



Leibniz-Institute of
Freshwater Ecology and Inland Fisheries

Lake monitoring and recent limnological changes

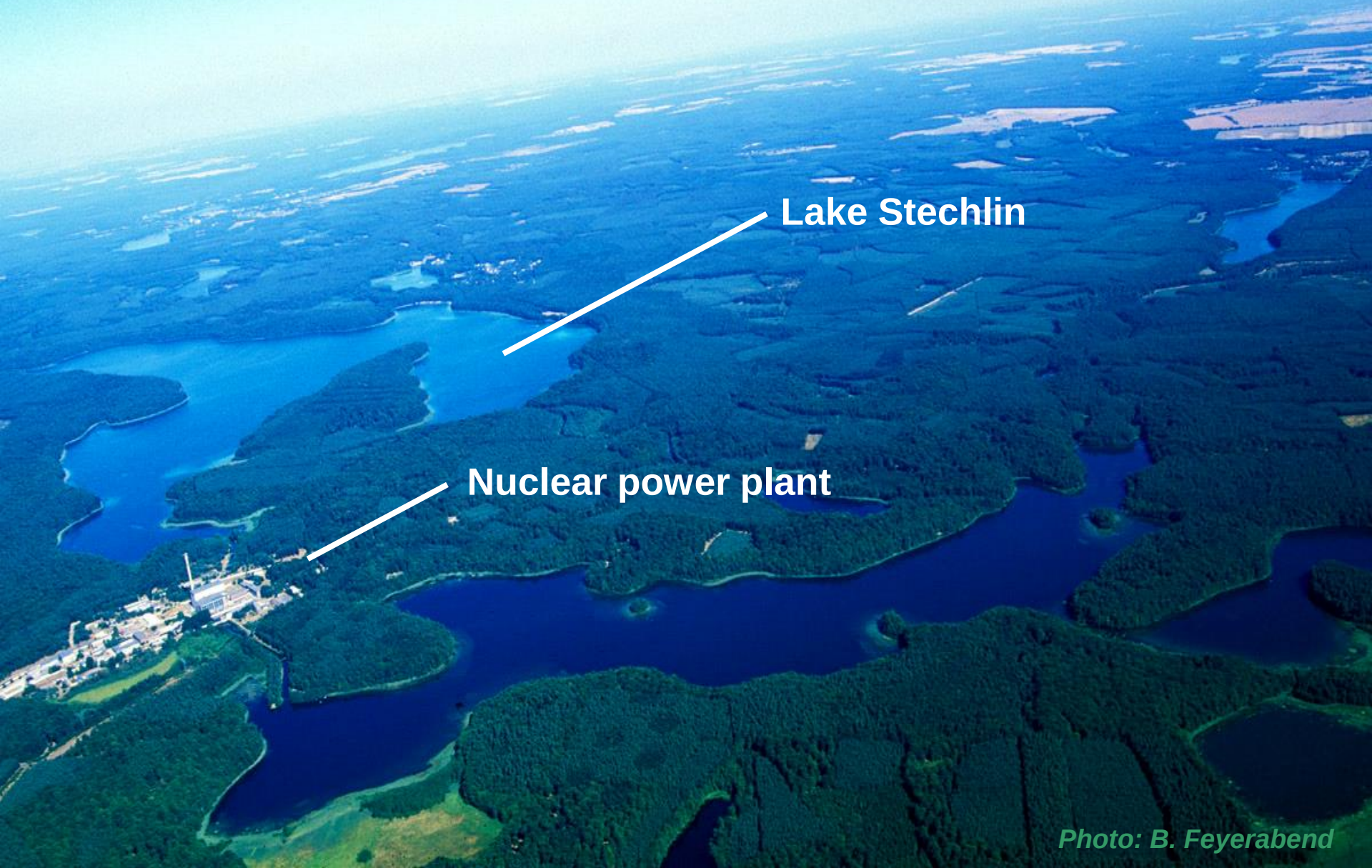
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Research
for the future
of our freshwaters

