



Supplement of

Stable isotope ratios in seawater nitrate reflect the influence of Pacific water along the northwest Atlantic margin

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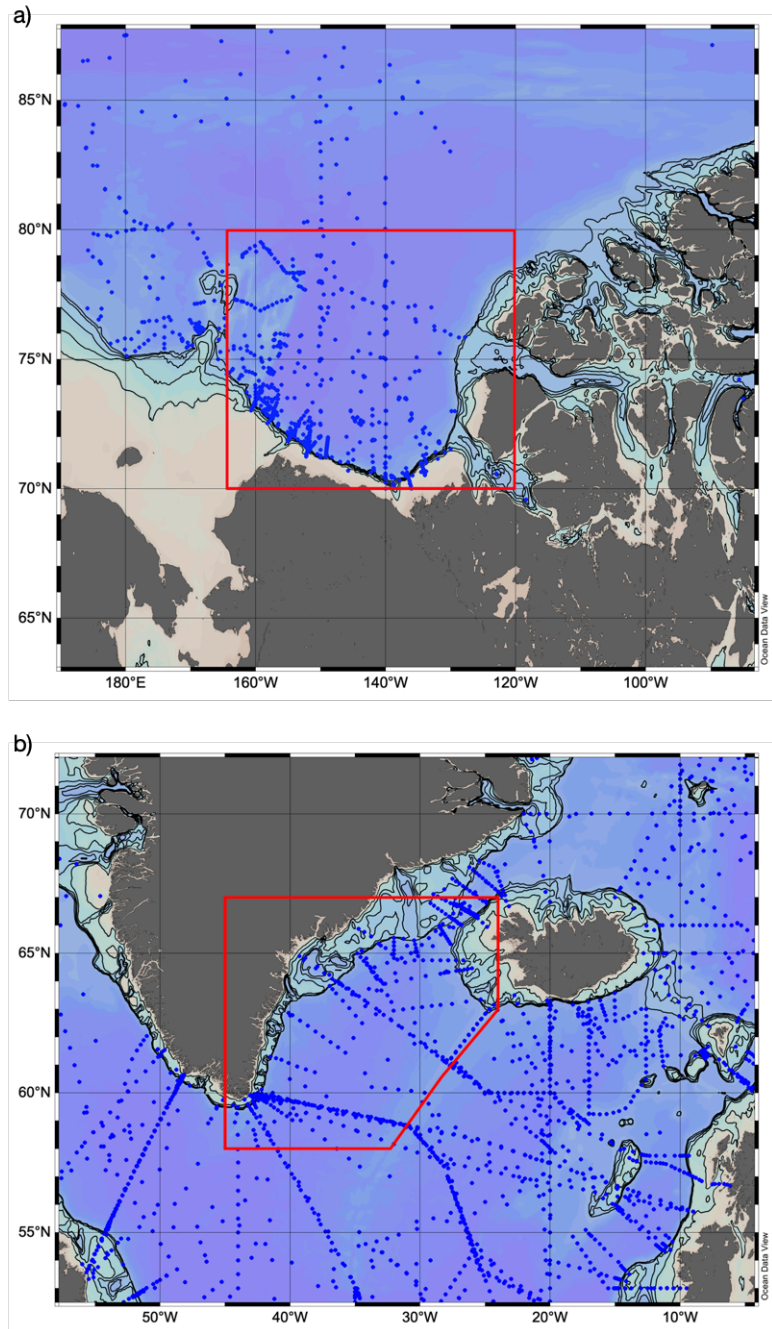


Figure S1: Data selection regions from GLODAP 2019 database for defining Pacific water (a) and Atlantic water (b) N:P relationships. Data were selected from the area outlined in red in each map and filtered according to criteria described in section 2.3 of the main text. Maps generated with Ocean Data View software v. 5.1.0 (Schlitzer, R., Ocean Data View, <https://odv.awi.de>, 2018).

