



Solomon Republican RAC | February 2021



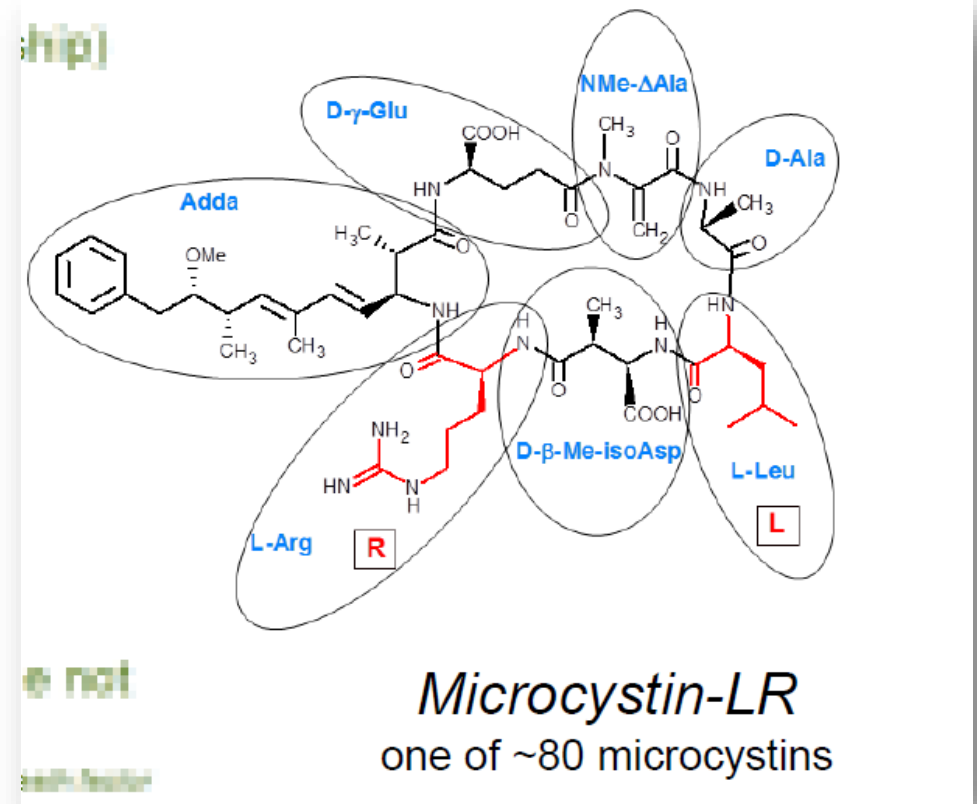
Lakewood Lake, 2018

What are blue green algae?

- Not closely related to other algae
- A type of bacteria known as –
Cyanobacteria
- They do contain chlorophyll, but the bluish color comes from phycocyanin, another photosynthetic pigment
- Most can control their buoyancy (“migrate vertically”) using a gas vacuole
- Many species can produce toxins

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- Many toxins produced by many species (no 1:1 relationship)
- Multiple modes of toxicity
- Acute and chronic exposure/response
- Convulsions and paralysis
- Gastrointestinal and flu-like effects
- Skin and respiratory irritation
- No known antidotes
- Taste and odor compounds