Lake Stechlin and surroundings

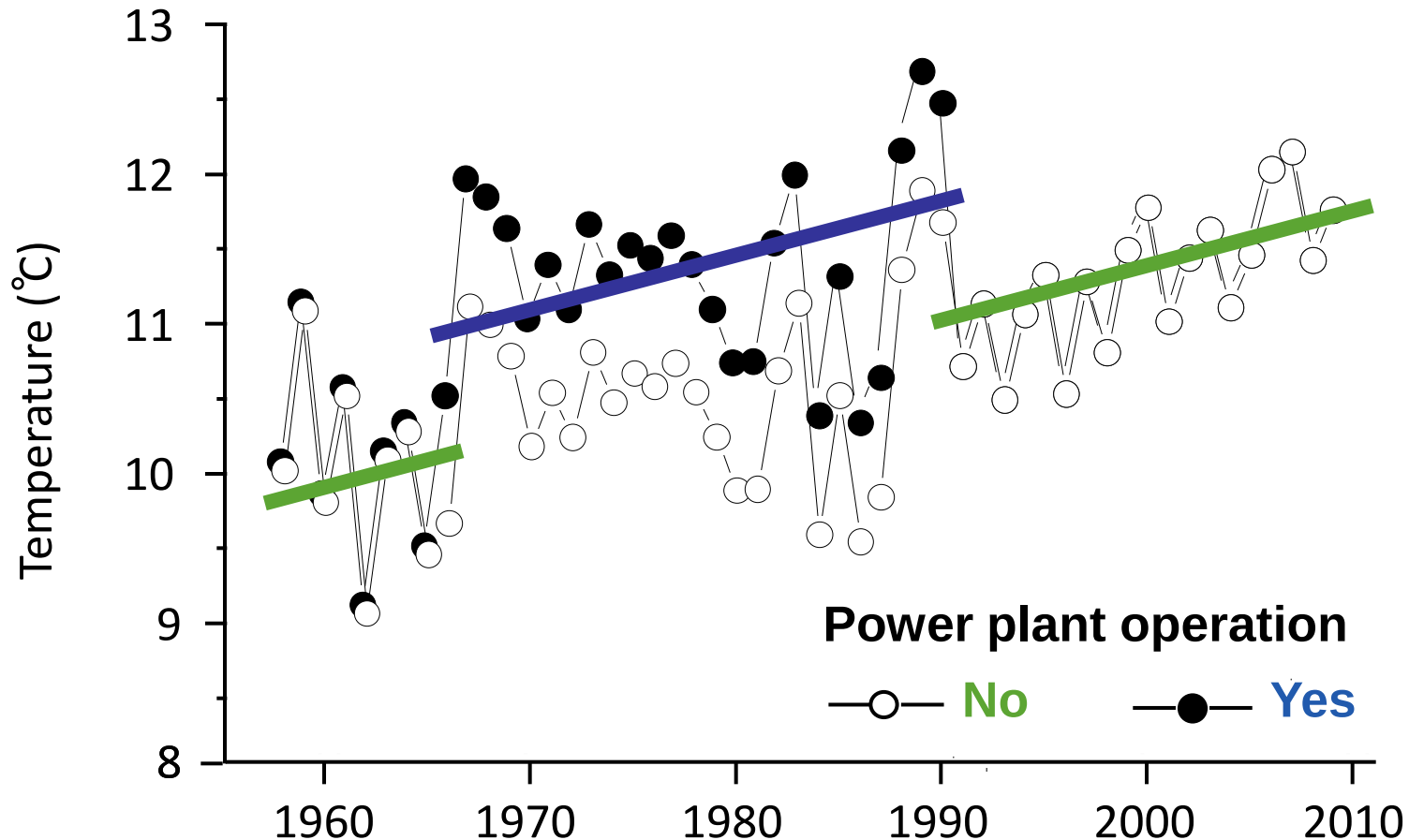


Lake Stechlin

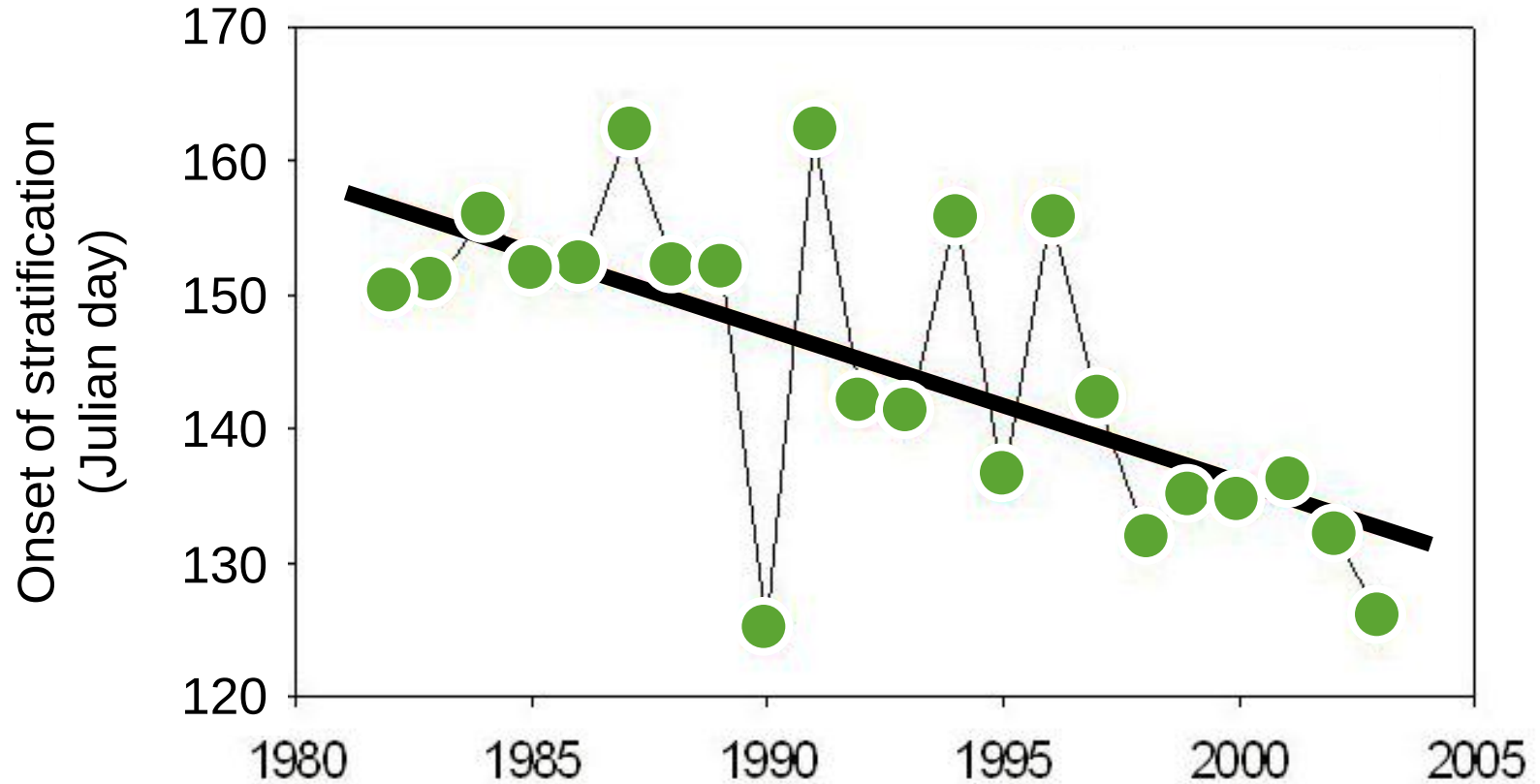
Nuclear power plant

Photo: B. Feyerabend