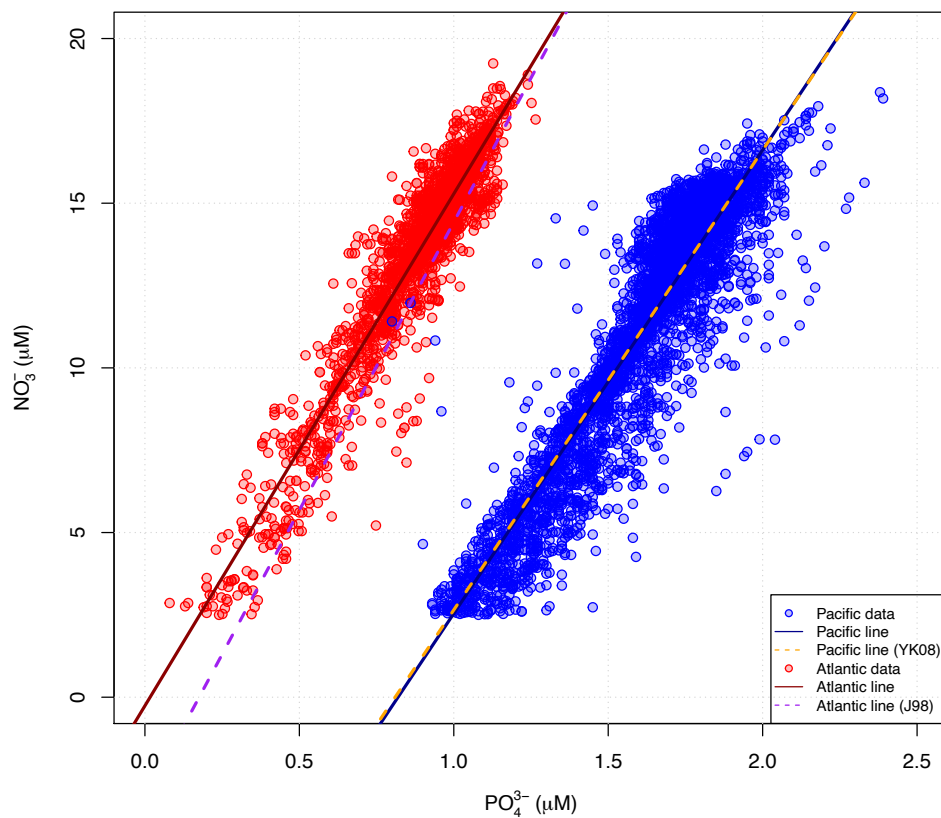


Figure S2: NO_3^- vs. PO_4^{3-} data for Pacific and Atlantic source regions shown in Fig. S1, with regression lines corresponding to Eq. (4) and Eq. (5) in main text, respectively. Data were filtered as described in section 2.3 of the main text. Relationships from Yamamoto-Kawai et al. (2008; YK08) and Jones et al. (1998; “J98”) are shown for comparison.

