

Phytoplankton (SOOE Extended)

Methods and Data Sources

Trend analysis for chlorophyll-a was performed at the following stations to understand changing chlorophyll trends over time:

- GRBAP (Adams Point)
- GRBGB (Great Bay)
- GRBSQ (Squamscott River)
- GRBLR (Lamprey River)
- GRBOR (Oyster River)
- GRBUPR (Upper Piscataqua River)
- HHRH (Hampton River)

The data was aggregated by sampling year and graphed as a box-and-whisker plot to examine the spread of data across the year. Linear regression of chlorophyll concentration over time was used to test for long-term trends at each geographic location. Trends were considered significant if the slope coefficient of the year variable was significant at the $p < 0.05$ level.

Data for this indicator were provided by the UNH and Great Bay NERR Tidal Water Quality Monitoring Programs.

Additional Discussion

Looking closer at data from Adams Point, which is experiencing significant increases in chlorophyll-a concentration over time, the annual maximum and minimum chlorophyll concentrations were examined (Figure 12.7). *(Note that figure numbers are continued from the State of Our Estuaries Report.)*

These values can provide some insight into how chlorophyll values are changing over time at this location (e.g., to discern whether only the minimum values increasing). Interestingly, both the annual maximum and minimum chlorophyll concentrations are trending significantly higher over time. Despite these significant trends, the mechanisms responsible for this increase are not clear, and the number of days of ‘poor’ chlorophyll concentrations experienced in this area on an annual basis are low.

Additional Data Figures

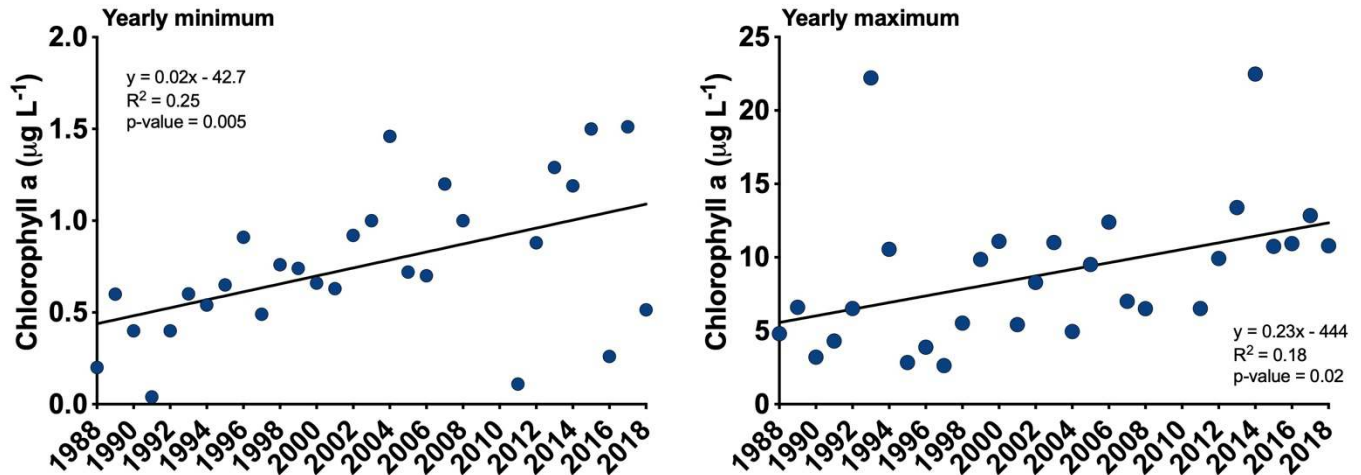


Figure 12.7 The annual minimum (left) and maximum (right) chlorophyll-a concentrations ($\mu\text{g L}^{-1}$) measured at Adams Point during sampling that takes place primarily from April-October. The solid line on each graph is the line of best fit from a linear regression analysis. The equation, R^2 , and p-value for that linear regression are found on each graph. Both minimum and maximum annual chlorophyll-a concentrations increase over time, suggesting at this location that overall chlorophyll concentrations are higher at present relative to the beginning of the time series in 1988.

Acknowledgements and Credit

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