

2018 Casco Bay/SMCC Monitoring: UNH, CBEP, EPA

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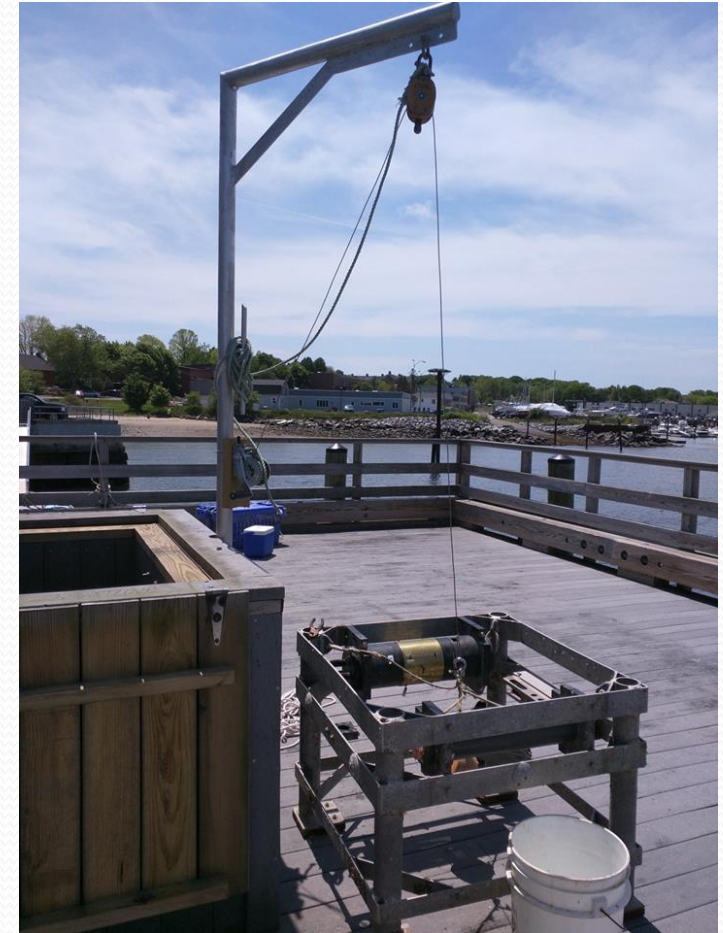
Casco Bay Monitoring Network Annual Meeting

