



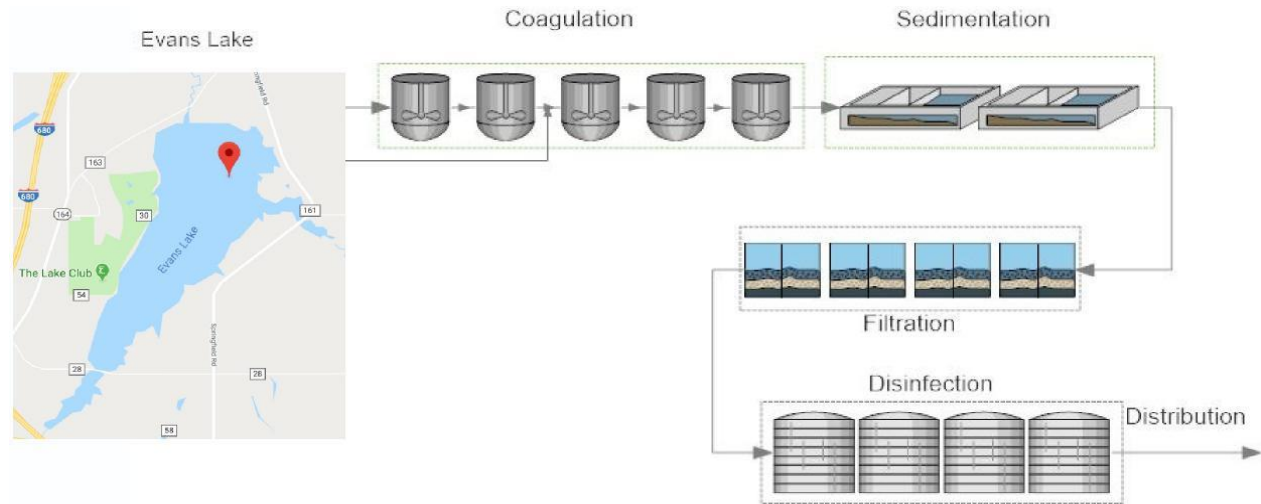
Proactive Approach to HAB Management

June 27, 2019

AQUA OHIO STRUTHERS PLANT DATA

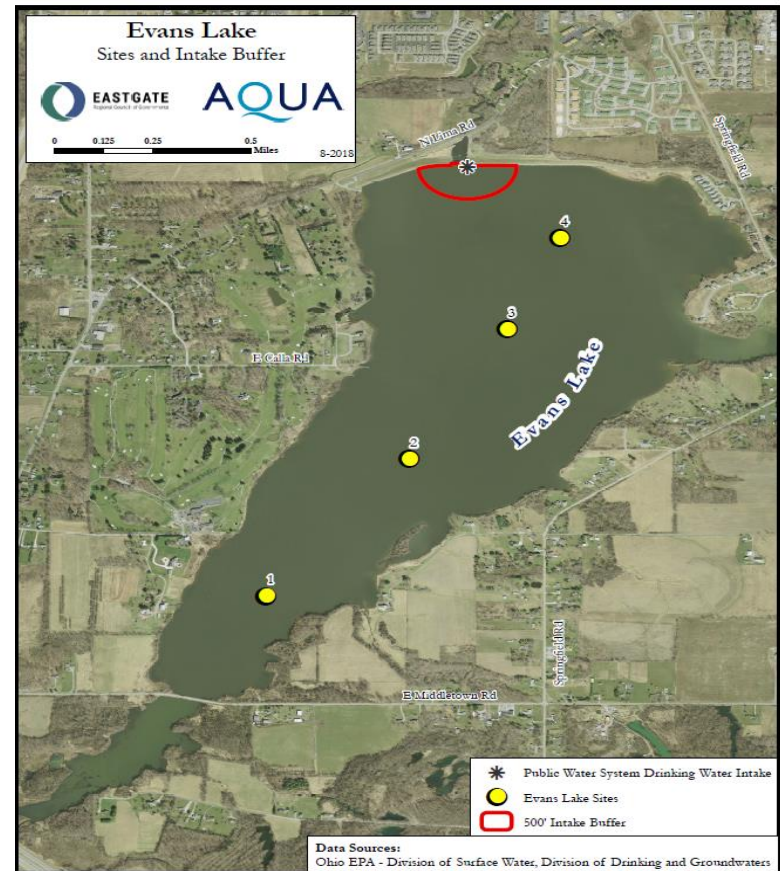
• **“Conventional” surface water treatment plant with:**

