Figure S1. VIP-values (variance of importance) for independent variables used in the PLS model testing relationships to carbon content. The variables are listed in the level of importance and those with VIP-values >1 (dashed line) has a significant influence on the model. Brown = sediment characterisitcs, green = seagrass-associated variables and blue = water depth. FineGrain (sediment particles <0.074 mm, %), SedPoros (sediment porosity, %), SedDens (sediment density, g DW mL^{-1}), GrainSize (mean grain size, ϕ), Bg and Ag DW (belowground biomass dry weight, m^2), Depth (water depth, m), ShootDens (shoot density, m^2), Ag and Bg biomass C and N (biomass carbon and nitrogen content, %), Canopy (shoot height, cm), SeagrCov (seagrass cover, %) were used as predictor variables.
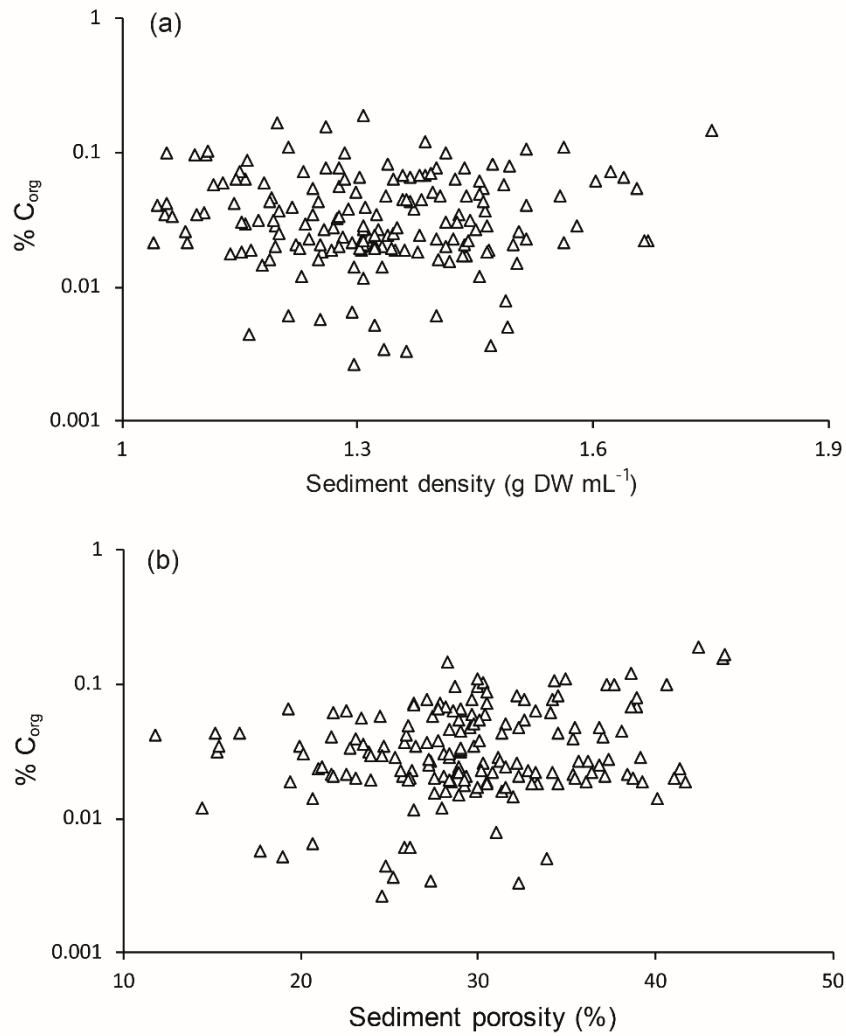
Figure S2. Semi-log plots ($\log_{10}[x+1]$) for sediment density (g DW mL^{-1}) (a), and sediment porosity (%) (b) in relation to organic carbon content (% C_{org}) for unvegetated areas. There was no significant relationship between sediment density and organic carbon. The sediment porosity was, however, positively linked to sedimentary organic carbon but had a low R^2-value (linear regression, $R^2 = 0.08$, $P < 0.001$).