

Harmful Algal Blooms:

Why do we care
&
What are we doing?

NOTICE

**Blue Green Algae is Present
in Lake Del Valle**



During summer and fall, the presence of blue green algae in lakes can result in a buildup of toxins. While near-water activities such as picnicking, biking, and hiking are safe, take the following precautions to help protect yourself, your family (including pets), and your friends:

- **No bodily contact with the water. Supervise children and pets at all times—they are particularly vulnerable.**
- **Keep pets, especially dogs, out of the water.**
- **Skin in contact with blue green algae should be rinsed with tap water.**
- **Fish may be consumed after removing guts and liver, and rinsing fillets in tap water.**

For more information, contact East Bay Regional Park District at (510) 544-2328 or visit the California Department of Public Health online www.cdph.ca.gov/healthinfo/environhealth/water/Pages/bluegreenalgae.aspx

Harmful Algal Blooms (HABs)



What are Cyanobacteria:

Field and Laboratory Guide to Freshwater Cyanobacteria Harmful Algal Blooms for Native American and Alaska Native Communities



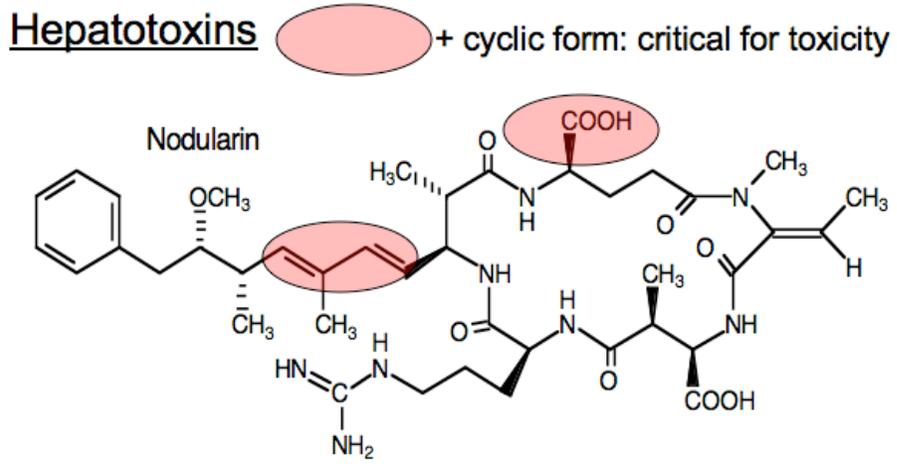
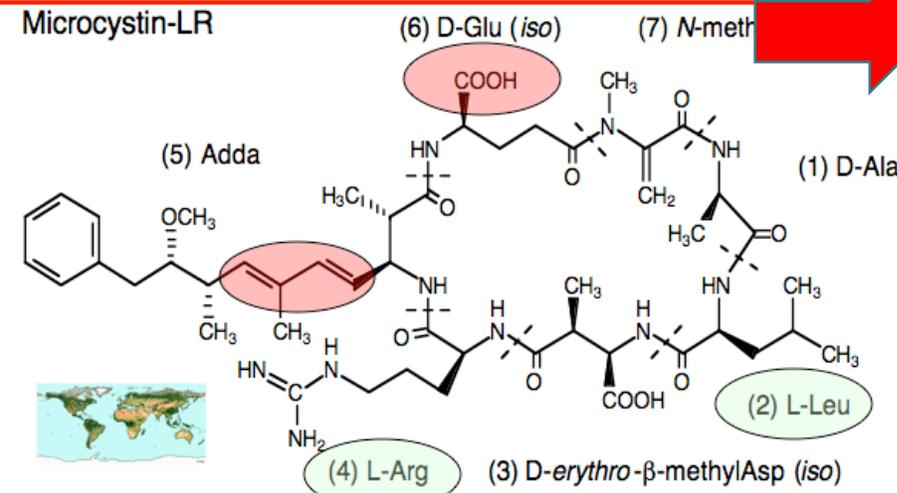
Open-File Report 2015-1164

U.S. Department of the Interior
U.S. Geological Survey

Some Cyanobacteria produce toxins

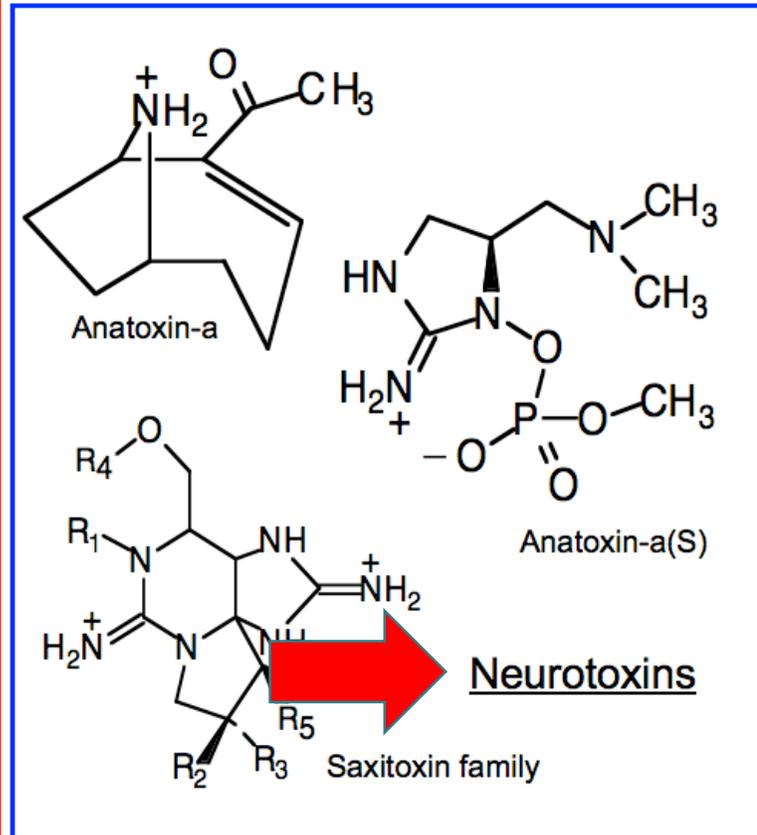
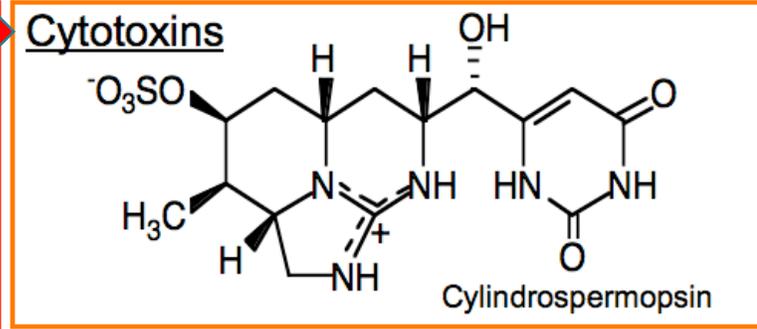
Different cyanoHABs;
Different toxins,
Different impacts