Temperature trend in surface water

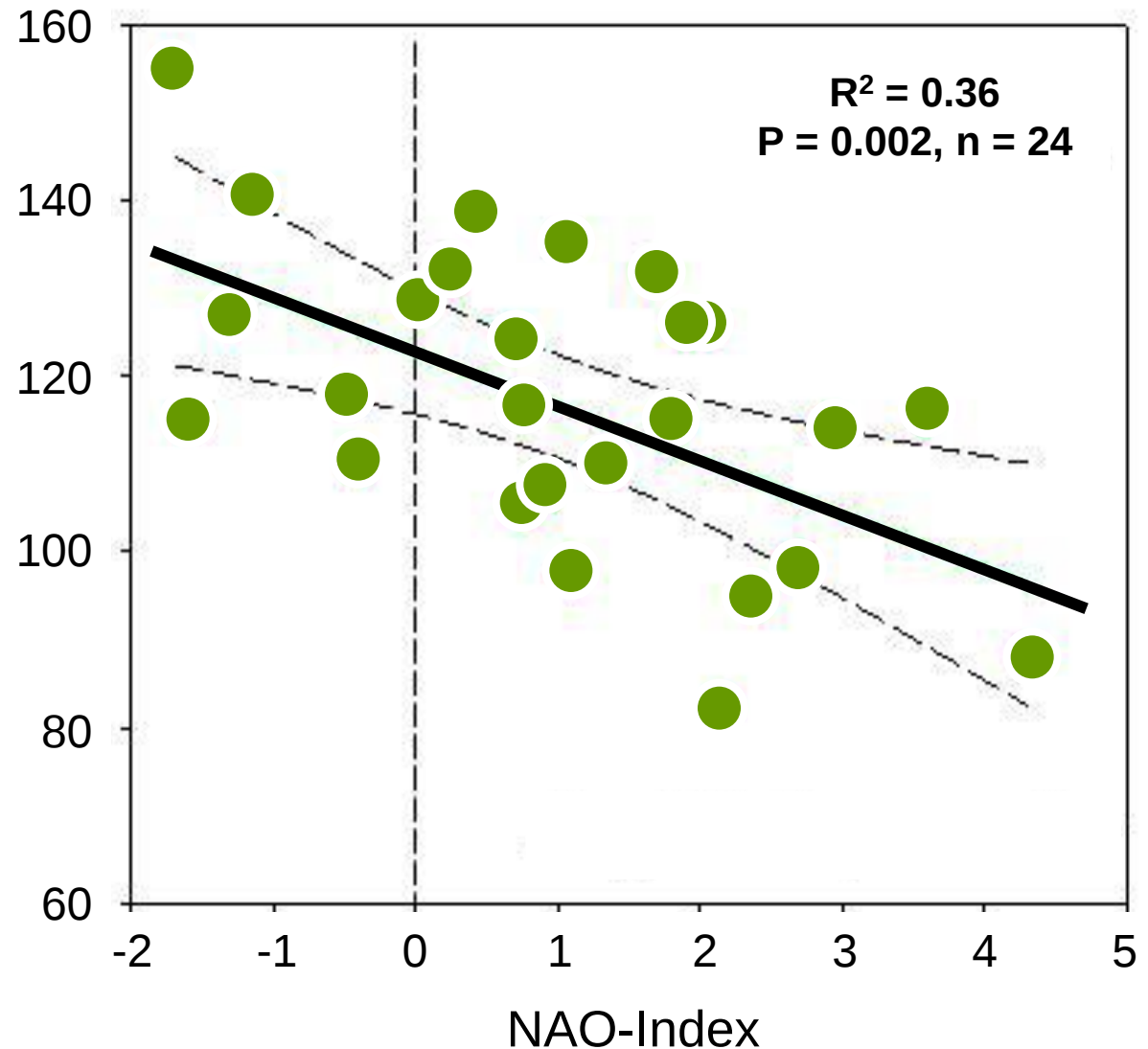


Earlier stratification

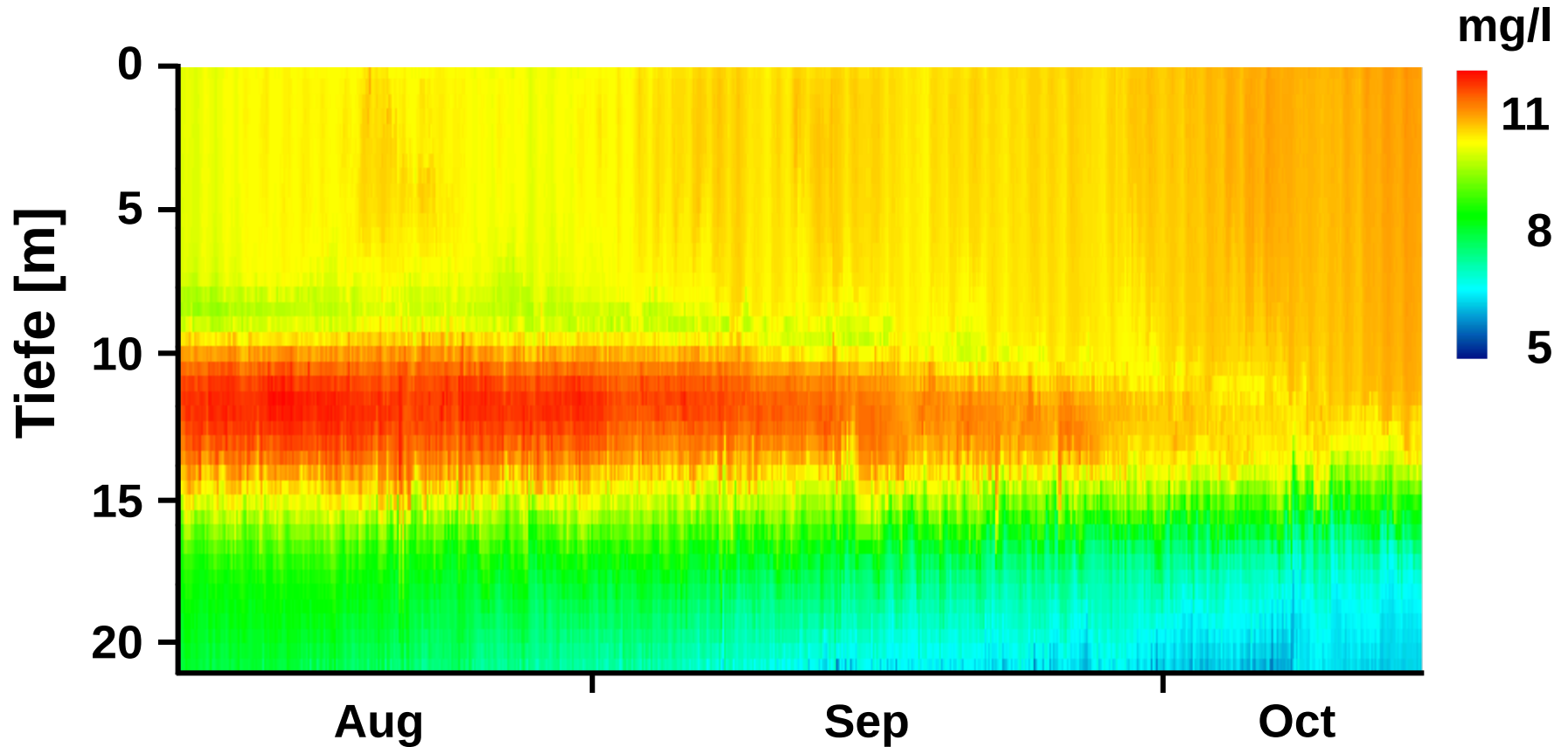


Timing
spring
maximum

30 day
