The following supplement accompanies the article

In situ oxygen dynamics in rhizomes of the seagrass *Posidonia sinuosa*: impact of light, water column oxygen, current speed and wave velocity

Ylva S. Olsen*, Matthew W. Fraser, Belinda C. Martin, Andrew Pomeroy, Ryan Lowe, Ole Pedersen, Gary A. Kendrick

*Corresponding author: ylva.olsen@uwa.edu.au

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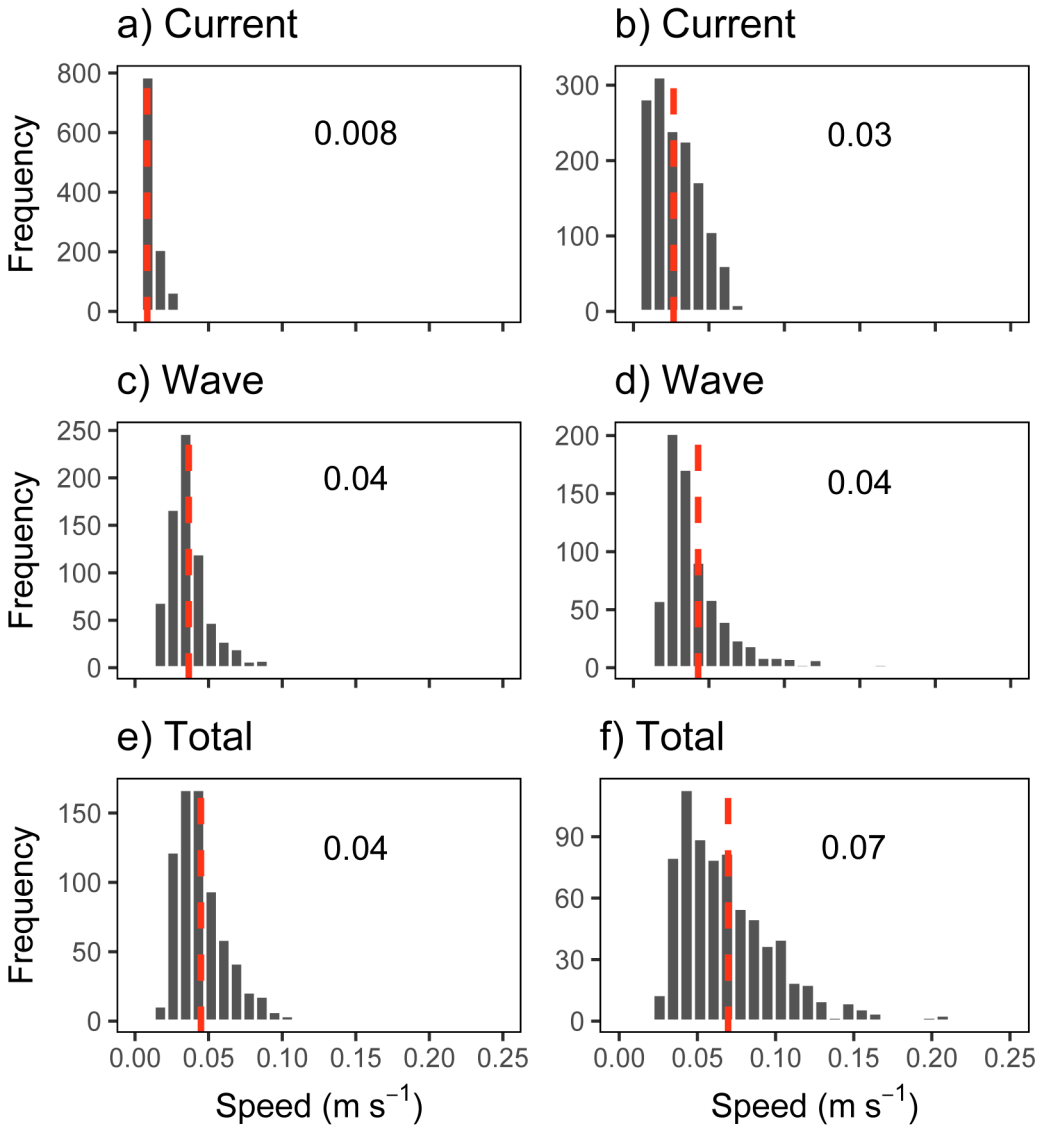

Figure S1. Speed of water flow measured inside the canopy of *Posidonia sinuosa* (left) compared to in the overlying water column (right). Flow speeds are shown as current (a, b), root-mean-squared wave (c, d) and total speed (e, f) during the optode deployments. The dashed lines represent the mean speed, which is also annotated on each panel.

