Potential Sources of Cyanobacteria to Lake Superior

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What are the drivers?

Blooms elsewhere in Great Lakes occur in areas with significant human influence

Rivers can be an important source of seed populations and nutrients

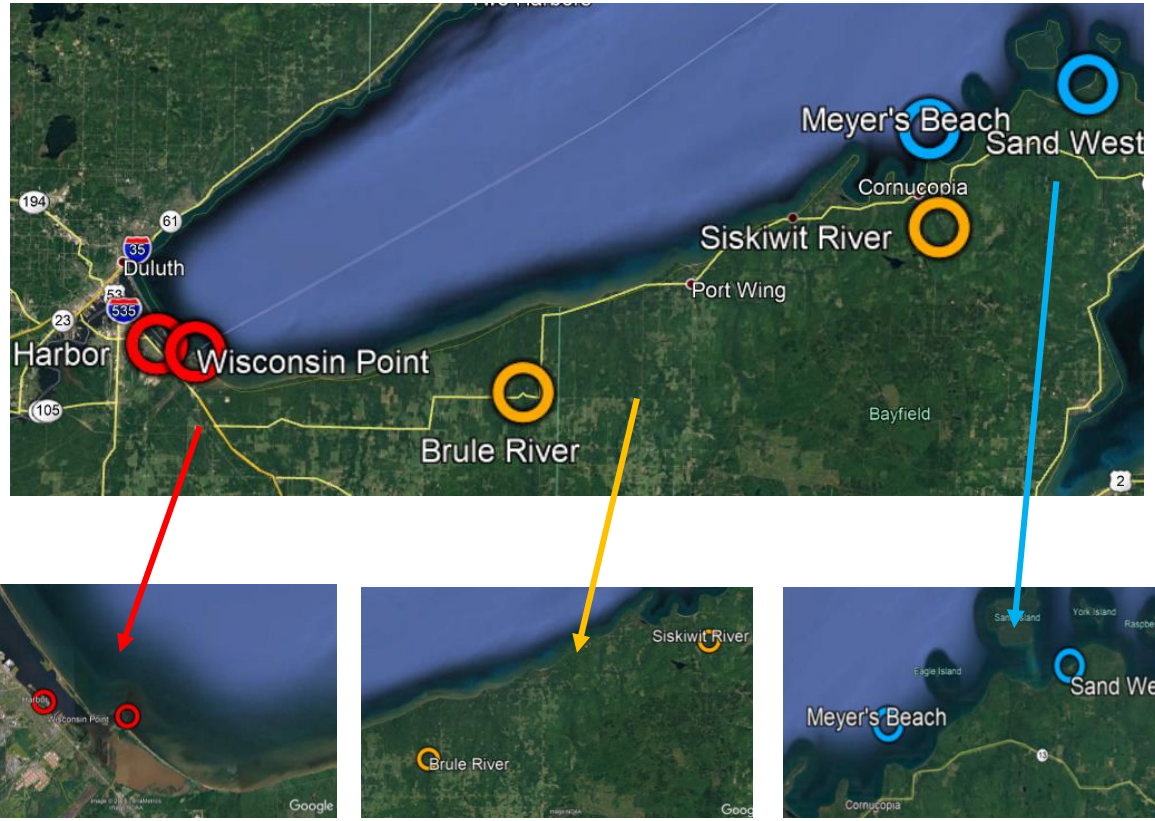
Blooms can proliferate in the lake