difference



Oxygen in Lake Stechlin



Lake monitoring networks

Müggelsee

shallow, polymictic, eutrophic



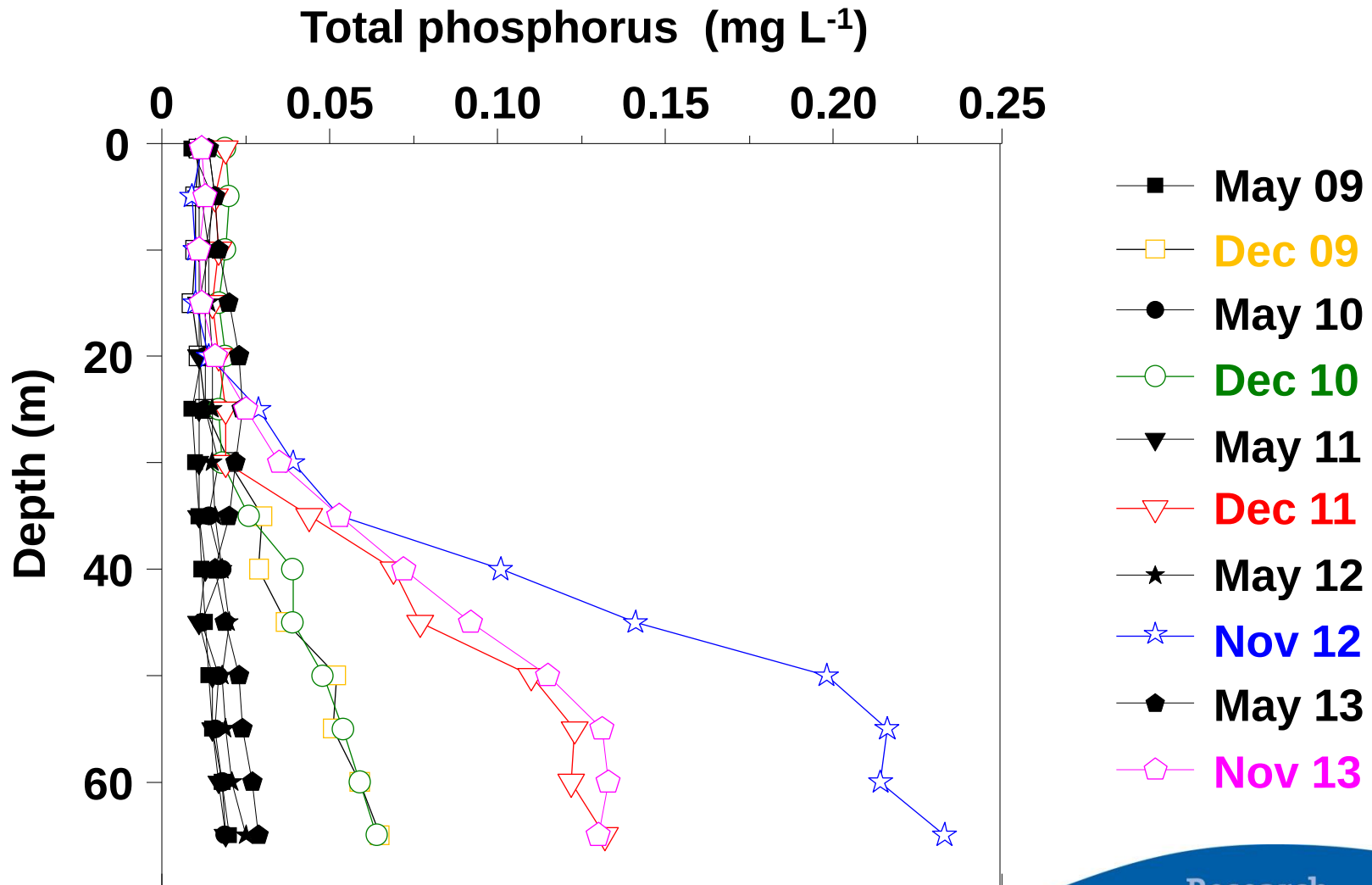
Lake Stechlin