Protecting Public Health and Responding to Health Incidents

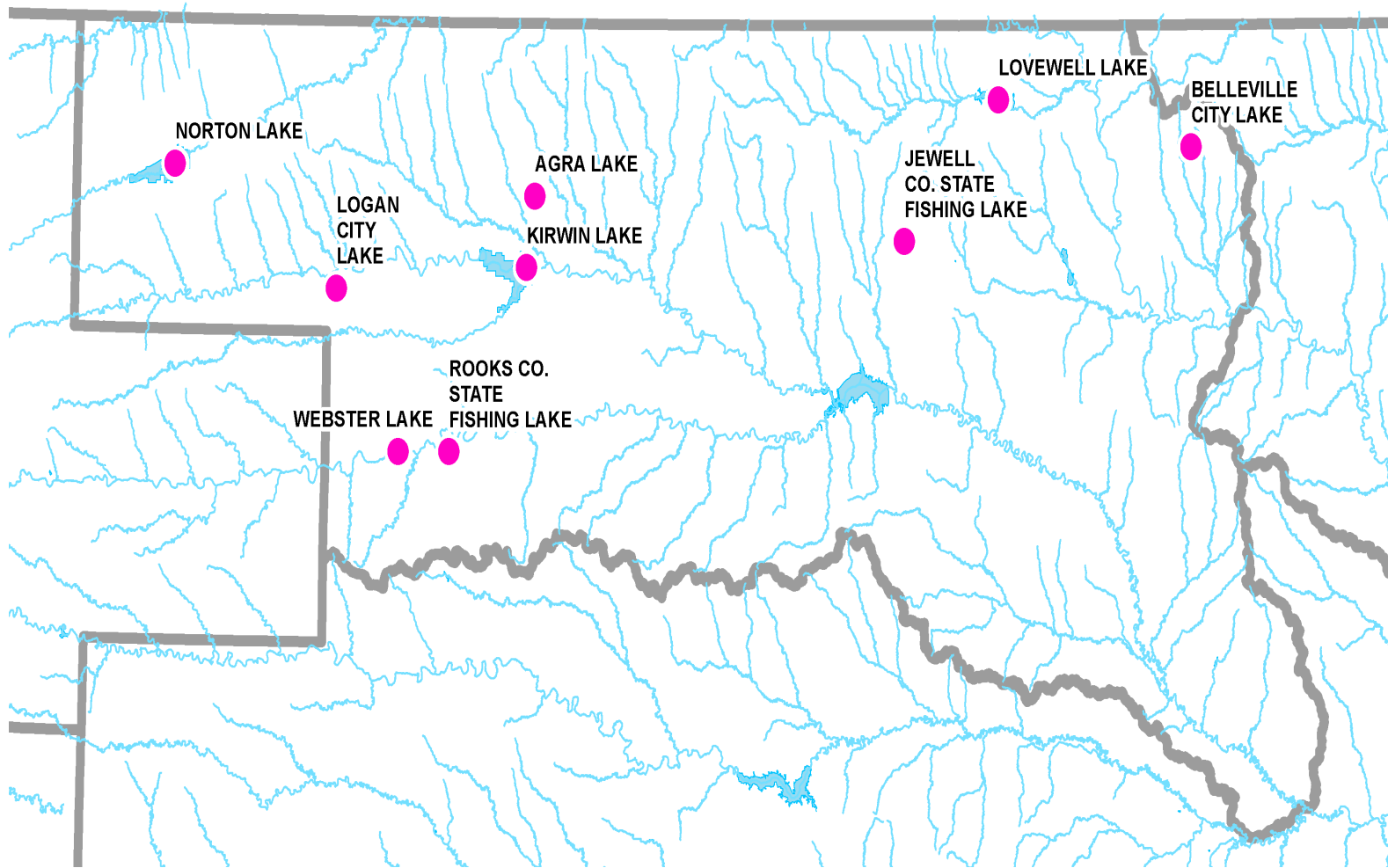
Public lakes with human contact recreation and domestic animal exposure are the primary waterbodies for the HAB sampling program.

KDHE Division of Public Health receives direct reports of HAB-related human and animal health incidents.