Growth in warmer water and high nutrients

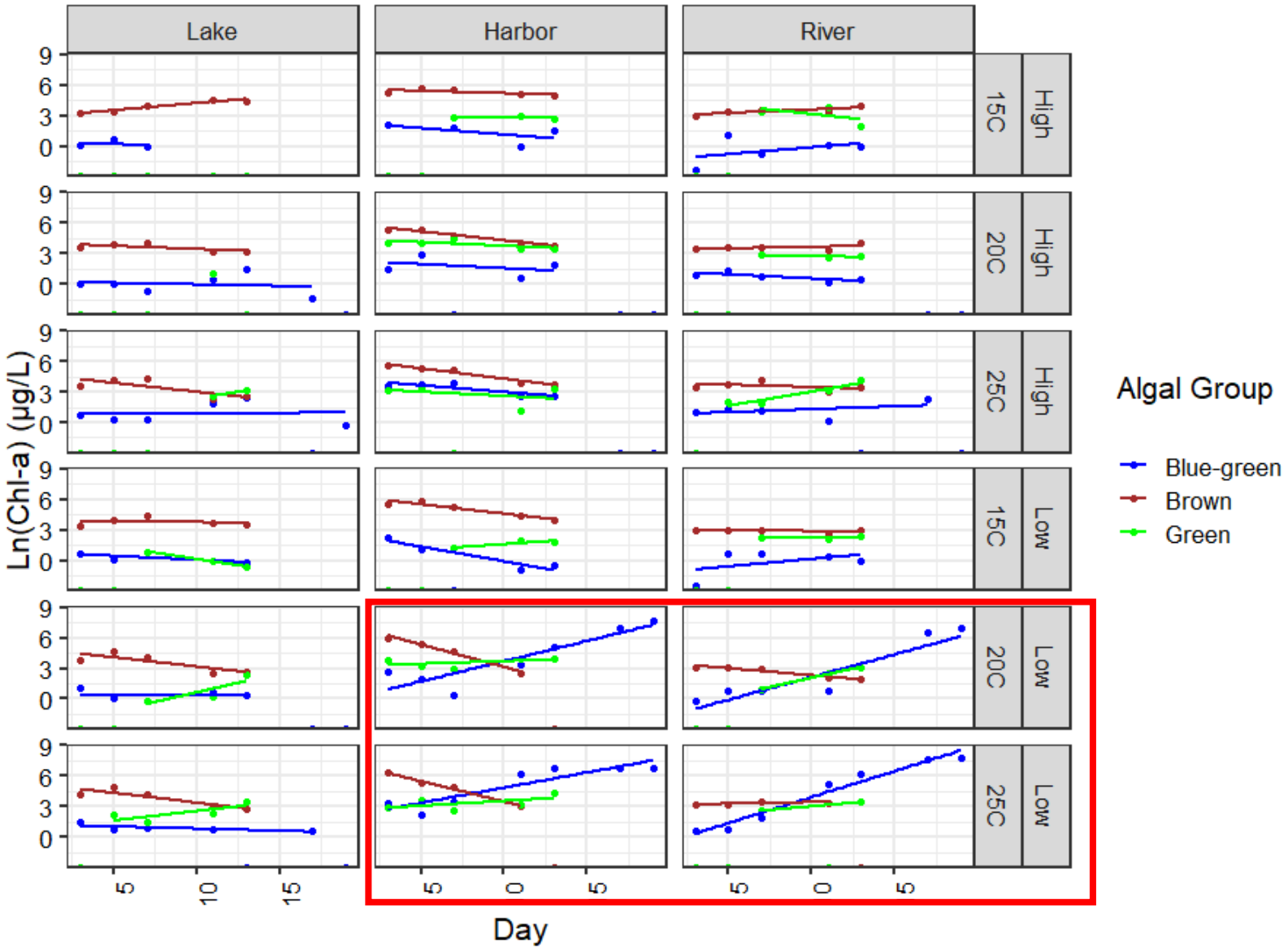
Are drivers the same or different in Lake Superior?

2017 Experiment - What roles do the lake and the inflowing systems play?

		Lake	Harbor	Rivers
High molar N:P (50)	15°C	18 Combinations of Location x Nutrient x Temp		
	20°C			
	25°C			
Low molar N:P (1.5)	15°C			
	20°C			
	25°C			

