

Harmful Algal Blooms & *E. coli*

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Utah Division of Water Quality

Water Quality Health Advisory Panel

December 11, 2019



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DWQ Recreational Health Outline

Harmful Algal Blooms

- 2019 Advisory Season
- 2020 Season
 - Incorporating latest EPA recreational health threshold

Escherichia coli

- Program 'tear down' & reboot
- Joint guidance with DOH
- Strategy for strategy going forward
 - Timeline
- Assessment strategies
 - MST



HABs



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DWQ HAB Advisory Process

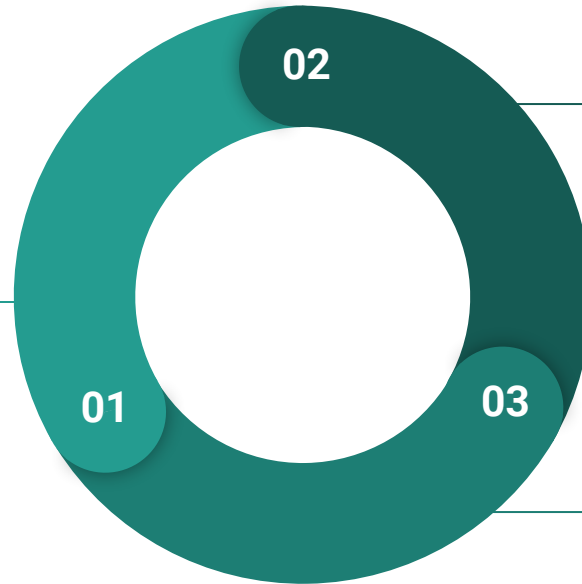
Monitoring

Routine
DWQ and partners monitor prioritized lakes on a monthly basis



Response
DWQ and partners monitor lakes on advisory on a weekly basis

Data Collected
Microcystin and Anatoxin-a Cell Count (Taxonomy)



Detection

Inform LHD

Present data collected along with DWQ recommendation. Assist in answering site specific questions

Communication

Phone call with all stakeholders (i.e. DNR, USFS, etc.) for site specific context

Advisory

Signs

Work with LHD and partners to post signs, make sure signs get posted

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Alert stakeholders to advisory decision. Post information, maps, and narrative about advisory on habs.utah.gov



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2019 Advisory Thresholds

	Reported	Warning	Danger
Relative Probability of Acute Health Risk	Low	Moderate	High
Cyano Cell Density (cells/mL)	<20,000	20,000 - 10,000,000	>10,000,000
Microcystin (ug/L)	<4	4 - 2,000	>2,000
Cylindrospermopsin (ug/L)	<8	8	>8
Anatoxin-a (ug/L)	non-detect	Detection - 90	>90
Health Risks	Variable/Negligible	-Potential for long-term illness -Short term effects (e.g. skin and eye irritation, nausea, vomiting, diarrhea)	-Potential for acute poisoning -Potential for long-term illness -Short term effects (e.g. skin and eye irritation, nausea, vomiting, diarrhea)
Recommended Actions	LHD specific	Issue Warning Advisory Post Warning signs No primary contact recreation Weekly sampling minimum	Issue Danger Advisory Post Danger signs No recreation Consider Closure Weekly sampling minimum

2019 HAB Advisory Season

2019 Utah DWQ HAB Program

Field Monitoring &
Sampling
Summary Statistics
June - November
2019



WATER QUALITY

Monitoring

175
unique
sites
monitored



784
site visits



65

water bodies visited

Coordination



11/13

local health departments
with advisories



12

state park
advisories

Travel



25,000
miles driven

Sampling



1317
samples
collected



Advisories

35
advisories



1

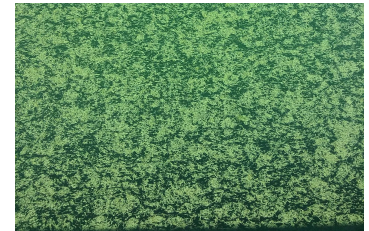
fishing closure

Human Health



40

reported
HAB-related illnesses



2020 HAB Advisory Season Updates



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Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin