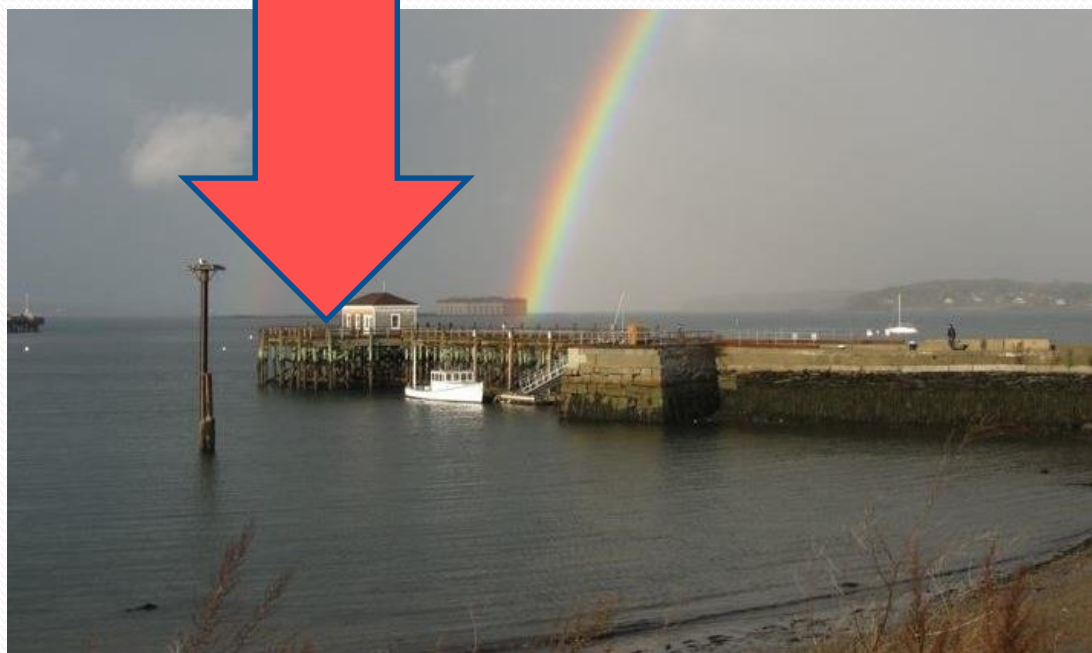
April 1, 2019

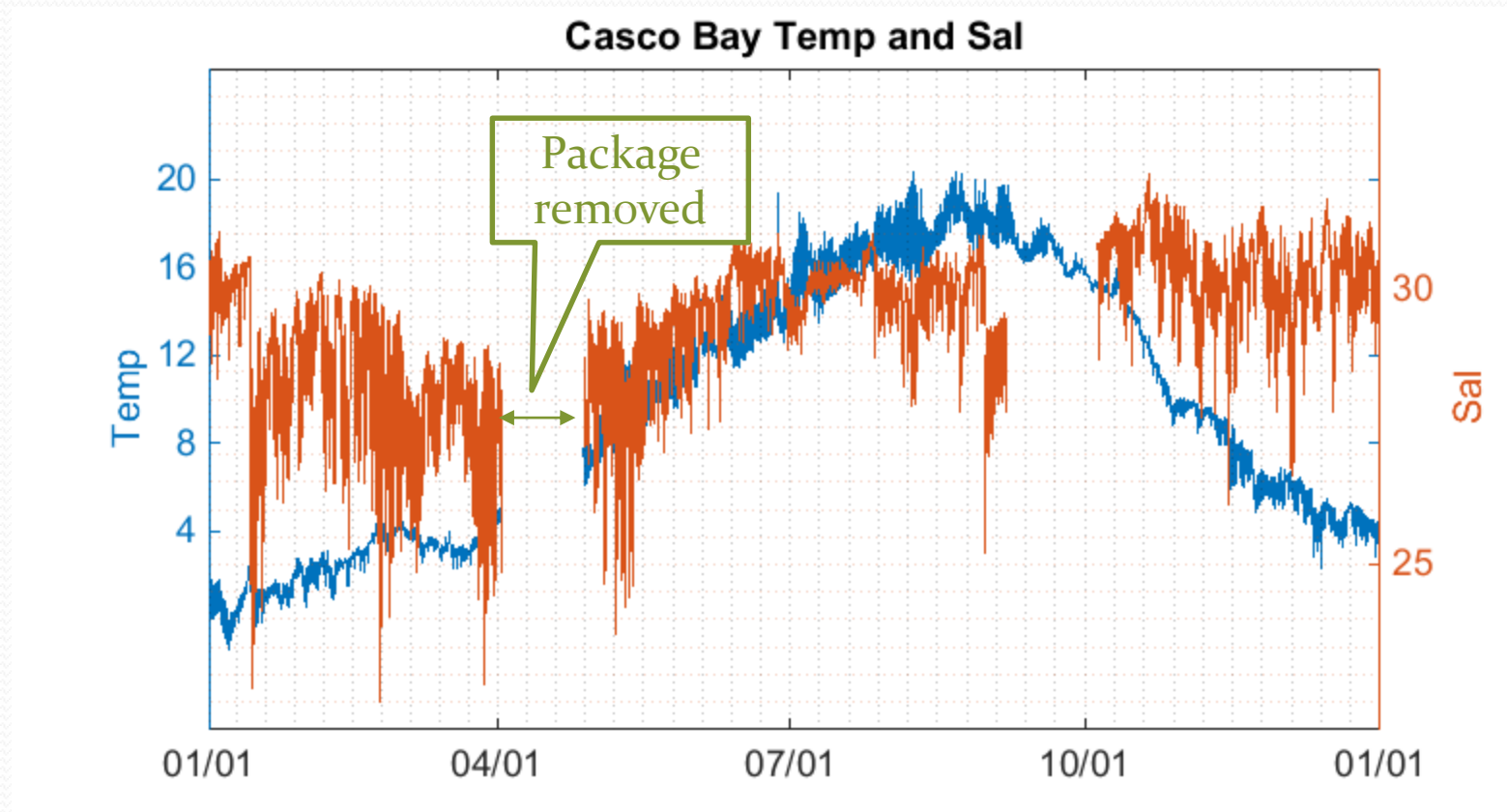