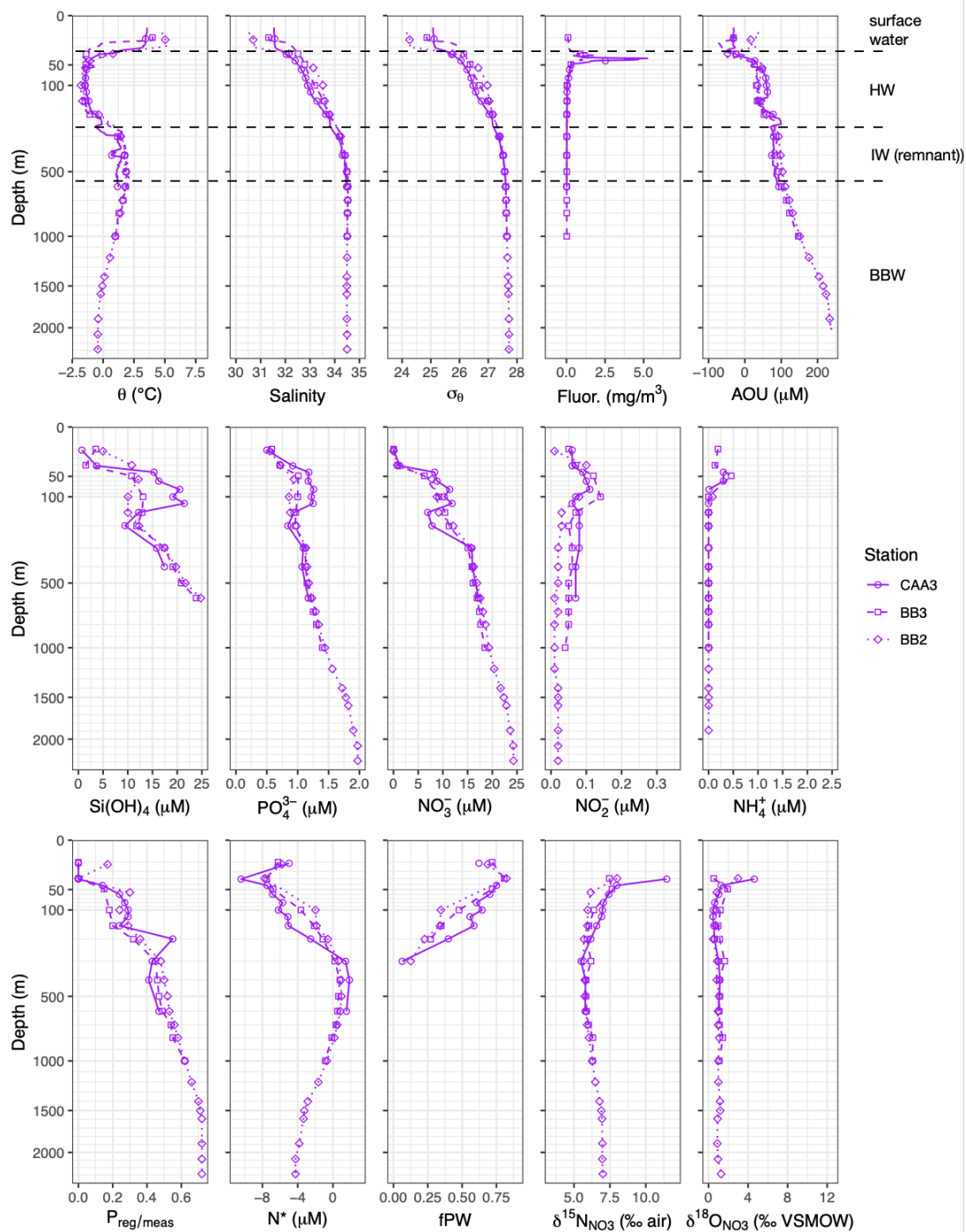


Figure S3: Baffin Bay station profiles for all available physical, chemical and isotopic parameters. Dashed horizontal lines across top row indicates approximate depths of water masses. See Fig. 1 for station locations, and main text for abbreviation definitions.

