Seismic survey and bathymetry

A seismic survey was conducted on the lake using echosounder (SES 2000light, Innomar Technologie) with a primary frequency of 100 kHz and a secondary frequency range of 4 – 15 kHz with inbuilt geographical positioning system. From the seismic survey 10 seismic profiles were obtained (supplementary Fig. 1). Bathymetry of the lake was determined by manually digitizing the sediment water interface in ISE 2.91 software and data interpolation in ArcGIS software.

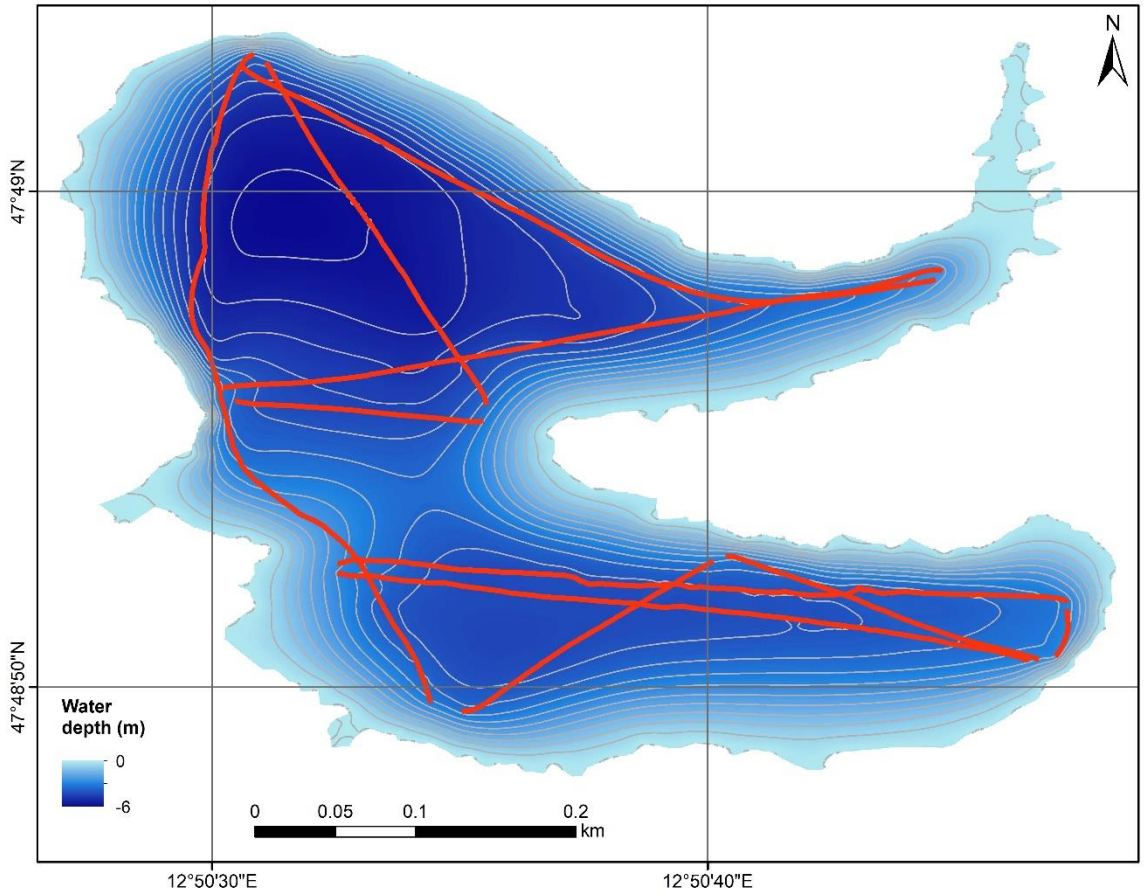

Figure S1: Bathymetric map of Lake Höglwörth and locations of seismic profiles indicated by red lines.