Know which
toxins are
present to
properly protect
pets, public
health and
livestock.

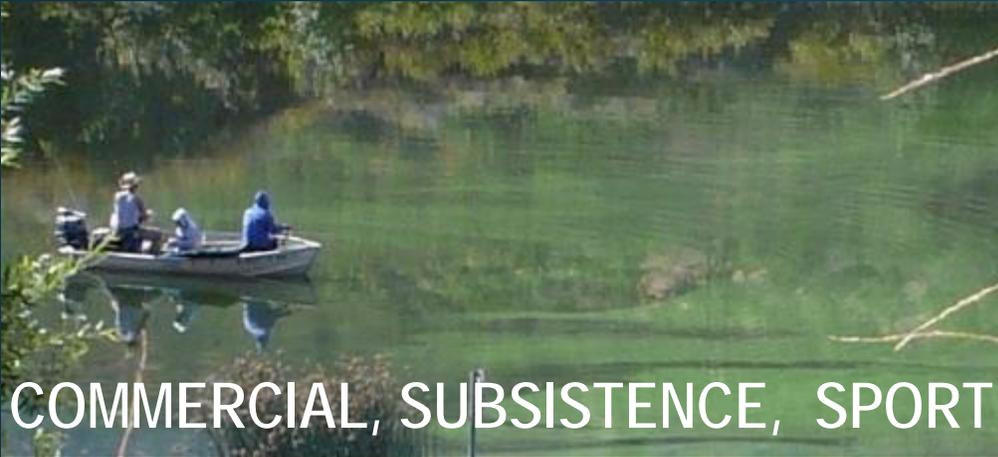


Ca 80 known microcystins,
ca 10 known nodularins

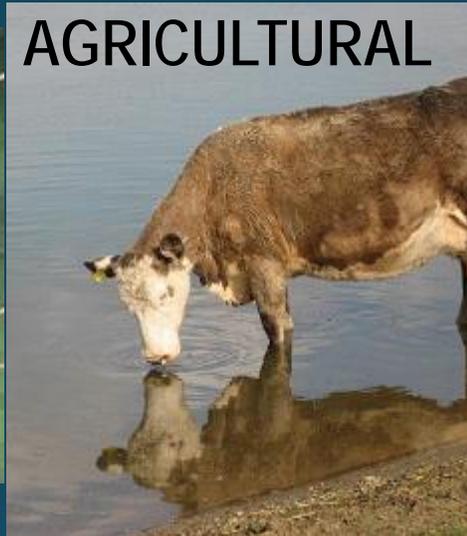
International Agency for
Research on Cancer
2006: Microcystin-LR is
possibly carcinogenic to
humans (Group 2B).



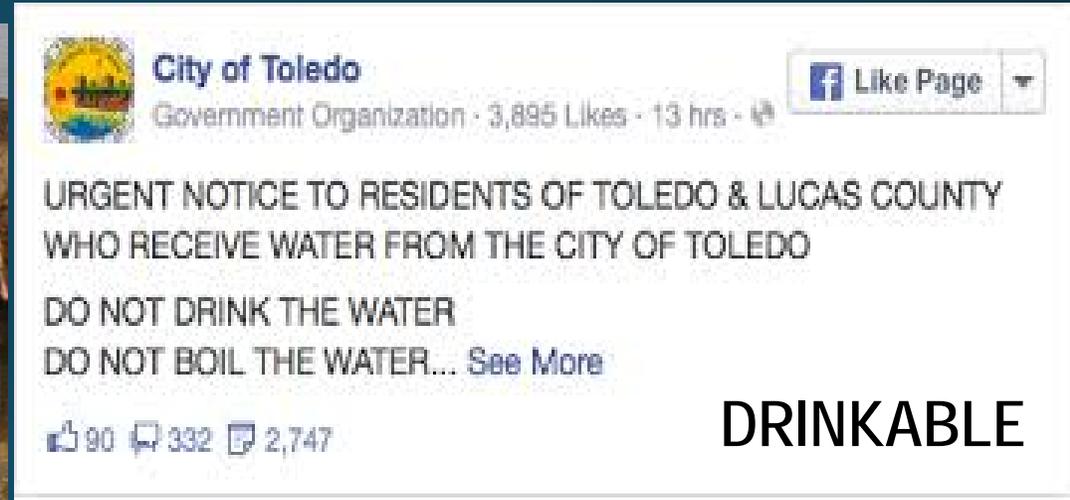
What are the Impacts?



