



Supplement of

Wind-driven upwelling and surface nutrient delivery in a semi-enclosed coastal sea

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Introduction

The figures in this supplement are presented as companions to figures in the main text and reproduce the results shown there but with additional information that may benefit the reader.

S1 Figures

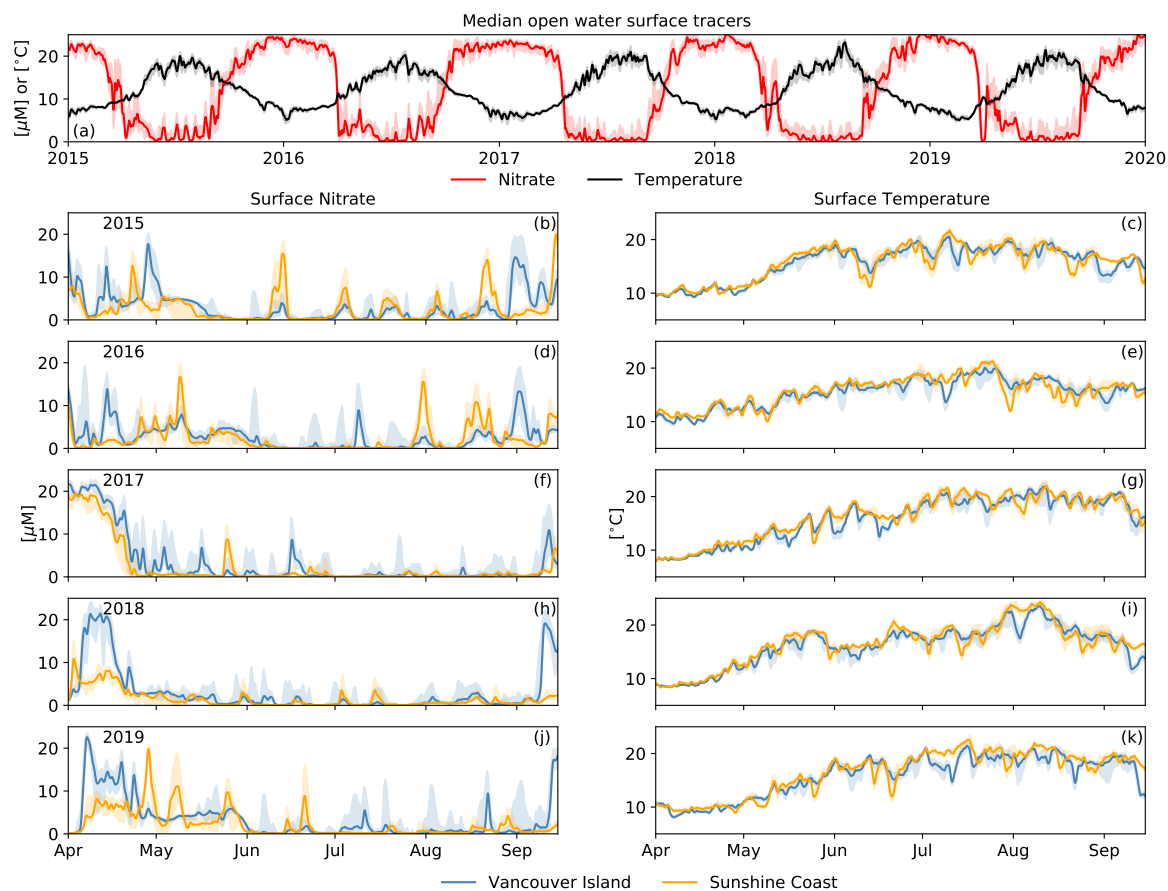


Figure S1. Time series of SalishSeaCast hourly surface nitrate and temperature between 2015-2019 as (a) spatial medians over the open water region and (b-k) spatial medians over the coastal grid points shown in Fig. 4. The median lines are replotted here from Fig. 5 with interquartile ranges included as shaded envelopes around each line. The nitrate and temperature records have been low-pass filtered using a 3-day Blackman window to emphasize the subtidal variability.