- Powdered activated carbon (PAC)
- Alum coagulation
- Softening
- Chloramines
- Ave 4.3MGD



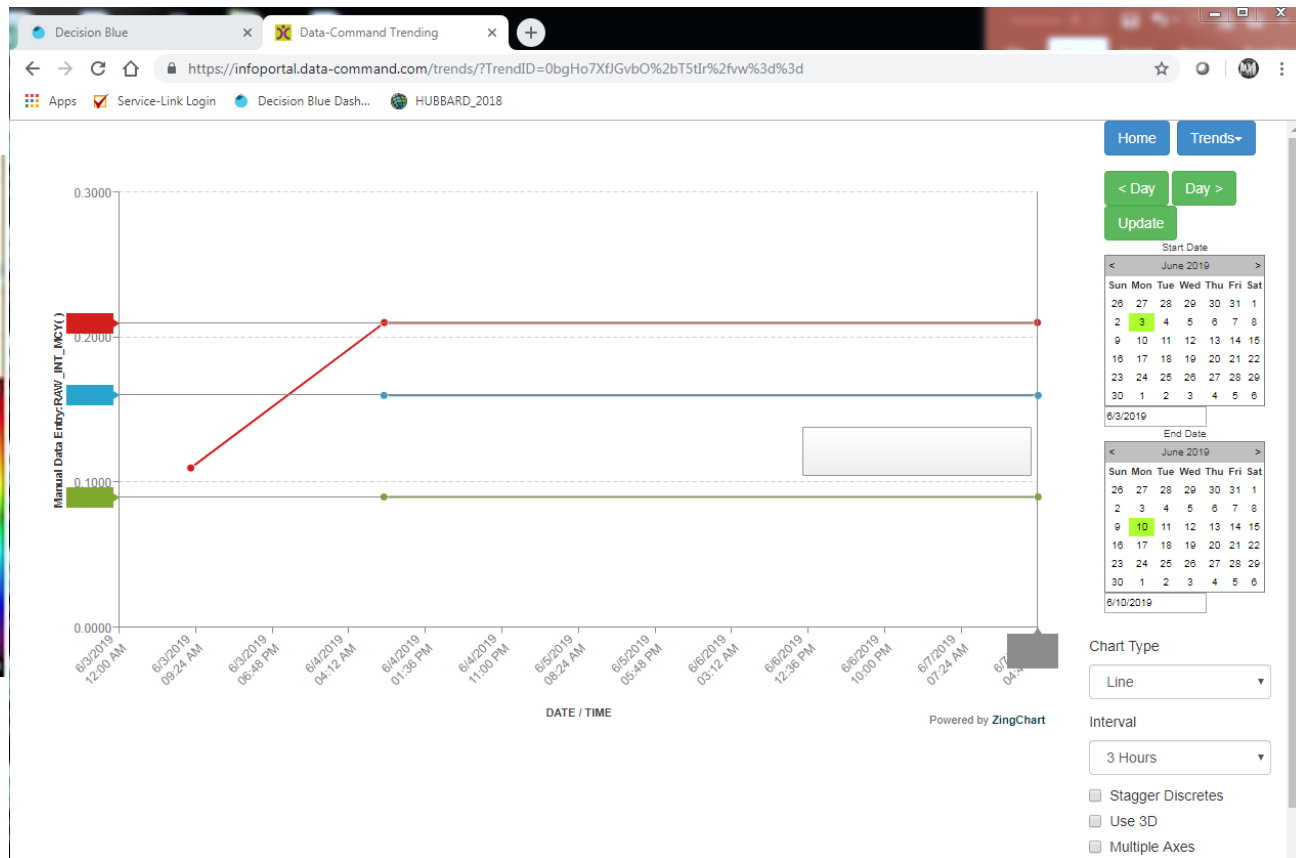
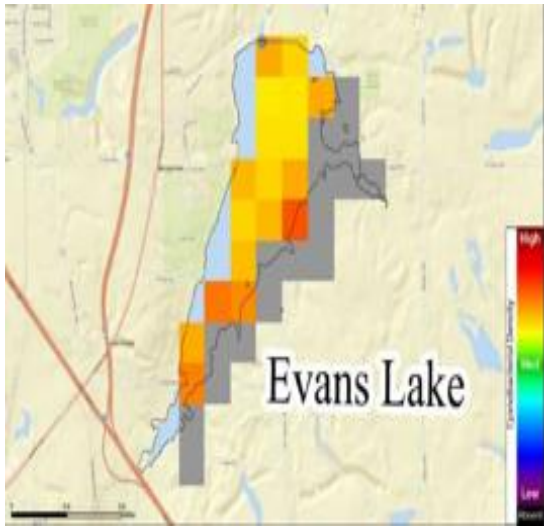
MANAGING HAB'S IN THE WATERSHED