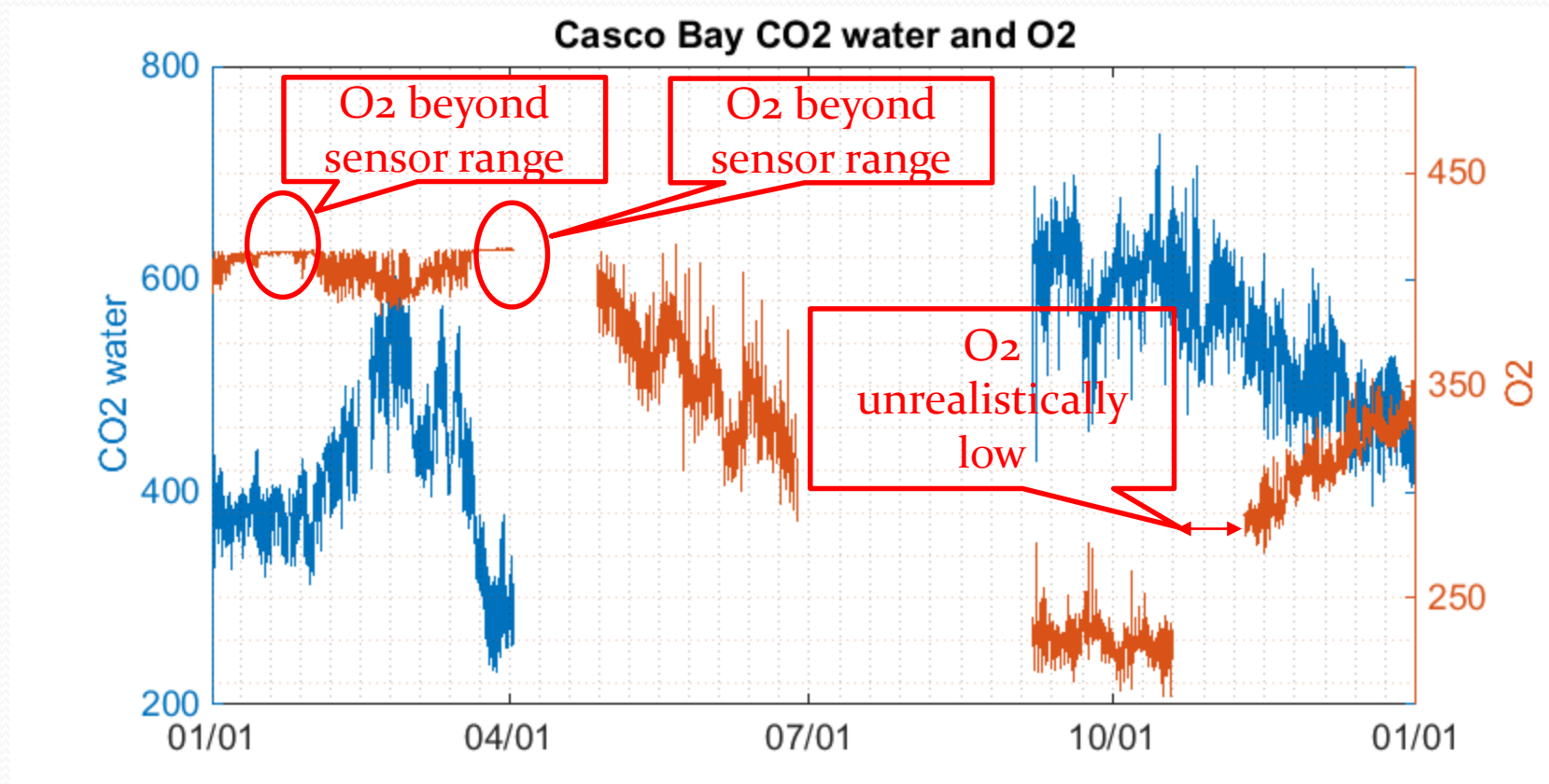
Sensor package:

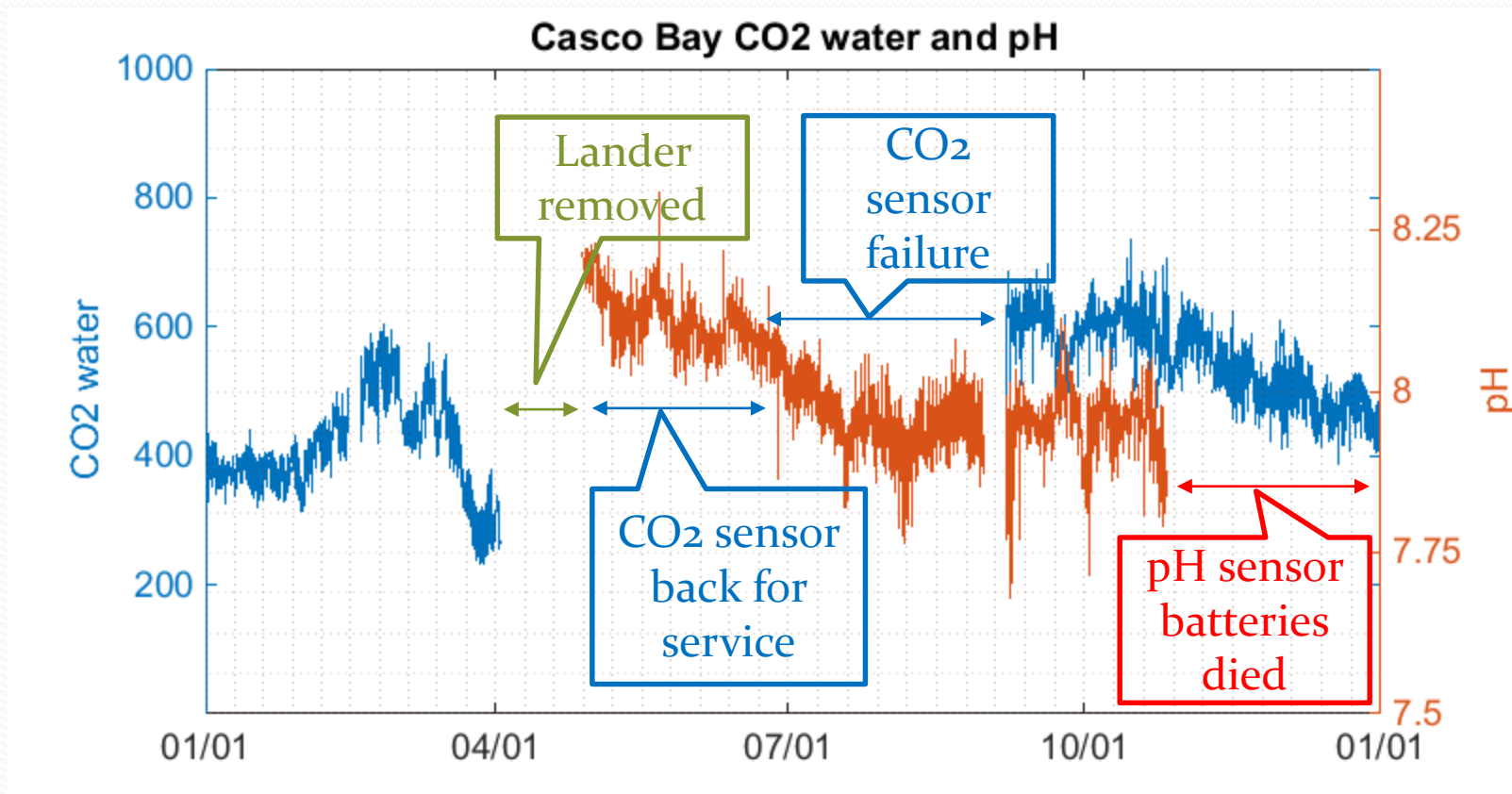
- Seabird SBE 43 (temperature, salinity)
- Satlantic SeaFET (pH)
- Aanderaa Oxygen Optode (dissolved oxygen)
- Sunburst SAMI-CO₂

