

Calibration procedure

Before the start of the experiment, all pore pressure sensors were thoroughly calibrated. The reference column and the two sediment columns were filled with water up to 88 cm prior to calibration (Fig. S1). At this point, the relative pressure difference between each sediment column and the reference water column is zero and the output of all pore pressure sensors was set to 0.000 mV. Then, the water level in the reference column was increased/decreased with increments of 2 cm, while the water level in both sediment columns stayed at 88 cm. The output in mV was recorded at five relative water levels: -2 cm, 2 cm, 4 cm, 6 cm, and 8 cm (Fig. S1). Calibration curves were determined for each pore pressure sensor. Figure S2 and S3 present these calibration curves for the control column and the vegetated column respectively.

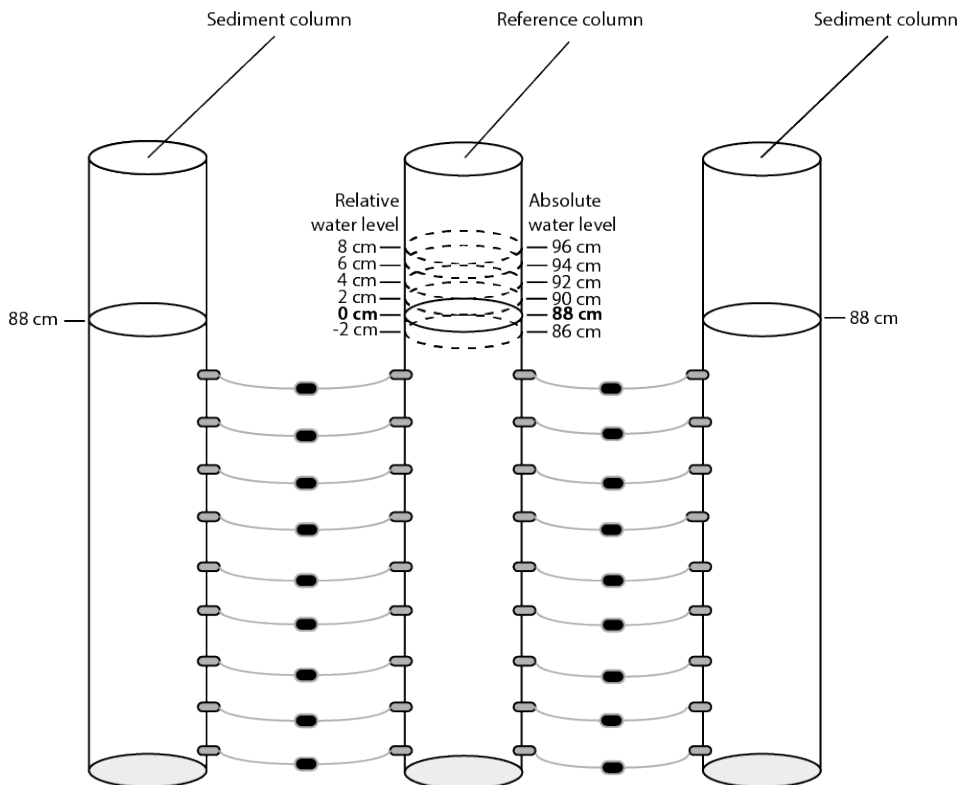


Figure S1: Schematic overview of the calibration set-up. All pore pressure sensors are calibrated using six different water heights relative to the water height in the sediment columns: -2, 0, 2, 4, 6, and 8 cm.

When converting the output of the pore pressure sensors in mV to kPa, we assumed a water density of 998.774 kg m⁻³, corresponding to the constant lab temperature of 17.4 °C. Furthermore, we worked with a gravity acceleration of 9.8125 m s⁻¹, corresponding to the latitude of the location of the laboratory (i.e., 52°N). This means that 0.01 m of water results in a pressure increase of 0.01 m x 998.774 kg m⁻³ x 9.8125 m s⁻² = 0.098004 kPa.