	2019	2020
Microcystin (ug/L)	4	8
Cylindrospermopsin (ug/L)	8	15

- Updated to reflect new studies
 - Ingestion & exposure rates

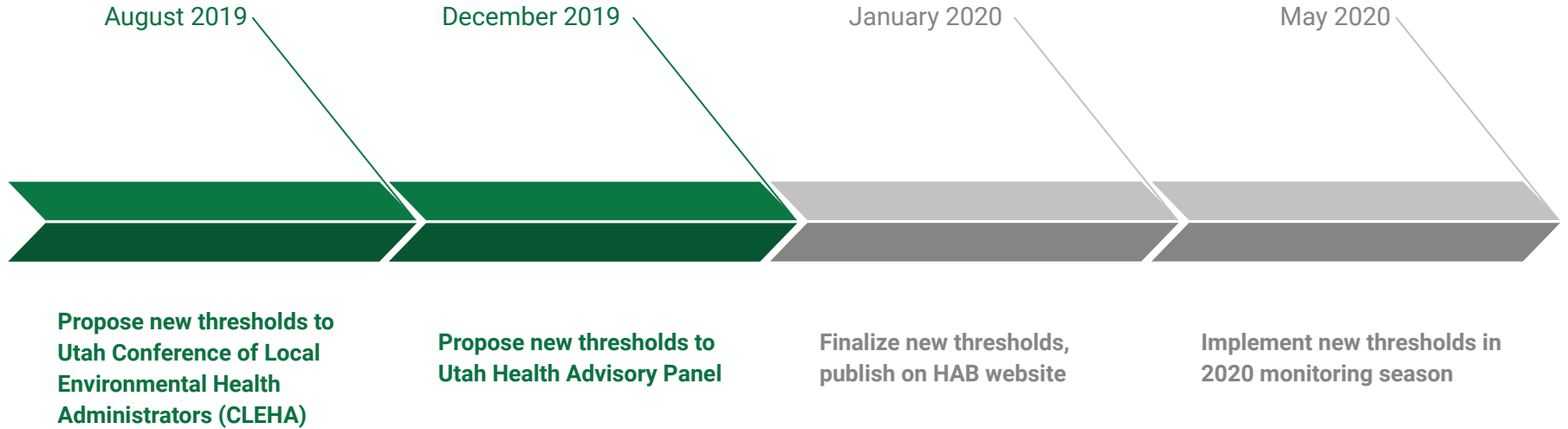


<https://www.epa.gov/sites/production/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf>

Proposed Timeline of EPA CyanoHABs and Recreational Health Criteria Implementation

Draft High-level Implementation Q&As (Tasks)	Start Date	End Date	Notes
OST Office Director Review	4/29/19	5/10/19	Must schedule meeting
Federal Register Notice publication of criteria	4/30/19		
Revise document to address OST Office Director comments.	5/13/19	5/17/19	
OW Management briefing and review	5/20/19	5/31/19	Must schedule
Revise document to address OW Management comments.	6/3/19	6/7/19	
Put Draft out for public comment (docket at regulations.gov).	6/10/19	7/25/19	45-day public comment period
Address public comments.	7/26/19	8/02/19	EPA-State focus group
OW Management, coregulator review of final document(s)	8/05/19	10/11/19	
Issue final materials.	10/15/19	✓	

Utah DEQ/DOH Timeline



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Anatoxin-a and Cell Counts for 2020 Season

Utah DOH Proposals (no updated guidance from EPA)