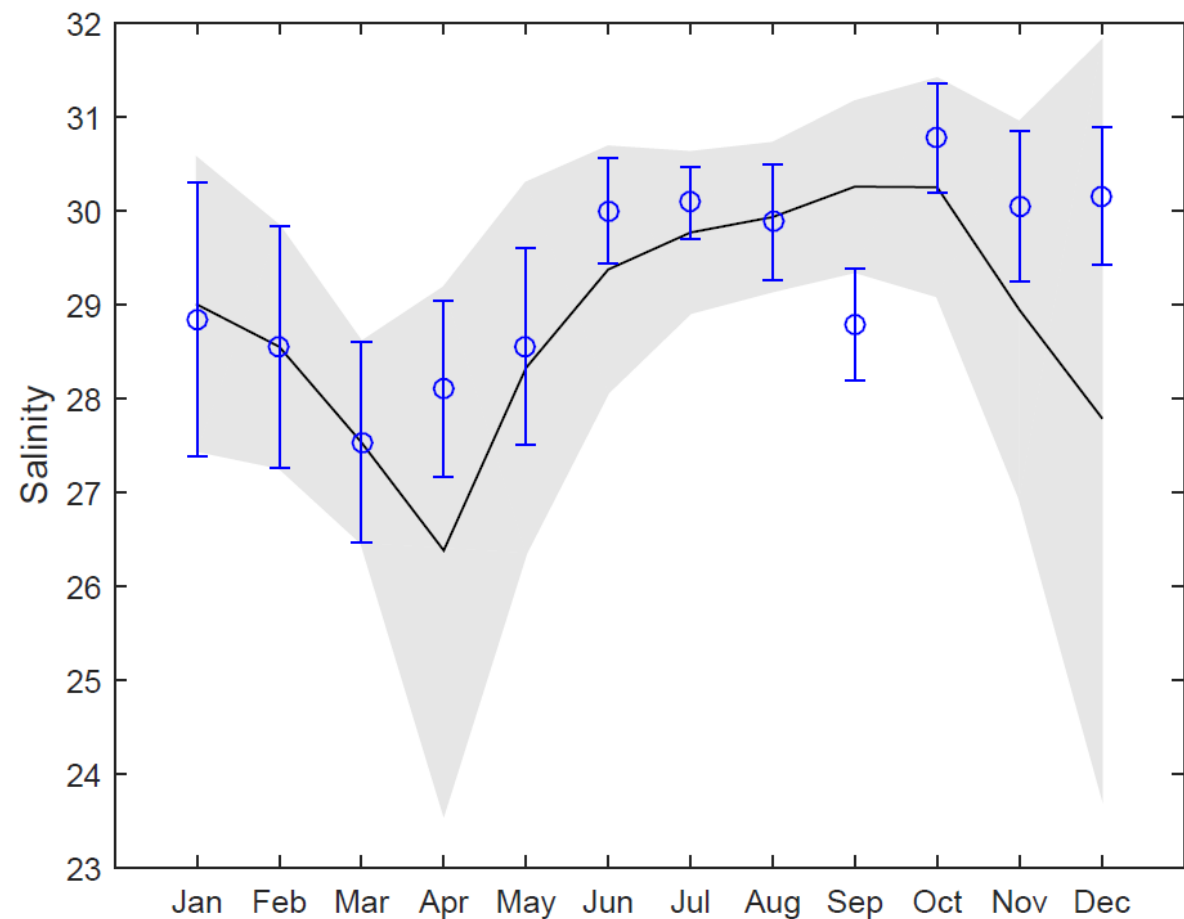
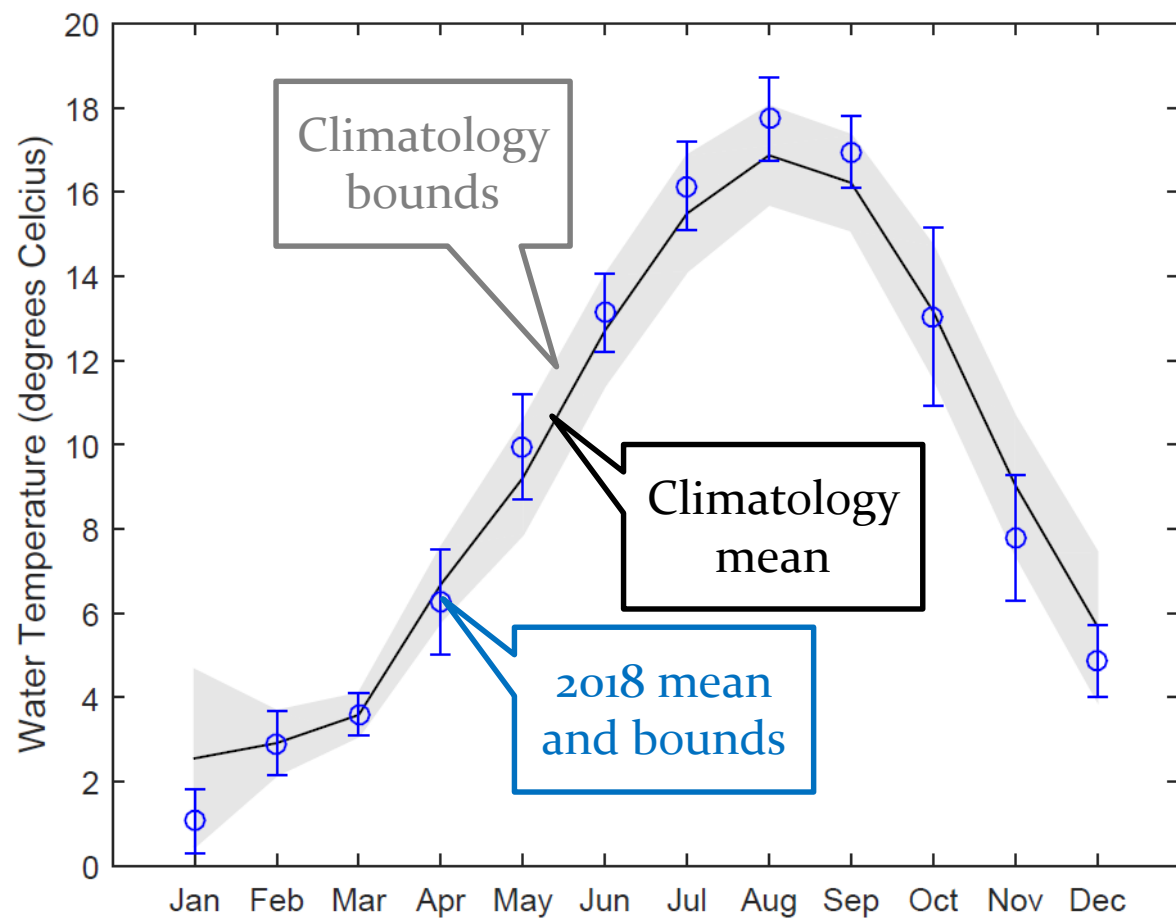


