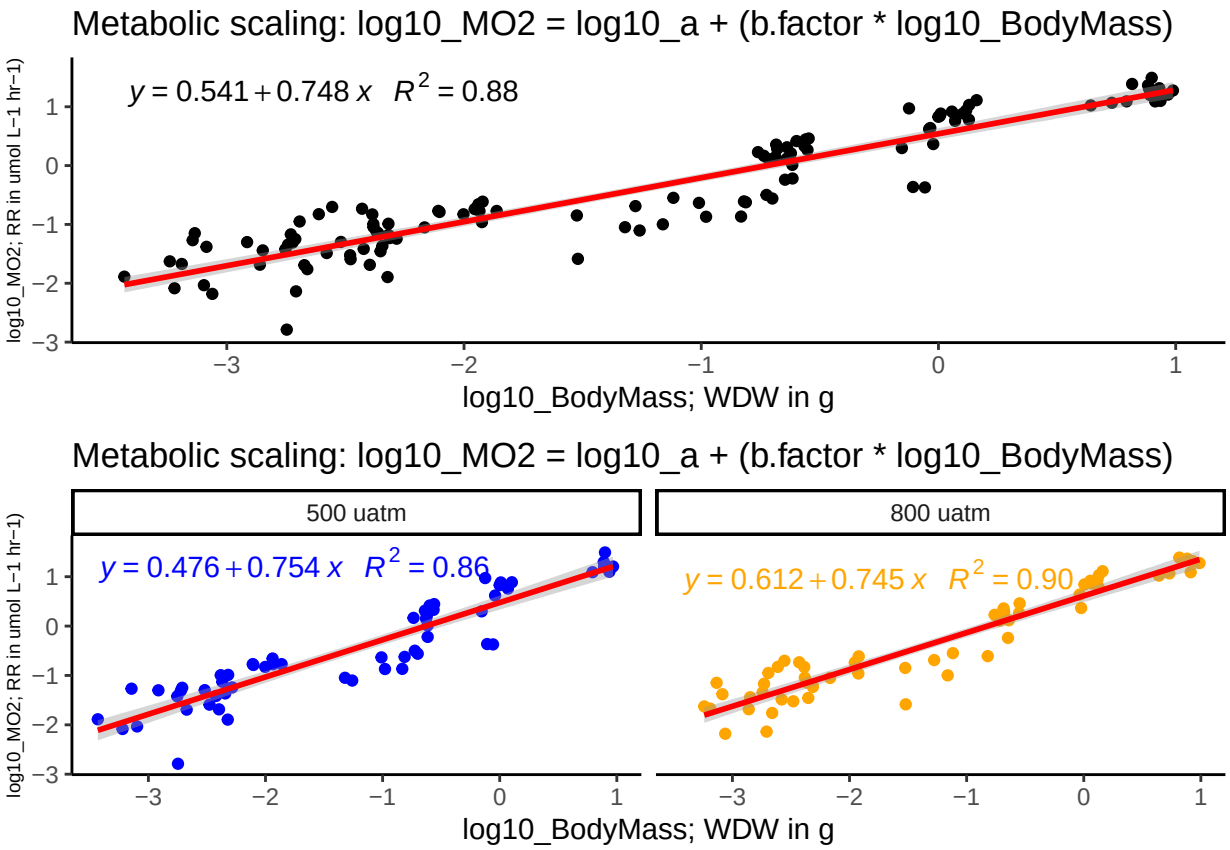
by SHELL AND INDIVIDUAL LENGTH



summary:

- Length b factor total = 2.18
- Length b factor pCO2 high = 2.2
- Length b factor pCO2 low = 2.16

