

(1) Dominance by cyanobacteria hampers human use of lakes and reservoirs worldwide. (2)

Previous studies indicate that excessive nutrient loading and warmer conditions promote dominance by cyanobacteria, but evidence from global scale field data has so far been

scarce. (3) In this paper we show that although warmer climates do not result in higher overall

phytoplankton biomass, the percentage of the total phytoplankton biovolume attributable to

cyanobacteria increases steeply with temperature. (4) Our analysis is based on a study of 143

lakes along a latitudinal transect ranging from subarctic Europe to southern South America.

(5) Our results reveal that the percent cyanobacteria is greater in lakes with high rates of light

absorption. (6) This points to a positive feedback because restriction of light availability is

often a consequence of high phytoplankton biovolume, which in turn may be driven by nutrient

loading. (7) Our results indicate a synergistic effect of nutrients and climate. (8) The

implications are that in a future warmer climate, nutrient concentrations may have to be

reduced substantially from present values in many lakes if cyanobacterial dominance is to be

controlled.

## GENERAL ACADEMIC WORDS vs. TOPIC RELATED (DISCIPLINE SPECIFIC WORDS)

(1) **Dominance** *by cyanobacteria* hampers human use of *lakes* and *reservoirs* worldwide. (2) Previous studies indicate that **excessive** *nutrient loading* and *warmer conditions* promote **dominance** *by cyanobacteria*, but **evidence** from **global scale field data** has so far been **scarce**. (3) In this **paper** we show that although *warmer climates* do not **result** in **higher overall phytoplankton biomass**, the **percentage** of the **total phytoplankton biovolume** **attributable** to *cyanobacteria* **increases steeply** with *temperature*. (4) Our **analysis** is **based** on a **study** of 143 *lakes* along a *latitudinal transect* **ranging** from *subarctic Europe* to *southern South America*. (5) Our **results** **reveal** that the **percent** *cyanobacteria* is greater in *lakes* with **high rates** of *light absorption*. (6) This **points** to a **positive feedback** because **restriction** of *light availability* is often a **consequence** of **high phytoplankton biovolume**, which in turn may be **driven by** *nutrient loading*. (7) Our **results** indicate a **synergistic effect** of *nutrients* and *climate*. (8) The **implications** are that in a **future warmer climate**, *nutrient concentrations* may have to be **reduced substantially** from **present values** in many *lakes* if *cyanobacterial dominance* is to be **controlled**.

## **KEY WORDS**

### Warmer Climates Boost Cyanobacterial Dominance in Shallow Lakes

(1) Dominance by cyanobacteria hampers human use of lakes and reservoirs worldwide. (2) Previous studies indicate that excessive nutrient loading and warmer conditions promote dominance by cyanobacteria, but evidence from global scale field data has so far been scarce. (3) In this paper we show that although warmer climates do not result in higher overall phytoplankton biomass, the percentage of the total phytoplankton biovolume attributable to cyanobacteria increases steeply with temperature. (4) Our analysis is based on a study of 143 lakes along a latitudinal transect ranging from subarctic Europe to southern South America. (5) Our results reveal that the percent cyanobacteria is greater in lakes with high rates of light absorption. (6) This points to a positive feedback because restriction of light availability is often a consequence of high phytoplankton biovolume, which in turn may be driven by nutrient loading. (7) Our results indicate a synergistic effect of nutrients and climate. (8) The implications are that in a future warmer climate, nutrient concentrations may have to be reduced substantially from present values in many lakes if cyanobacterial dominance is to be controlled.

#### **My key words:**

climate; cyanobacteria; light; nutrients; phytoplankton

**The actual keywords of the article:**

climate change; cyanobacteria; Europe; light; nutrients; phytoplankton; shade; South America; temperature; trophic state

## METALANGUAGE

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## HEDGING

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