photo courtesy of KDWPT

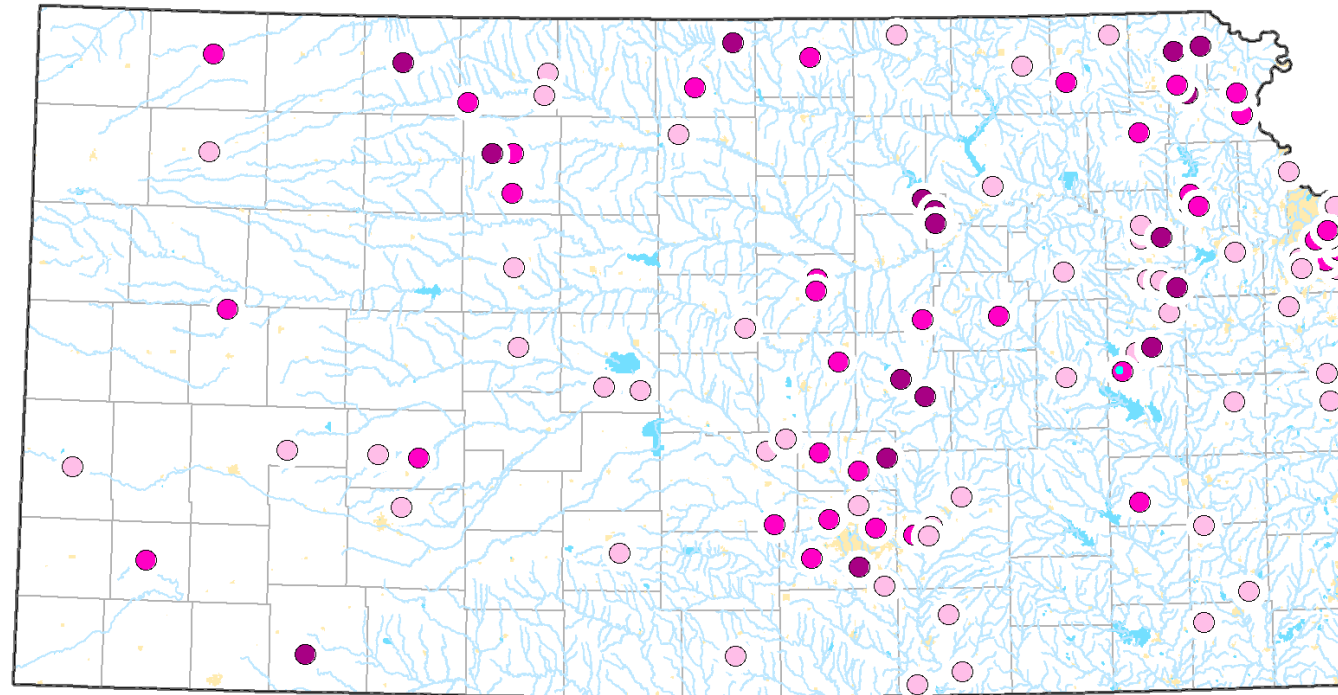
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Lakes within the Solomon Republican that have had HAB events documented

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Kansas Water Bodies with HAB Advisories, 2010-2020

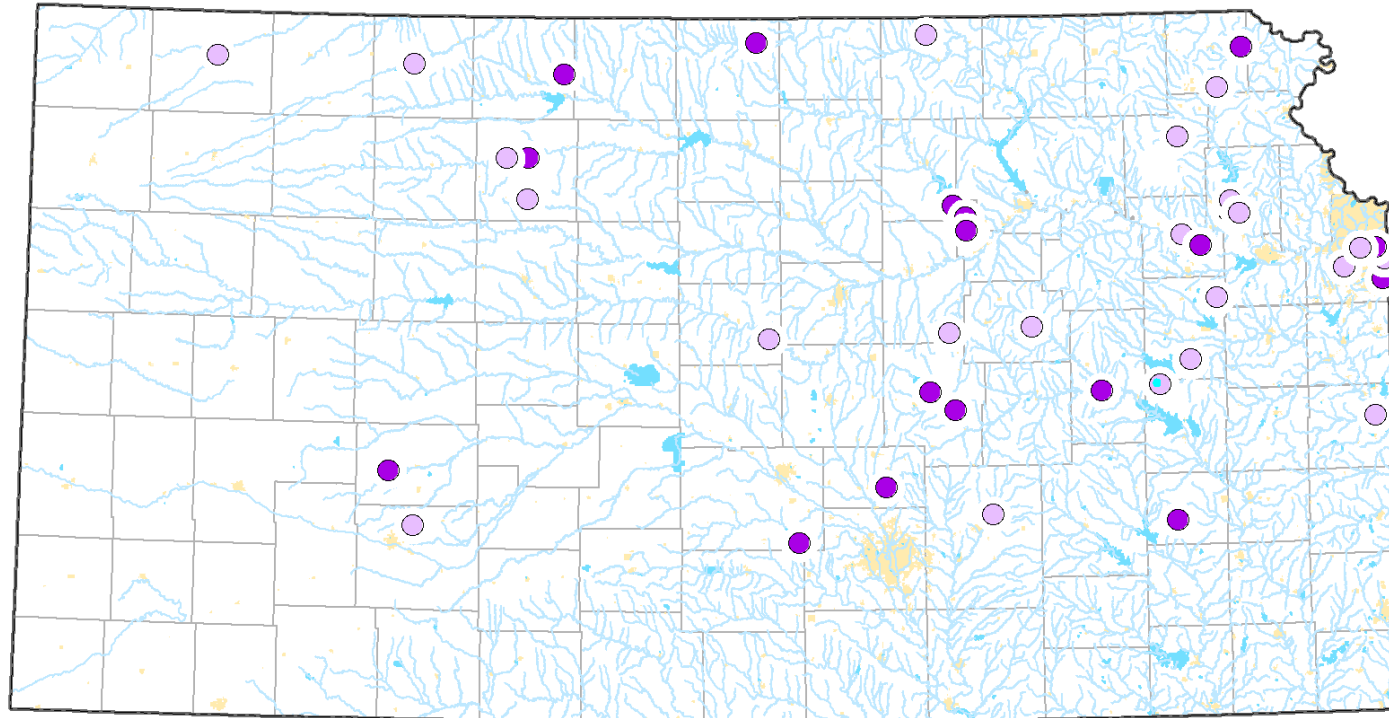


YEARS ON ADVISORY

- 1 YEAR
- 2-3 YEARS
- 4+ YEARS

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Kansas Water Bodies with HAB Advisories, 2020



2020 ADVISORIES

- WATCH
- WARNING

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HAB Summary Solomon Republican RAC

Name	First year HAB advisory issued	Advisories in how many years (2010-2020)?	HAB in 2020?
Rooks Co SFL	2018	2	yes
Webster R	2015	5	yes
Norton-Sebelius R	2014	7	yes
Agra L	2020	1	yes
Logan City L	2011	3	
Belleville City L	2014	2	
Jewell Co SFL	2014	2	
Lovewell R	2010	5	yes
Kirwin R	2017	1	

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Kansas has over 70 Public Water Systems (PWS) that draw from reservoirs and rivers.

- Norton
serves additional systems
- Mitchell County RWD 2
serves additional systems
- Beloit
serves additional systems

Voluntary Sampling by PWS

2019

25 systems – 525 samples

2020

33 systems – 660 samples



EPA's Health Advisory Levels

Voluntary program samples taken for raw and finished water.

No triggering events in 2020.

10-DAY HEALTH ADVISORIES	LEVEL
Microcystins	
Children pre-school age and younger (under 6 years old)	0.3 µg/L
School-age children (6 years and older)	1.6 µg/L
Cylindrospermopsin	
Children pre-school age and younger (under 6 years old)	0.7 µg/L
School-age children (6 years and older)	3.0 µg/L

Table 1. U.S. EPA's National 10-Day Health Advisories

Future Activities

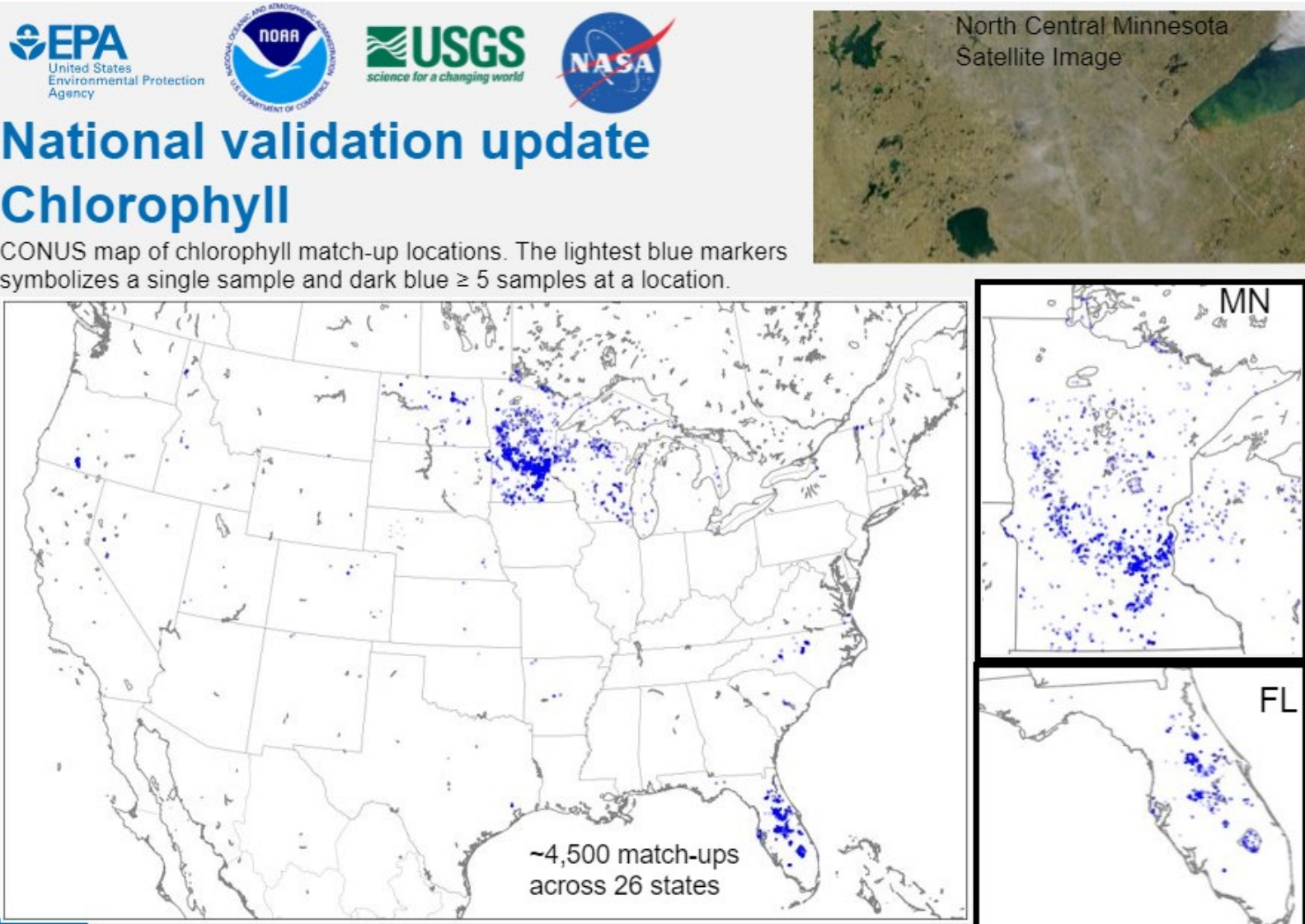
- Cost effective solutions
- Scale and size of reservoirs affect control
- The larger water body the higher the cost
- Wind – moves blooms across shore lines makes hard to do treatments



