A microscopic view of a dense community of diatoms, which are single-celled algae with silica-based cell walls. The diatoms appear as various shapes, including elongated rectangles, ovals, and thin rods, many with intricate patterns on their surfaces. A silver pen is placed horizontally at the top of the frame to provide a sense of scale, showing that the diatoms are very small, typically ranging from a few micrometers to about 100 micrometers in length.

How diatom communities in mires vary seasonally?

Liisa Umbleja

What are diatoms?

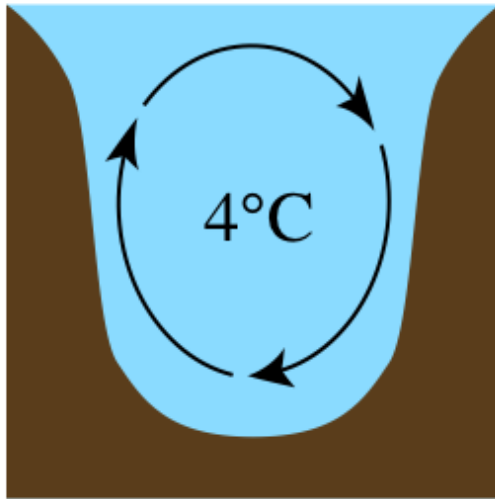
- Unicellular **microalgae** (1-1000 μm).
- Over 250 genera, ~200 000 species.
- Important primary **producers**.
- A unique **cell wall** made of silica.
- Diatoms occur in virtually **every environment** that contains water.
- Diatom communities are a popular tool for **monitoring** environmental conditions, and are commonly used in studies of water quality.



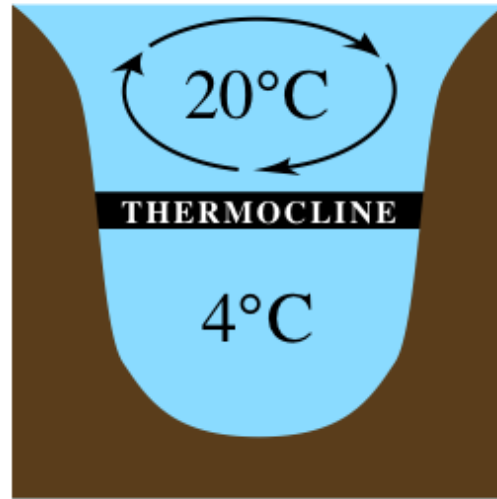
Photos: L. Puusepp

The seasonality of diatoms in lakes

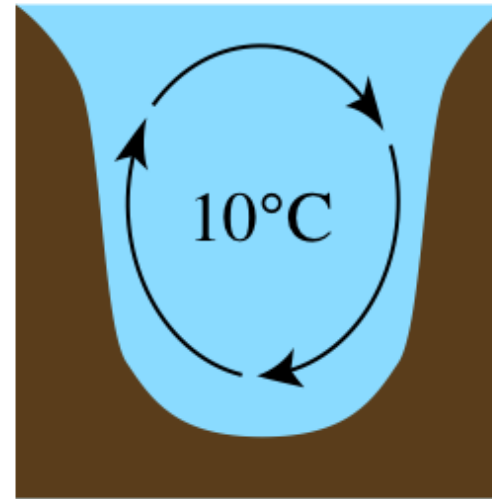
In temperate region lakes, an event called **lake turnover** happens.



