

# ITRC Guidance on Harmful Cyanobacterial Blooms (HCBs)

Visit the [Team Website](#)

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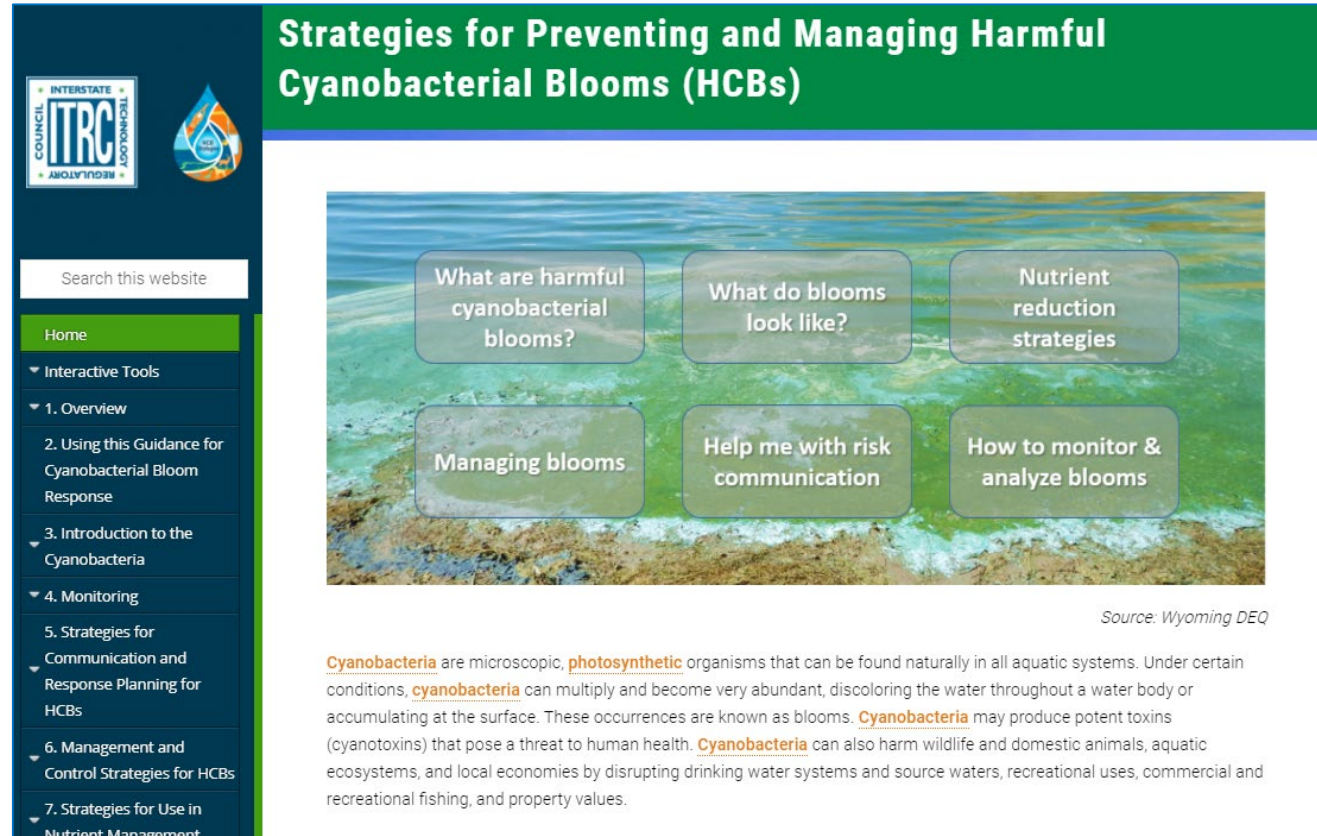
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# Original HCB Guidance (HCB-1) (available now at <https://hcb-1.itrcweb.org/>)

The original HCB (HCB-1) guidance document and training covers cyanobacteria in general, with a greater focus on planktonic cyanobacteria

- ▶ Introduction to Cyanobacteria
- ▶ Monitoring
- ▶ Communication and Response
- ▶ In-lake Management
- ▶ Nutrient Management for Prevention
- ▶ Recommendations
- ▶ Visual Guide



The screenshot shows the website's navigation menu on the left, including 'Home', 'Interactive Tools', and a numbered list of sections from 1 to 7. The main content area features a green header with the title 'Strategies for Preventing and Managing Harmful Cyanobacterial Blooms (HCBs)'. Below the header is a large image of a cyanobacterial bloom in a lake, overlaid with six semi-transparent buttons: 'What are harmful cyanobacterial blooms?', 'What do blooms look like?', 'Nutrient reduction strategies', 'Managing blooms', 'Help me with risk communication', and 'How to monitor & analyze blooms'. A source attribution 'Source: Wyoming DEQ' is located at the bottom right of the image area.

Source: Wyoming DEQ

**Cyanobacteria** are microscopic, **photosynthetic** organisms that can be found naturally in all aquatic systems. Under certain conditions, **cyanobacteria** can multiply and become very abundant, discoloring the water throughout a water body or accumulating at the surface. These occurrences are known as blooms. **Cyanobacteria** may produce potent toxins (cyanotoxins) that pose a threat to human health. **Cyanobacteria** can also harm wildlife and domestic animals, aquatic ecosystems, and local economies by disrupting drinking water systems and source waters, recreational uses, commercial and recreational fishing, and property values.

