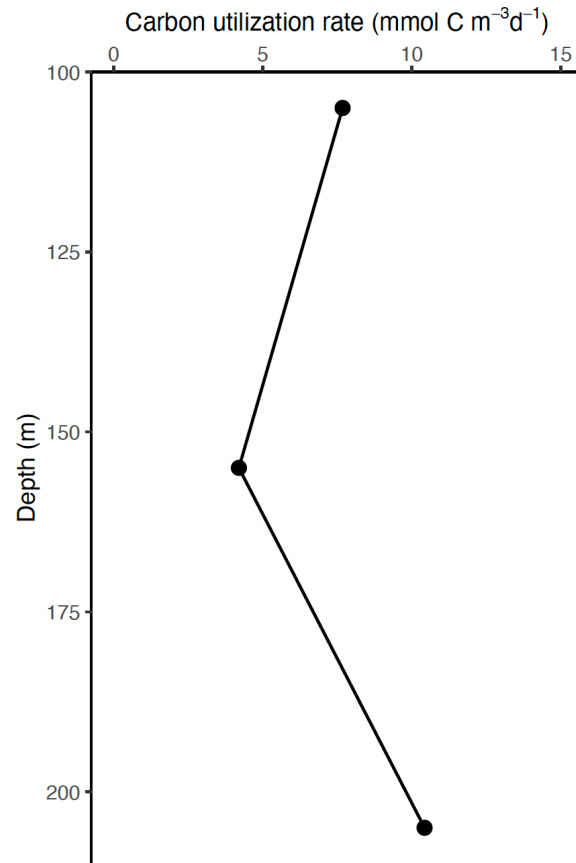
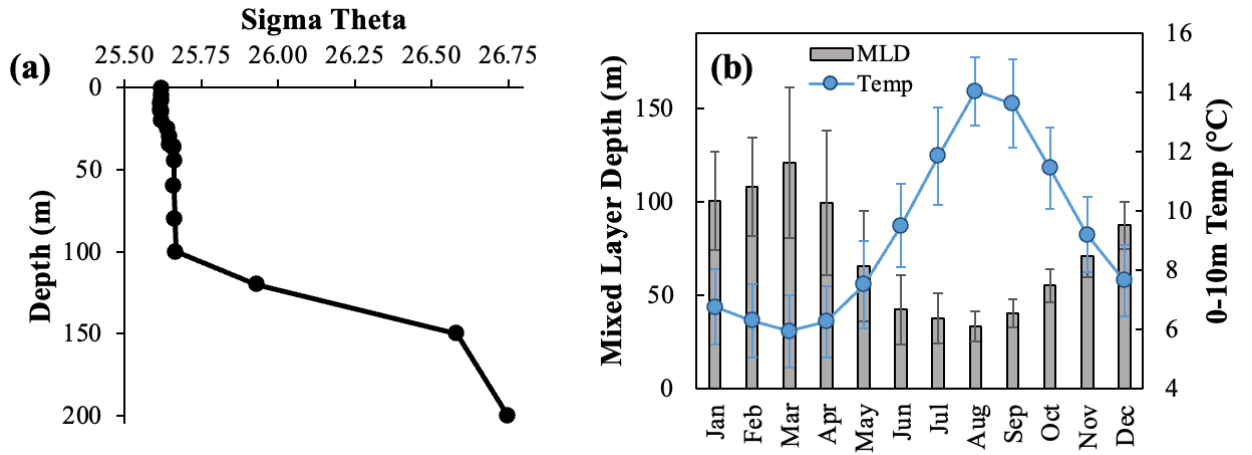


**Supp. Fig. 1.** Decreases in DOC concentrations were used to infer DOC removal rates, the contributions to which may not have been accurately captured by methods conducted during the cruise (i.e., long-term DOC removal may not be captured by  $^3\text{H}$ -Leu-based uptake by free-living bacteria). When integrated over the 95 to 500 m depth range, DOC removal rates averaged  $5.6 \pm 3.2 \text{ mmol C m}^{-2} \text{ d}^{-1}$ .



**Supp. Fig. 2.** Particle-attached respiration rates estimated from RESPIRE traps during Epoch 3 at 105, 155 and 205 m. Note that the carbon utilization error bars are less than the size of the data points (e.g., 0.03 mmol C m<sup>-3</sup> d<sup>-1</sup>).



**Supp. Fig. 3.** Potential density profile from the OSP Mooring collected on March 29, 2018, illustrating the weakest stratification (a). Mean OSP Mooring monthly mixed layer depths (MLD) and surface temperature (0-10 m average) collected between 2008 and 2018 (b).