Using the equations of the calibration lines in Fig. S2 and S3, we calculated the relative difference in pressure between the reference column and the sediment column for each pore pressure sensor: pressure (kPa) = 0.098004 (a mV + b - 87 cm). Because the water level in the reference column was fixed at 87 cm during the experiment, changes in kPa are directly related to changes in pore pressure in the sediment columns.

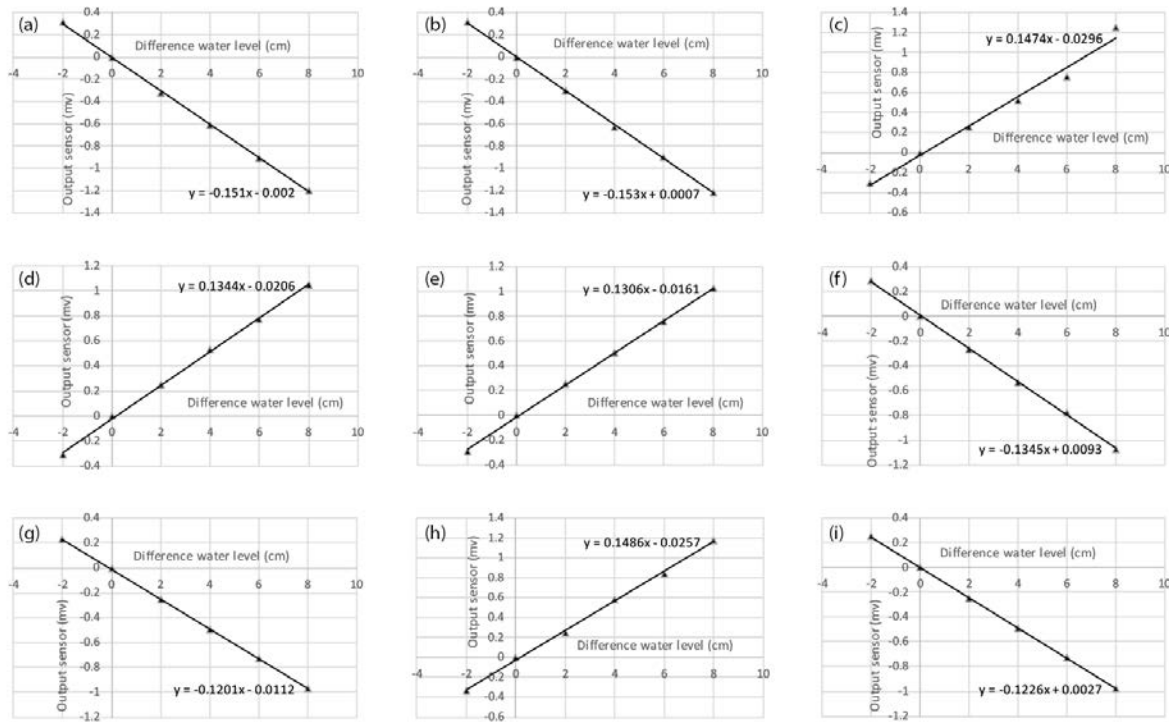


Figure S2: Calibration lines of all pore pressure sensors attached between the reference column and the control column: 4 cm depth (a), 14 cm depth (b), 24 cm depth (c), 34 cm depth (d), 44 cm depth (e), 54 cm depth (f), 64 cm depth (g), 74 cm depth (h), and 84 cm depth (i).