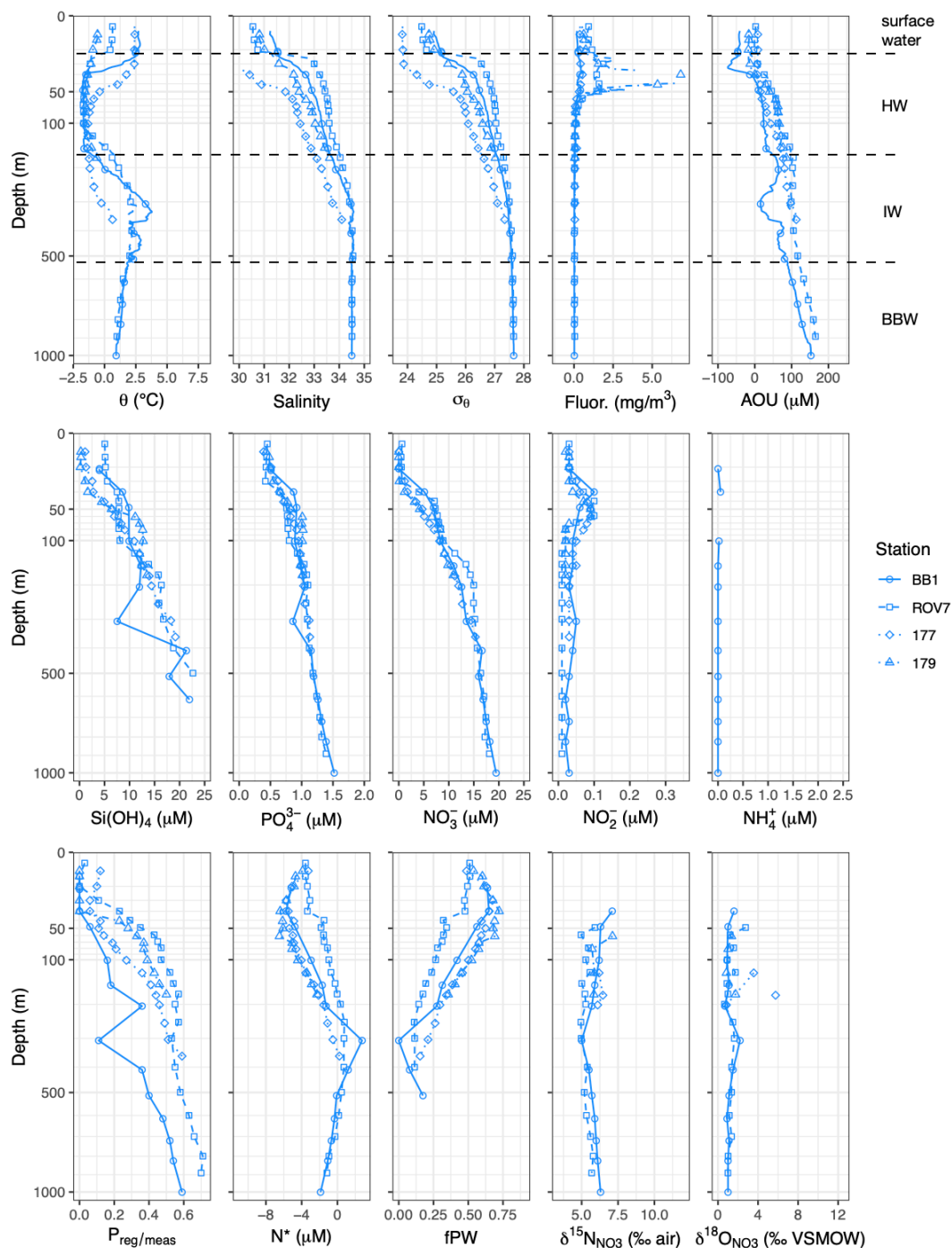