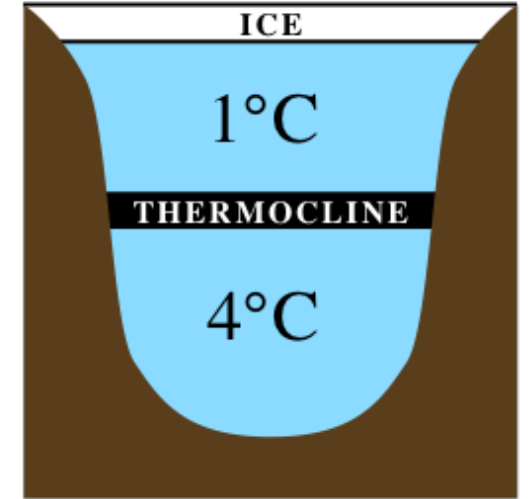
SPRING



SUMMER



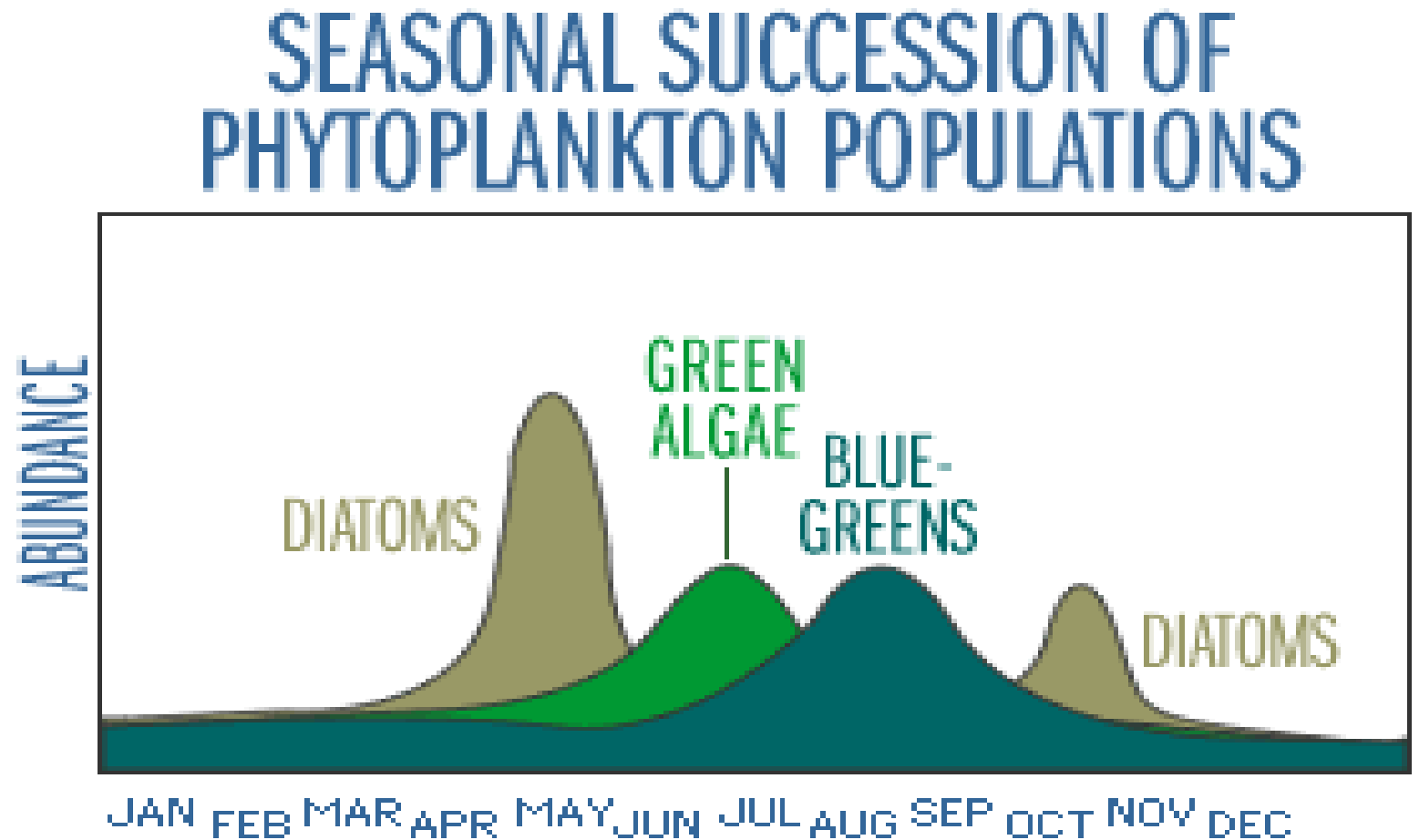
FALL



WINTER

The seasonality of diatoms in lakes

In water ecosystems, the **seasonality is well** documented.





BUT WHAT HAPPENS IN MIRES?

- Controversial information from the literature!

Uniqueness of northern mires

- No water turnover
- Often limited nutrients all year
- The effect of winter and snow cover:
 - winter disturbance
 - freezing of available water
 - postponed thaw of the peat layer
 - **majority of nutrients enters the system in spring with the snow-melt water**



Structure and dynamics of the algal flora in subalpine mires in the Krkonoše Mountains (Giant Mountains; Czech Republic)

by

Sylvie Nováková*



- Pools from subalpine peatbogs and its mineral-ground surroundings.
- Samples collected monthly in vegetation seasons (beginning of June - end of September).
- All algal groups & cyanobacteria.
- 3 microbiotopes.
- Seasonal succession **was not observed!**
- The algal flora was liable to **short-term** fluctuations, depending on weather changes.
- The dominant populations were relatively **stable** and occurred in the locality for the whole duration of the experiment.

