

Figure S1. Van Krevelen plots of elemental O/C vs. H/C ratios, with (A) showing compound group classification by ICBM-OCEAN (Merder et al. 2020), (B) displaying the concept of the molecular lability boundary index MLB_1 (D'Andrilli et al. 2015), (C) ten ubiquitous formulae used for the calculation of the degradation index $Ideg$ (Flerus et al. 2012), (D) ten ubiquitous formulae used for the calculation of the bioproductivity index (Seibt 2017), (E) eighty ubiquitous formulae used for the calculation of the terrestrial index (Medeiros et al. 2016).

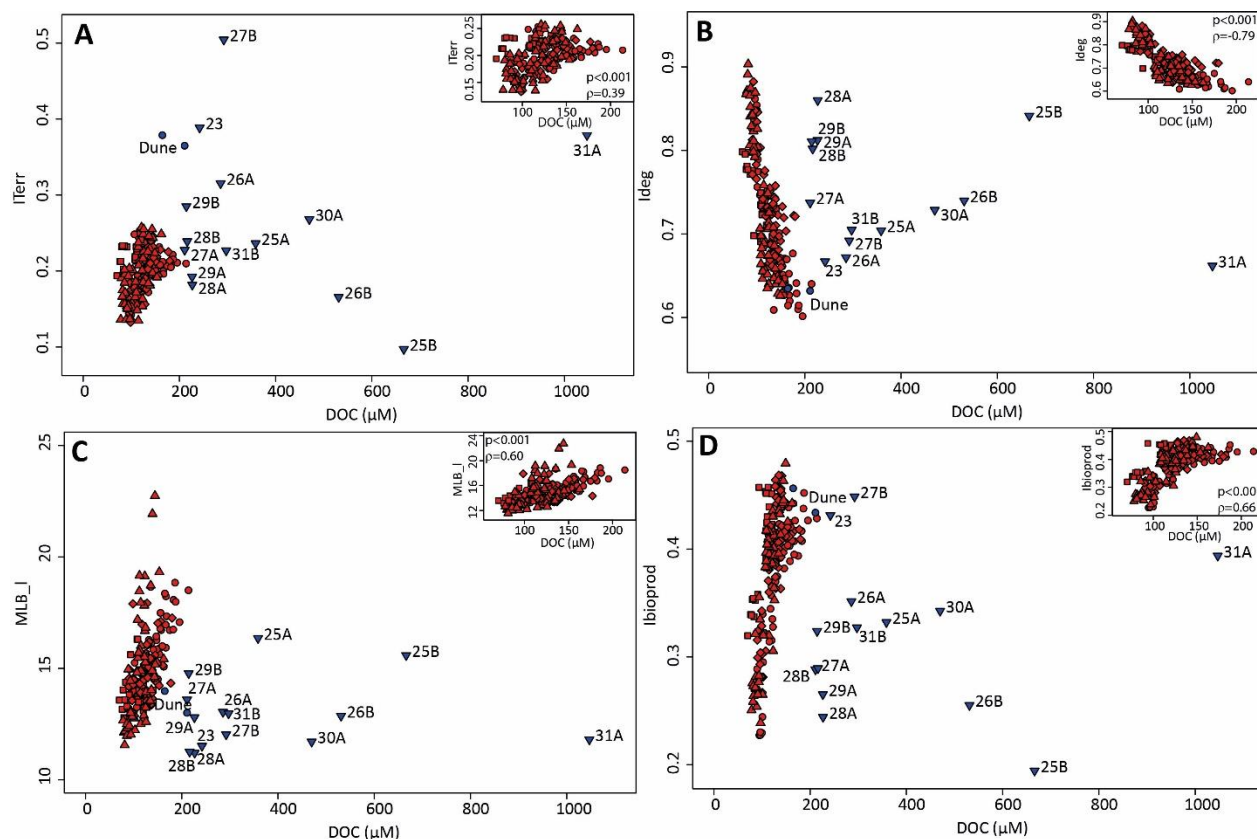


Figure S2. DOM molecular indices vs. DOC. (A) ITerr, (B) Ideg, (C) MLB_1, (D) Ibioprod. The blue and red colors indicate fresh (groundwater and dune porewater) and brackish/saline (beach porewater and seawater) samples, respectively. The inserts display beach porewater and seawater samples only, with Spearman correlation p-values and coefficients (ρ). Symbols indicate campaign season (see also Figure 3): Triangles=October, diamonds=March, squares=February, upside down triangles=September. Numbers indicate groundwater wells (see also Figure 1).

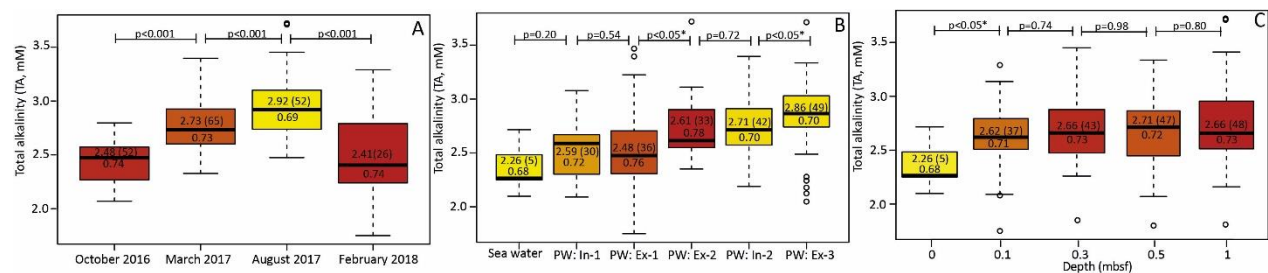


Figure S3. Boxplots of total alkalinity (TA) concentrations (mM) (A) for the four campaigns, (B) along the cross-shore transects, and (C) at sampled sediment depths (0 m represents seawater). Numbers next to brackets denote median TA concentrations, numbers in brackets indicate number of samples. Numbers above display p-values for pairwise Wilcoxon rank-sum tests. The yellow to red color scale corresponds to increasing Ideg values (also denoted by the numbers in the boxes below the median line). The captions in plot (B) refer to in- and exfiltration zones defined in Figure 2.