COMMERCIAL, SUBSISTENCE, SPORT



AGRICULTURAL



City of Toledo
Government Organization · 3,895 Likes · 13 hrs · 

URGENT NOTICE TO RESIDENTS OF TOLEDO & LUCAS COUNTY WHO RECEIVE WATER FROM THE CITY OF TOLEDO

DO NOT DRINK THE WATER
DO NOT BOIL THE WATER... [See More](#)

 90  332  2,747

DRINKABLE



CULTURAL

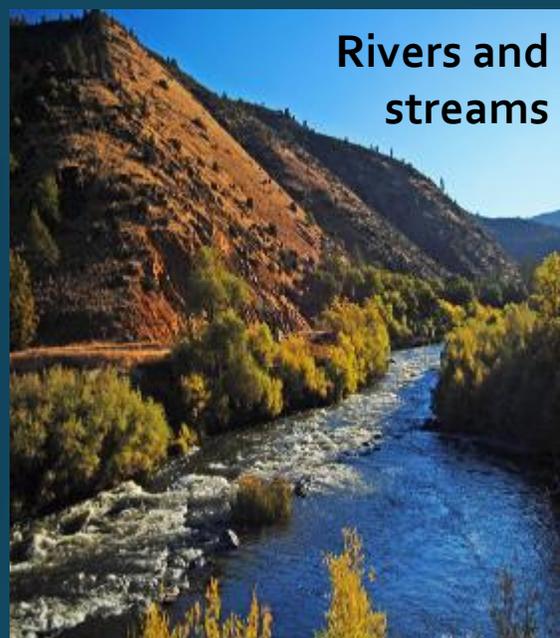


WILDLIFE, AQUATIC HABITAT



RECREATIONAL

Where do they occur?



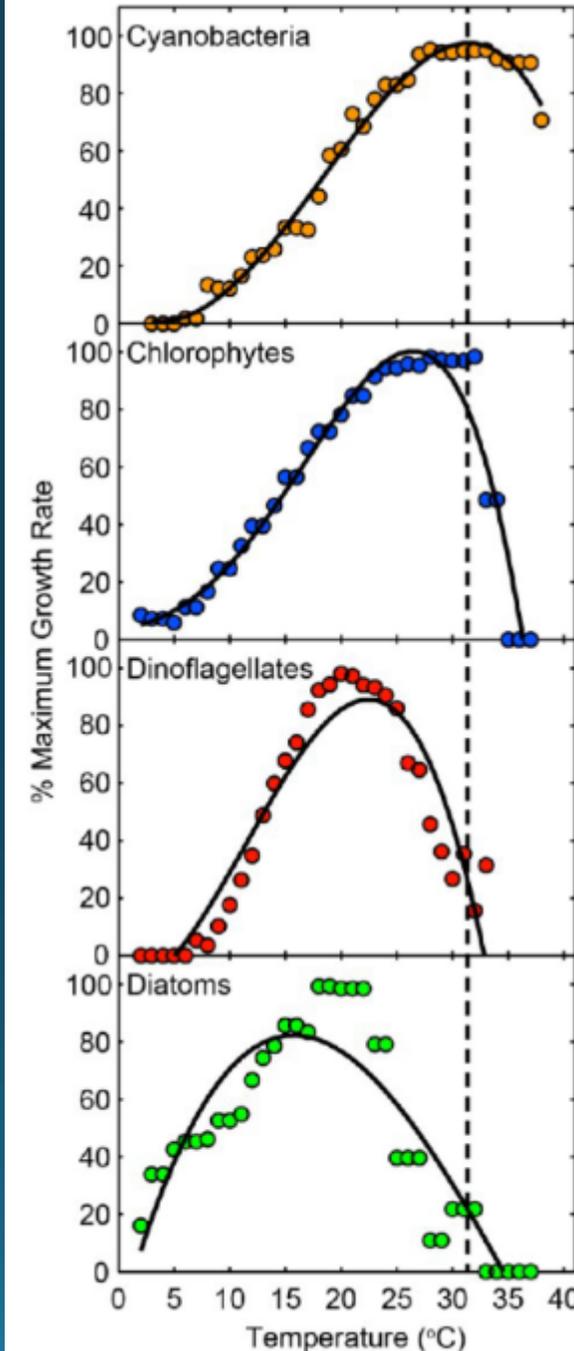
What causes blooms?

- Warm Temperatures
- Nutrients
- Slow Moving waters

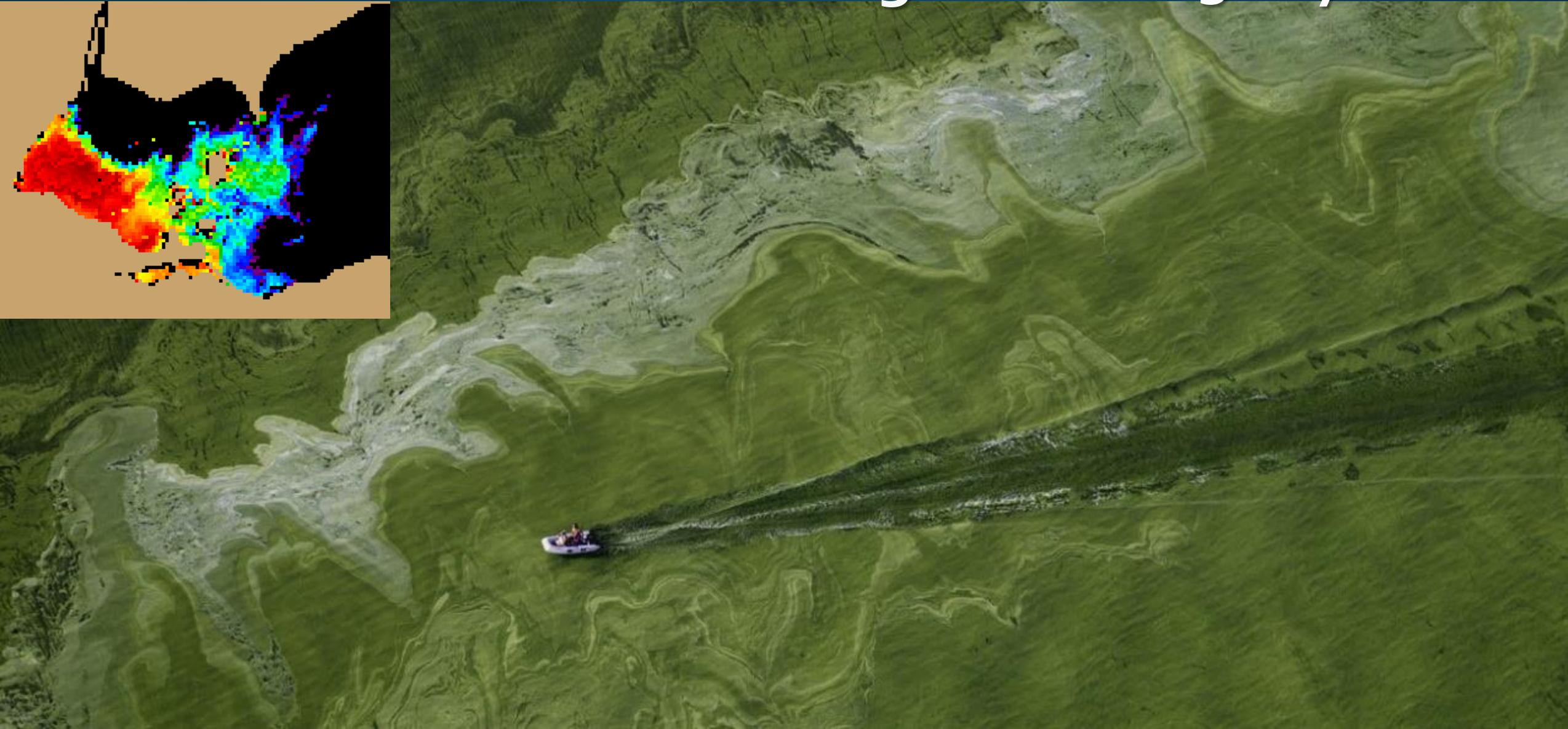
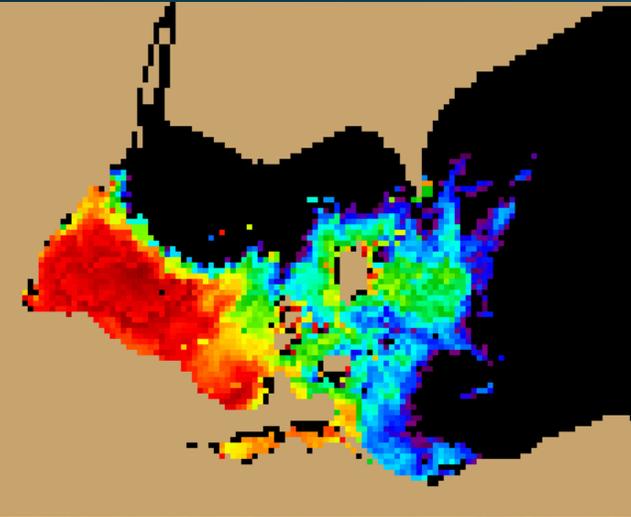
• Eutrophication

• Cyanobacteria

• Cyanotoxins



Microcystis bloom in Lake Erie - Toledo lost use of drinking water for 3 days.



How widespread are Cyanobacteria?

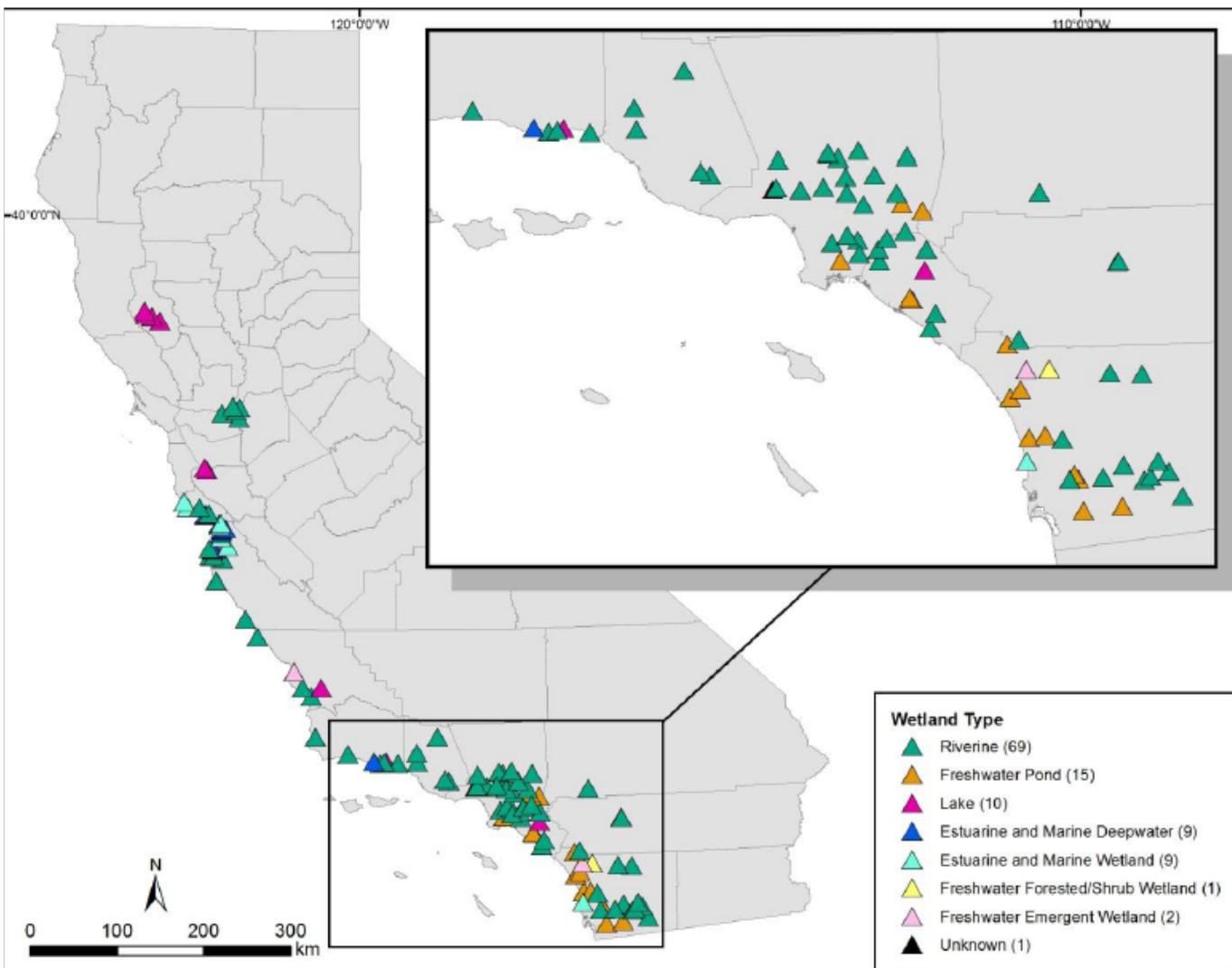
Total Planktonic cyanobacteria (cells/mL)