deep, dimictic, oligotrophic

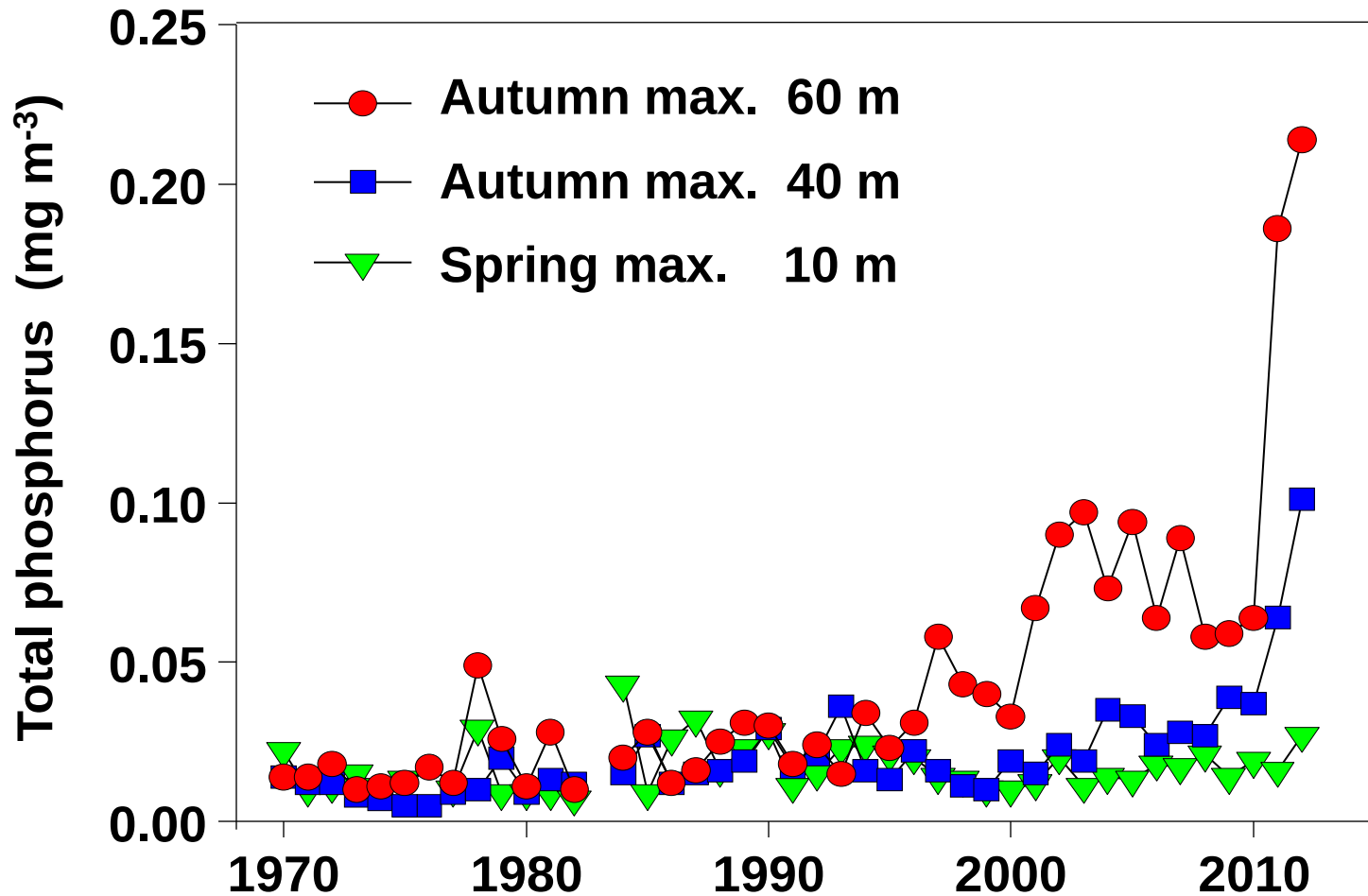


Global Lake Ecological Observatory Network

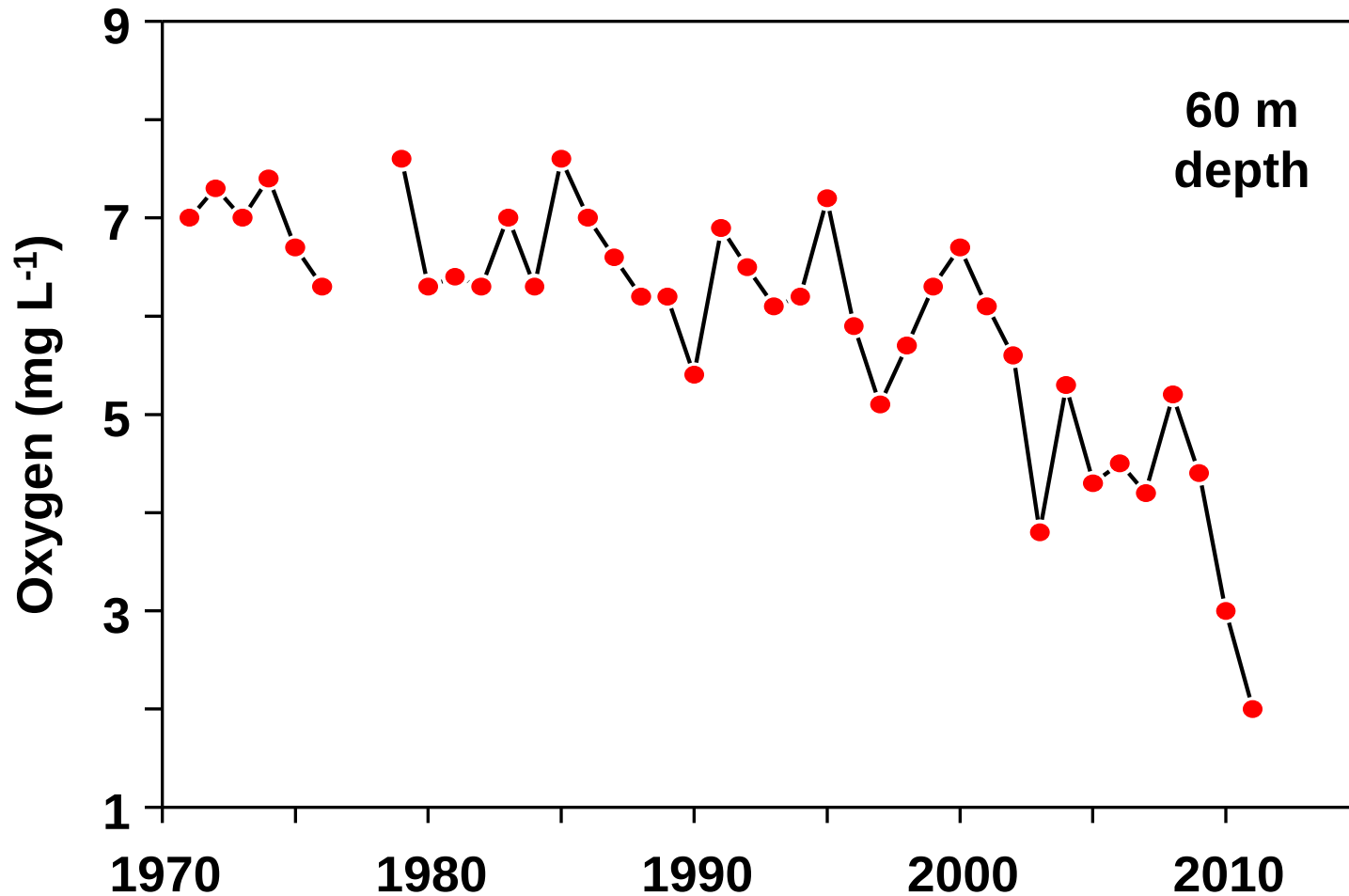
Phosphorus accumulation in deep water