KATEŘINA MACHOVÁ-ČERNÁ* and JIŘÍ NEUSTUPA

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Research Paper

Spatial Distribution of Algal Assemblages in a Temperate Lowland Peat Bog



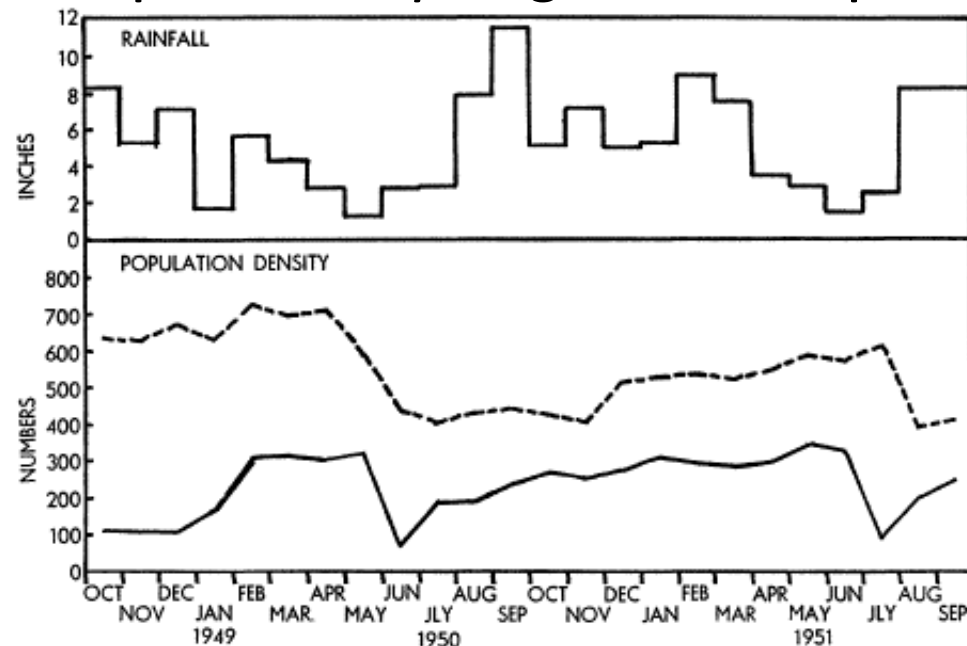
- Lowland bog.
- Samples from 3 seasons (May, August, October).
- All algal groups & cyanobacteria.
- 3 microhabitats from *Sphagnum* overgrown ditch.
- Seasonal dynamics **were observed!**
- ↑ in diversity, and ↓ in dominance from May to October, with sig. differences in spp composition.
- In different microhabitats, the individual species typifying the seasons were largely the same.

THE PERIODICITY OF DIATOMS IN BOGS

By J. HAYWARD



- Coastal plain small bogs.
- Samples collected monthly (October to September).
- Squeezed *Sphagnum* samples.



- Periodicity **was not observed!**
- The population of diatoms ↓ in June and July due to low precipitation.
- The density was lowest in summer and highest in late winter and spring, the period of minimal density occurring when the matrix holding the diatoms was driest.

Distribution of diatoms and bryophytes on linear transects through spring fens

by

Aloisie Pouličková*

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- The seasonality was not the main aim of this study, but ...

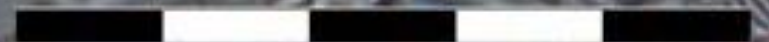
- Samples collected in early spring were containing only dead diatoms **from previous season**.
- Personal comments of A. Pouličková also confirm that the spring communities **are not established** and in autumn the diversity is the highest.

What about northern mires?

- No solid information yet.
- Diatoms collected **in spring** from bogs show high species richness along the micro-topographical gradient.
- Diatoms collected **in autumn** from disturbed bogs show rather low species richness and low abundance of specimen.
- So, who knows?
- Hopefully, spring is more „correct“ time for sampling!
 - *Lipoptena cervi*



Thank you for your attention!



50 μm