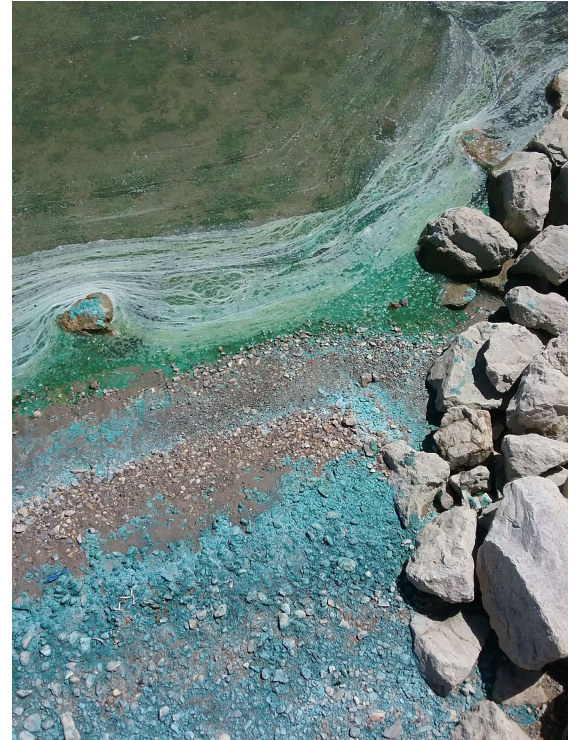
Anatoxin-a

- Remains at 'detection'
 - Based on quality assurance of detection limits from UPHL or other partner labs

Cyanobacteria Cell Counts

- Increase from 20,000 cells/mL to **40,000 cells/mL**

Incorporate into same timeline as microcystin and cylindrospermopsin



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Reintroducing third, non-advisory tier?

- Possibly triggered by:
 - Public report
 - DWQ observation
 - Satellite imagery
 - Absence of complete data set
- Increases LHD flexibility towards protecting and informing public without an advisory
- 'Caution', 'Observed', 'Reported', ?
- Separate signs



	?
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Recommended Actions	LHD specific

Permanent Signs

- Requested by LHDs
- Need to be prioritized (limited budget)
 - DWQ can provide guidance/recommendations on water bodies but ultimately a LHD decision
- **Will not replace warning and danger signs**
 - Serve as more permanent and continuous caution to recreators
 - Placeholder if advisory signs cannot be placed immediately after detection of HAB above threshold

WELCOME TO
UTAH LAKE

Be aware. Harmful algal blooms are periodically detected in Utah Lake during the summer.

BE ALERT!
MANTENTE ALERTA!

Avoid water that:

Evita agua que:

- looks like spilled paint or antifreeze
se ve como pintura o anticongelante derramado
- has surface scums, mats or films
tiene escoria en la superficie
- is discolored or has streaks
esta descolorada o tiene manchas
- has green globs below the surface
tiene grumos verdes flotando debajo de la superficie

For the latest advisory information visit:
habs.utah.gov
Para más información visite: habs.utah.gov

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY

UTAH LAKE
COMMISSION

Utah County
HEALTH DEPARTMENT

AVOID SWALLOWING LAKE WATER!
Evite ingerir el agua!

2020 E. coli Program



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E. coli Program Re-build Goals



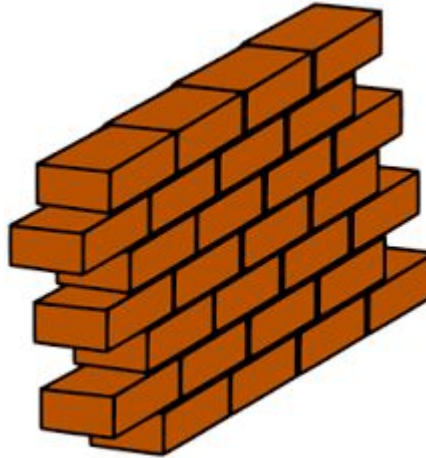
Joint program support (in spirit and practice!) across UDWQ, UDOH, and state health agencies