- < 20,000
- 20,001 - 100,000
- 100,001 - 10,000,000

EPA's 2007 National Lake Assessment
Integrated Photic Zone – Total Cyanobacteria (USGS)

California areas with Recurrent CyanoHABs

Revision of Office of Environmental Health Hazard Assessment (OEHHA) Fact Sheet (2012)



Bay Area

Russian River – 1 dog death 2015

Lake Chabot at Six Flags – 1 dog death 2015

Lake Anza- closed to swimming 2015

Lake Temescal – Closed to swimming 2014 and 2015

Lake Chabot, EBRPD – 3 dog deaths 2014

Quarry Lakes – closed to swimming 2015

Del Valle Reservoir – closed to swimming and Drinking water source 2015



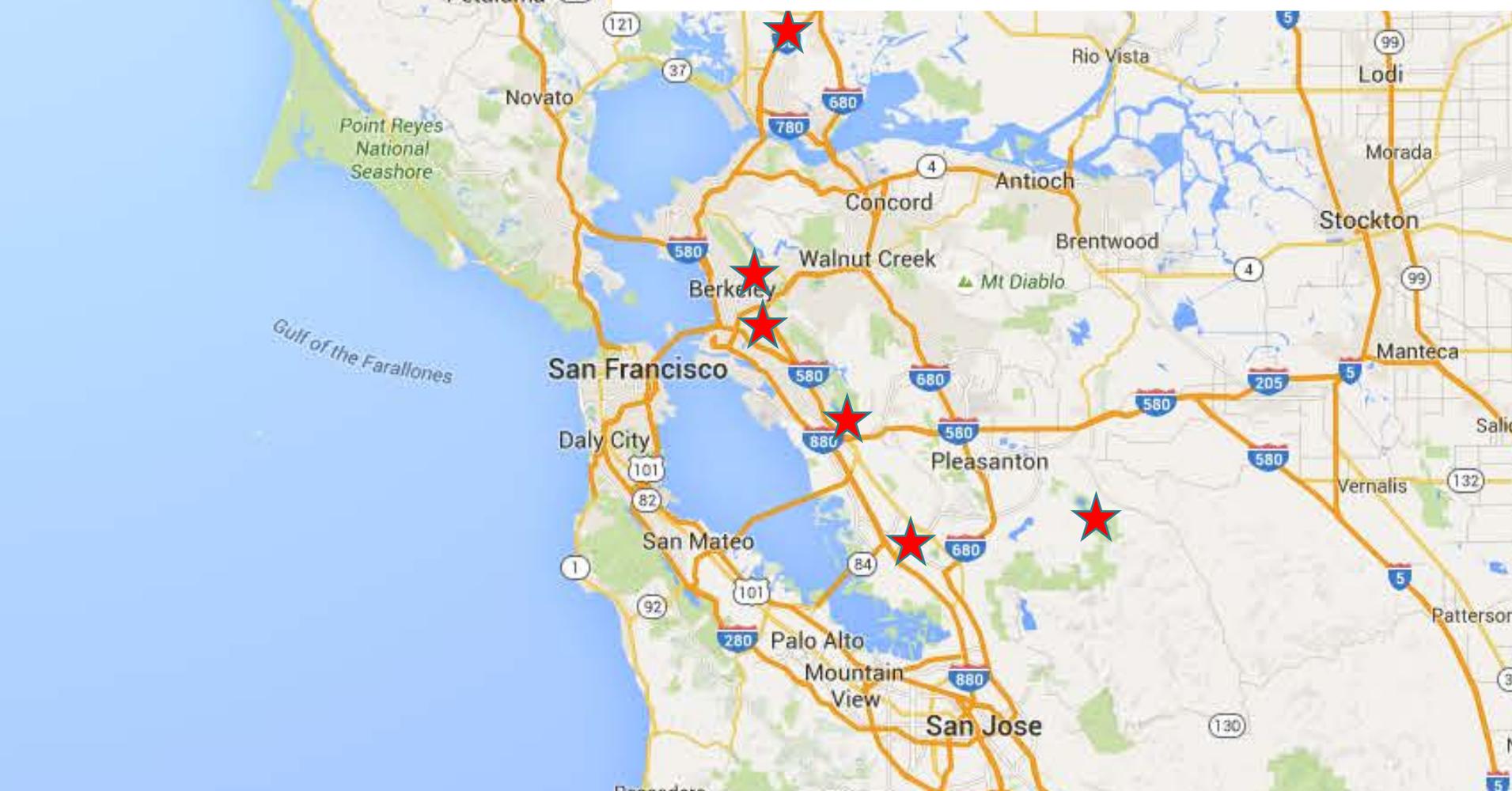
Dogs die from East Bay lake toxic algae blooming caused by drought