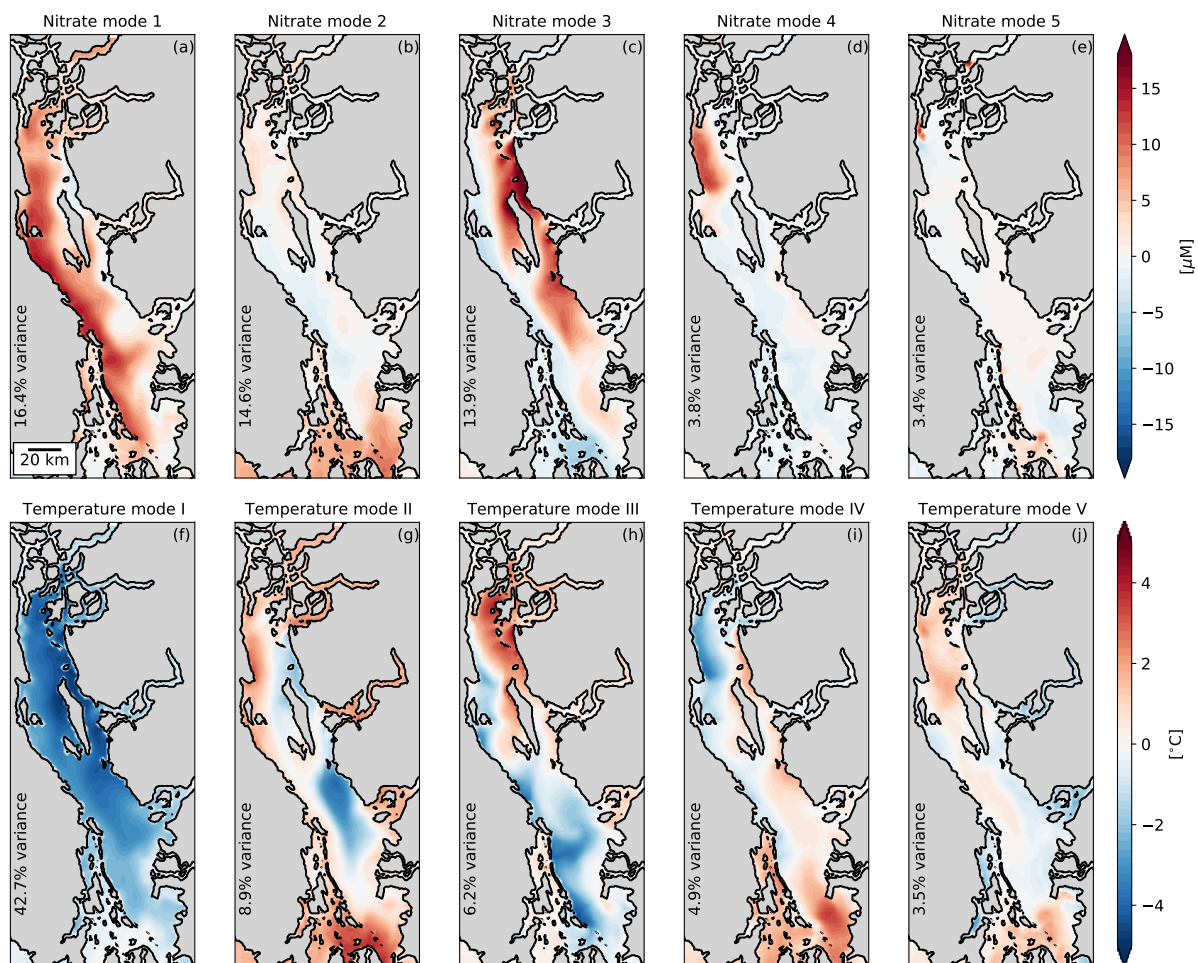


Figure S2. Empirical orthogonal function (EOF) spatial anomalies in order of decreasing percent variance applied to the 2015-2019 Salish-SeaCast surface nitrate (a-e) and temperature (f-j) records between the seasonal cutoffs shown in Fig. 5. Nitrate modes 1-3 and temperature mode I are replotted from Fig. 6 and the higher modes are included here for context. The surface fields are subsampled to 2.5 km resolution and detrended using a 35 d high-pass Blackman window filter prior to the principal component analysis (Section 2.3). The variance explained by each mode is printed in the lower left corner of each panel.