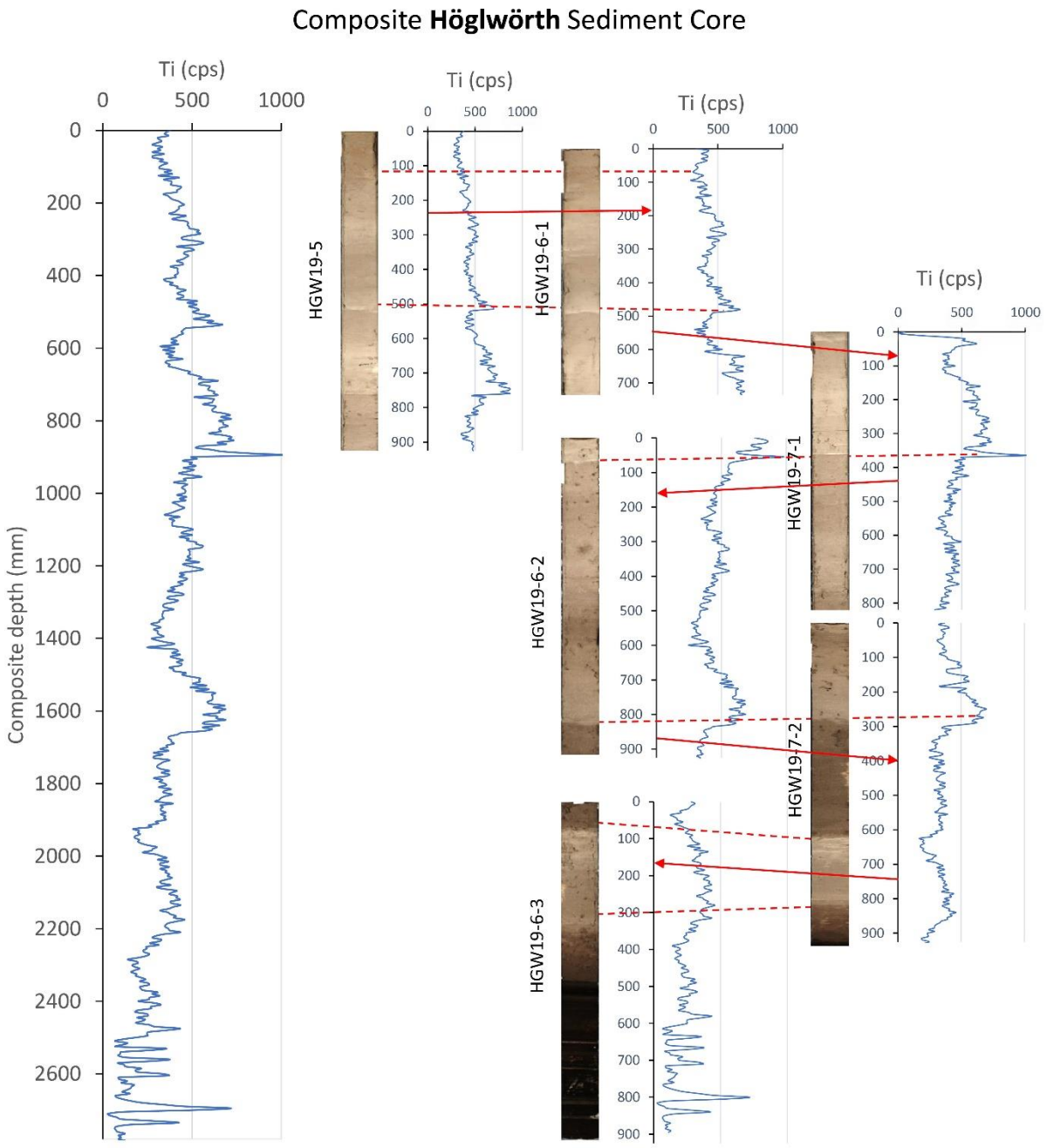

Figure S2: Composite of Lake Höglwörth sediment core derived from variations in sediment colour and Ti (cps) content. Dashed and solid red lines indicate core parallelization and core depths used to determine composite depth. Core pictures were brightness and contrast enhanced.

