



*Supplement of*

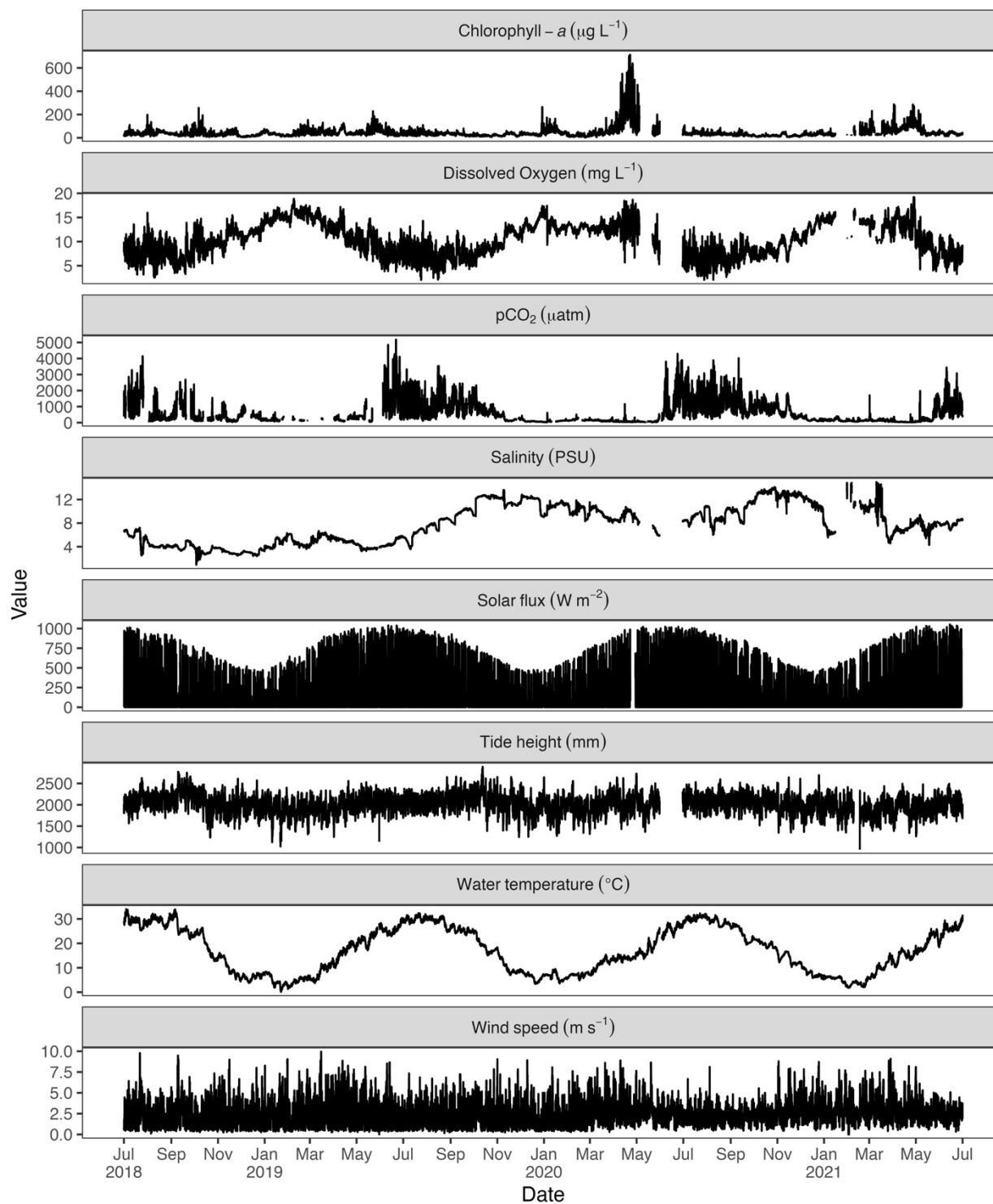
## **High-frequency continuous measurements reveal strong diel and seasonal cycling of $p\text{CO}_2$ and $\text{CO}_2$ flux in a mesohaline reach of the Chesapeake Bay**

