

Gemini Discussion on Blue-Green Algae

Bill's Query to Gemini: In the fall months, green algae appears in a lake that I fish. Usually it is not very thick, but today, it was thick enough that it seemed like one could walk on it. It wasn't there yesterday, based on what a young fisherman told me. What causes it to appear, and where is it from? As a side note, the fishing has been very good for the last month in this lake. Today it was very poor.

Gemini's Response: What you witnessed is a classic **fall harmful algal bloom (HAB)**, most commonly caused by **cyanobacteria** (often referred to as blue-green algae).

The sudden appearance overnight and the sharp drop in fishing activity are directly tied to the unique physical and chemical dynamics of lakes as temperatures cool in autumn.

What It Is and Where It Comes From

Contrary to its name, blue-green algae is actually photosynthetic bacteria that live in the lake year-round at background levels. It doesn't travel into the lake from outside; rather, it rapidly multiplies or concentrates when environmental conditions align.

Cyanobacteria possess a unique feature: **internal gas vesicles** (tiny air sacs). By expanding or contracting these sacs, they control their buoyancy, floating up to the surface to capture sunlight and sinking down to absorb nutrients.



Why It Appeared Overnight

The sudden "overnight" appearance of a thick surface layer usually stems from three main fall triggers:

1. Fall Lake Turnover (Nutrient Surge):

- During summer, lakes stratify into a warm upper layer and a cold bottom layer. Nutrients like phosphorus and nitrogen settle and accumulate in the dark bottom water.
- As autumn air cools the surface water, the top layer becomes dense and heavy, causing the water column to invert or mix thoroughly ("fall turnover").
- This mixing instantly delivers a massive pulse of rich nutrients from the lakebed to the surface.

2. Calm, Bright Fall Days:

- Cyanobacteria thrive when a nutrient surge is paired with sunny weather and low wind.
- Without wind to churn the water, the buoyant bacteria float en masse to the top to maximize sunlight absorption, forming a dense, paint-like surface scum or mat.

3. Wind Pushing and Concentrating Scum:

- Even a gentle breeze across a large lake will skim the floating top layer and push it into coves, bays, or shorelines, turning a widespread thin layer into an extremely thick mat in specific areas in just a few hours.

Why the Fishing Turned Poor Today

The sudden decline in fishing success is a direct result of how this bloom alters the immediate aquatic environment:

- **Drastic Drop in Visibility:** Dense surface scum severely cuts down light penetration. Sight-feeding predatory fish (like trout, bass, or perch) struggle to track lures or prey in murky water.
- **Oxygen Dynamics & Fish Displacement:**

As the dense mat blocks light, aquatic plants below stop producing oxygen.

- Furthermore, when millions of cyanobacteria cells die off rapidly, bacteria consume vast amounts of dissolved oxygen to decompose them. Fish will immediately retreat from low-oxygen zones, moving to deeper water, tributaries, or areas with active current.
- **Potential Toxicity:** Certain strains of cyanobacteria produce microcystins (cyanotoxins). Fish often become lethargic or stressed in the presence of high toxin concentrations.