By Denis Cuff | dcuff@bayareanewsgroup.com

POSTED: 02/02/2015 06:54:26 AM PST | UPDATED: ABOUT A YEAR AGO

7 COMMENTS

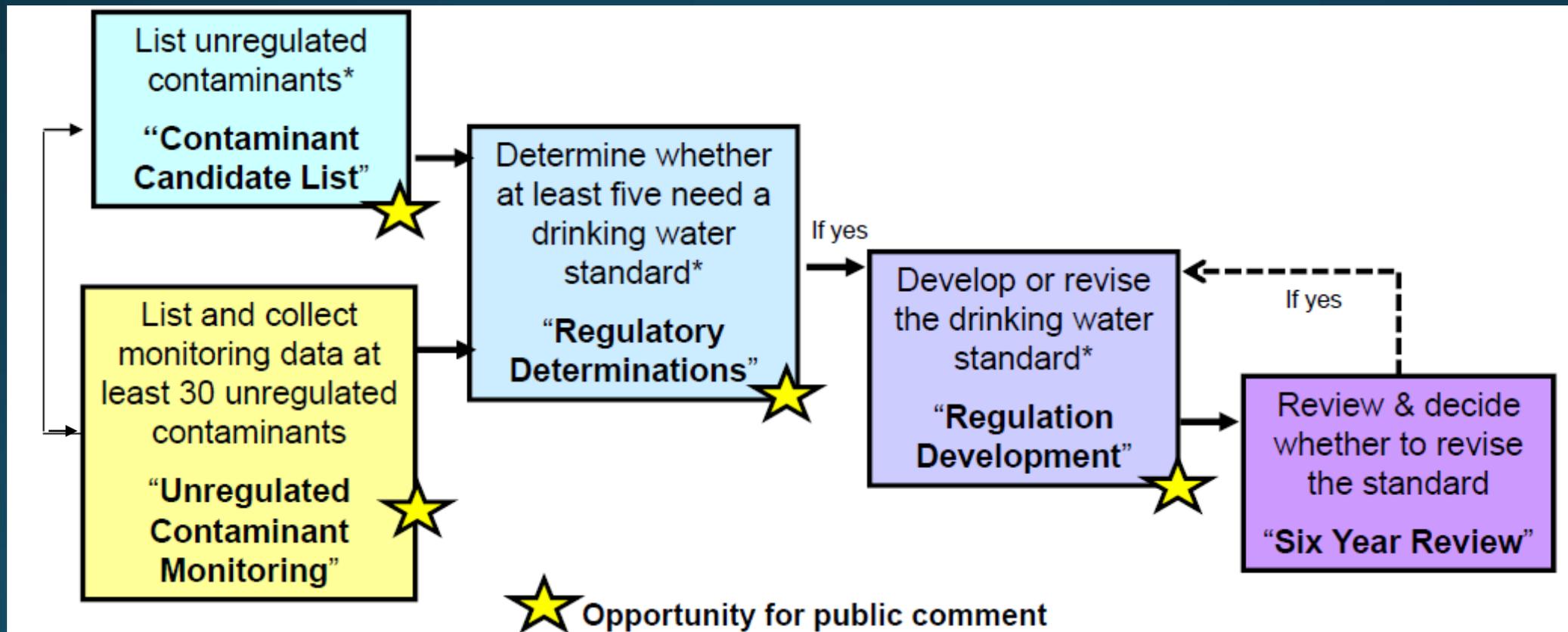
CASTRO VALLEY -- Stemming from California's drought, three pet dogs have died after lapping up water in a popular recreation lake fouled by toxic algae flourishing in scarce rain and runoff.



What are we doing?

Safe Drinking Water Act (SDWA)

Regulatory Determination Process





What are we doing?

Safe Drinking Water Act (SDWA)

➤ **Regulatory Determination**

➤ Health Advisories

➤ Analytical Methods

➤ Potential for advancing under 4th UCMR

➤ **Drinking Water Protection Act –**

Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water

What are we doing?

Clean Water Act (CWA)





What are we doing?

Clean Water Act (CWA)

- **Development of Recreational Ambient Water Quality Criteria**
 - Protects for Recreation Exposure (ingestion)
 - Qualitatively addresses Ceremonial/Cultural Exposures

Provide information and resources

EPA CyanoHABs Web Page

Cyanobacteria/Cyanotoxins



The most common cyanotoxins in the U.S.

Detection



Sample collection and list of detection methods available for cyanotoxins.

Health and Ecological Effects



Routes of exposure, adverse human health outcomes, some of the effects on aquatic ecosystems.

Research and News



Current research activities on cyanotoxins in the U.S.

Causes and Prevention



Major causes of HABs and ways to prevent their occurrence.

Control and Treatment



How to mitigate and treat for cyanotoxins in freshwater and drinking water.

Guidelines and Recommendations



Action levels and guidelines from the WHO and the U.S. for recreational and drinking water.

State Resources



State-by-state list of resources and a link to the Inland HABs webpage.