- Maintain response and advisory program
- Follow most current health/toxin research and guidance
- Offer outreach and education
- Diagnose and Detect

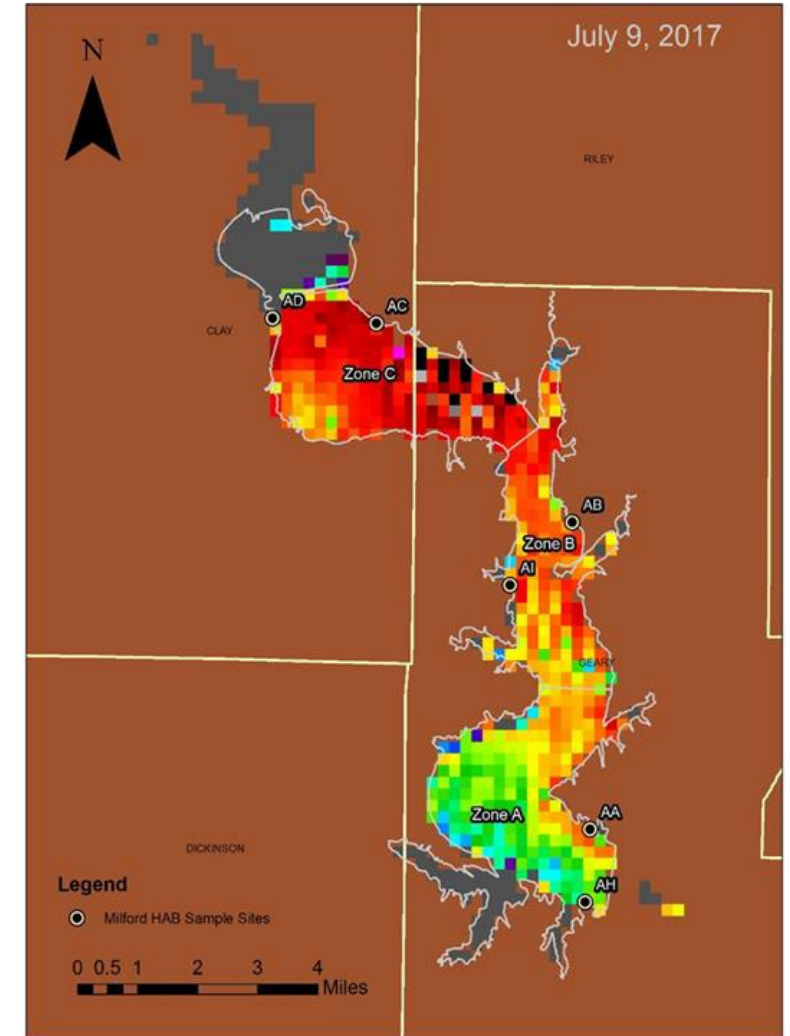


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Improve prediction and detection methods

- Research on satellite imagery (CYAN network), in-situ monitoring technologies, lab methods (FlowCam, qPCR)



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Satellite imagery was viewed weekly

Projects

Milford – Peroxide treatment

Treatment area was approximately
245 surface acres.