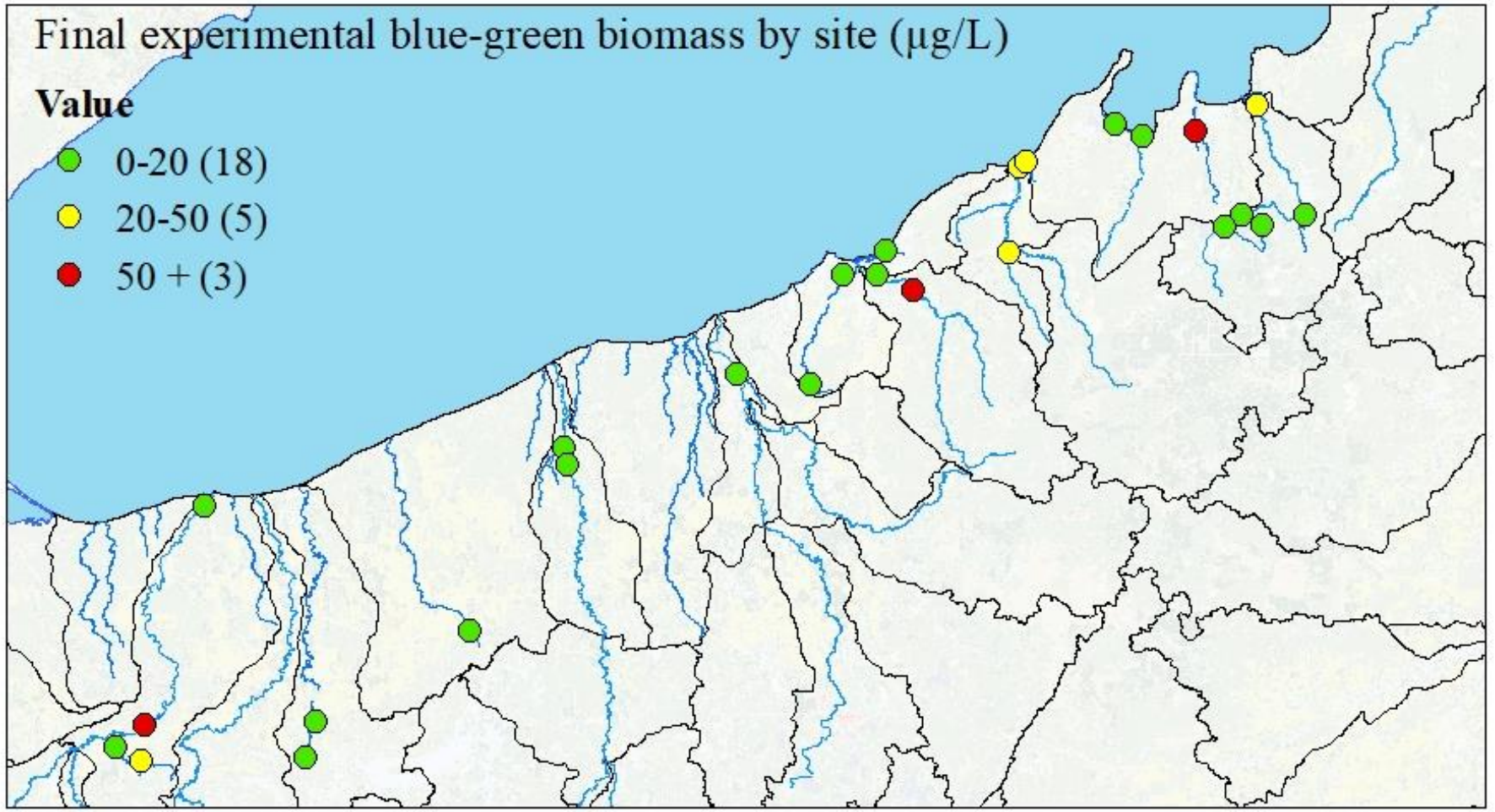


Blooms are (probably) not sourced from the lake



Significant growth observed in higher temperature and low N:P in the river and harbor samples

2018 Experiments – Identify specific inland sources



Higher experimental growth rates observed in samples from sites with:

- Low temp
- High conductivity
- High SRP
- Low N:P

Final Thoughts

We argue for a land plus lake perspective in understanding cyanobacteria blooms in Lake Superior.

Rivers appear to be more than just sources of nutrients, but may also provide seed populations.

Sites with potential for growth are widespread.

Inland sites capable of high cyanobacteria growth followed expectation (nutrients) but also surprised us (temperature).

Acknowledgements

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Questions

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