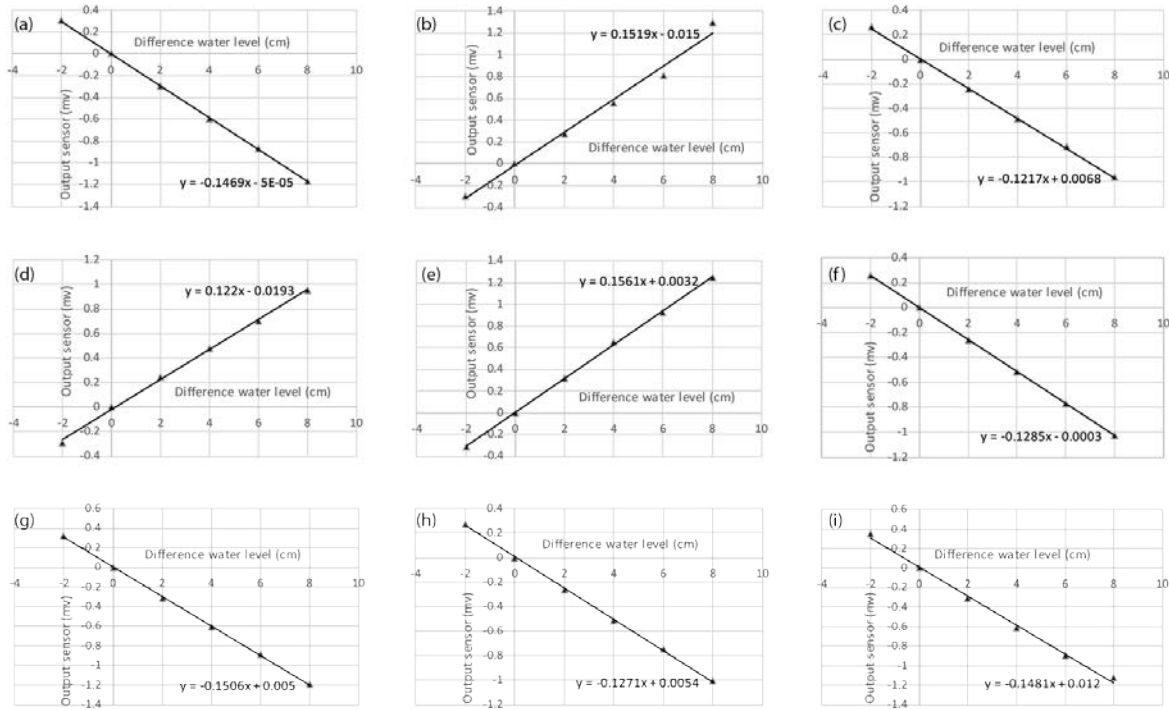


Figure S3: Calibration lines of all pore pressure sensors attached between the reference column and the vegetated column: 4 cm depth (a), 14 cm depth (b), 24 cm depth (c), 34 cm depth (d), 44 cm depth (e), 54 cm depth (f), 64 cm depth (g), 74 cm depth (h), and 84 cm depth (i).

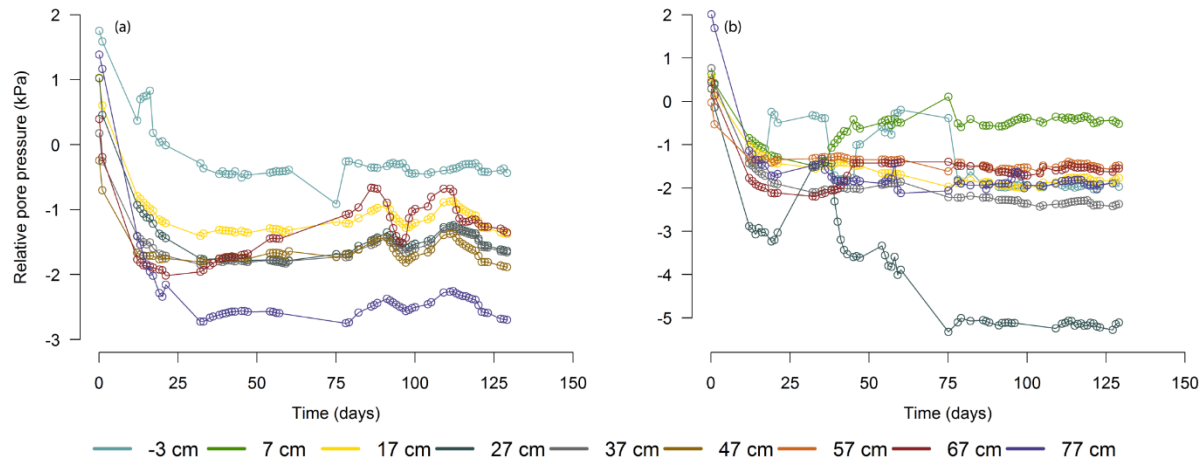


Figure S4: Relative pore pressure (kPa) relative to reference column at all depths of the control column (a) and the vegetated column (b) for the duration of the experiment.