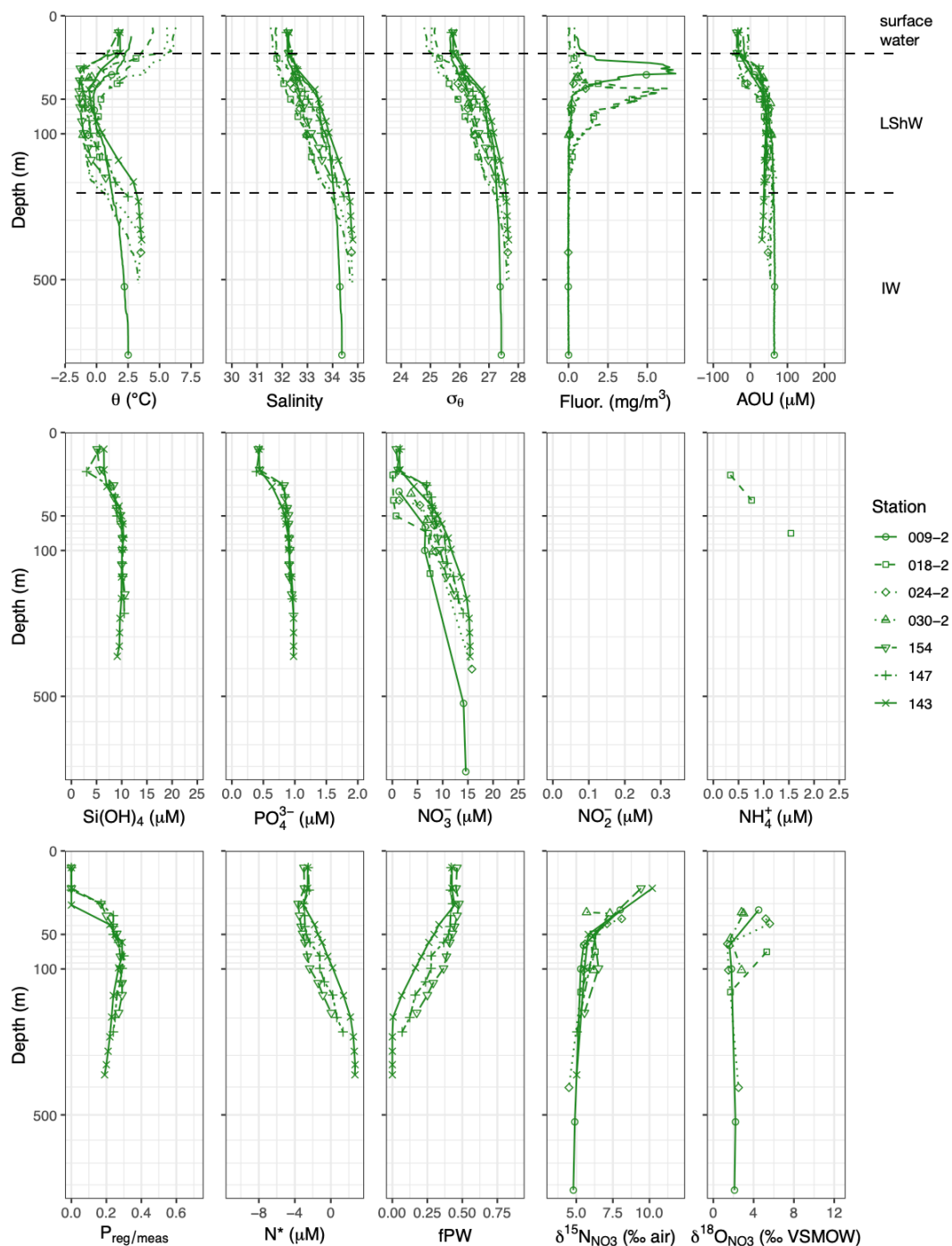