Phosphorus accumulation in deep water



Oxygen depletion in deep water



Use of time series data

Long-term trends

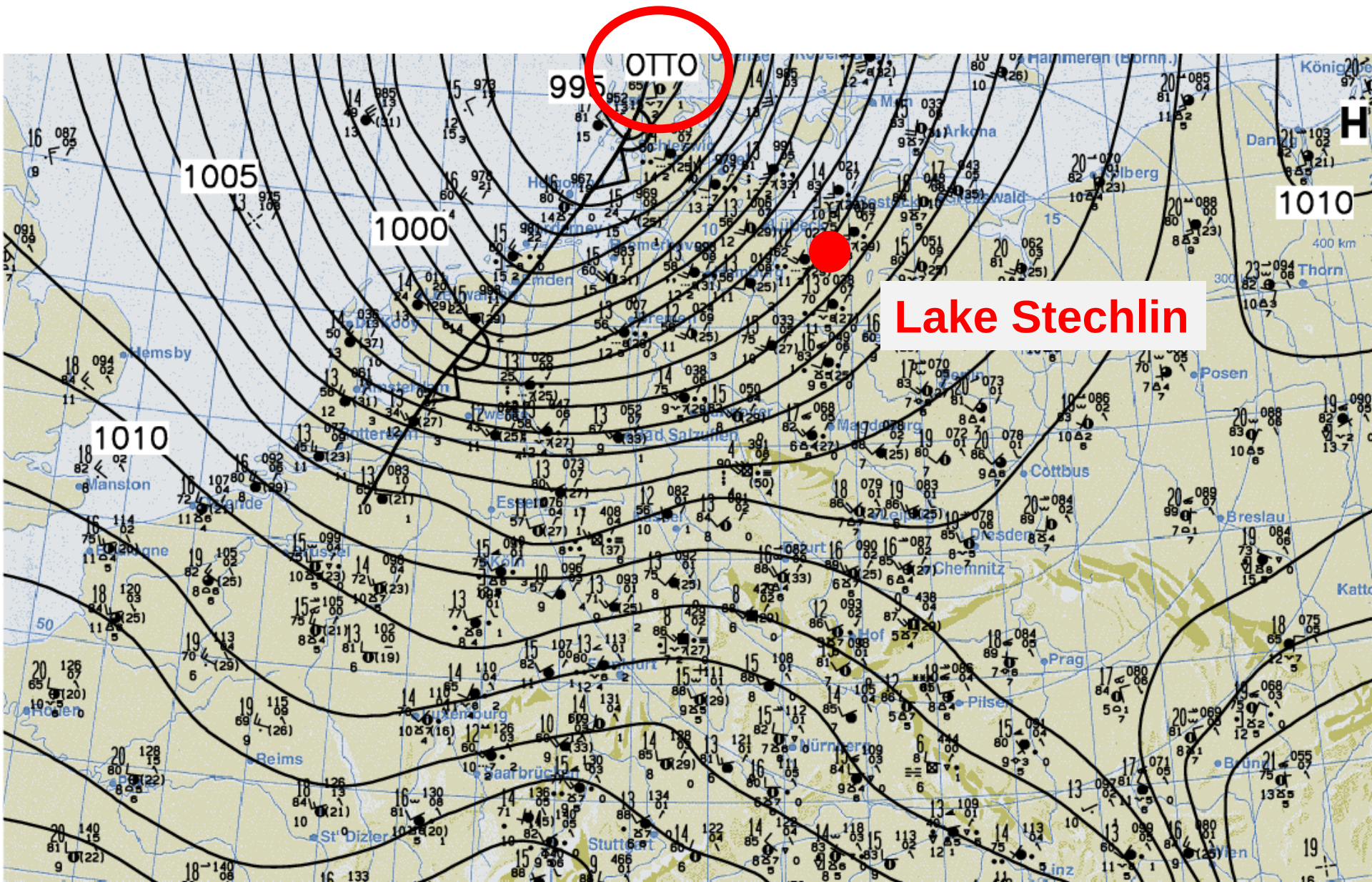