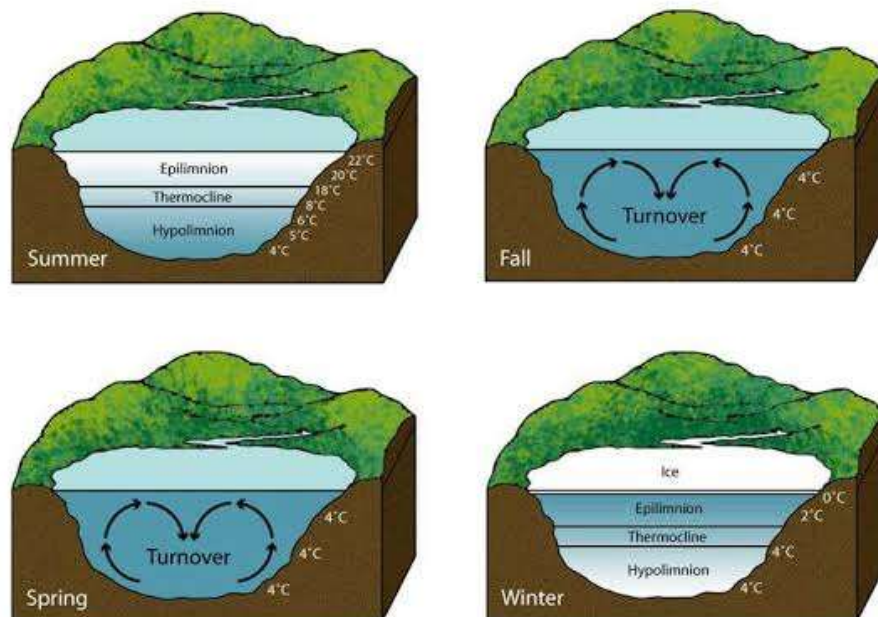
⚠ **Safety Caution:** Thick blue-green algal scum can produce toxins that irritate skin and cause serious illness if ingested by pets or humans. Avoid wading through thick mats, and keep dogs out of the water when dense scum or paint-like slicks are present.

Gemini Offered These Thoughts: What are effective fishing tactics and depth adjustments when a lake experiences fall turnover or an algal bloom?

When a lake turns over or undergoes a sudden algal bloom, the water column temporarily loses its oxygen stratification. Dissolved oxygen levels fluctuate unpredictably, water clarity vanishes, and fish scatter because they are no longer constrained by a warm summer thermocline.

Navigating these conditions requires targeting micro-refuges with higher oxygen and shifting your presentational tactics to maximize vibration, scent, and slow movement.

Lake Turnover



1. Location & Depth Adjustments

During a bloom or turnover, fish disperse across depths that were previously uninhabitable during late summer. Rather than fishing standard open-water structure, focus on specific refuges:

- **Tributary Mouths & Inflows:** Seek out creeks, river arms, or spring-fed channels entering the lake. Fresh incoming water carries higher oxygen levels and clearer water, concentrating baitfish and gamefish nearby.
- **Windward vs. Leeward Shores:** Avoid shorelines where prevailing winds push thick surface scum and dying algae into shallow bays. Target wind-protected coves or points where cleaner surface water remains.
- **Vertical Structure & Submerged Vegetation:** Living green vegetation continues to produce oxygen during daylight hours. Focus on deep weed edges, rocky drop-offs, or standing timber in the 12 to 25 ft range where fish can suspend just below murky surface layers.
- **The Main Body Deep Zones:** As oxygen homogenizes throughout the entire water column, fish often drop deeper along main-lake channels or humps to avoid low-light, low-oxygen surface mats.

2. Presentation Tactics for Murky, Low-Oxygen Water

Because visibility drops significantly, fish rely heavily on their **lateral line** and **olfactory senses** rather than sight.

Tactical Focus	Key Lure / Rig Types	Retrieval Strategy
High Vibration & Sound	Chatterbaits, bladed spinners, wide-wobbling crankbaits with internal rattles	Slow, steady retrieves along structure to give fish time to locate the source of movement.
High Contrast & Profile	Dark colors (black/blue, dark purple) or high-visibility colors (chartreuse, white)	Darker silhouettes stand out best against turbid or tea-colored water.
Slow, Vertical Finesse	Drop-shot rigs, heavy jigs, or dead-sticking soft plastics	Slow down drastically. Lethargic fish in low-oxygen conditions will avoid chasing fast-moving baits.

Tactical Focus	Key Lure / Rig Types	Retrieval Strategy
Scent & Audio Attraction	Scent pastes (crawfish, fish oils) & glass rattles inserted into soft plastics	Re-apply scent frequently to create a trail fish can track in zero-visibility conditions.

3. Timeline: When Will Fishing Normalizes?

- **Turnover Duration:** Complete turnover typically takes **1 to 2 weeks**, depending on wind speeds and night air temperatures.
- **Post-Turnover Stabilization:** Once the water column fully mixes and temperature stabilizes (usually around 45°F to 50°F), oxygen levels equalize, water clarity clears, and fish begin aggressive late-fall feeding patterns ahead of winter.

Lake Turnover

