Harmful Cyanobacterial Blooms (HCBs) are complex ecological phenomenon that can occur where cyanobacteria proliferate and dominate aquatic ecosystems including lakes, streams, rivers, reservoirs, ponds, and freshwater-influenced estuaries. They serve as vibrant hubs for recreation, tourism, and local identity. Human activities can influence and alter their natural ecological equilibrium. Freshwater inland lakes and reservoirs supply approximately 70% of our nation’s drinking water and industry withdrawals.

HCBs can occur in many parts of a water body. Planktonic HCBs occur when cyanobacteria dominate the water column (pelagic zones) of water bodies. In addition to being suspended in the open water, some cyanobacterial species grow attached to surfaces in a water body. These attached cyanobacteria can grow at the bottom of a water body (benthic zone) but may also be found nearer to the surface growing on submerged vegetation or woody debris.

ITRC has created two guidance documents, one focused primarily on planktonic HCBs, **HCB-1**, and the other focused primarily on benthic HCBs, **HCB-2**. While each document has a primary focus, each document has sections that are applicable to all HCBs, including several interactive tools. The framework shows how the two guidance documents are related and where they overlap.

![Framework of HCB Guidance Documents](https://hcb-1.itrcweb.org)

**HCB-1**
- Primarily planktonic, introduces benthic HCB
- Introduction
- Monitoring
- Communication and Response Planning
- Nutrient Management
- Recommendations
- Available at https://hcb-1.itrcweb.org

**SHARED/UPDATED RESOURCES**
- Cyanotoxins
- Management Strategies
- Management Strategy Selection Tool
- Monitoring Method Selection Tool
- Learning to Recognize HCBs Video
- Visual Guide

**HCB-2**
- Focuses on unique aspects of benthic HCB
- Introduction
- Monitoring
- Communication and Response Planning
- Recommendations
- Case Studies
- Available at https://hcb-2.itrcweb.org
Harmful Cyanobacterial Bloom (HCB) Training

The Harmful Cyanobacterial Bloom team developed an online training to accompany this guidance.

- Register for the next HCB training
- HCB Training Archive

The training video below, Learn to Identify Cyanobacteria Blooms - published with help from the Lake Champlain Basin Program - identifies and describes different types of cyanobacteria and offers guidance on best management and safety practices involving harmful blooms.

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