WHOLE DRY WEIGHT



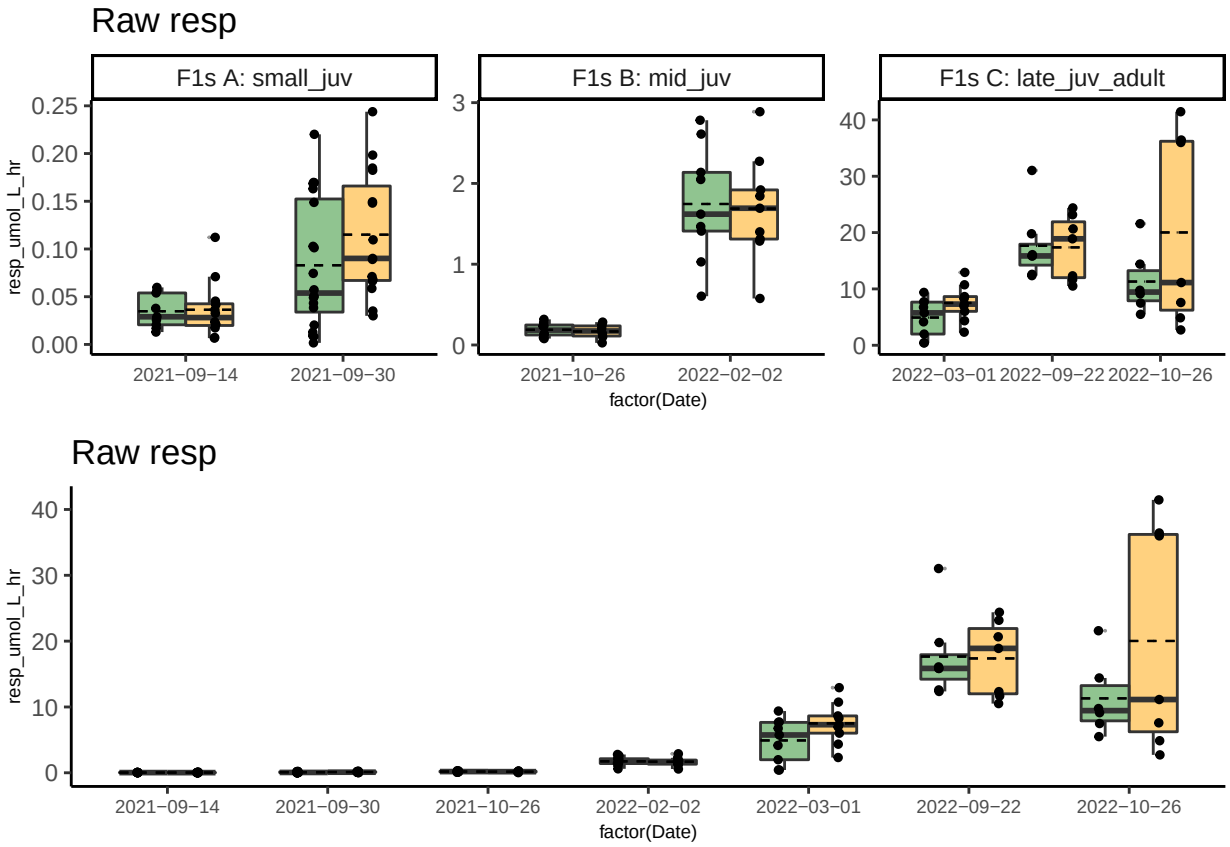
summary:

- WDW b factor total = 0.748
- WDW b factor pCO2 high = 0.745
- WDW b factor pCO2 low = 0.754