Recent developments

Sudden events

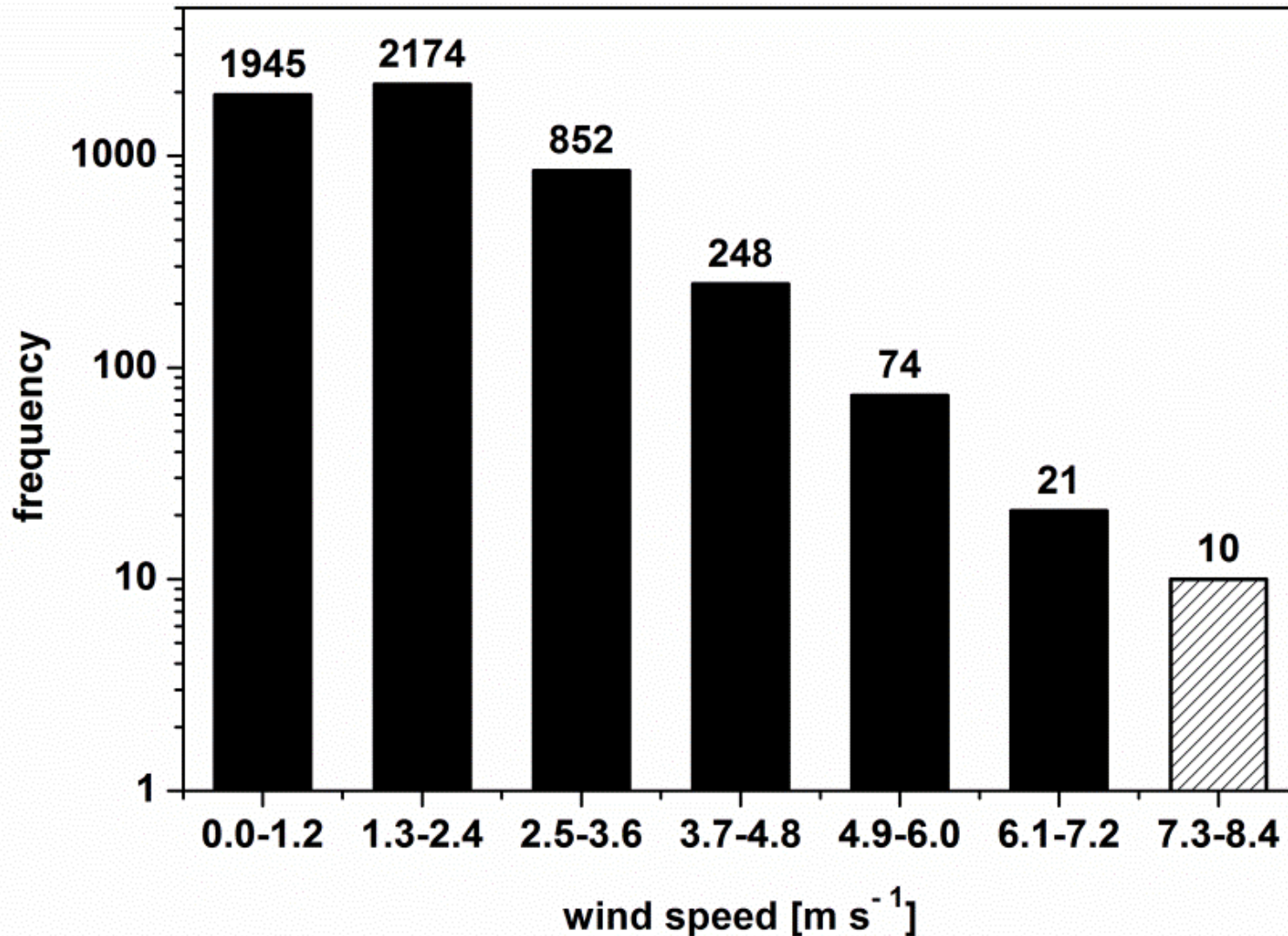


Research
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Cyclone Otto in July 2011