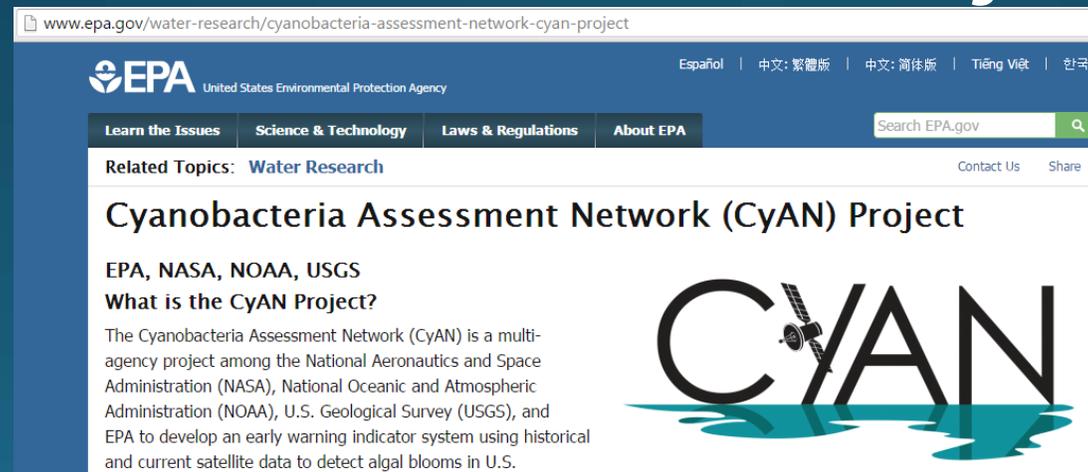
More Information



Links to resources, websites, and activities from EPA, CDC, NOAA, USGS, and international agencies.

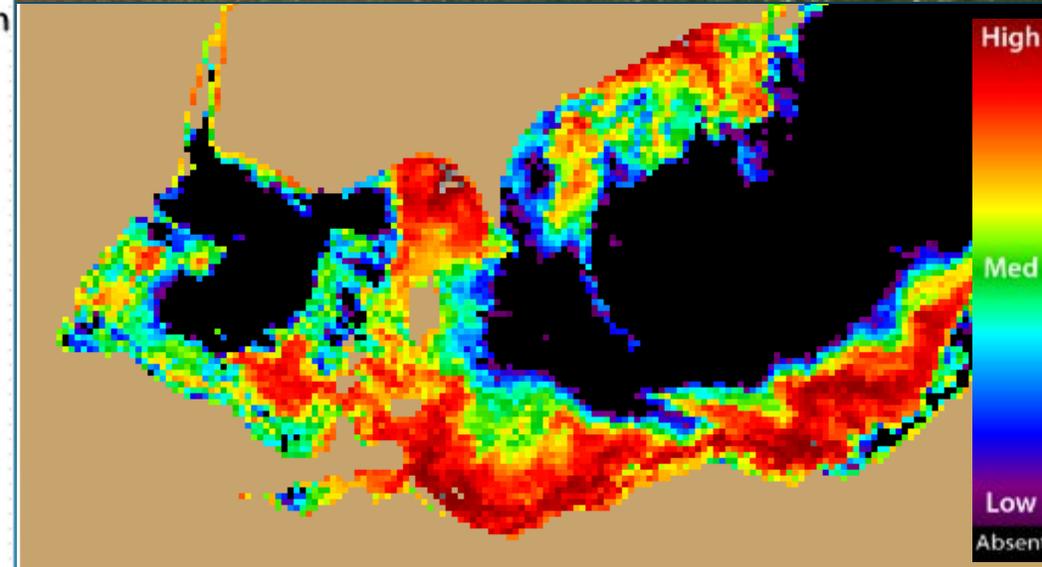
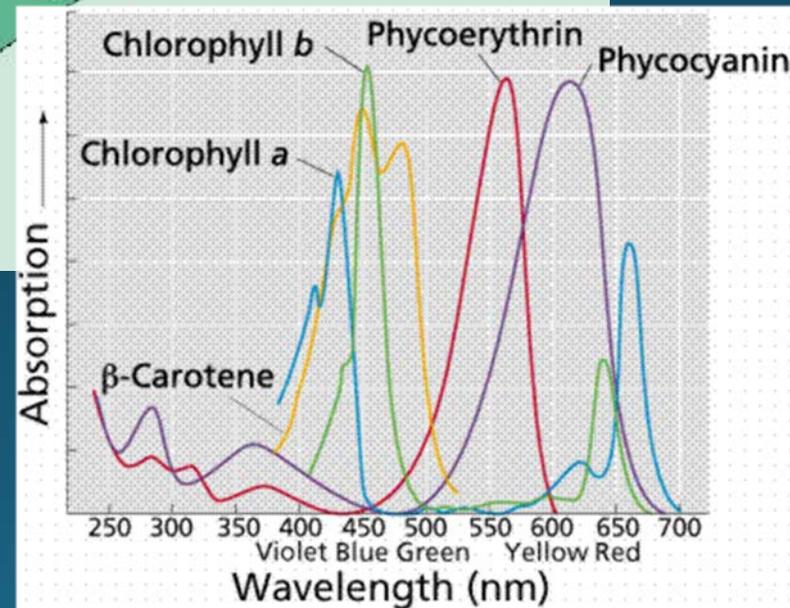
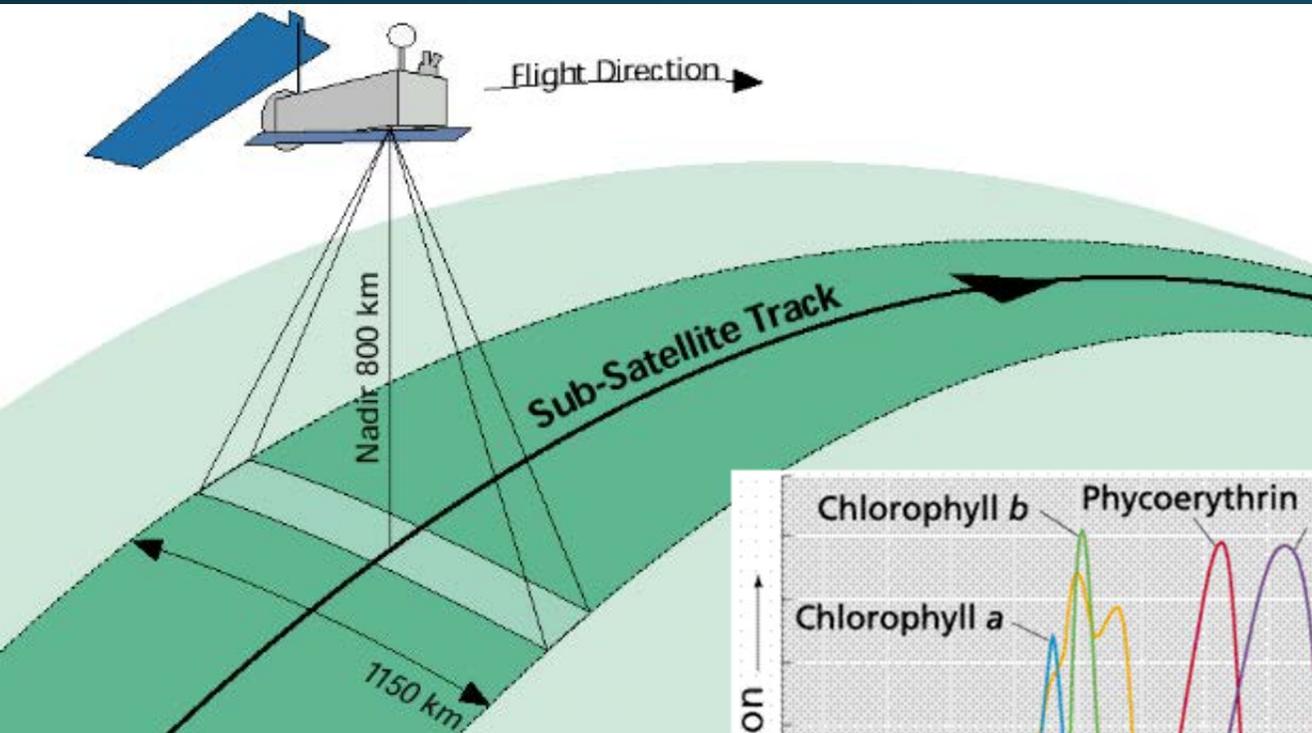
Multi-Agency Federal Efforts