- Lake Profiling of Evans Lake –Handheld data sonde
- Installed data sonde raw water well at Evans Lake
- Evaluate data



MANAGING HAB'S IN THE WATERSHED

- Data Collection/Evaluation including toxin, qPCR (gene counts), and satellite should be analyzed



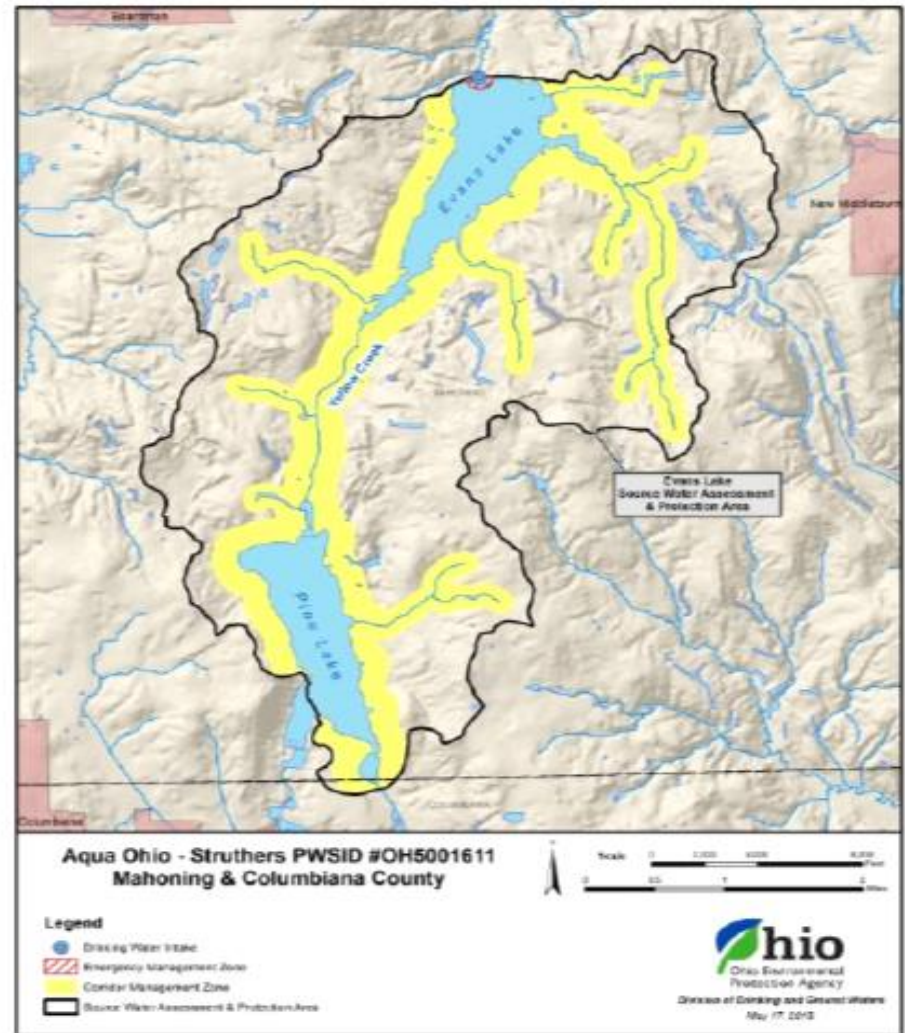
MANAGING HAB'S IN THE WATERSHED

- Targeted Algaecide Application- Earthtec Copper based
- Algaecide is applied at specific depths
- Provides another treatment barrier
- OEPA permit is required



