IGB
Leibniz-Institut für Gewässerökologie
und Binnenfischerei

FRESHWATER RESEARCH AND ENVIRONMENTAL DATABASE

Großer Plöner See

PLÖ thermistor chain with oxygen

FRED Package 850

In recent years, numerous lakes throughout Germany have been included in a climate impact measurement program. Long-term climate monitoring that provides continuous series of measurements with high temporal resolution over many years is an essential basis for better understanding the interrelationships in lakes, carrying out trend analyses and developing adaptation strategies from them. In addition to measuring changes, they provide a basis for model-based management scenarios.

Large lake Plön (Großer Plöner See)

The large lake Plön is located in the “Holsteinische Schweiz“ Nature Park (Schleswig-Holstein), between Lübeck and Kiel. The town of Plön lies on the northern shore. The lake is the largest and deepest lake in Schleswig-Holstein. It is a Weichselian tongue basin lake, which is divided into the Ascheberg Basin to the west and the Plön Basin to the south-east. The maximum depth of 56 metres is reached in the southern Plön Basin. Both parts of the lake are connected by a shallow water area in which the majority of the lake's many islands are located. The average depth of the large lake Plön is approx. 13 metres, the surface area approx. 29 km^2 and the volume approx. 380 million m^3. The catchment area has a size of 382 km^2. The Schwentine flows through the lake and the theoretical water retention time is only 3.1 years.

Measuring chain

The measuring chain consists of a rope that is kept in tension by a weight on the bottom and a pressure-resistant buoy located 1.5-1.8 m below the water surface. The loggers are attached to the rope at fixed intervals.

Information about the depth values of the loggers

The logger depths given indicate the depth below the water surface. Due to the anchoring on the bottom, the distances of the loggers from the bottom are always the same, but not when viewed from the surface. This can cause problems if the water level fluctuates, because the distance of the loggers from the water surface changes.

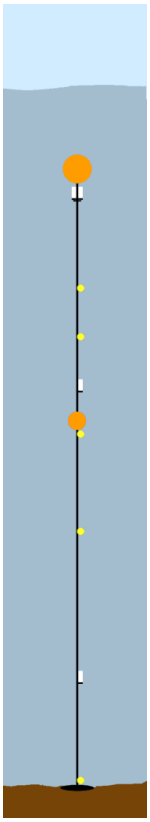

Abb. Scheme of a measurement chain with autonomous loggers

Autonomous datalogger

Tinytag Aquatic 2 TG-4100 underwater data loggers from Gemini Data Loggers, UK, are used for the temperature measurements.

MiniDOT data loggers from PME (Precision Measurement Engineering, Inc.) are used for the oxygen measurements. To prevent mussel settlement, the 1 m O_2 logger is covered with copper tape and equipped with a miniWIPER, an autonomous antifouling system, since 2019.

Logger specifications

Parameter	name	accuracy	resolution	max. operating depth	
temperature	Tinytag Aquatic 2 TG-4100 von Gemini Data Loggers	± 0.5°C according to manufacturer) ± 0.1°C (own experience)	0.01 °C	500 m	
oxygen and temperature	miniDOT von Precision Measurement Engineering (PME)	according to manufacturer ± 5% ± 0.3 mg/l ± 0.1°C	0.01 mg/L 0.01 °C	100 m	

Logger depth distribution 2020 to 2023

Data

timespan 2020-06-04 ongoing

Intervall 30 min.

The data are stored as separate txt files in the IGB Cloud Nimbus.

Großer Plöner See (PLÖ)							
Ordner	**20210531 PLÖ data**						
Datei	**Logger**	**Parameter**	**Logger-Nr.**	**Tiefe (m)**	**Messintervall**	**Messzeitraum**	**Bemerkungen**
Cat7392-235902_PLÖ_2m.TXT	miniDot USB	O2 + T	7392-235902	2	30	22.06.2020 - 31.05.2021	
Cat7392-214312_PLÖ_20m.TXT	miniDot USB	O2 + T	7392-214312	20	30	22.06.2020 - 31.05.2021	
Cat7392-186076_PLÖ_50m.TXT	miniDot USB	O2 + T	7392-186076	50	30	22.06.2020 - 31.05.2021	
Tinytag896302_PLÖ_1m.txt	Tinytag	T	896302	1	30	22.06.2020 - 31.05.2021	
Tinytag905142_PLÖ_5m.txt	Tinytag	T	905142	5	30	22.06.2020 - 31.05.2021	
Tinytag589394_PLÖ_10m.txt	Tinytag	T	589394	10	30	22.06.2020 - 31.05.2021	
Tinytag656720_PLÖ_15m.txt	Tinytag	T	656720	15	30	22.06.2020 - 31.05.2021	
Tinytag891344_PLÖ_30m.txt	Tinytag	T	891344	30	30	22.06.2020 - 31.05.2021	
Tinytag656726_PLÖ_40m.txt	Tinytag	T	656726	40	30	22.06.2020 - 31.05.2021	
Tinytag896295_PLÖ_54m.txt	Tinytag	T	896295	54	30	22.06.2020 - 31.05.2021	
20210531_PLÖ_data.xlsx	alle					22.06.2020 - 31.05.2021	Zusammenstellung
Ordner	**20220414 PLÖ data**						
Datei	**Logger**	**Parameter**	**Logger-Nr.**	**Tiefe (m)**	**Messintervall**	**Messzeitraum**	**Bemerkungen**
Cat7450-118797_PLÖ2021_02m.TXT	miniDot USB	O2 + T	7450-118797	2	30	31.05.2021 - 14.04.2022	mit Wischer
Cat7450-149656_PLÖ2021_20m.TXT	miniDot USB	O2 + T	7450-149656	20	30	31.05.2021 - 14.04.2022	
Cat7450-171292_PLