



**Figure S4. North Sea surface waters support streamlined archaeal and bacterial diversity.** Alpha diversity is calculated using richness ( $q = 0$ ), exponential Shannon ( $q = 1$ ) and inverse Simpson ( $q = 2$ ) diversity metrics using the R package iNEXT (Chao et al, 2014). For rarefaction curves (A), subsampling units are shown on the x-axis and the number of effective species on the y-axis. Line colors denote season: purple = winter, blue = spring, green = summer, red = autumn. Data point shapes denote method: circle = interpolated, triangle = extrapolated. Temporal changes in diversity (B) are shown with the number of effective species on the y-axis over Julian days on the x-axis. Spring and summer are denoted by the dark and light grey areas, respectively. Line colors denote year: red = 2010, blue = 2011 and green = 2012. Error bars represent upper and lower 95% confidence intervals of 50 bootstrap replicates.