Credible, timely data and communication to support advisory decisions

Efficiently identify water bodies that pose unacceptable exposure to human pathogens

Assessment vs. Advisory

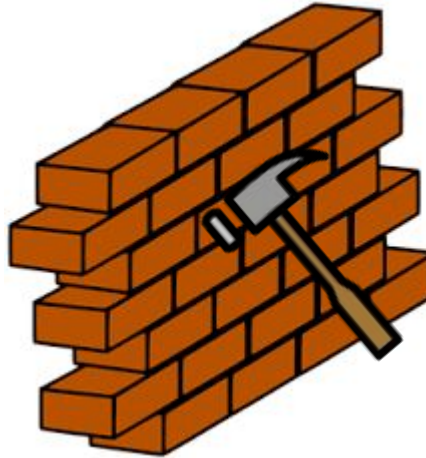
- Long-term monitoring for the purpose of assessment listing
- Clean Water Act
 - Restore and maintain the chemical, biological, and physical integrity of the Nation's waters
 - National Goal – “Fishable and Swimmable”
 - Primarily focused on point sources of pollution
 - Amended in 1987 to address nonpoint sources



- Short-term monitoring for the purpose of advisory and response
- Uses rapid monitoring and data collection to protect recreational human health more instantaneously

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Combined 2018/2020 Integrated Report

- Assessment of the water quality of flowing surface waters of the State
- Period of record: 10/01/2010 to 09/30/2018
- Assesses readily available and credible data (Call for Data ended July 20)
- Automated using R-code and reviewed using R shiny app
- Assessment Methods were publicly vetted and finalized May, 2019



Working towards a cohesive strategy

Identified issues with current program

1. Currently disjointed program implementation across LHDs
2. Lacks consistent response protocol (data sharing, TAT, response, etc.)
3. Lacks DOH/LHD input
4. Advisory criteria lack a connection to current recreational health risks
5. Priorities not efficiently or clearly conveyed to cooperative agencies
 - a. currently focuses on an assessment or TMDL context
6. Missing multiple efficiencies to align with HAB program

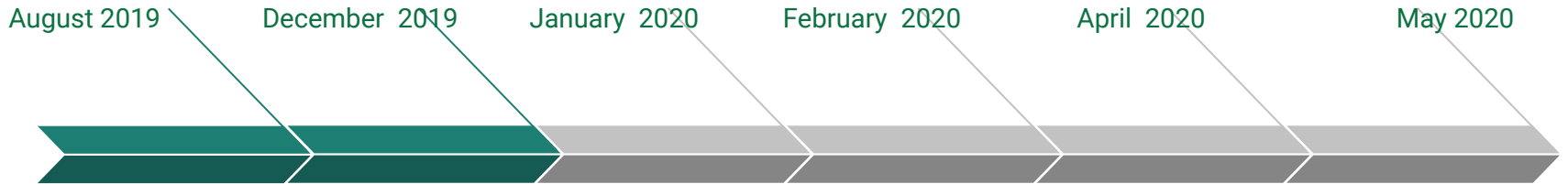


Joint DOH/DWQ response guidance



1. Review/update response criteria and implementation
 - a. Science and literature review
 - b. Scoping across other states
2. Establish priority waterbodies
 - a. Develop transparent method
 - b. DWQ's at-risk identification (2A designation, spatial analysis, MST)
 - c. LHD input for local high recreation waters
 - d. Cooperator input for local high recreation waters
3. Communication
 - a. Align with current HAB program processes

Utah DEQ/DOH Timeline



Inform CLEHA that E. coli program will be rebuilt for 2020

Propose to HAP that E. coli program will be rebuilt for 2020

Propose new strategies to CLEHA. Request membership for E. coli working group

E. coli working group kickoff

Finalize new thresholds, and guidances. Publish on E. coli website. Host E. coli workshop (jointly with annual HAB workshop)

Implement new thresholds in 2020 monitoring season.

Questions/Discussion



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