**A. Whitman Miller et al.**

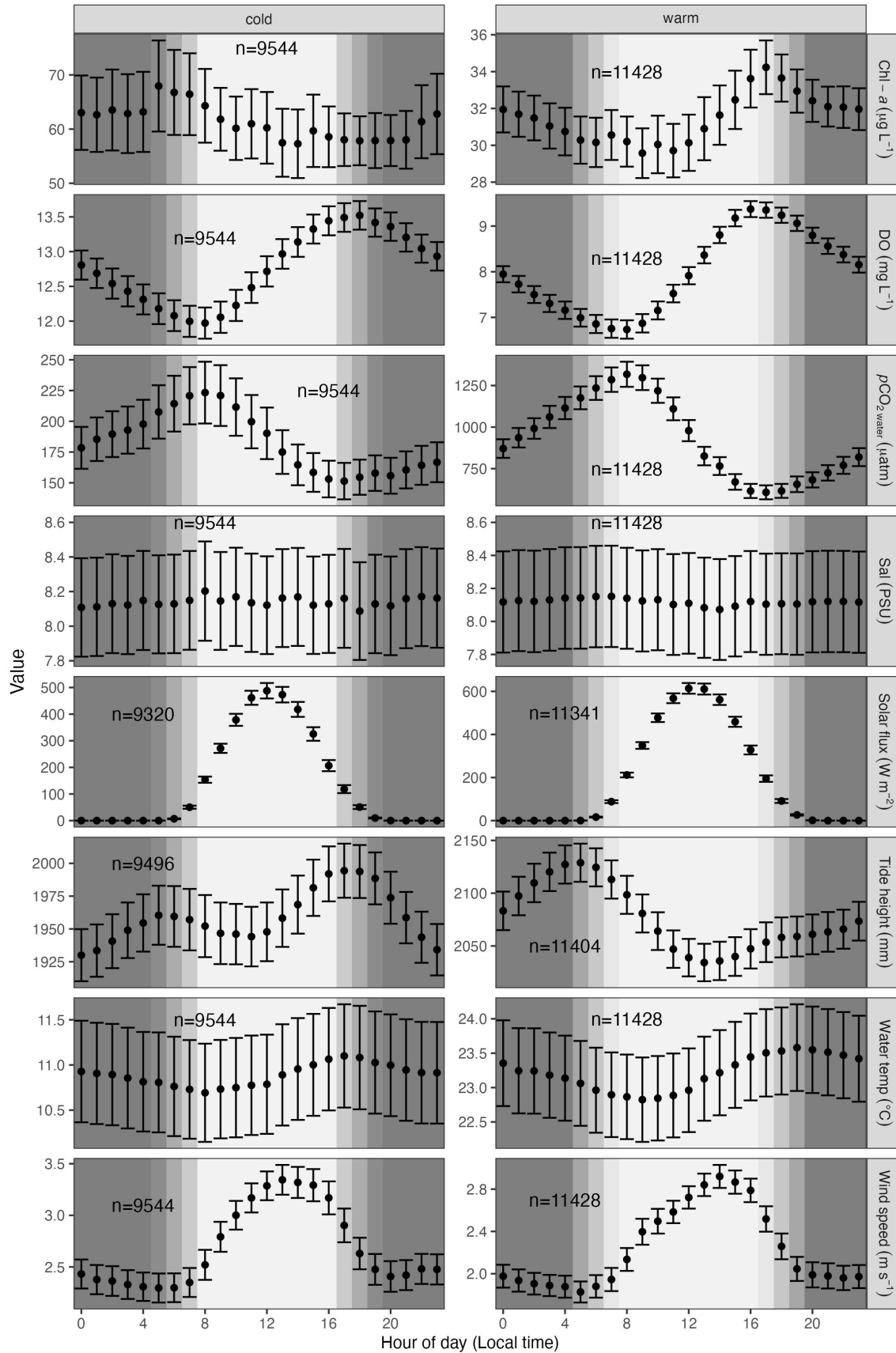
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1 **Supplemental**

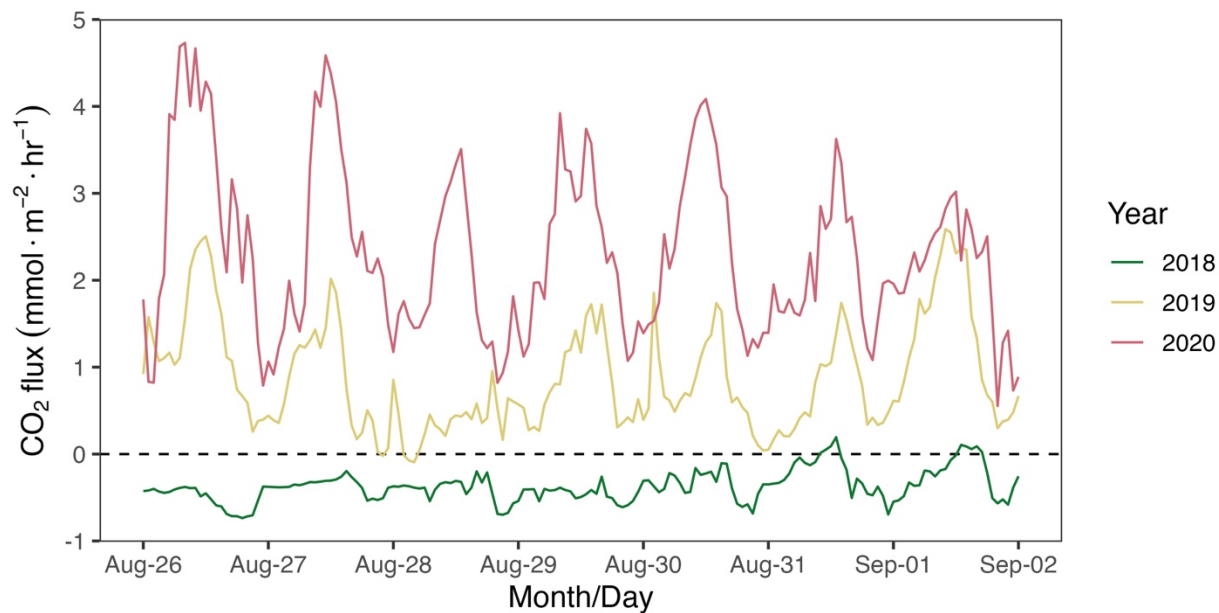


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 3 **Fig. S1.** Plot of all raw values from environmental variables for the same time period as CO<sub>2</sub> flux  
 4 (July 2018–July 2021).