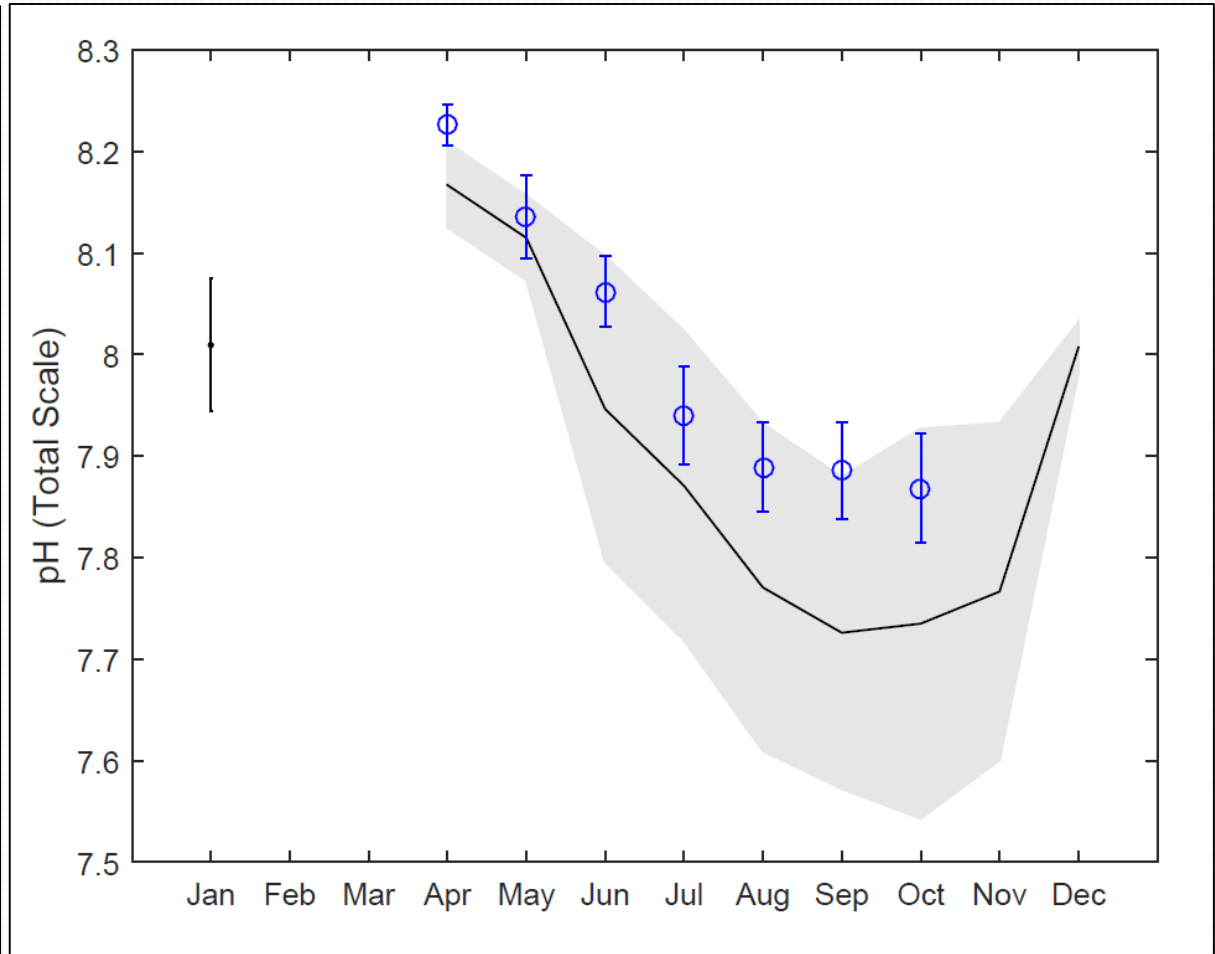
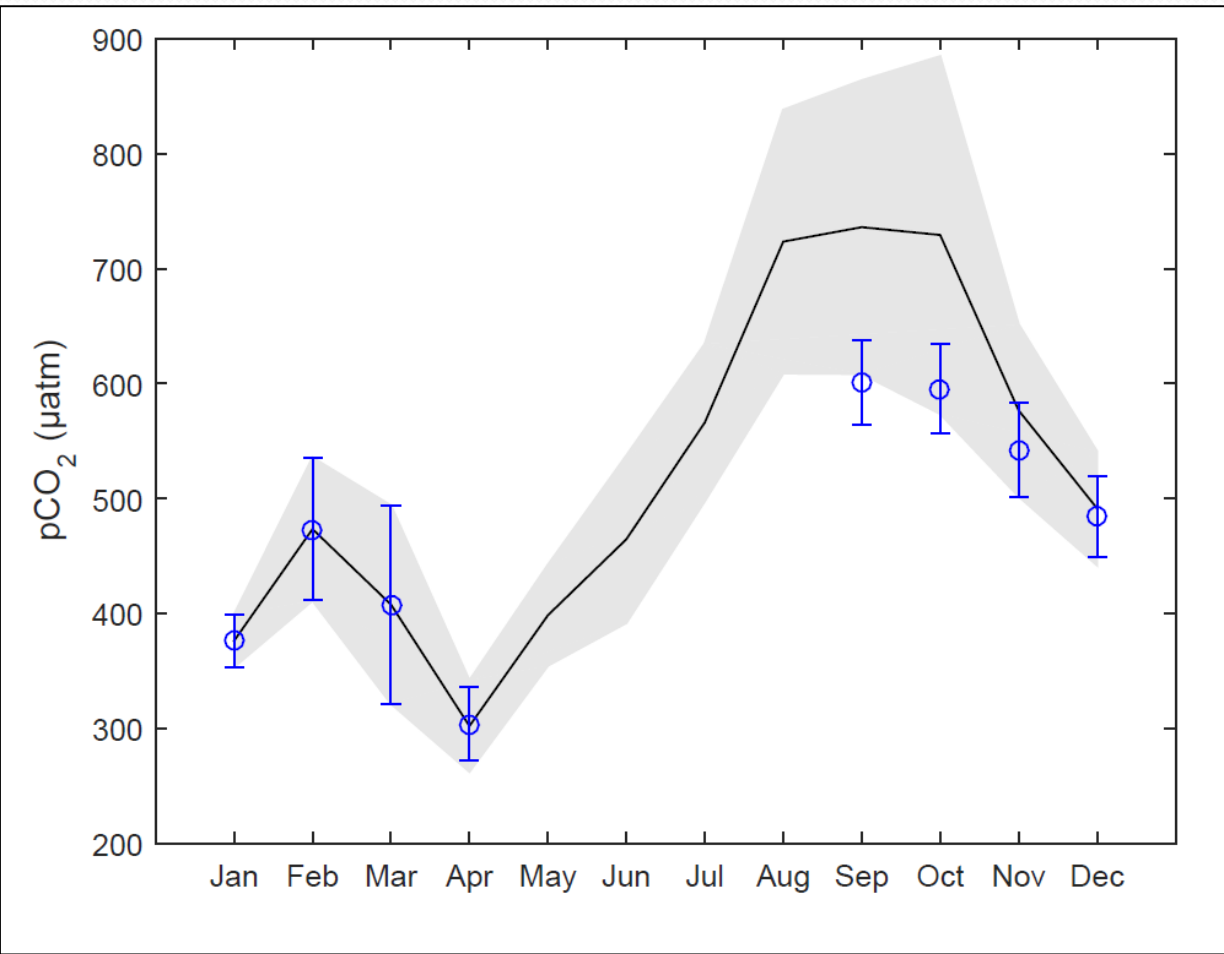