Figure S4: Northern Davis Strait station profiles for all available physical, chemical and isotopic parameters. Dashed horizontal lines across top row indicates approximate depths of water masses. See Fig. 1 for station locations, and main text for abbreviation definitions.



40 **Figure S5: Labrador Shelf station profiles for all available physical, chemical and isotopic parameters. Dashed horizontal lines across top row indicates approximate depths of water masses. See Fig. 1 for station locations, and main text for abbreviation definitions.**

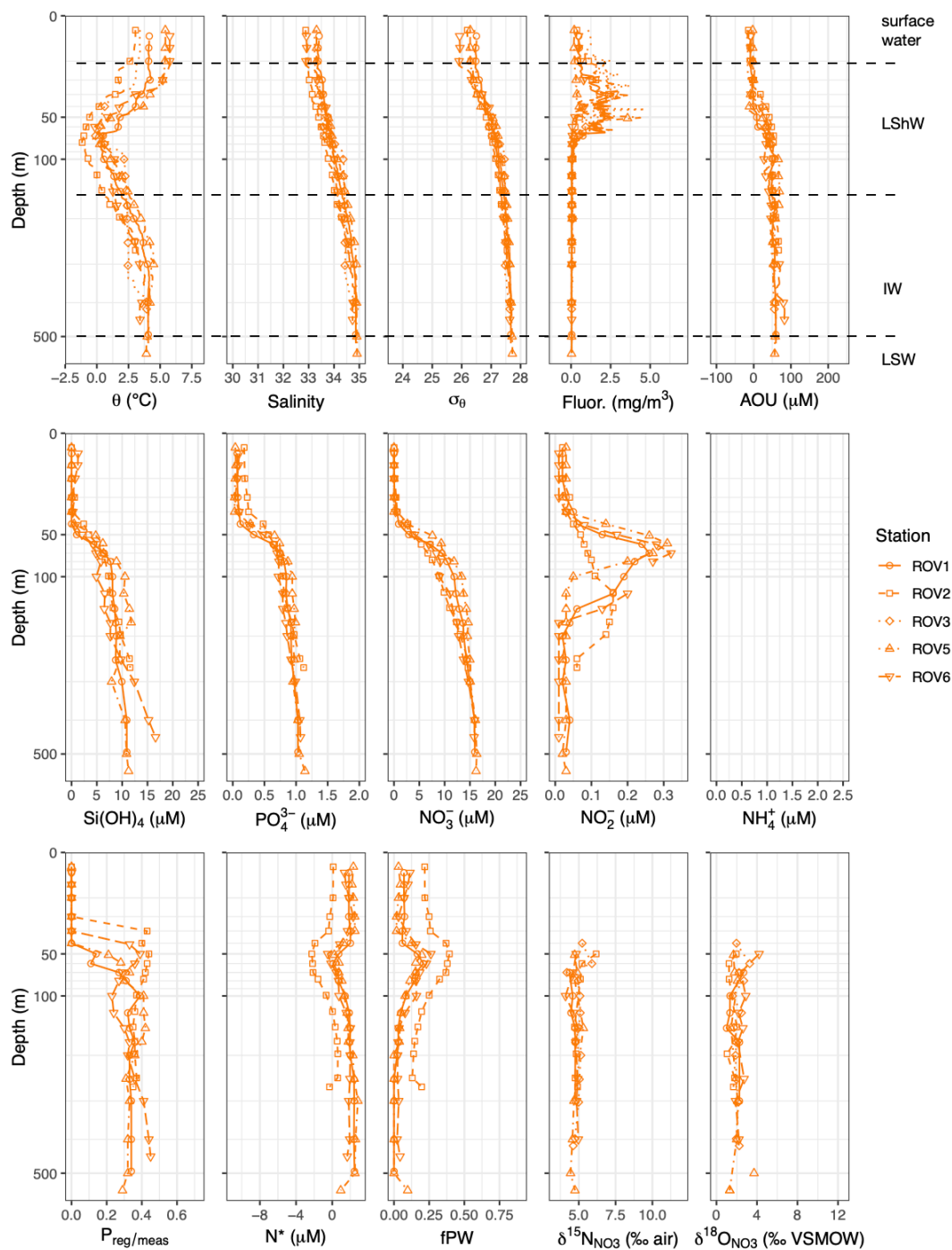


Figure S6: Outer Hudson Strait station profiles for all available physical, chemical and isotopic parameters. Dashed horizontal lines across top row indicates approximate depths of water masses. See Fig. 1 for station locations, and main text for abbreviation definitions.