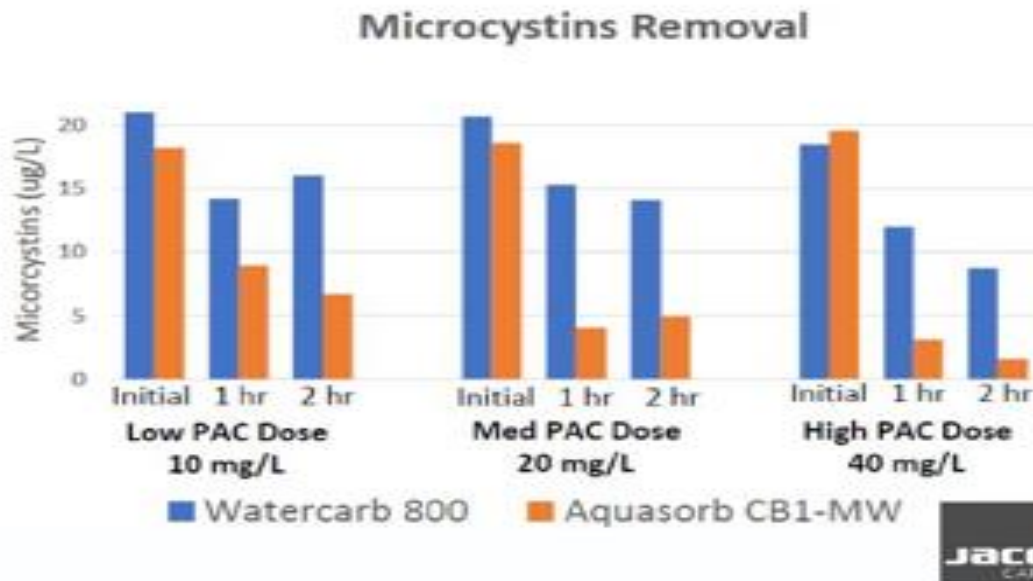
MANAGING HAB'S IN THE WATERSHED

- A Source Water Protection Plan was completed and endorsed by the OEPA on 10/1/18



EFFECTIVE TREATMENT FOR HAB'S

- Upon reviewing performance studies, Aqua Ohio Struthers began purchasing Jacobi Carbon
- OEPA performed jar testing for Microcystin removal on Evans Lake water.



MONITORING STRATEGY FOR HAB's

- FontusBlue

- Decision Blue predictive software- provides real-time data

- HAB alert status- need for water treatment operators to handle constant changing water quality.
- Weekly testing is inadequate!!!

Alert Level Configuration

Name	Medium 1-2		High 2-3		Very High 3-4		Units
	Threshold	Threshold	Threshold	Threshold	Threshold	Threshold	
Chlorophyll-a	25	80					µg/L
Phycocyanin	2	6					µg/L
MIB	15	50					ng/L
Geosmin	15	50					ng/L
Total Raw MCY		0.5	5				µg/L
Total Tap MCY			0.2				µg/L
Total Raw SXT		0.4	1				µg/L
Total Tap SXT			0.2				µg/L
HSS	7000	10000					GCµL
MCY Gene		0.5	8				GCµL
SXT Gene		0.5	3				GCµL
CYL Gene		0.5	3				GCµL

Total Treatable Threshold: ppb
 Treatability Margin Threshold: ppb

Save Close Reset

DecisionBlue®

Home Monitors Tools Help

Harmful Algal Blooms (HAB) Monitor

Analysis Date: 06/22/2019

Alert Level Configuration

View Alert Level SOP

Analysis Range: 06/18/2019 to 06/22/2019

Key Performance Indicators (KPIs)

HAB Alert Level	Total Treatable Microcystin* (ppb)
1	26.9

Microcystin (MCY)

Treatment Factors		Treatment Barrier Details*		Treatment Summary*	
Clearwell pH:	8.10	MCY Treatment Target:	0.30 ppb	Total Treatable MCY:	26.9 ppb
Clearwell Chlorine Residual:	2.68 mg/L	Chlorine Barrier MCY:	26.6 ppb	Raw MCY:	0.17 ppb
PAC Dose:	0.0 mg/L	PAC Barrier MCY:	0.0 ppb	MCY Treatability Margin:	+ 26.7 ppb
Flow Rate:	4.5 MGD	Total Treatable MCY:	26.9 ppb		