Carp Harvesting –

Removal of bottom feeding carp



WRAPS Projects

Reduce watershed nutrient inputs... change land management practices

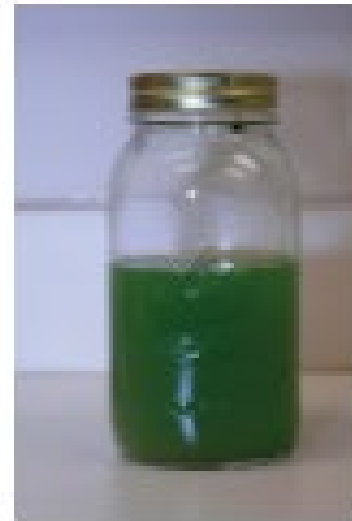
<https://www.youtube.com/watch?v=cqzKsfO4eSI>



Outreach and Education

K-State's SBEAP

Private landowner resources
<https://www.sbeap.org/water-quality/harmful-algal-blooms>



Sample



Positive



Negative

Partnerships – Thank you for the extra effort in 2020!

- Kansas public lakes involve various entities - municipal, county, state, and federal agencies. Our primary partners are Kansas Department of Wildlife, Parks, and Tourism (KDWPT) and US Army Corps of Engineers.
- The K-State University Veterinary Diagnostic Lab, EPA Region 7 Laboratories, and USGS Kansas Water Science Center all offered assistance with sampling and toxin testing.

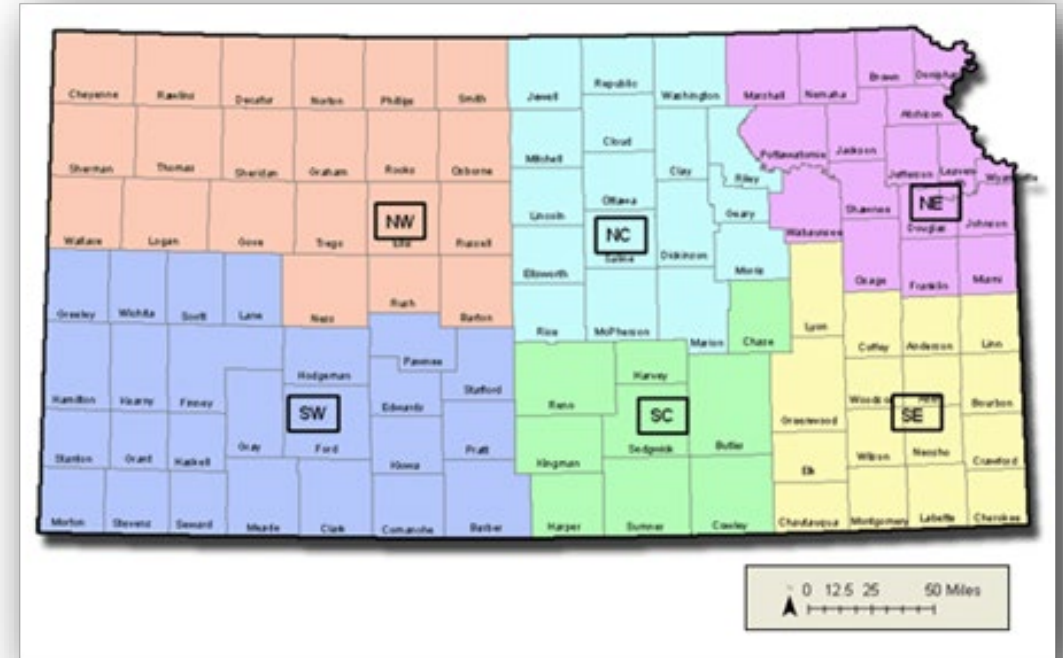


Changes to implementation in 2020

District field staff field sampling was reduced

Limited targeted sampling was done for public water supplies, health complaints or extreme blooms, or visit a lake with no manager on site.

Special pre-holiday toxin surveys were also done just before Independence Day and Labor Day.



Thank you/Questions