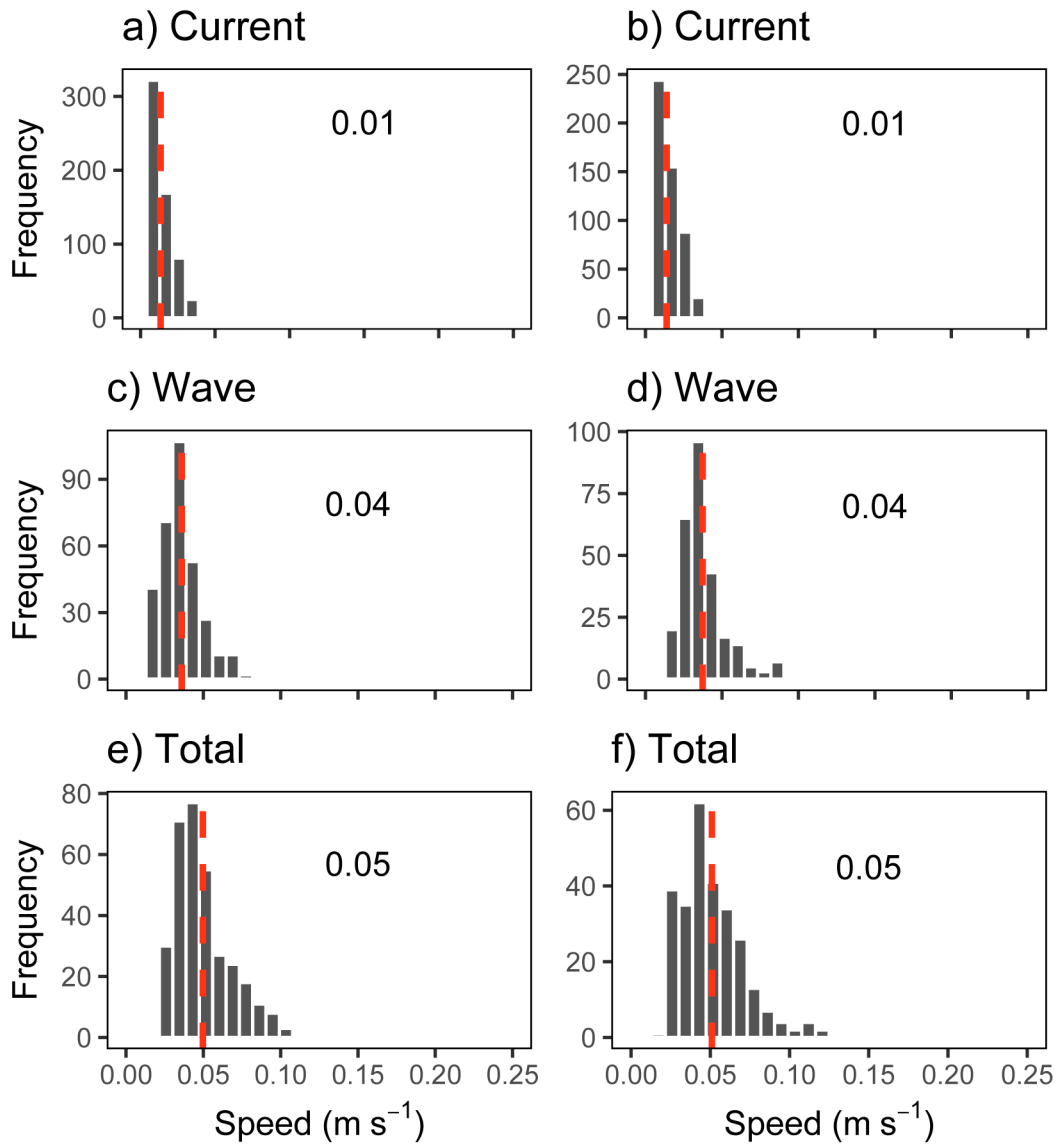

Figure S2. Water flow measured at the top of the canopy of *Posidonia sinuosa* during daytime (6:30–17:30, left) and night time (19:30–4:30, right) of the optode deployments as current (a, b), root-mean-squared wave (c, d) and total speed (e, f). The dashed lines represent the mean speed, which is also annotated on each panel.