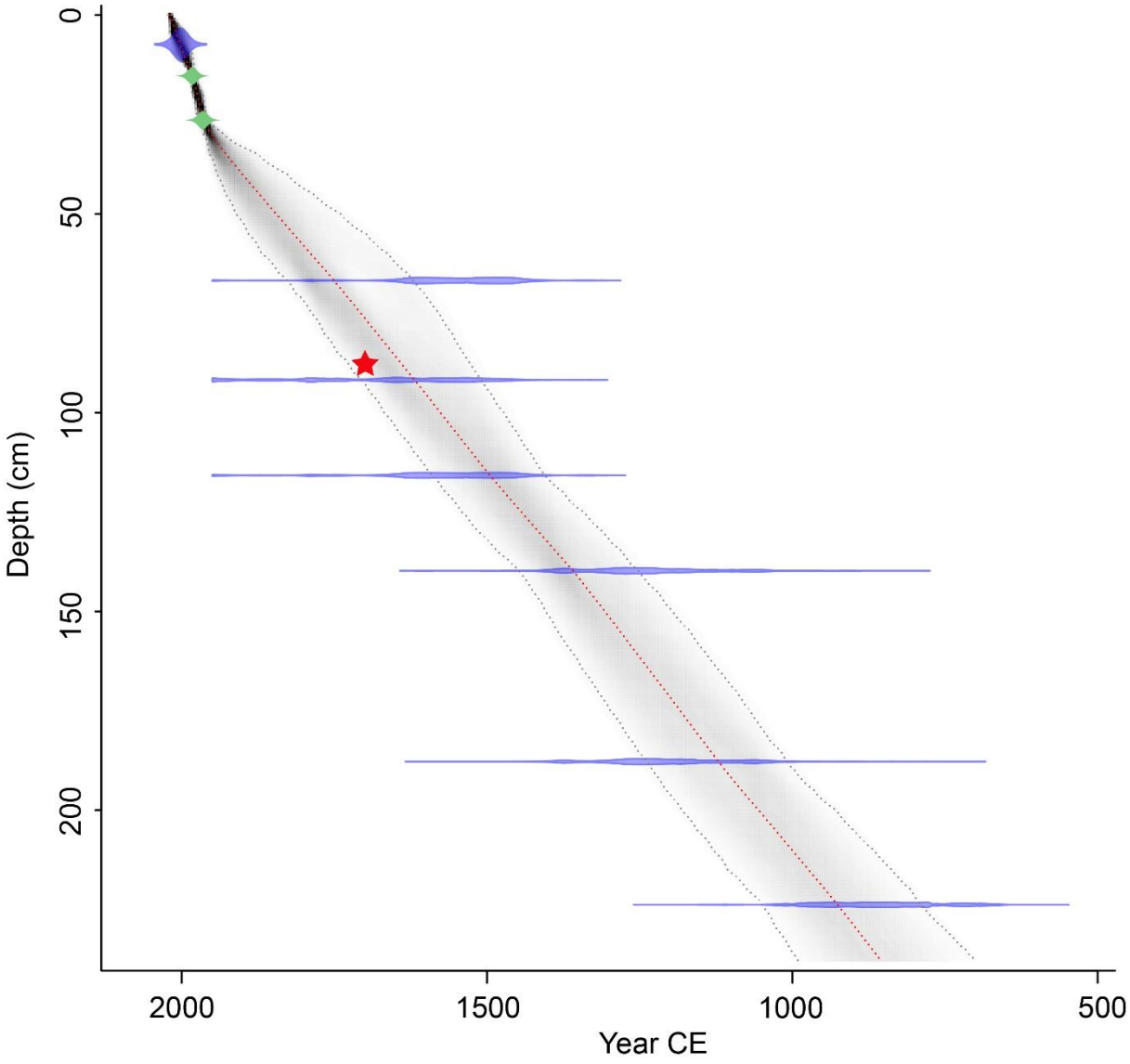

Figure S3: Age-depth model for the Lake Höglwörth composite sediment core based on calibrated radiocarbon ages are displayed as probability density functions of the 2σ distributions indicated by a blue symbol and ^{137}Cs-ages shown in green. Red star indicates the tie point at 88 cm presumed to be related to mill construction in 1701 CE.

Figure S4a: Taxa found in the sediment core from Lake Höglwörth (part 1)

1) *Candona candida* (internal view), 2) *Cypridopsis vidua* (internal view), 3*) Cypria ophtalmica* (internal view), 4) *Darwinula stevensoni* (external view), 5) *Limnocythere inopinata* (external view), 6) *Cyclocypris* sp. (internal view), 7) *Sarscypridopsis aculeata* (external view), 8) *Metacypris cordata* (external view), 9) *Notodromas monacha* (internal view), 10) testate amoebae?, aperture (a), side view (b), 11) *Plumatella fruticosa*, 12) *Difflugia oblonga*, aperture (a), side view: edged (b), short (c), long (d), 13) green egg, 14) *Plumatella casmiana*, top view (a), bottom view (b), 15) *Difflugia bidens*, aperture (a), side view (b), 16) *Difflugia corona*, aperture (a), side view (b), 17) polyhedral egg, 18) black egg, 19) *Plumatella geimermassardi*, top view (a), bottom view (b), 20) *Difflugia urceolata*, aperture (a), side view (b), 21) *Hippuris* (?), aperture (extracted) (a), side view (b), 22) glochidia of unionid Bivalvia, 23) *Plumatella repens*, top view (a), bottom view (b), 24) ephippia of Cladocera, 25) oribatid mite, dorsal view

(a), ventral view (b), 26) cuticle of Bryozoa, top view (HGW21-HR-94), 27) Charophyta, side view (HGW21-HR-89), 28) insect eye (HGW21-HR-14), 29) seed, side view (HGW21-13), 30) *Juncus*?, side view (HGW21-13), 31) seed, side view (HGW21-HR-22).