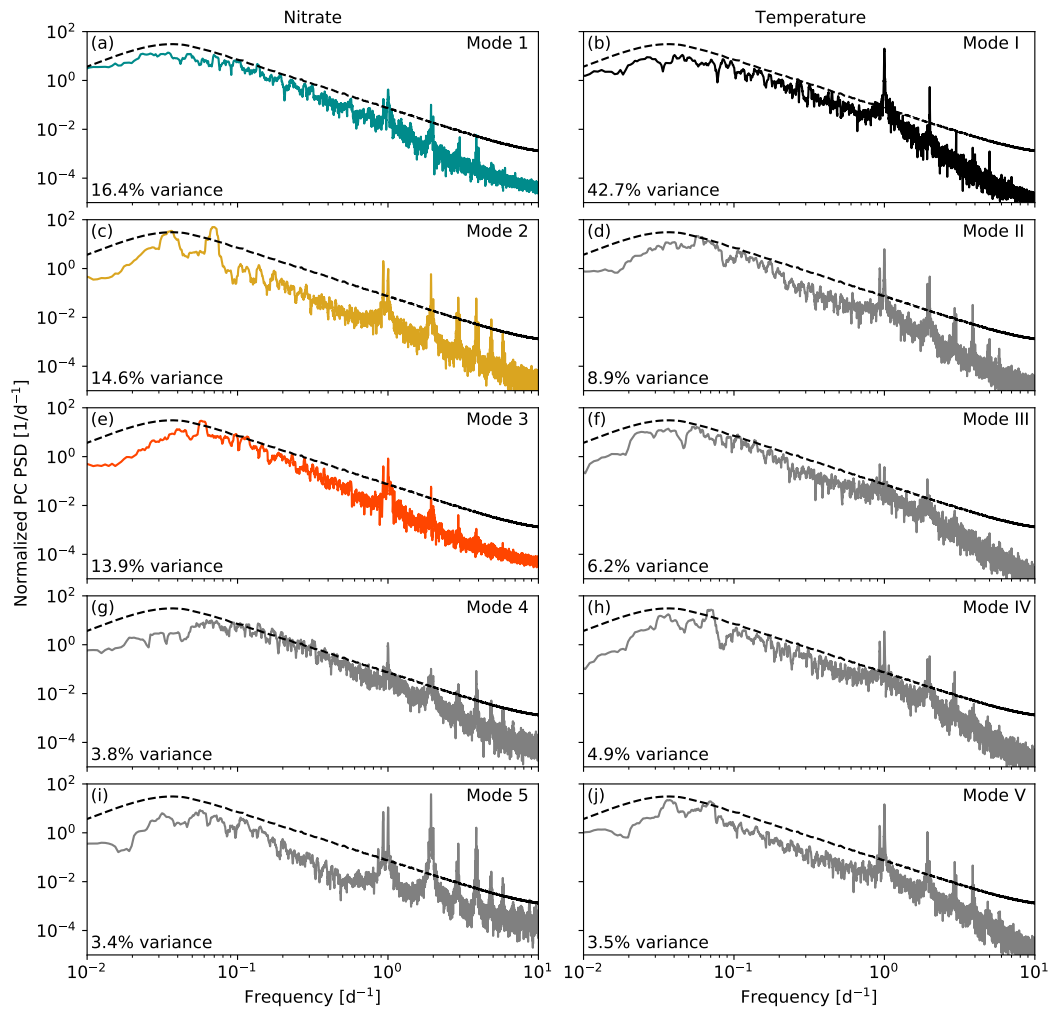


Figure S3. Normalized power spectral density (PSD) calculated from the principal component (PC) loadings of the surface tracer PCA modes shown in Fig. S2. Nitrate modes 1-3 and temperature mode I are replotted from Fig. 8 and the higher modes are included here for context (gray lines). The 99% confidence interval for PSD determined from 1000 realizations of the AR1 process is shown by the black dashed line.