The Cyanobacteria Monitoring Collaborative
An Approach to Educating, Monitoring, and Managing Harmful Cyanobacteria

USEPA REGION 9 HABS SWAMP MEETING
APRIL 26, 2017

For assistance in accessing this document please send an email to EPACyanoHABs@epa.gov
Today’s Talk

- CMC Program Overview
- Three Tiered Approach
  - bloomWatch
  - CyanoScope
  - Cyanomonitoring
  - QA/Lessons learned/Coordination/Funding
- Remote Monitoring Buoys
Program Conception

- State Request/Timing
- Open Collaborative Approach
- Architecture
  - Fill a niche
  - Inexpensive
  - Informative (solid useful data!)
  - Educational
  - Scaleable
BloomWatch!

To determine the spatial and temporal patterns of bloom occurrence

- Readily Available Tool (Smartphone)
- Phone App- Embedded QA
- Educational
- Scalable Crowdsourced information
- Data in public domain – real time data – public domain
BLOOMWATCH APP

CROWDSOURCING TO FIND AND REPORT POTENTIAL CYANOBACTERIA BLOOMS
“Crowdsourcing to find and report blooms”

Use your smartphone to help track cyanoblooms

http://cyanos.org/bloomwatch

The App: Four Screens

- Introduction & Basic Info
- Lake Conditions & Bloom Size
- Photos
- Submit Data
Helping you do great science
Create projects, build datasheets, add data, and view results in real-time.

Sign Up!

326 projects
590,718 measurements
2,432 members
61,678 locations
1,185 protocols

Start a Project

Benefits
- Configurable
  Build your own datasheets and protocols ~ Make it your own
- Community-Driven
  We're community driven ~ you make us better
- Free
  Free data management, storage,

Featured Project

Trout Unlimited Coldwater Conservation ...
Monitor the impact of Marcellus Shale gas development on the statewide water resources

New Observations
- Observation at COFFCR...
  Tom Varrassa
  July 6th, 2016
- Observation at BROKCR...
  Tom Varrassa
  July 6th, 2016
- Observation at COSPBO...
  Tom Varrassa
Instant Access
CyanoScope

To determine the occurrence and distribution of cyanobacteria genus/species (mapping of potentially toxin producing waterbodies)
General Description

- *Anabaena* cells are usually arranged in filaments or chains and can be straight, spiralled, coiled or spring-like and often described as "beaded"
- Filaments also have specialized cells called heterocysts and akinetes, used for fixing nitrogen and regenerating cells for future colonies
- A mucilaginous sheath surrounds the cells of the filament
Connect with Nature
Explore and share your observations from the natural world.
SIGN UP   EXPLORE

How It Works
1. Record your observations
2. Share with fellow naturalists
3. Discuss your findings

Contribute to Science
Every observation can contribute to biodiversity science. From the rare butterfly to the most common backyard weed, we share your findings with scientific data repositories like the Global Biodiversity Information Facility so that scientists can find and use your observations.

cyanoScope

Stats
98 Observations
17 Species
19 People
Tracking of cyanobacteria concentrations with efforts to forecast bloom occurrences, determine risk, and assess waterbody/human health vulnerability.

- Standardized methods/kits
- Temporal component
  - Tracking dynamics
- Minimum Seasonal Commitment
- Minimum Sampling Commitment
- Centralized Data
- Data Visualization tools (in development)
Handheld 2-Channel Fluorometer

- Channel 1 - Chlorophyll
  - .25 - 2,500 ppb
- Channel 2 - Phycocyanin
  - 4 - 100,000 ppb
- $1,500 - $2,500
- Primary Standards $200 each
- Secondary Standards $150 (2 year shelf)
PC/Chla Ratio precedes Secchi Disk depth and is most sensitive metric.
Real-time monitoring data
