

Figure 5: Illustrative results of the model (coloured lines) employed to infer the process rates from measured data. The top graphs depict the model output of incubations performed during the day while the bottom ones show the output for night-time incubations. Points represent measured values of the state variables inside and outside the tent. The measured data was centred for graphic visualisation purposes (non-centred data for all incubations can be found in supplementary Table S2). The blue, green, orange, red and yellow colours represent communities dominated by coral, turf and macroalgae, bioeroding sponges, benthic cyanobacterial mats and sand respectively. Note that NH_4 and NO_3 measurements in BCM incubations at night-time were much higher than the rest. The y-axis of the graphs depicting NH_4 and NO_3 results were therefore truncated in order to better visualise model output of all other incubations (model output for the off chart BCM incubation can be found in Figure S1).

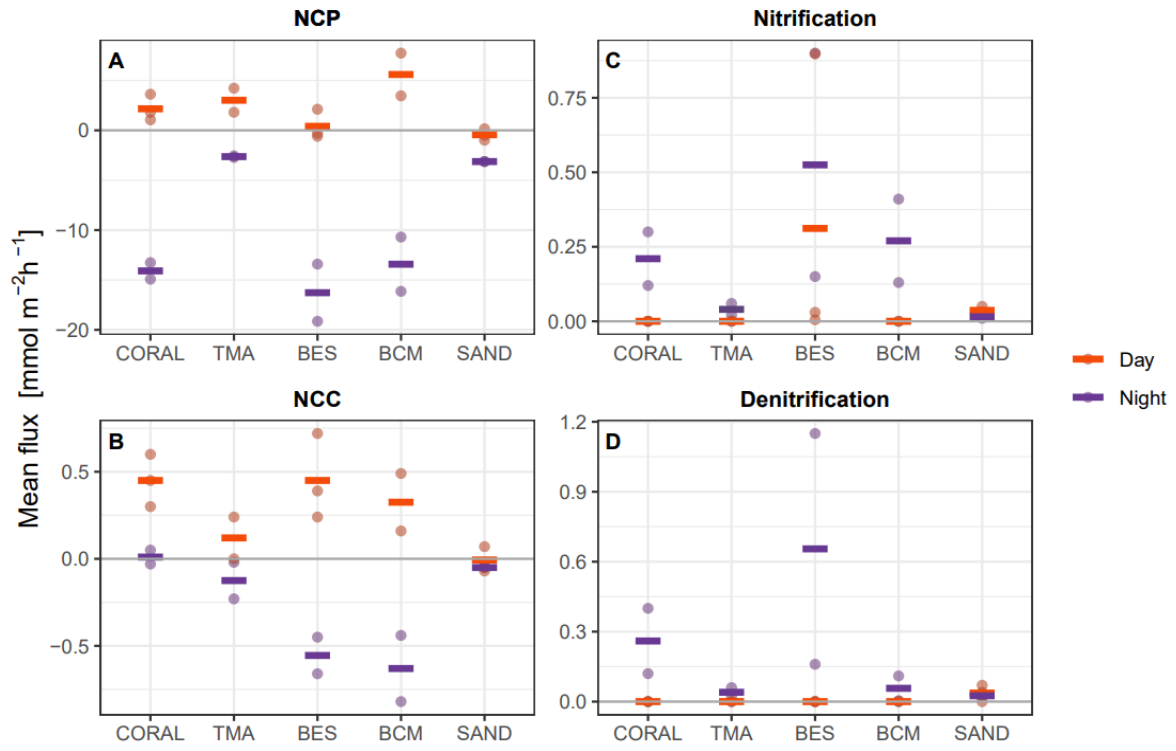


Figure 6: Process rates for all tent replicates (points) and respective average (line) estimated from observed concentration changes and model output in the tent enclosure on each substrate type. Processes occurring during the day are depicted in red, and processes at night are represented in purple.

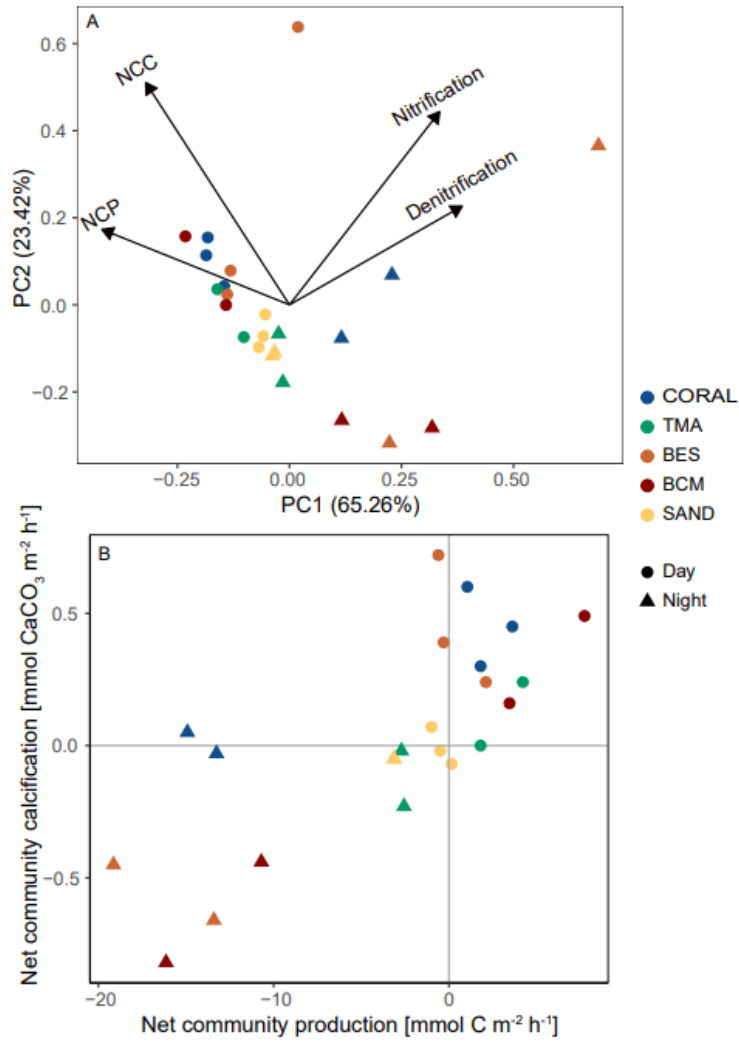


Figure 7: A) Principal component analysis (PCA) diagram displaying the spatial variation of all incubations along the first two principal components. Processes are plotted as vectors and dots represent day-time incubations while triangles depict night-time incubations. Colour refers to the type of substrate incubated. B) NCP vs NCC rates for every incubation. Each dot/triangle represents an individual incubation and colour indicates