



SCAN ME

Harmful algal blooms (HAB)- where and why it is out of control

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Background

- Phytoplankton blooms are accumulations of microalgae that can occur in huge numbers. Dependent on sunlight, temperature and sufficient nutrients.
- Phytoplankton blooms play a pivotal role in marine ecosystems, by serving as a vital food source for various marine organisms.
- Harmful algae blooms (HAB) has become increasingly problematic, causing severe environmental, economic and health impact on seas in northern Europe ^(1;2).

Aim

To understand the physical growth conditions of algae, and determine which factor is most important, that aids in the prediction of harmful algae blooms.

Results

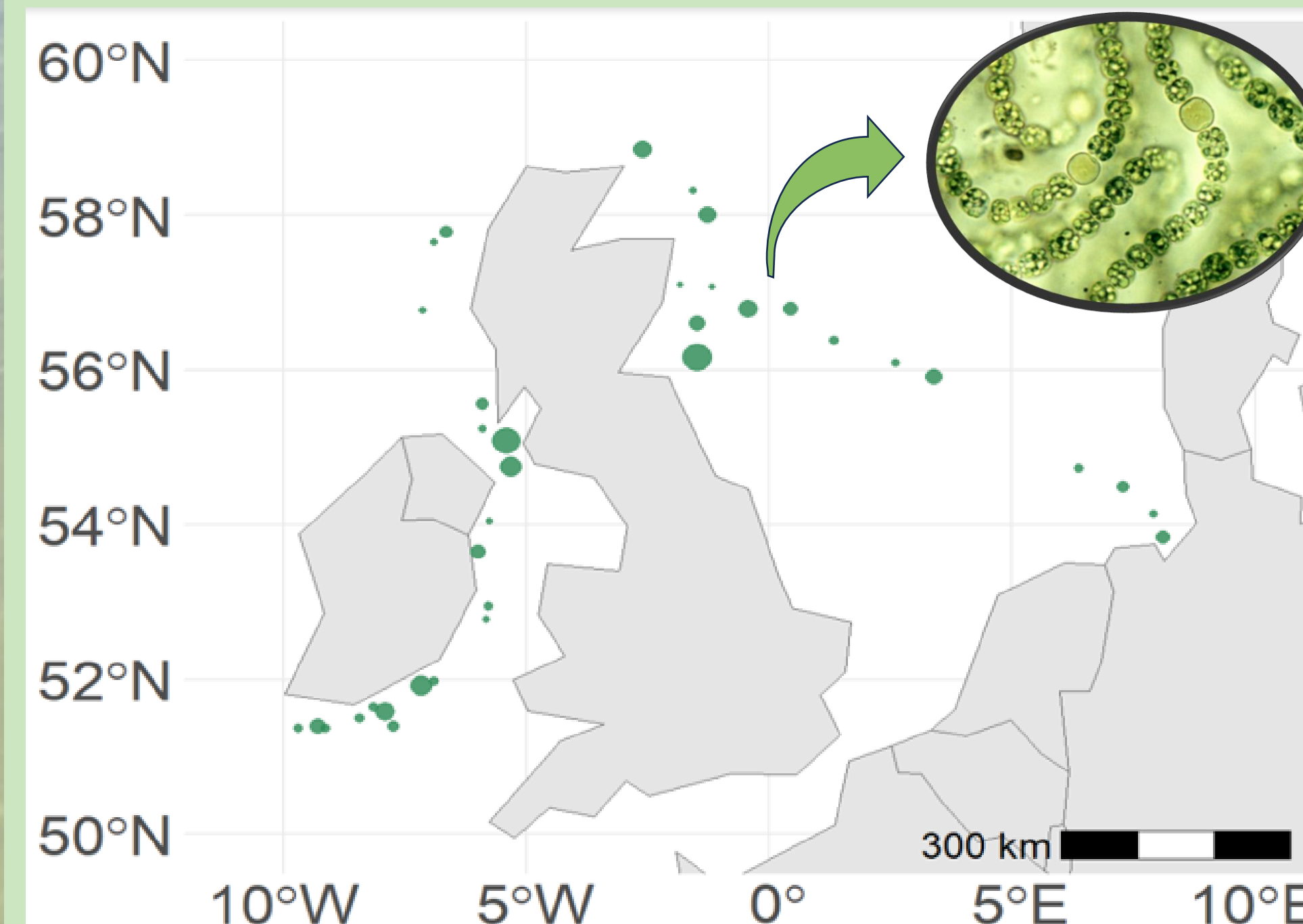


Figure 1: Map of the sample sites in coastal areas around Ireland, UK, and the open North Sea, and the maximum measurements.