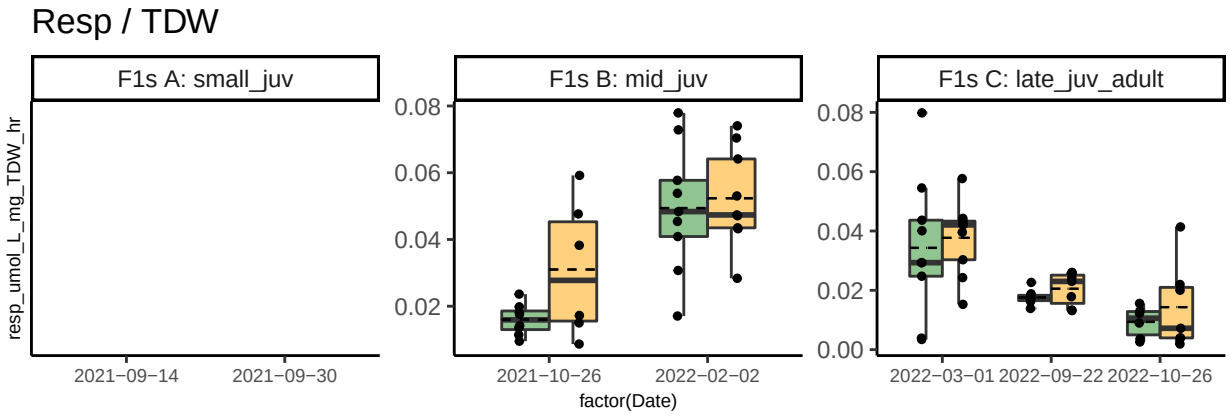
DATA VISUALIZATION

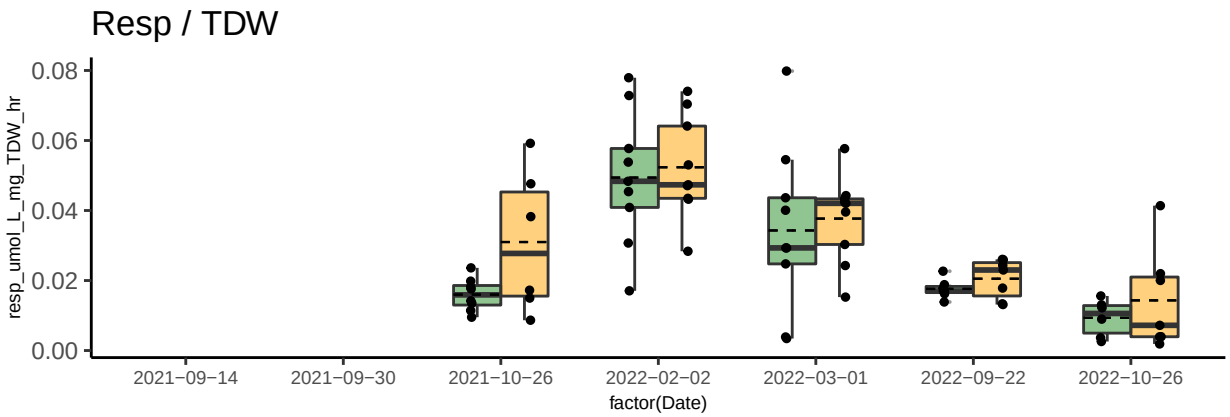
- raw data (umol O2 hr-1)
- TDW:
  - umol O2 hr-1 gTDW-1
  - umol O2 hr-1 gTDW-1 b factor normalized and meanTDW standardized
- Length:
  - umol O2 hr-1 mmLength-1
  - umol O2 hr-1 mmLength-1 b factor normalized and meanLength standardized

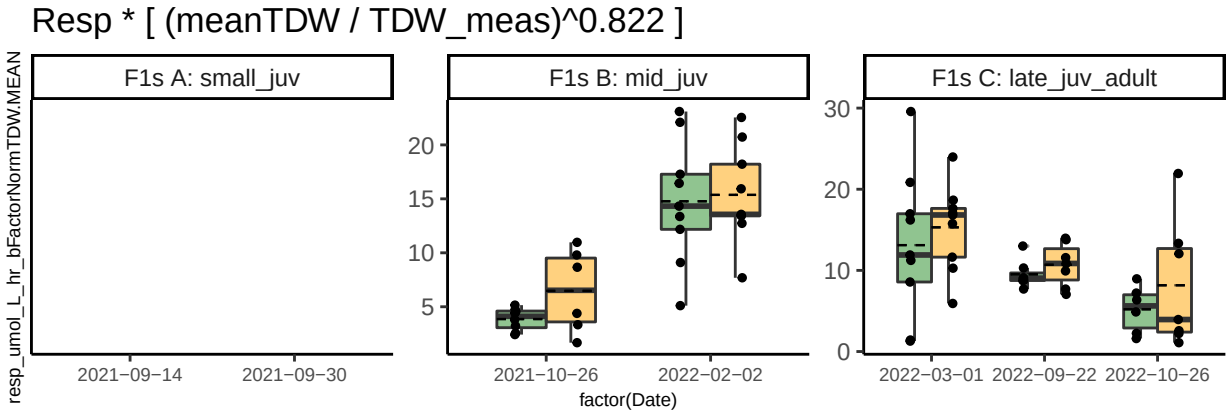
BOXPLOTS the raw resp rate data

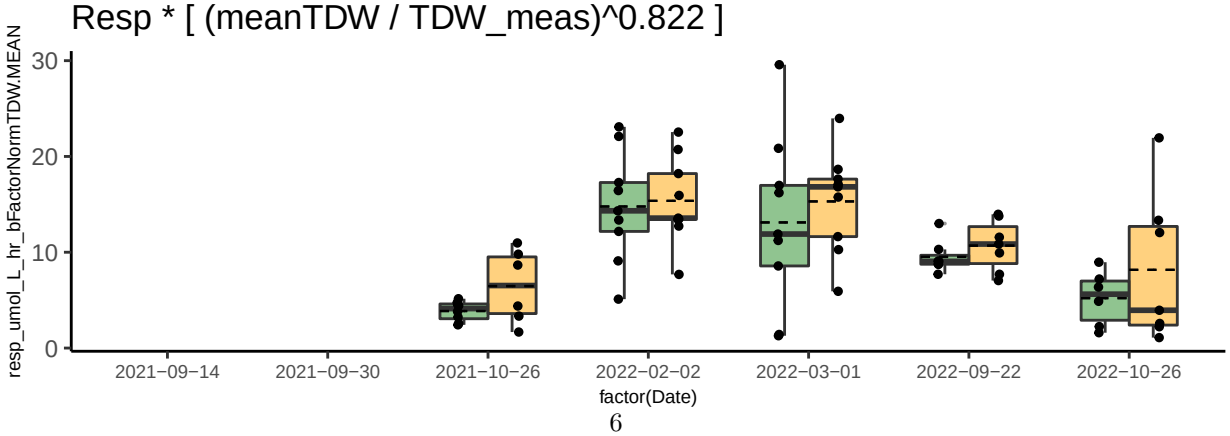


BOXPLOTS by TISSUE DRY WEIGHT (b factor = 0.822)









BOXPLOTS by SHELL LENGTH (b factor = 2.18)