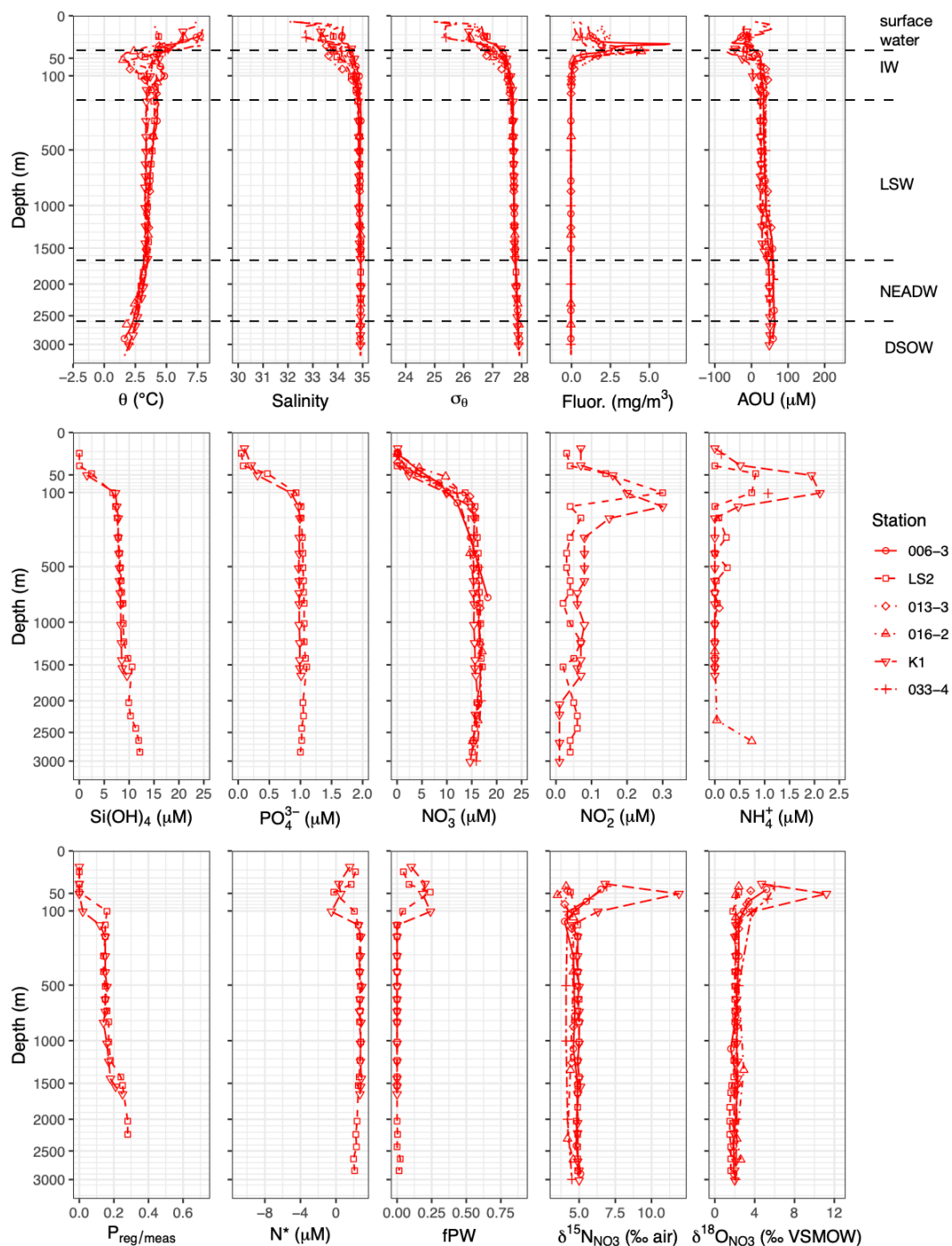
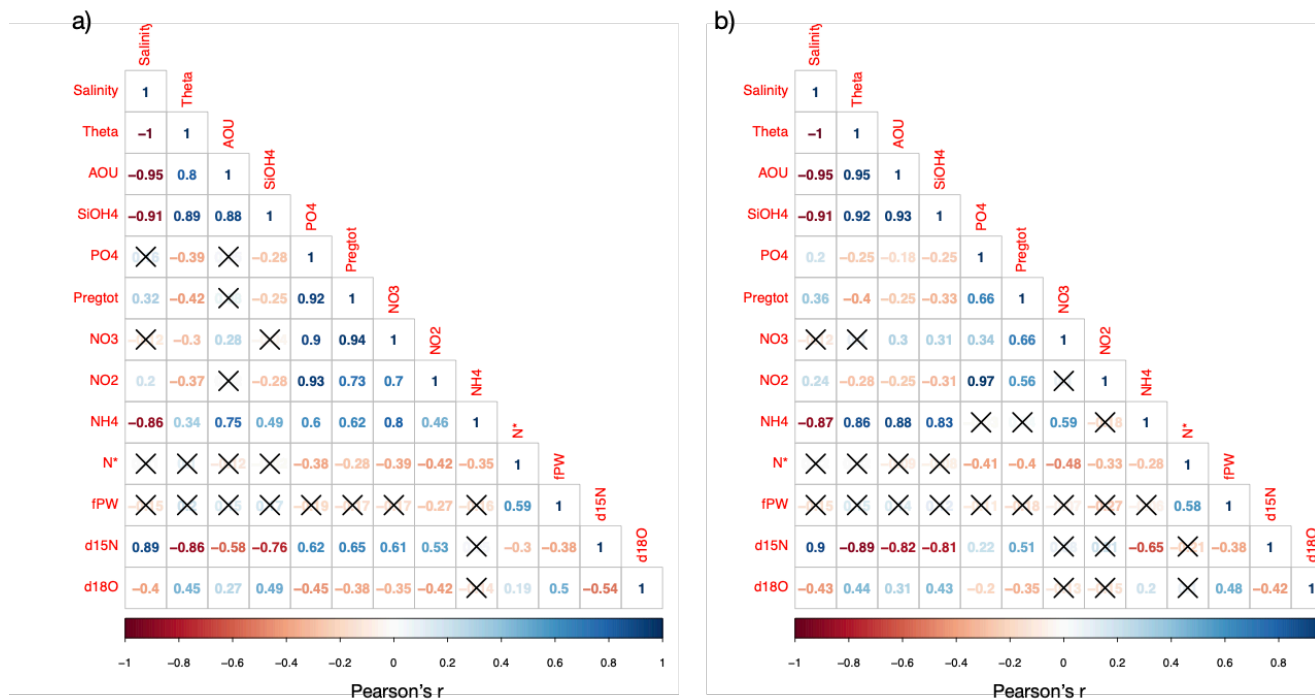


Figure S7: Labrador Basin station profiles for all available physical, chemical and isotopic parameters. Dashed horizontal lines across top row indicates approximate depths of water masses. See Fig. 1 for station locations, and main text for abbreviation definitions.