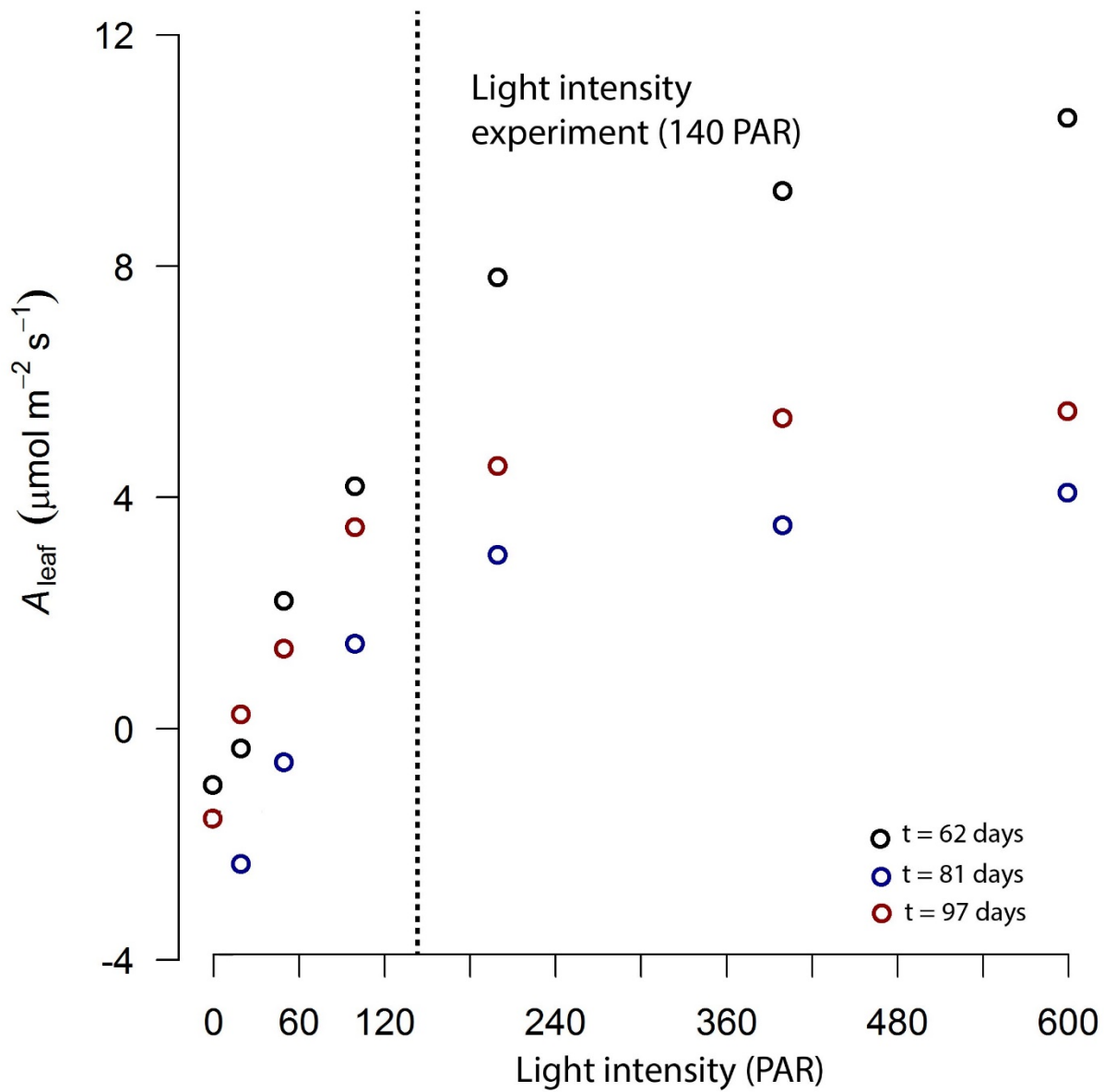


Figure S5: Net CO₂ assimilation rates ($\mu\text{mol m}^{-2} \text{s}^{-1}$) versus light intensity (PAR) at 61, 81 and 97 days after the start of the experiment. The vertical grey dotted line represents the light condition during the experiment (140 PAR).