Automatic Update in 1 minute, 10 seconds

MONITORING STRATEGY FOR HAB'S

- FontusBlue

- Total Treatable microcystin-Microcystin that can be removed by our treatment process
- Provides current estimate of toxin barriers

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1

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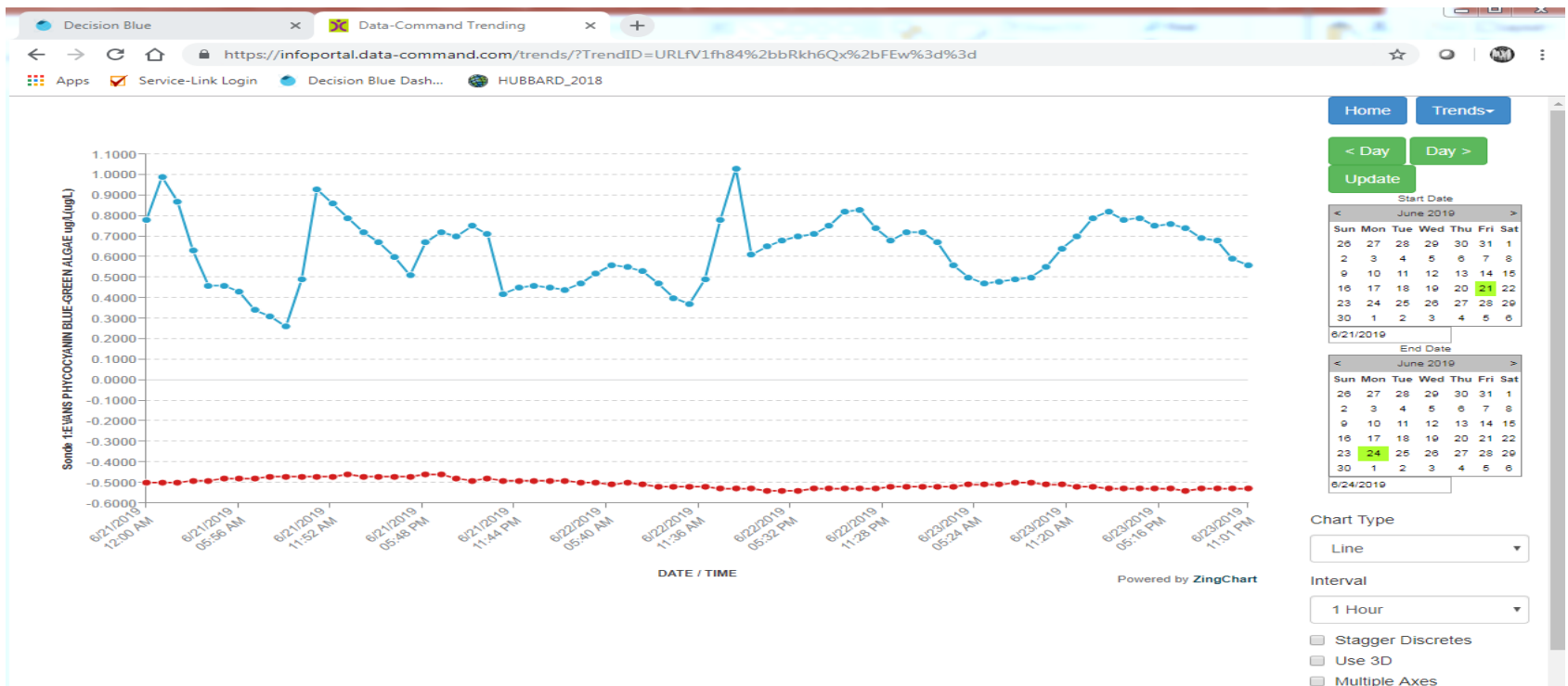
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Automatic Update In 1 minute, 10 seconds

MONITORING STRATEGY FOR HAB's

- Two data sondes
 - Raw well data sonde should have consistent phycocyanin trending data
 - Influent filter data sonde should NEVER have phycocyanin data





QUESTIONS?