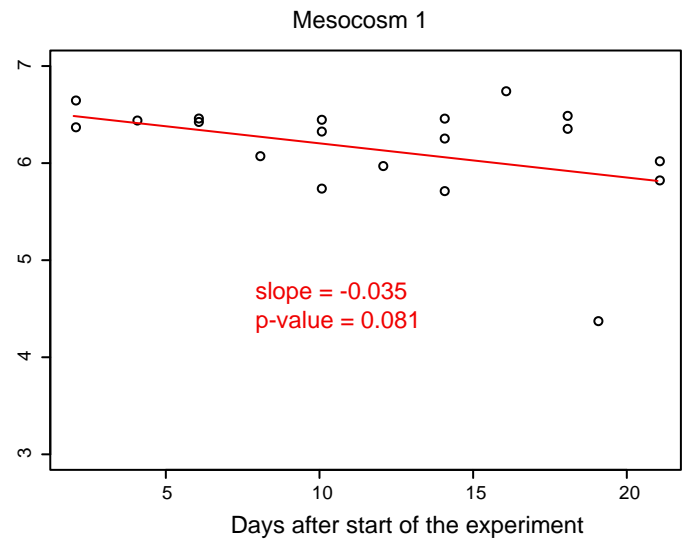
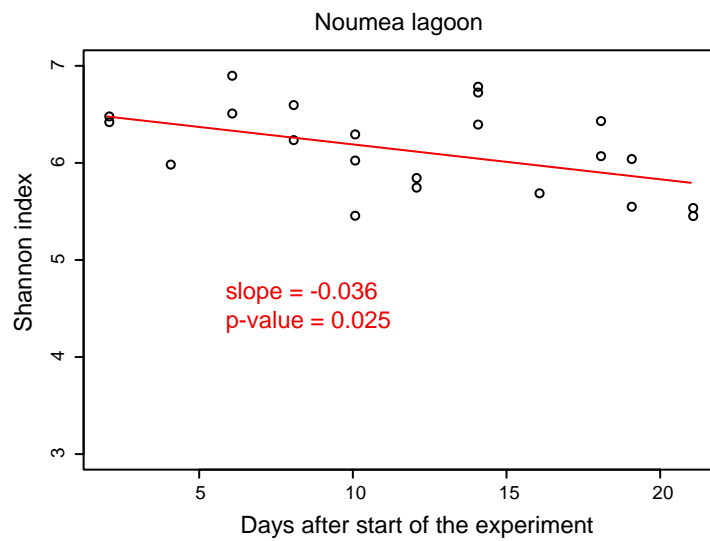
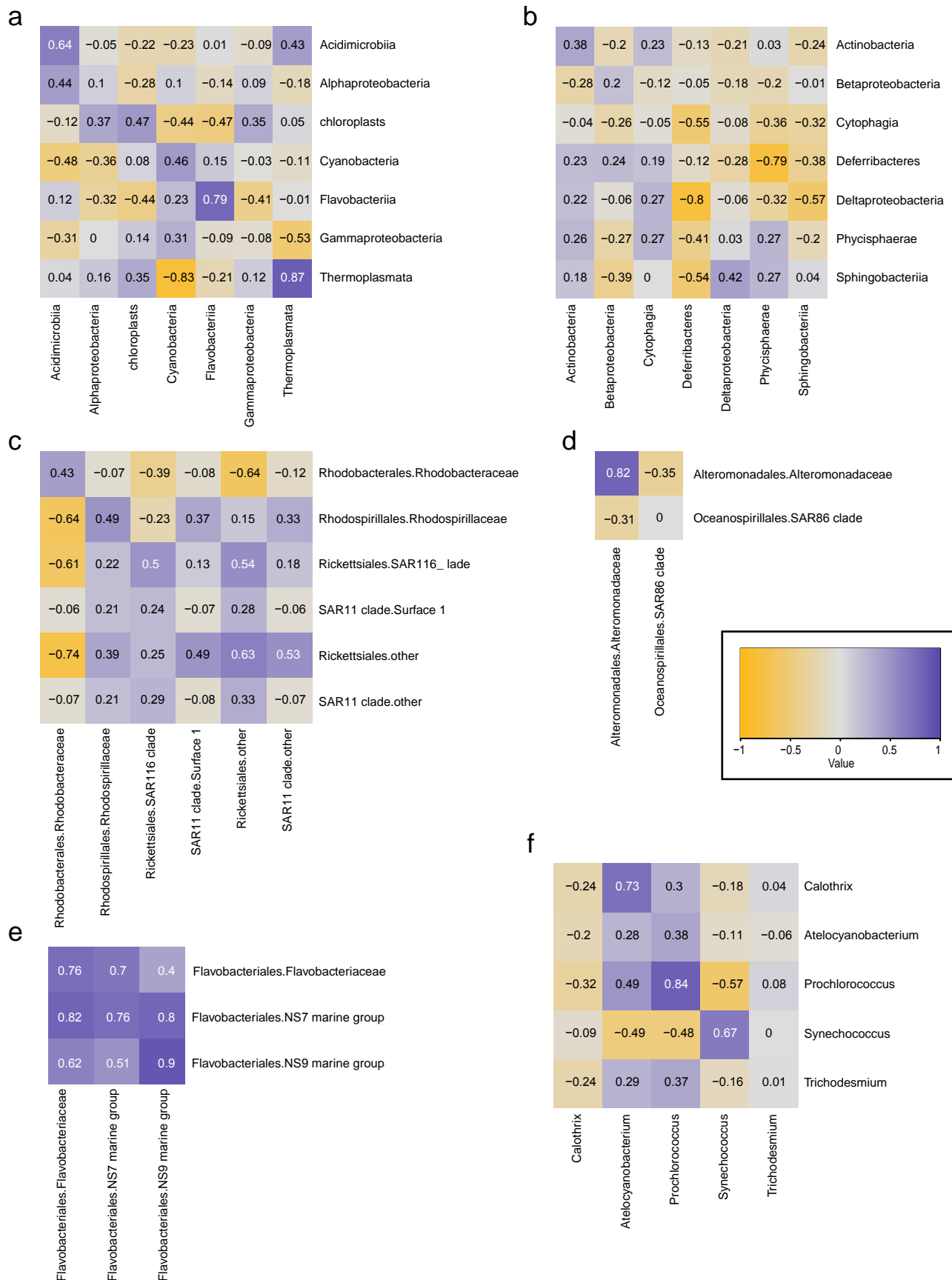


Supplementary Figure S1. Development of the Shannon index in the Noumea lagoon and in mesocosm M1. The generalized linear model was fitted with R.



Supplementary Figure S2. For all investigated phylogenetic groups (**Fig. 3, 4**), the relative abundances in M1 and the Noumea lagoon were correlated. Note that these correlations are represented by the diagonals from top left to bottom right. All other positions in the heatmap represent correlation of one group in M1 versus another group in the lagoon. Values inside the heatmap are Pearson correlation coefficients. **a)** Dominant classes >5 % relative abundance, **b)** classes 0.5-5 % rel. abundance, **c-f)** families >1 % rel. abundance within alpha- and gammaproteobacteria, *Flavobacteriia*, and cyanobacteria, respectively.



Supplementary Figure S3. Absolute cell numbers in cells/mL, calculated from 16S relative abundance data by using cytometry counts of *Prochlorococcus* and *Synechococcus* as a reference. This figure is set up the same way as Fig. 3 and 4. **a)** Dominant classes >5 % relative abundance, **b)** classes 0.5-5 % rel. abundance, **c-f)** families >1 % rel. abundance within alpha- and gammaproteobacteria, *Flavobacteriia*, and cyanobacteria, respectively.