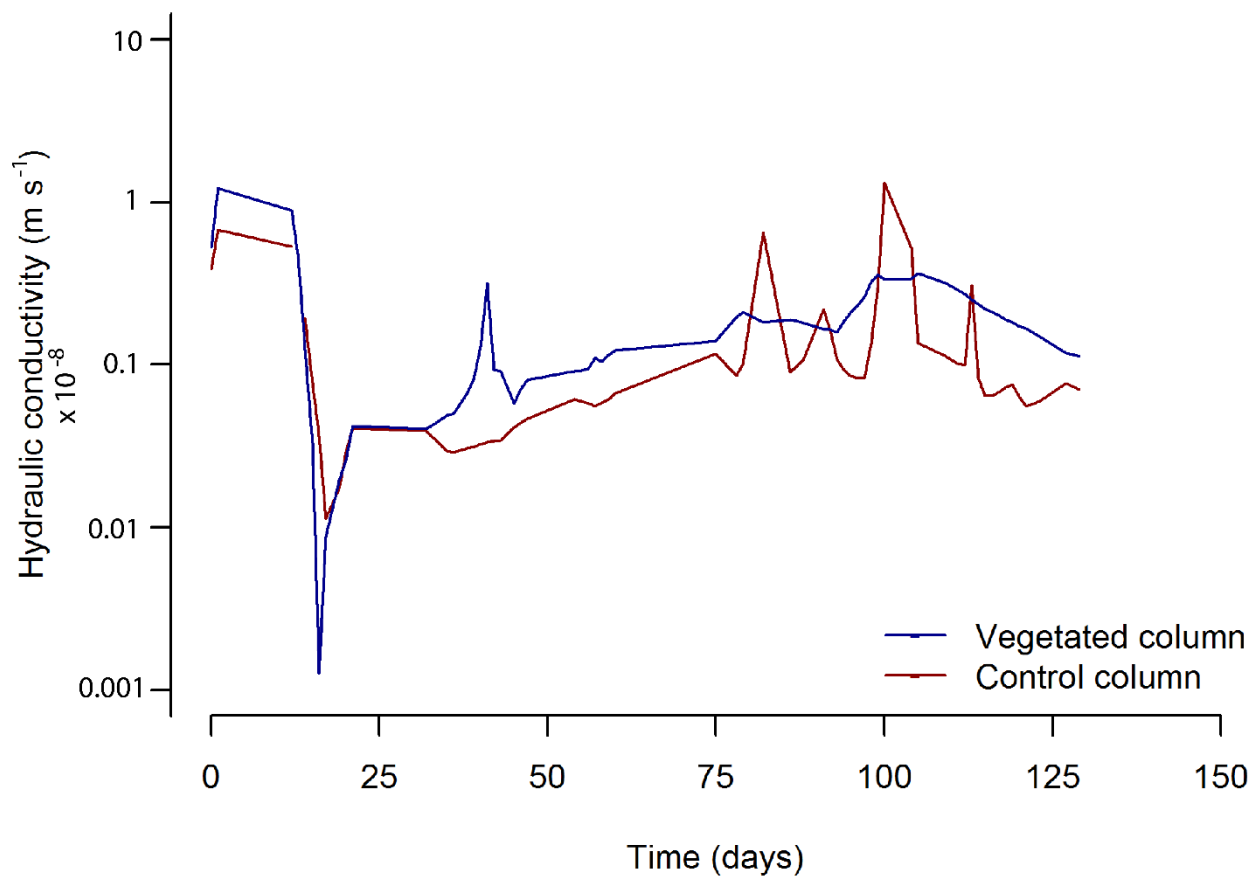


Figure S6: Depth-averaged conductivity (m s⁻¹) for the control column and the vegetated column.