55 **Figure S8: Correlation matrix plots for (a) all water masses and (b) BBW excluded. Numerical values represent Pearson product-moment correlation coefficients for all pairwise complete observations. “X” symbols denote correlations that are insignificant at the 95% confidence level.**

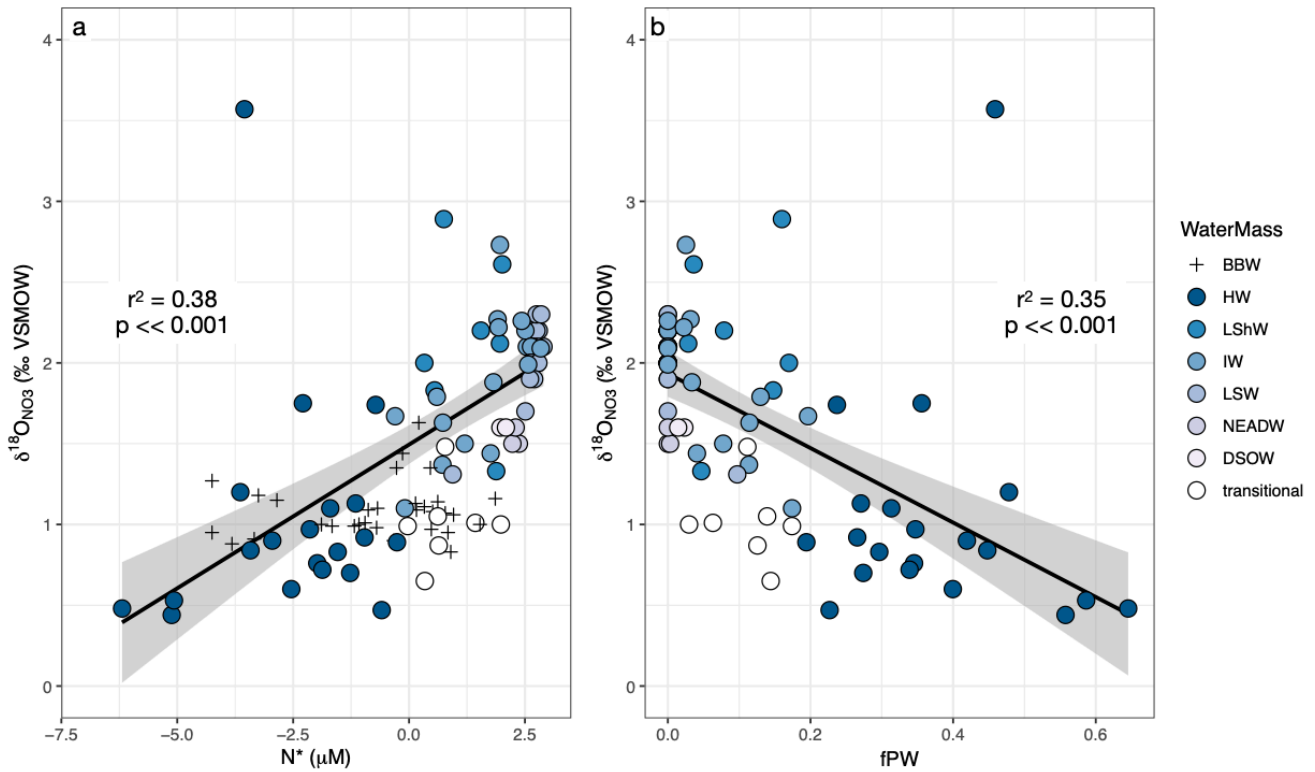


Figure S9: (a) $\delta^{18}\text{O}_{\text{NO}_3}$ vs. N^* . Regression line excludes BBW because these waters are affected by remineralization and denitrification. See text for explanation. (b) $\delta^{18}\text{O}_{\text{NO}_3}$ vs. fPW, with BBW excluded because it is not possible to calculate fPW when NO_3^- and PO_4^{3-} ratios are not conserved. Data in both plots are for depths $> z_p$ to avoid the effects of NO_3^- assimilation, and with two $\delta^{18}\text{O}_{\text{NO}_3}$ outlier data points (identified in Fig. 3h) removed. Regression lines in both plots are bounded by 95 % confidence intervals.