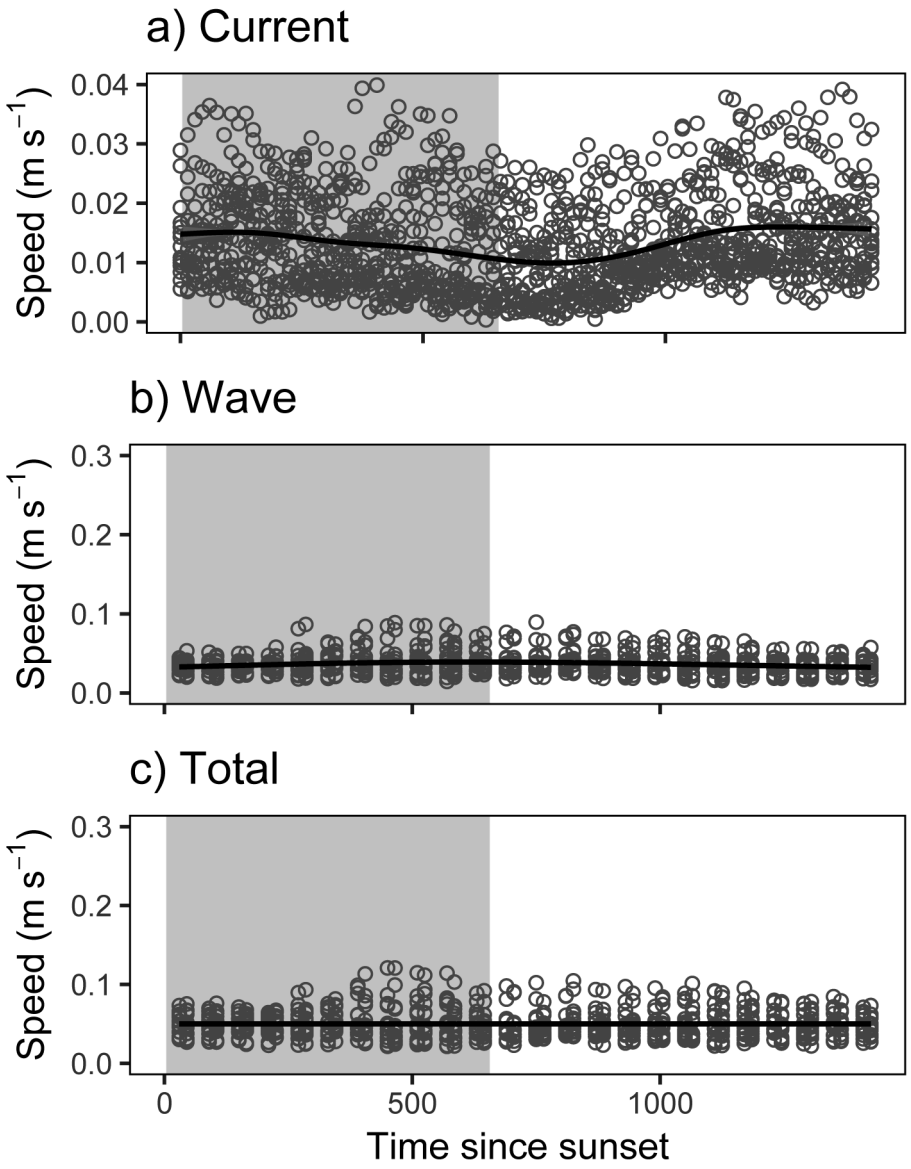

Figure S3. Diurnal water flow measured at the top of the canopy of *Posidonia sinuosa* during the optode deployments as current (a), root-mean-squared wave (b) and total speed (c). The shaded area shows the time from sunset (18:30) to sunrise (5:30).