# HCB Identification Video

- ▶ Video created to assist water body managers in identifying cyanobacterial blooms
- ▶ Walks through:
  - ▶ Visual water body assessments
  - ▶ Simple field tests to separate cyanobacterial blooms from other algal blooms
  - ▶ Aquatic phenomena which are not cyanobacterial blooms





# Unique Characteristics of Benthic HCBs

- ▶ Can occur in clear water and with higher flow
- ▶ Less visible and can co-occur with green algae
- ▶ Environmental conditions can affect growth differently
- ▶ Human and animal impacts, particularly dog deaths, associated with mat contact or ingestion
- ▶ Neurotoxins more commonly produced

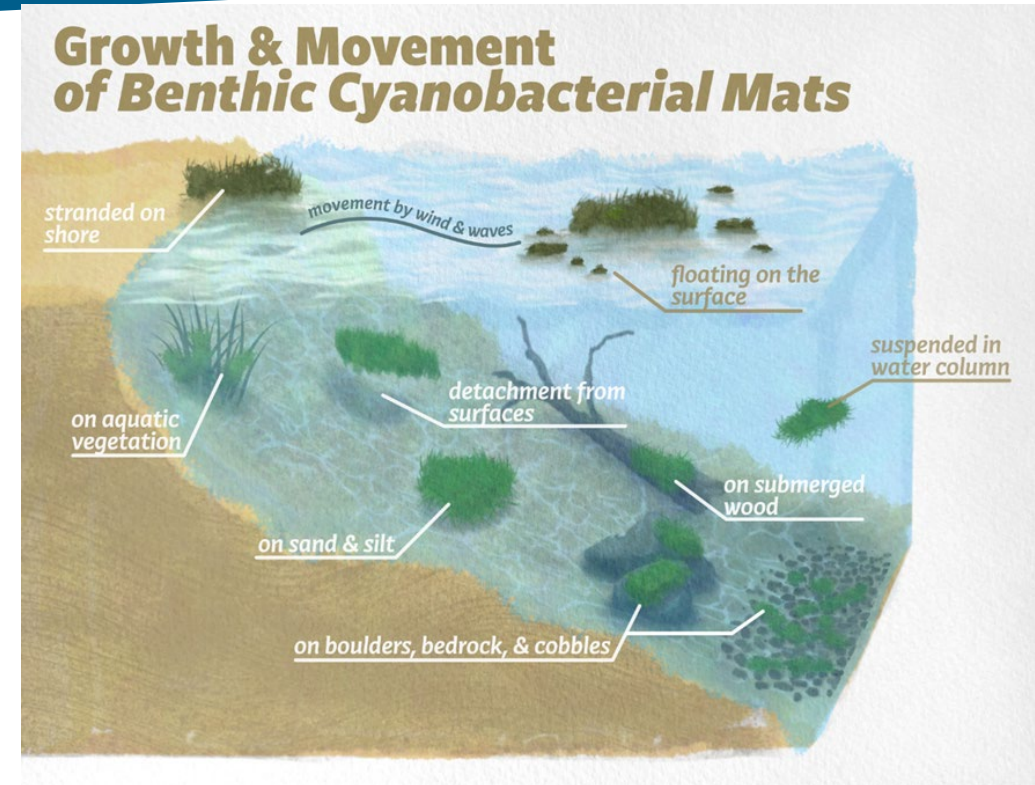


# Benthic HCB Guidance (HCB-2; coming this Spring)

- ▶ Benthic cyanobacteria ecology
- ▶ Cyanotoxins
- ▶ Benthic HCB monitoring and visual guide
- ▶ Management strategy sheets updates
- ▶ Benthic HCB communication and response

# Benthic Cyanobacteria Ecology

- ▶ Benthic cyanobacteria can occur in:
  - ▶ Rivers/streams
  - ▶ Lakes/ponds/reservoirs
  - ▶ Estuaries/lagoons
- ▶ Benthic cyanobacteria can grow on:
  - ▶ Aquatic vegetation or filamentous algae
  - ▶ Soft substrates (sand/silt/mud)
  - ▶ Hard substrates (rock/wood/artificial materials)
- ▶ Pieces that detach:
  - ▶ Can be suspended in the water column
  - ▶ Float to the surface and move with wind and waves
  - ▶ Strand along the shoreline



Source: D'yani Wood and Morgan Tarbell.

# Cyanotoxins

- ▶ Main exposure routes and potential health impacts for humans and animals
- ▶ Major cyanotoxin classes
- ▶ Existing cyanotoxin thresholds for:
  - ▶ Humans
    - ▶ Drinking water
    - ▶ Recreational water
    - ▶ Fish/shellfish
  - ▶ Domestic animals (dogs and cattle) – water and mat material

# Benthic HCB Monitoring

- ▶ General overview
- ▶ Habitat-specific resources and case studies for:
  - ▶ Streams/rivers
  - ▶ Lakes/reservoirs
- ▶ Method comparison based on type of:
  - ▶ Sample, cyanobacteria, water body, location, and water depth



# HCB Management Strategy Updates

- ▶ Expand habitat types to including flowing systems
- ▶ Include potential applicability for benthic cyanobacteria
- ▶ Updated literature review to incorporate new research
- ▶ Revised selection tool

# Benthic HCB Communication and Response

- ▶ Existing benthic HCB signage and advisories
- ▶ Examples and recommendations for communication about benthic HCBs

# Learn More:

- ▶ Check out the [existing HCB guidance and training](#) and the [HCB identification video](#)
- ▶ Look for the benthic HCB guidance and updated HCB tools this spring
- ▶ Sign up for the benthic HCB training on CLU-IN this spring
- ▶ Questions?
  - ▶ Beckye Stanton, [Rebecca.stanton@oehha.ca.gov](mailto:Rebecca.stanton@oehha.ca.gov)