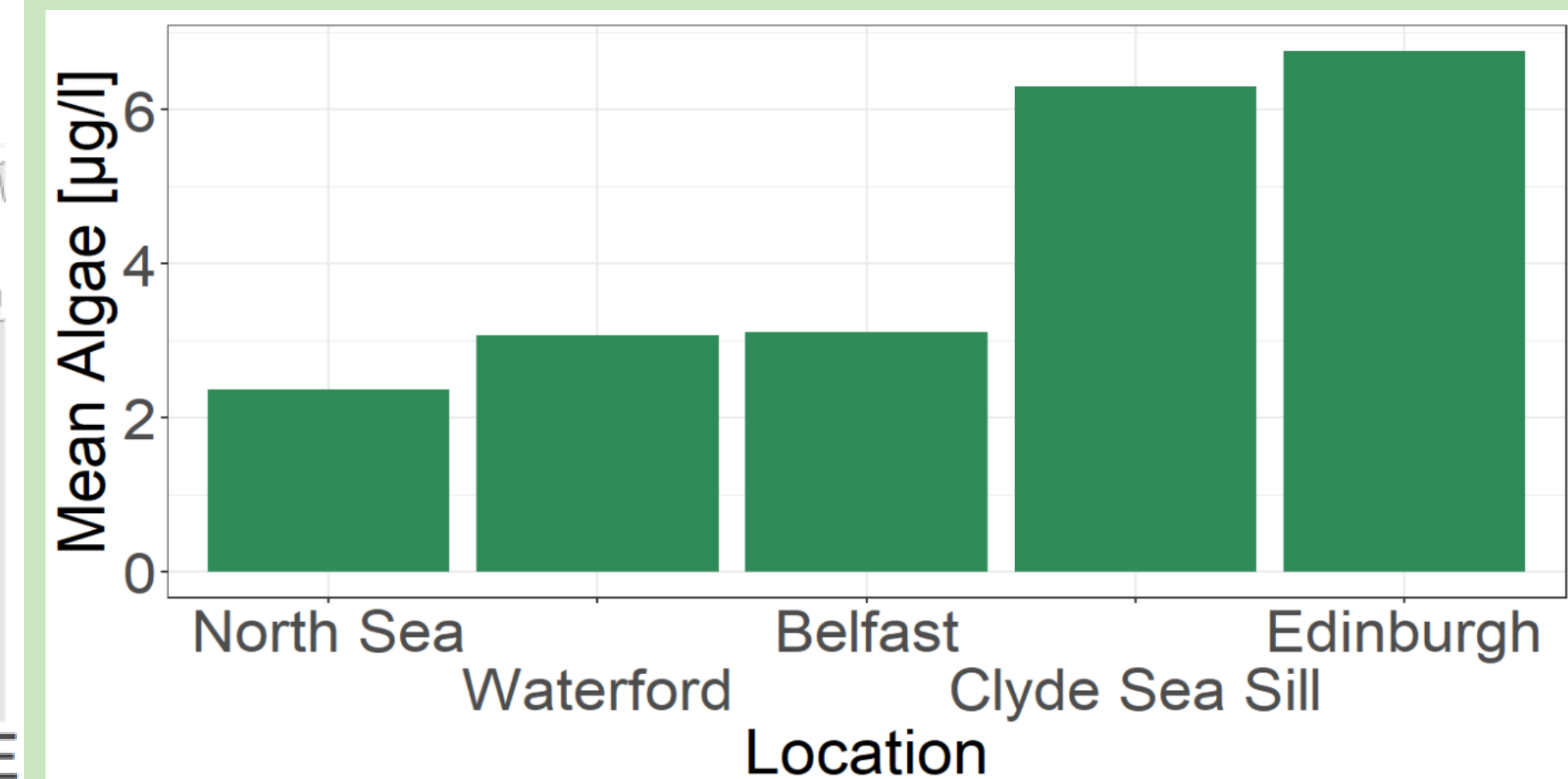


Figure 2: The mean of the five areas with the most algae concentration.

Methods

- Data set Zielenski et al. 2011.
- 60 stations sampled.
- CTD (depth, salinity, temperature, chlorophyll-a, algae, O₂).
- Data analysis in R studio.

Conclusion

- Coordinates of maximum algal concentration located in near vicinity if estuaries. Pointing to nutrient inflow as the most important factor in algal growth.
- Analysis between chlorophyll-a and salinity showed little to no correlation and lack of data made it necessary to disregard turbidity.
- More research is needed.

References:

- Berdalet, E. et al. (2015). Marine harmful algal blooms, human health and wellbeing: challenges and opportunities in the 21st century. *Journal of the Marine Biological Association of the United Kingdom*. Marine Biological Association of the United Kingdom, 2015, 10.1017/S0025315415001733. <https://doi.org/10.1017/S0025315415001733>.
- Breitburg, D. et al. Declining oxygen in the global ocean and coastal waters. *Science* **359**, eaam7240 (2018).
- Photo: "Cyanobacteria" URL: <http://www.communityscience.org/events/getting-to-know-harmful-algal-blooms-habs/>
- Photo: "Bloom", URL: <https://www.greatlakesnow.org/2018/05/a-growing-epidemic-of-toxic-algal-blooms/>