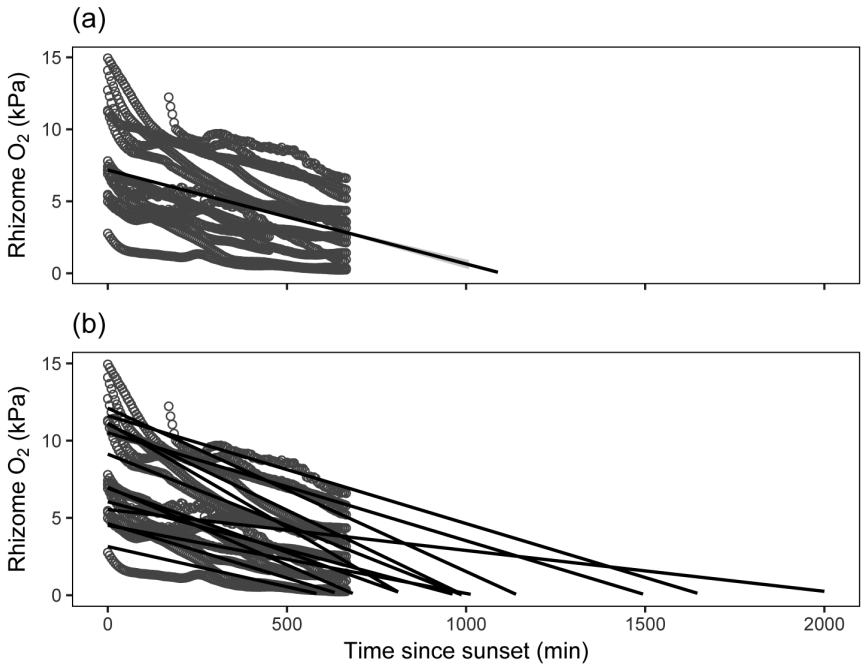

Figure S4. *Posidonia sinuosa* rhizome pO_2 measured from sunset to sunrise. The fitted linear model in panel a) with the equation y = -0.0065x + 7.2 (F = 435, p < 0.001; 95% confidence interval indicated in gray) indicates that rhizome O2 would be depleted after, on average, 18 h in darkness. Fitted linear models for the individual rhizomes in panel b) suggest that some rhizomes would become depleted much sooner – as early as after 10 h – whereas others would theoretically remain oxygenated for well over 24 h.

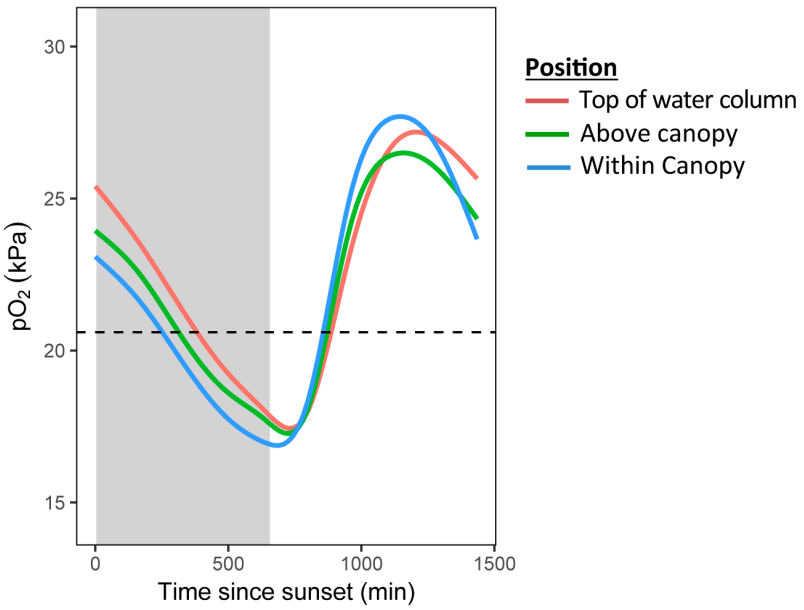

Figure S5. Diurnal oxygen profiles measured at three positions in the water column over a *Posidonia sinuosa* meadow. Measurements were made at the top of the water column, immediately above the canopy and within the canopy (approximately 1, 0.3 and 0.1 m above the seafloor respectively). Lines are generalised additive models of measurements from four deployments at Stn 2 (see Table 1 for details). The dashed line represents water column-air equilibrium of O_2 (20.6 kPa). The shaded area is darkness (18:30–5:30) and the unshaded area daylight (5:30–18:30).