

Utah's Response to Cyano Harmful Algal Blooms



Ben Holcomb
Coordinator for HAB & Biological Assessment Programs
Utah Water Quality and Health Advisory Panel
April 23, 2018

Utah Department of Environmental Quality
Division of Water Quality

2017 UDEQ/UDOH Recreational Health HAB Guidance

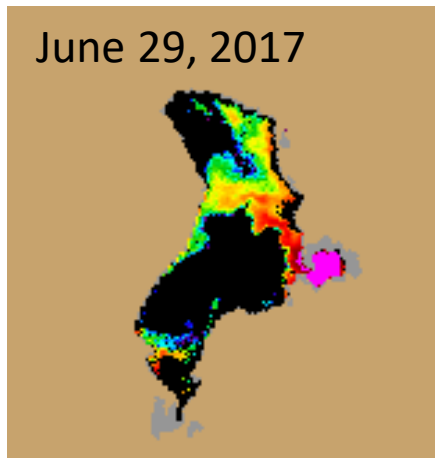
	Tier 1: None	Tier 2: Warning	Tier 3: Danger
Relative Probability of Acute Health Risk ¹	Low	Moderate	High
Cyanobacterial Cell Density (cells/mL) ¹	< 20,000	20,000 - 10,000,000	>10,000,000
Microcystins (µg/L) ^{1,2}	< 4	4 – 2,000	> 2,000
Cylindrospermopsin (µg/L) ²	< 8	> 8 *	> 8 *
Anatoxin-a (µg/L) ³	Non-detect	Detection - 90	> 90
Additional Factors	None	Reports of animal illness or death	Reports of human illness
Health Risks ¹	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	None	Issue WARNING advisory Post WARNING signs No Primary Contact Recreation Sampling recommended at least weekly	Issue DANGER advisory Post DANGER signs Consider CLOSURE No Recreation Sampling recommended at least weekly



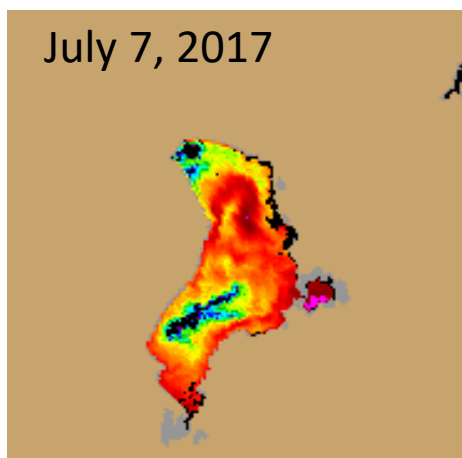
Use of Satellite Images for HAB detection and movement-- Utah Lake example



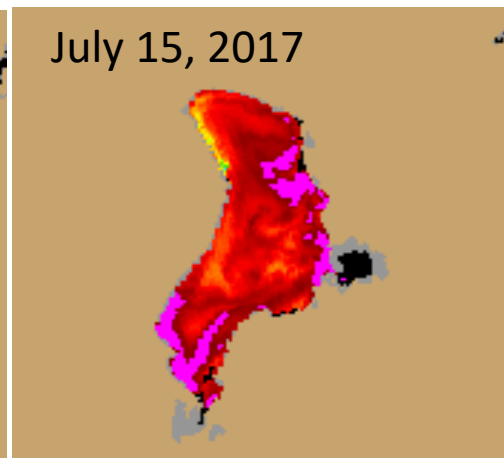
June 29, 2017



July 7, 2017



July 15, 2017



- Best suited for larger waterbodies
- 2018 will incorporate a “CyAN”
App alert on mobile device



Utah DWQ HAB Network

Utah Division of Water Quality

Zoom All

UPDATE: 4/1/2017: THE BUOYS ARE BACK IN SERVICE AS OF MID-APRIL 2017

Water quality data buoys that measure water quality parameters every 15 minutes and then transmit that data every 60 minutes. These sites in time will be used in conjunction with a model that will be used to forecast for potential HABs. Additionally,

Utah Lake 2 miles West of Vineyard, UT

Utah Lake 1 mile East of Bird Island

Utah Lake 1 mile West of Provo Marina

Scofield Reservoir

Deer Creek Reservoir



Up-to-the-minute data from projects

LIVE Datacenter Available on the App Store

Map data ©2017 Google Imagery ©2017 T



Harmful Algal Bloom (HAB) Response

Goal

- DWQ will have the resources to respond to HABs quickly and efficiently.
- Local health departments will receive critical information to make decisions within 24 hours of data collection.
- Regulatory entities will have accurate data for decision-making on the safety of drinking-water and secondary-water supplies.



Testing for public health

- **Cyanobacteria taxonomy and cell count –Phycotech, Inc.**
 - ~48 hour turn around time
 - Test most comprehensive determination of potential cyanobacteria risks for recreation
- **Cyanotoxin test strip screen – Abraxis**
 - Rapid results: day of sampling
 - Limited to cylindrospermopsins, microcystins and anatoxin-a (not saxitoxins)
 - Limited to various screening levels– recreation values max set at 10 ug/L microcystin
 - Test strips planned to be purchased and delivered to at-risk health departments
- **Cyanotoxin analysis – UDAF, UPH, and EPA R8 Labs**
 - 24 to 48 hour turn around time at best; 1 week is expected for non-Utah labs
 - ELISA (bioassay) results through UDAF Lab for MCY, CYL, ATA
 - Local labs are working towards improving lab capabilities (LC-MS-MS; qPCR)
 - Other labs will be considered as necessary



Communication: Incoming/Outgoing

DEQ 24-hour Spill Line: 801.536.4123

Utah Poison Control Center: 1.800.222.1222

BloomWatch App: <http://cyanos.org/bloomwatch/>

DEQ website: HABS.UTAH.GOV

UT Department of Health:

<http://health.utah.gov/enviroepi/appletree/HAB>



Cyanobacteria Exposure Risk Response Process

