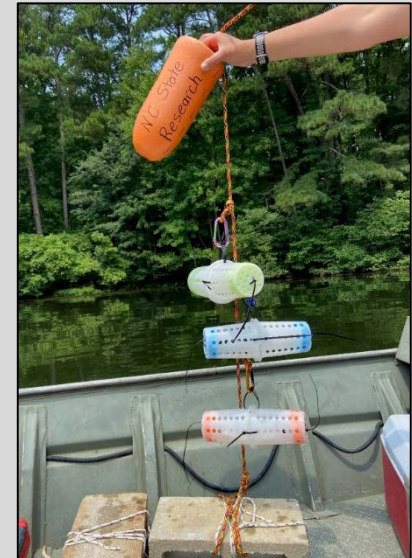


Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

- June 2021
 - Deployment of SPATTS in conjunction with lyngbya treatment application
 - Stress release?
 - SPATTS for each site were vertically suspended from each other
 - Individuals removed at different time points



Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

Results

Results		Treatment / Deployment		1 week		2 weeks		4 weeks / 2 weeks	
		July 20 th		July 27 th		August 3 rd		August 16 th	
T1									
T2									
C1									
R1									
				SPATT (7/27)	H2O (7/27)	SPATT (8/3)	H2O (8/3)	SPATT (8/16)	H2O (8/16)
T1 (lyngbya - treatment)				Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit
T2 (lyngbya - treatment)				Below Limit	Below Limit	Below Limit	Below Limit	3.42 (8/3 – 8/16)	0.074 ppb
Control (lyngbya - no treatment)				Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit
Reference (lyngbya void)				Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit



Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

Results

Results

Treatment / Deployment		1 week		2 weeks		4 weeks / 2 weeks		
		July 20 th	July 27 th	August 3 rd		August 16 th		
T1								
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T1 (lyngbya - treatment)			Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit
T2 (lyngbya - treatment)			Below Limit	Below Limit	Below Limit	Below Limit	3.42 (8/3 – 8/16)	0.074 ppb

VA Recreational Advisory: 4 ppb



Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

Results

Results

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		July 20 th	July 27 th	August 3 rd		August 16 th		
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T1	(lyngbya - treatment)		Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit
T2	(lyngbya - treatment)		Below Limit	Below Limit	Below Limit	Below Limit	3.42 (8/3 – 8/16)	0.074 ppb

- Lyngbya Treatment Area
- Adjacent to a site of new construction
 - Boat Dock



Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

Results

Results

Treatment / Deployment	1 week	2 weeks	4 weeks / 2 weeks	
	July 20 th	July 27 th	August 3 rd	August 16 th
T1				
T2				
C1				
R1				

- Take Away: determine **proof of concept** for using SPATTs to detect lyngbya cyanotoxins within a freshwater environment



Toxins - Lyngbya

Lyngbya Toxin Production

NCSU / ODU Pilot Study

Results

Results

Treatment / Deployment		1 week		2 weeks		4 weeks / 2 weeks		
		July 20 th	July 27 th	August 3 rd		August 16 th		
T1								
T2								
C1								
R1								
			SPATT (7/27)	H2O (7/27)	SPATT (8/3)	H2O (8/3)	SPATT (8/16)	H2O (8/16)
T1 (lyngbya - treatment)			Below Limit	Below Limit	Below Limit	Below Limit	Below Limit	Below Limit
T2 (lyngbya - treatment)			Below Limit	Below Limit	Below Limit	Below Limit	3.42 (8/3 – 8/16)	0.074 ppb

First Study To Do This!



Toxins - Lyngbya

Future Research – Lyngbya Cyanotoxin Production

Need

- Better understand the environmental and human health risks posed by lyngbya in freshwater environments
- Better understanding of drivers for *L. wollei* toxin production



Toxins - Lyngbya

Future Research – Lyngbya Cyanotoxin Production

- Collaboration with University of South Carolina
 - Conducting a lot of human health focused lyngbya research
 - Have equipment to identifying individual *L. wollei* toxins
- Deploy SPATTS at various locations throughout Lake Gaston

Objective

- Increase our understanding of factors that drive toxin production and release
 - Environmental factors
 - Seasonal factors
 - Stress factors



Toxins - Lyngbya

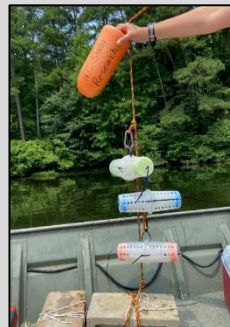
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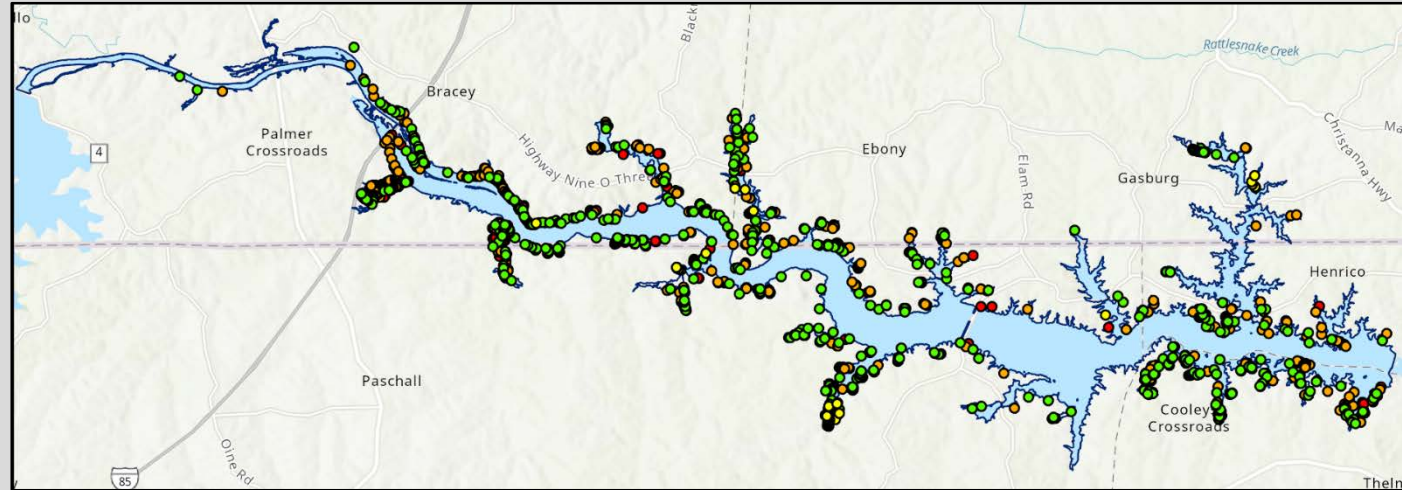
Objective

- Increase our understanding of factors that drive toxin production and release
 - Environmental factors
 - Seasonal factors
 - Stress factors

Stayed Tuned.....



Questions?



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Aquatic Plant Management Program**

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Report Issues Regarding Aquatic Plants