Centre of Geosciences



Are pristine lakes always nutrient poor? The trophic history of Sacrower See (NE Germany)

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Sacrower See	Aim	Sediment core
6°E 10°E 14°E	To assess the lake's baseline conditions before the	Onset of modern varve formation
54°N	onset of cultural eutrophication and to reconstruct	
52°N Sacrower See	the past effects of natural and anthropogenic factors	
	on the lake's nutrient concentrations.	300 -
50°N		400 -
	Reconstruction tools	c 500 -





CULTURAL EUTROPHICATION

NATURAL EUTROPHICATION

DURING THE COLD YOUNGER DRYAS (12 700 - 11 600 cal. BP)

During cold periods prolonged ice cover may lead to reduced mixing of lakes with increased oxygen depletion, which leads to prolongated phases of anoxia and can consequently prompt phosphorus release from the sediments.

FROM 3000 cal. BP TO THE PRESENT

The trophic state was regulated by human activities, hydrological connection with the eutrophic river Havel, hypolimnetic anoxia and phosphorus loading. Since AD 1871 the lake sediments has been **annually** laminated.

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IMPLICATIONS

We conclude that the definition of reference conditions should take into account climatic influence on pristine lakes, in the periods without human impact. We suggest that the early to mid-Holocene represents a sensible **TP reference** condition for lowland lakes that have a long history of anthropogenic and natural eutrophication.

