

**Figure A1.**

Relationships between bacterial beta diversity and landscape flow heterogeneity during winter and summer growth. Flow heterogeneity is given as the standard deviation of the average water depth (**a-h**), turbulent kinetic energy (**i-p**) and turbulence intensity (**q-x**). Beta diversity was computed as richness (**a, e, i, m, q, u**), Shannon entropy (**b, f, j, n, r, v**), Gini-Simpson coefficient (**c, g, k, o, s, w**) and Bray-Curtis distance (**d, h, l, p, t, x**). All indices were z-standardized within each sampling date to remove temporal variation.