- Harmful Algal Bloom and Hypoxia Research and Control Amendments Act (HABHRCA)
- Inland HAB Workgroup
- *Cyanobacteria Assessment Network Project - CyAN Project*



CyAN Project -

Remote Satellite CyanoHAB Imaging in Surface Water





In Region 9 –

Support for State, Tribal and local agencies

- Workgroup support
 - CCHAB Network
- Event Response and Toxin analysis
- Linking of DW/Source Water and Surface Water
 - Water supply monitoring
 - DW System improvements
 - Restoration of watersheds (NPS and PS)

California CyanoHAB Network-

Multi-Stakeholder Network
Part of Water Quality Monitoring Council -
Updating Guidance for Posting Waters

CA.GOV State of California ENVIRONMENTAL PROTECTION AGENCY NATURAL RESOURCES AGENCY CALIFORNIA WATER QUALITY MONITORING COUNCIL

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My Water Quality | Monitoring Council | This site is hosted by the Surface Water Ambient Monitoring Program (SWAMP) |

Office of Governor Edmund G. Brown Jr. Visit his Website

- Cal/EPA
- Natural Resources Agency
- About the California Water Quality Monitoring Council
- Web Portal Partners
- Monitoring & Assessment Programs, Data Sources & Reports
- Water Quality Standards, Plans and Policies
- Regulatory Activities
- Enforcement Actions
- Research
- State & Regional Water Boards
 - Performance Report
 - About SWAMP
 - SWAMP Tools

 SWAMP Surface Water Ambient Monitoring Program

Home → Monitoring Council → Cyanohab Network

California CyanoHAB Network (CCHAB)

Quick Links

[CyanohAB Overview](#) | [CCHAB Background](#) | [Membership](#) | [Meetings and Presentations](#) | [Resources](#) | [More Information](#)

Announcements

Upcoming Webinars, Trainings and Conferences

- The Eighth Symposium on Harmful Algae in the U.S. will be held in Long Beach, California, November 15-19, 2015. For more information, visit the [registration](#) page.

News

- Video presentations from the SWRCB's SWAMP July 2015 workshop [Identifying and Responding to Harmful Algal Blooms in California](#).
- The [California CyanoHAB \(Cyanobacteria Harmful Algal Blooms\) Network](#), a Workgroup of the California Water Quality Monitoring Council, has a dedicated website now.
- In February 2015, the California CyanoHAB Network became a Workgroup to the California Water Quality Monitoring Council.

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CyanoHAB Overview



- Cyanobacteria are present in most freshwater and marine aquatic ecosystems, and perform many roles that are vital for ecosystem health. When conditions are optimal, including light and temperature, levels of nutrients, and lack of water turbulence, cyanobacteria can quickly multiply into a bloom. Excessive growth of cyanobacteria leads to blooms, called cyanoHABs (harmful algal blooms), that can threaten or damage the environment, cause nuisance, and impact human, animal, and wildlife health.

California's Surface Water Ambient Monitoring Program

- Statewide Framework for addressing HABs
- Training workshops
- Sampling and analysis guidelines
- Satellite evaluation of large lakes for CyanoHABs and chlorophyll-a





What can we do?

- Keep Recreational users, pets and livestock safe
- Do risk analysis / risk management
 - Source water assessment and protection efforts
 - Identify high risk water uses
- Address causes → nutrient loads, excess temperature, flow
- Evaluate treatment options



Summary-

- Cyanobacteria are a natural part of our world
- CyanoHABs
 - impact Health, Ecosystems and Economy
 - increasing in frequency and duration
- Cyanotoxins present threats to pets, livestock, aquatic species, wildlife and humans
- Effective HAB event management requires planning and coordination

Thank you