Can past lake water TP be inferred from sediment geochemical records at sites with high internal P load: a test at Søbygaard Sø, Denmark

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Moyle & Boyle (2021) ***SI-TP***

Sediment **I**nferred [lake water] **T**otal **P**hosphorus [concentration]

Procedure

Raw data:

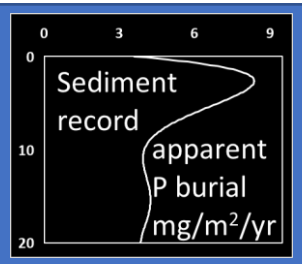
- L_{sed}
- q_s = 14 m/yr
- R_P = 0.42

\+

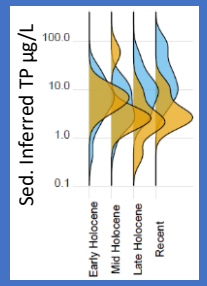
Equation

=

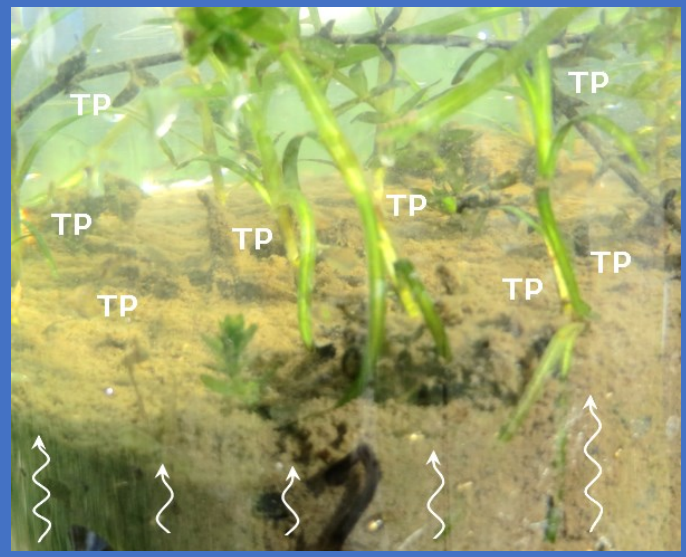
Inferred TP record



$$SITP = \frac{L_{sed}}{q_s}(1 - R_P)$$

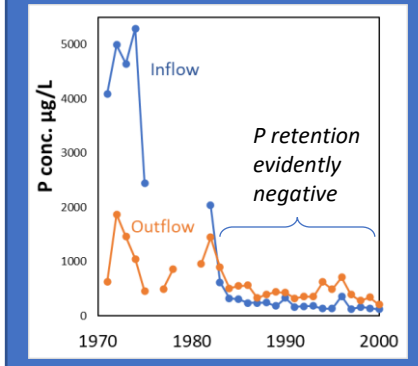


Is sediment P sufficiently immobile?

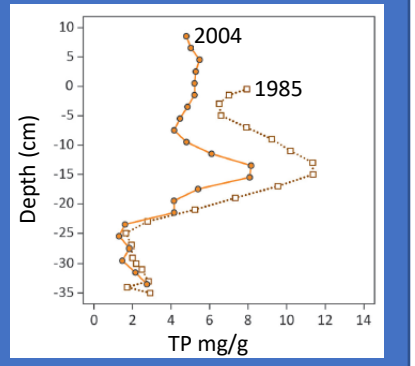


Søbygaard – test site with severe internal P loading and exceptional published data

Data: Martin Søndergaard & Erik Jeppesen

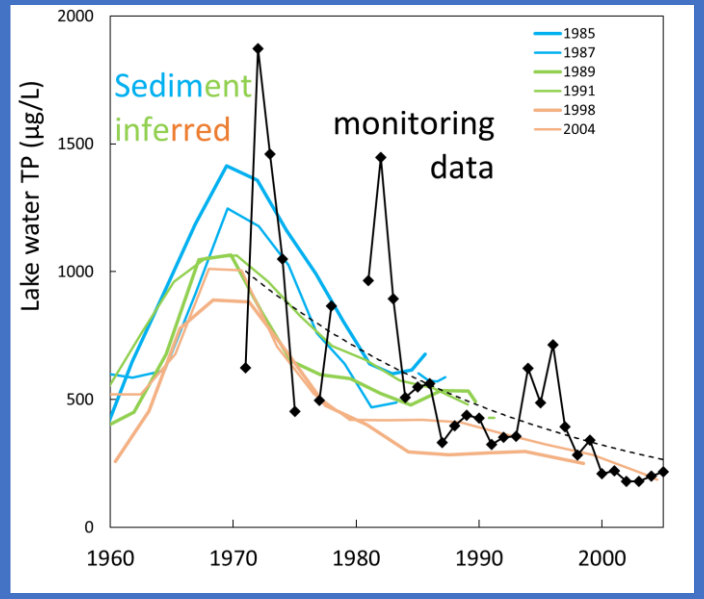


Inflow-outflow conc.

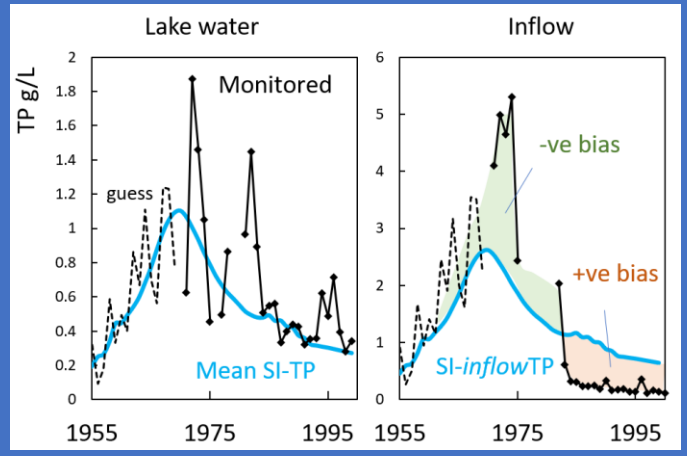


Sediment record

Results: SI-TP smoothed but unbiased



Interpretation: both lake water TP and P supply simulated usefully



P leakage leaves long-term record largely intact