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

5

Owen A. Sherwood¹, Samuel H. Davin², Nadine Lehmann³, Carolyn Buchwald³, Evan N. Edinger⁴, Moritz F. Lehmann⁵, Markus Kienast³

¹Department of Earth and Environmental Sciences, Dalhousie University, Halifax, NS, B3H 4R2, Canada

²GEOTOP Research Centre, Université du Québec à Montréal, Montreal, QC, H3C 3P8, Canada

³Department of Oceanography, Dalhousie University, Halifax, NS, B3H 4R2, Canada ⁴Department of Geography, Department of Biology, and Department of Earth Sciences, Memorial University of Newfoundland, St. John's, NL, A1B 3X9, Canada

⁵Department of Environmental Sciences, University of Basel, Basel, 4056, Switzerland

15

Correspondence to: Owen A. Sherwood (owen.sherwood@dal.ca)



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, <u>https://odv.awi.de</u>, 2018).



Figure S2: NO₃⁻ vs. PO₄³⁻ 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 productmoment correlation coefficients for all pairwise complete observations. "X" symbols denote correlations that are insignificant at the 95% confidence level.