S3 File. Final linear mixed-effects model of the organic matter content.

The final optimal model was selected after a stepwise backwards model selection using the likelihood ratio test:

Organic matter content$_{ip}$ ~ α + Treatment$_{icp}$ + Sediment depth$_{icp}$ + Time$_{icp}$ + Treatment$_{icp}$ x Sediment depth$_{icp}$ + Treatment$_{icp}$ x Time$_{icp}$ + Sediment depth$_{icp}$ x Time$_{icp}$ + Treatment$_{icp}$ x Sediment depth$_{icp}$ x Time$_{icp}$ + a$_p$ + a$_{c/p}$ + ε$_{icp}$,

ε$_{icp}$ ~ N(0,σ^2)

The organic matter content$_{icp}$ is the observation *i* for each sediment core *c* at each plot *p*, where *c* runs from 1 to 3, *p* from 1 to 12 and *i* is the observation for each core at the different sites that goes from 1 to 8 (the number of samplings over time).The final model above means that Sediment salinity is modelled as a function of Treatment, Sediment depth, Time and all their two and three way interactions. Treatment is a categorical covariate and Sediment depth and Time are continuous. The terms a$_p$ and a$_{c/p}$ are random effects representing the between-plot and between-core variation and are significant (L. Ratio = 884.3, df = 1, *p*-value < 0.001, nested term: L. Ratio = 337.4, df = 1, *p*-value < 0.001). The unexplained variance ε$_{icp}$ is assumed to be normally distributed with mean 0 and variance σ^2 considered for each sediment depth *d* separately. The intercept of the model is represented with α.