**Figure S1:** Environmental data pertaining to each microbial sample across sites and time points.

**Figure S2:** Observed Richness and Simpson’s Evenness of major nc-bacterial groups not depicted in Figure 3.

**Figure S3:** Responses of Alphaproteobacteria, Bacteroidetes, and Betaproteobacteria Richness and evenness to Phycocyanin and pH.

**Figure S4:** Scree plot of Bray-Curtis principal coordinates

**Figure S5:** Histograms of residuals from PC linear models.

**Figure S6:** Autocorrelation function for PC linear model residuals. Blue-dashed line indicates rejection of the null hypothesis for no autocorrelation by the ljung-box statistic.

**Figure S7:** Spatiotemporal dynamics of abundant Bac-I OTUs.

**Figure S8:** Spatiotemporal dynamics of abundant Bet-I OTUs.

**Figure S9:** Spatiotemporal dynamics of abundant Planctomycetaceae OTUs.

**Figure S10:** Spatiotemporal dynamics of abundant bacV OTUs.