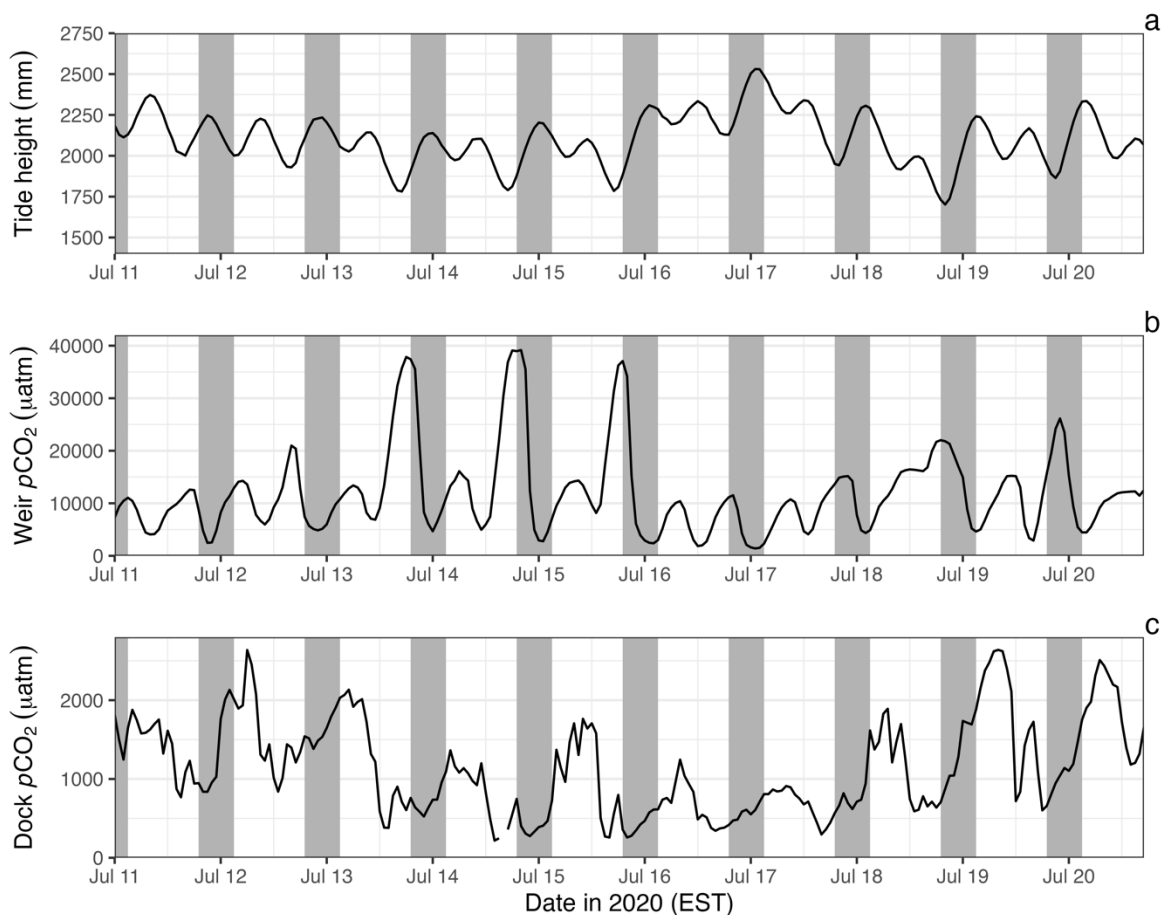


6 **Fig. S2.** Average hourly values (95% CI) of environmental variables across 24 hours of the day  
 7 (July 2018–July 2021) in cold and warm seasons. Light/dark background indicates day/night  
 8 conditions.

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11 **Fig. S3.** Hourly CO<sub>2</sub> flux estimates for the week of August 26 to September 2 where CO<sub>2</sub> flux  
 12 status differs among years.  
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 14



15  
 16 **Fig. S4.** Simultaneous  $p\text{CO}_2$  measurements (1 hr intervals) from SERC dock (panel c) and the  
 17 mouth of the single tidal creek that drains the Kirkpatrick Marsh (panel b) (11–20 Jul 2020)  
 18 indicate that dissolved  $\text{CO}_2$  varies at the dock according to a day/night cycle while  $\text{CO}_2$  in the  
 19 marsh tidal creek rises and falls inversely with tide height (panel a), indicating outwelling of  
 20 marsh derived  $\text{CO}_2$  (e.g., root respiration, pore and groundwater).