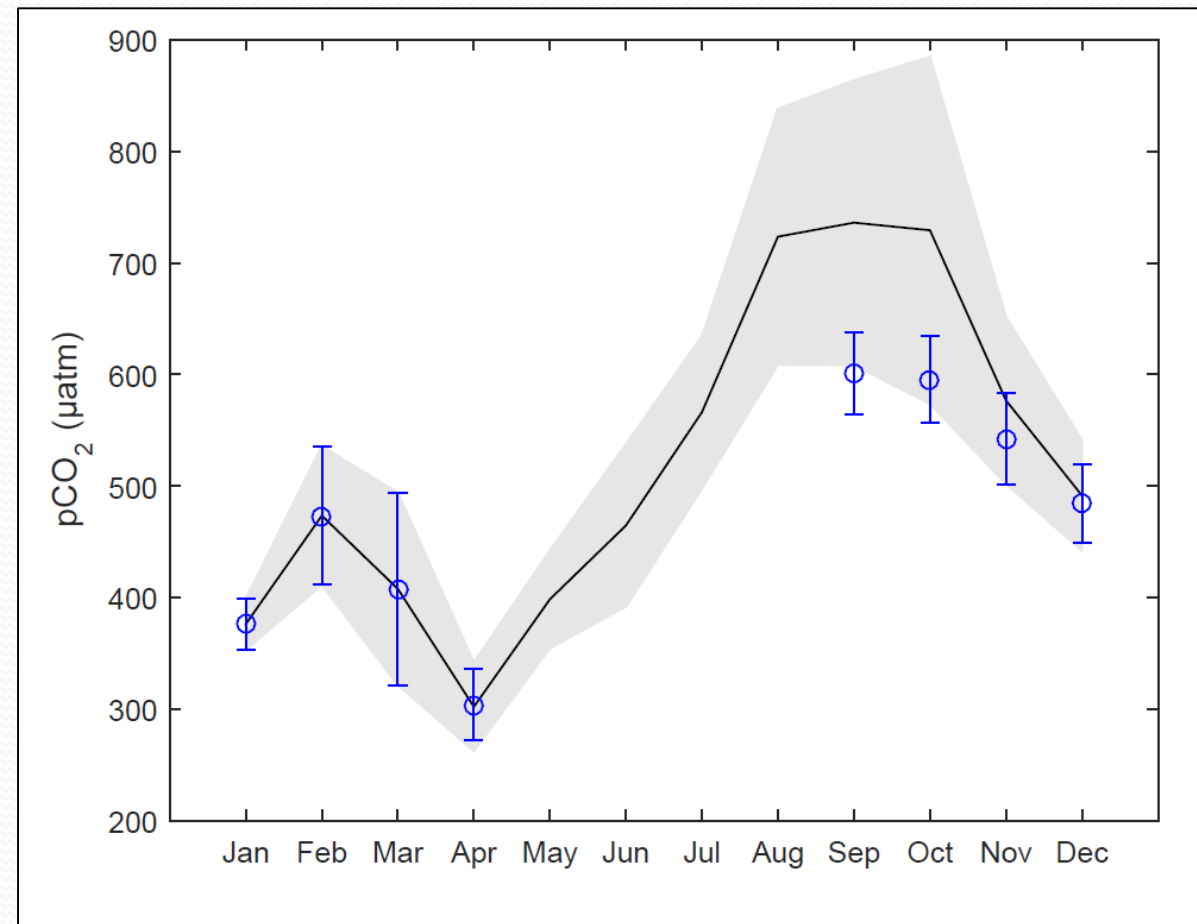
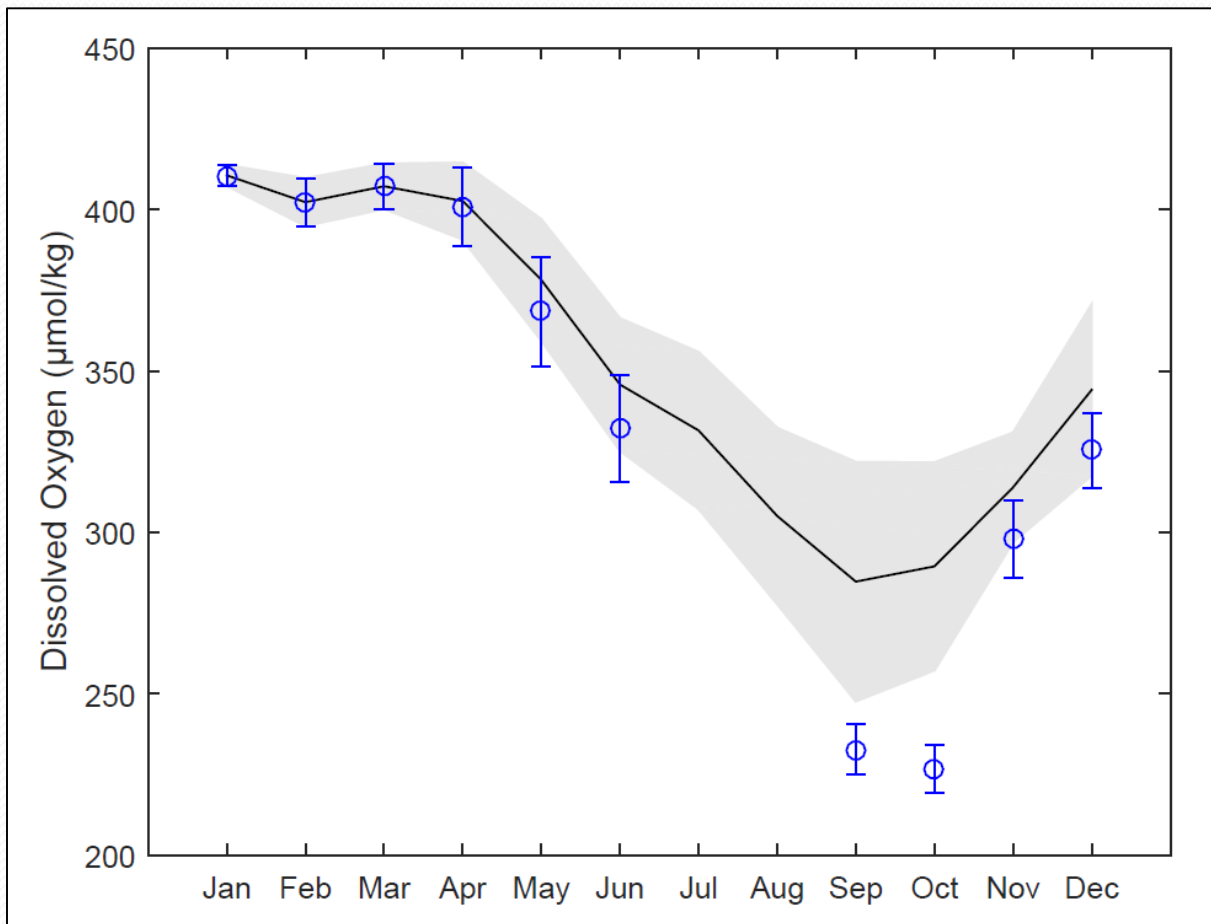












Saturation Index (Ω) of the mineral aragonite

$$\Omega = \frac{[\text{Ca}^{2+}][\text{CO}_3^{2-}]}{K_{\text{sp}}}$$

$\Omega > 1$ animals can make shell

$\Omega \gg 1$ easier to make shell

$\Omega < 1$ shell dissolves

Affected by temperature: $\uparrow$ Temp corresponds to $\uparrow\Omega$.

Varies with CO_2 : $\uparrow \text{CO}_2$ corresponds to $\downarrow\Omega$.

Varies with pH: $\uparrow$ pH corresponds to $\uparrow\Omega$.

Note: $\Omega < 1.5$ may be a threshold for optimal larval growth in clams and oysters (Barton et al, 2012; Salisbury et al, 2008).