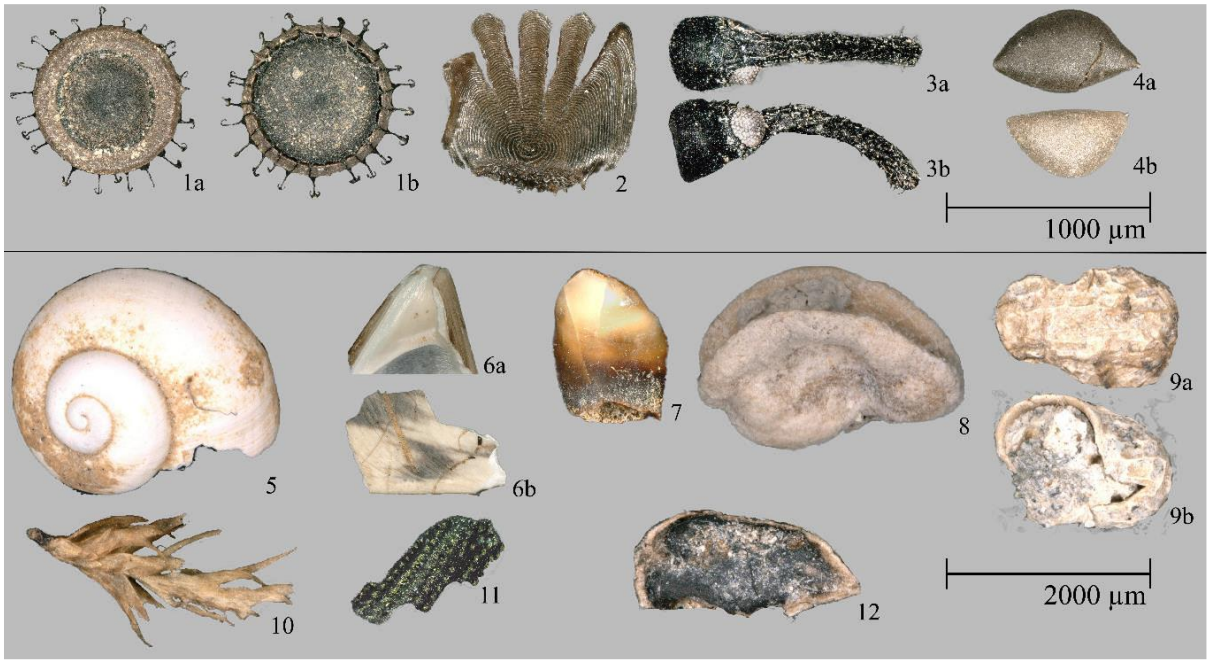

Figure S4b: Taxa found in the core from Lake Höglwörth (part 2)
1) *Cristatella mucedo*, top view (a), bottom view (b), 2) fish scale (HGW21-HR-78), 3) weevil of Curculionidae, top view (a), side view (b) (HGW21-HR-75), 4) *Schoenoplectus*?, top view (a), side view (b), 5) *Valvata piscinalis* (HGW21-3), 6) *Dreissena polymorpha*, vertebrae (a), shell (b), 7) fish tooth (HGW21-HR-78), 8) *Potamogeton* (HGW21-19), 9) *Ajuga reptans*?, top view (a), bottom view (b) (HGW21-HR-42), 10) Bryophyta (HGW21-HR-93), 11) insect skin, top view (HGW21-HR-14), 12) *Festuca* (?), inner view (HGW21-HR-39).

Table S1: Taxa of composite sediment core from Lake Höglwörth

Mollusca	**Ostracoda**
Bivalvia:	*Candona candida* (O.F. Müller 1774)
Unionidae, glochids	*Cyclocypris* sp.
Dreissena polymorpha (Pallas 1771)	*Cypria ophtalmica* (Jurine 1820)
Gastropoda:	*Cypridopsis vidua* (O.F. Müller 1776)
Valvata piscinalis (O.F. Müller 1774)	*Darwinula stevensoni* (Brady & Robertson 1870)
Bryozoa	*Limnocythere inopinata* (Baird 1843)
Cristatella mucedo Cuvier 1798	*Metacypris cordata* Brady & Robertson 1870
Plumatella casmiana Oka 1907	*Notodromas monacha* (O.F. Müller 1776)
Plumatella fruticosa Allman 1844	*Sarscypridopsis aculeata* (Costa, 1847)
Plumatella geimermassardi Wood & Okamura 2004	**Plants**
Plumatella repens (Linnaeus 1758)	*Ajuga reptans* Linnaeus 1778
Testate amoebae	*Festuca* sp.
Difflugia bidens Penard 1902	*Hippuris* sp.
Difflugia corona Wallich 1864	*Juncus* sp.
Difflugia oblonga Ehrenberg 1832	*Potamogeton* sp.
Difflugia urceolata Carter 1864	*Schoenoplectus* sp.
Oribatida	**Charophyta**
unidentified taxa	oospores
Cladocera	**Coleoptera**
ephippia	Curculionidae
Zebra mussel	
Dreissena	