

Table 1: Details for each Scenario that include the predictor variables, the target variable, the equations used to calculate biomass, the type of source file used to acquire the values for the predictors, and a short description of each scenario.

Scenario	Predictors	Target	Equations Used	Source File Description	Scenario Description
1	Macronutrient (mol kg ⁻¹); Micronutrient (mol kg ⁻¹); Irradiance (W m ⁻²)	Biomass (mol kg ⁻¹)	1, 2	Monthly Output from BLING	Nutrient distributions (predictors) from BLING were fed to Eq. 1 and 2 to calculate the biomass (target)
2	Macronutrient (mol kg ⁻¹); Micronutrient (mol kg ⁻¹); Irradiance (W m ⁻²)	Biomass (mol kg ⁻¹)	1, 2, 5	Daily Output from BLING	<p>1) Hourly values for the predictors were interpolated using the Daily Output of BLING</p> <p>1a) The macronutrient and micronutrient hourly values were calculated using a standard interpolation between the daily points.</p> <p>1b) The irradiance hourly values were calculated from Eq. 5 using the value of the BLING daily input, hour of day, time of year, and location.</p> <p>2) Hourly values of the predictors were fed to Eq. 1 and 2 to calculate hourly values for the biomass (target)</p> <p>3) Daily-averaged values were calculated by averaging 24 hours for each location through one year</p> <p>4) Weekly-averaged values were calculated by averaging 168 hour blocks of time for each location through the year</p> <p>5) Monthly-averaged values were calculated by averaging the number of hours in each month (days per month * 24) for each location through the year</p> <p>6) The true relationships were calculated by using the range of the hourly values for the predictors and calculating the biomass based on Eq. 1 and 2.</p>
3	Macronutrient (mol kg ⁻¹); Micronutrient (mol kg ⁻¹); Irradiance (W m ⁻²)	Biomass (mol kg ⁻¹)	6, 7 (Equations within BLING used to determine the biomass)	Monthly Output from BLING	Nutrient distributions from the BLING Output were used as the predictors; Biomass from the BLING Output itself was used as the target

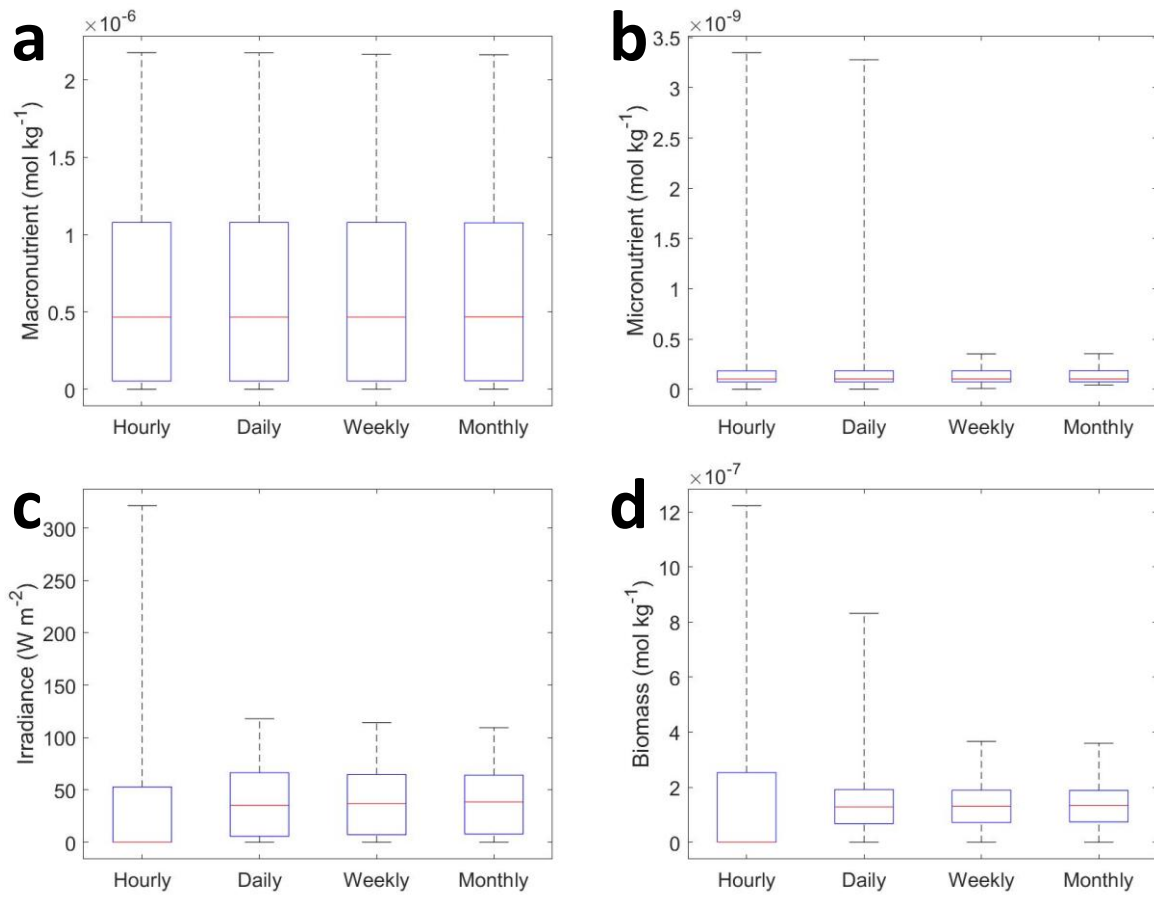


Figure 1: Boxplots showing the variability in each of the predictor and target variables for each time-averaged dataset of Scenario 2. The red line in the boxplots shows the median value, the box edges correspond to the 25th and 75th percentile values, and the whiskers correspond to the maximum and minimum.