Extreme wind speed



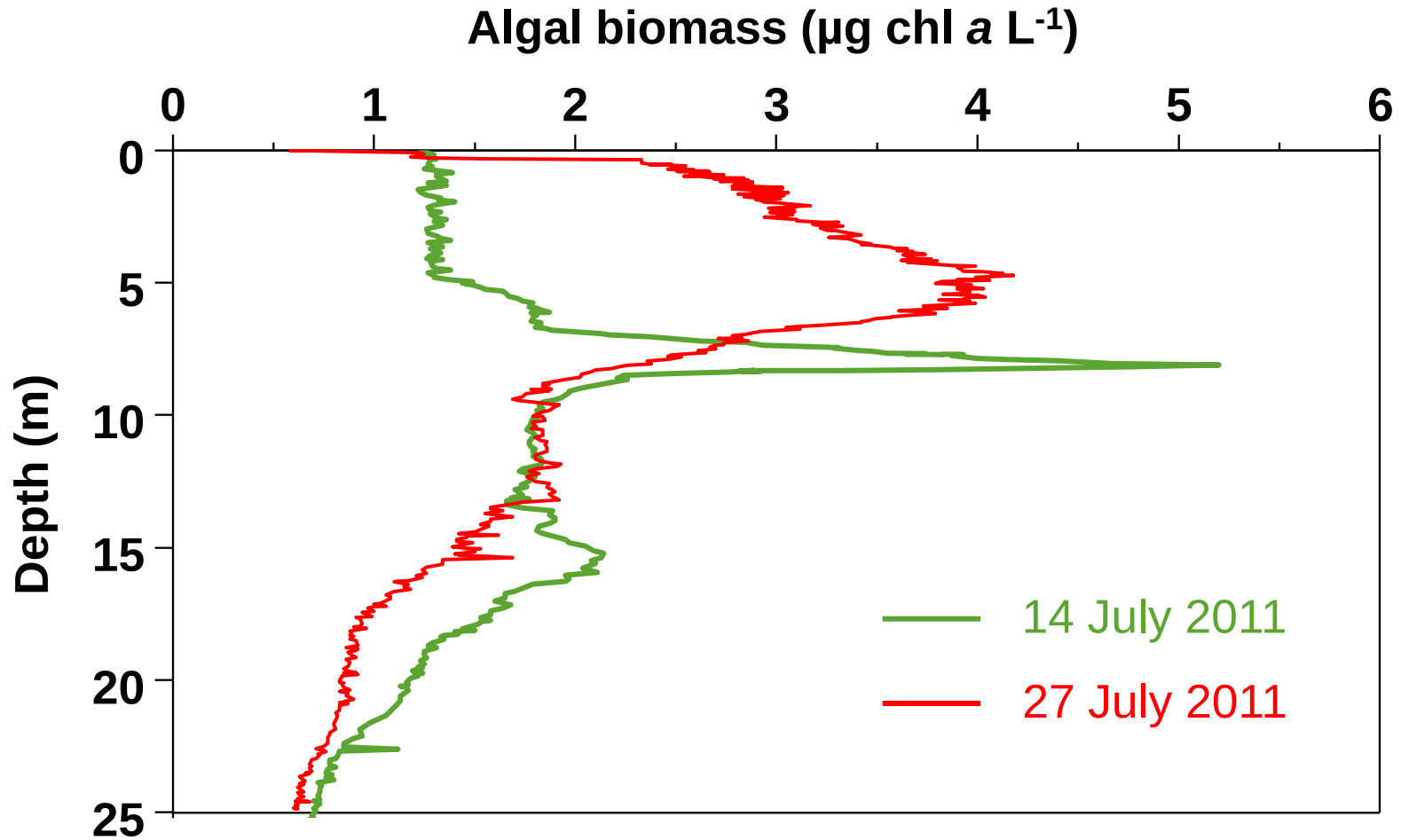
Sudden shift from clear to turbid

July 2010
Secchi depth:
5.3 – 8.1 m

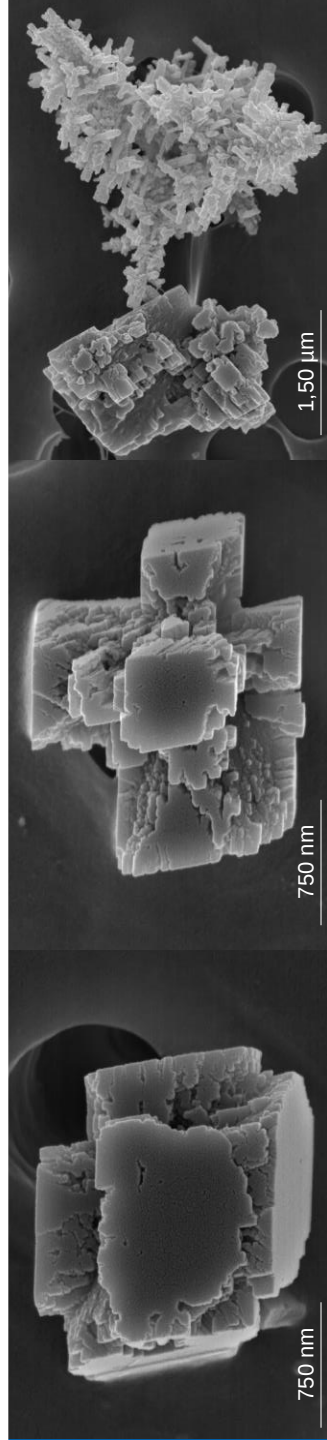
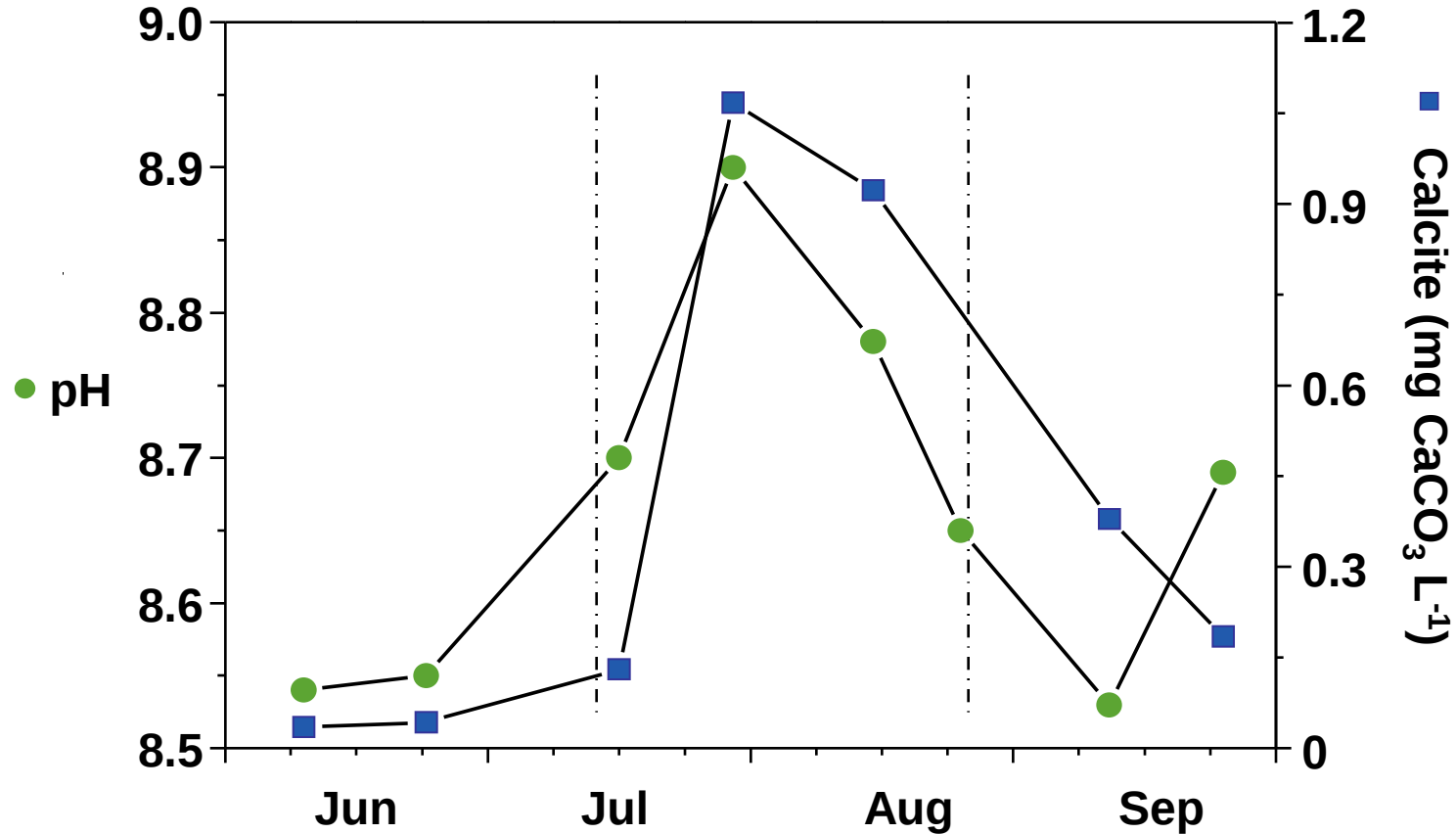
Photos: T. Gonsiorczyk

July 2011
Secchi depth:
2.1 m

Deep chlorophyll maximum



Calcite precipitation



Conclusions

- **Interest in lake monitoring is rapidly rising as:**
 - a wealth of new technologies & approaches emerge
 - computing power increases
 - improved communication means foster worldwide data exchange and collaboration
- **Lake monitoring is important because it:**
 - has been instrumental in assessing past impacts of climate change on lake ecosystems
 - facilitates early detection of future change
 - can provide key insights into rare events



Thank
you