

Monitoring Toxic Benthic Cyanobacteria Together

Newsletter 2025- Results and Next Steps

Why this project matters

Since 2020, several dog fatalities have been reported in Switzerland after ingesting mats of toxic benthic cyanobacteria (*Microcoleus anatoxicus*). These unpredictable blooms pose risks to public health and aquatic ecosystems.

What we achieved in 2025

- **10 training sessions** organized for cantonal water protection services and the public.
- **Deployment of the BloomWatch app**, adapted for benthic cyanobacteria monitoring.
- **35 samples collected** by cantonal staff and trained citizens; **16 confirmed toxic** by PCR.
- Identification of a **new problematic species** (*Tychonema* sp.) carrying toxin genes on a plasmid, raising concerns about gene transfer and spread.

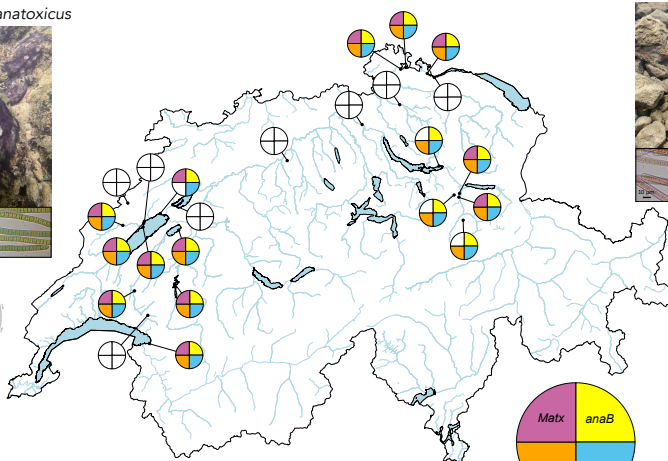
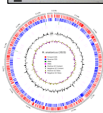
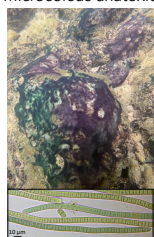


Your role is essential

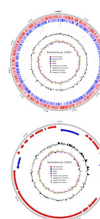
Thanks to your involvement, we were able to:

- Update the **distribution of problematic species** for Switzerland.
- Test **citizen science** as a complementary monitoring tool.
- Strengthen collaboration between authorities, researchers, and the public.

Microcoleus anatoxicus



Tychonema sp.



Updated distribution map related to toxic benthic cyanobacteria. The map shows all samples collected as part of the program. Each sample is colour-coded according to the results of four PCR assays (see legend in the circle below the map). These PCRs target key genes involved in the biosynthesis of anatoxin-a (*anaC*, *anaB*) and dihydroanatoxin-a (*anaK*), as well as a molecular marker specific to *Microcoleus anatoxicus* (*Matx*). On either side of the map, macro- and microscopic images illustrate the two toxic species identified to date.

Next steps

- Improve the **reporting tools**
- Develop **specific genetic markers** to improve detection.

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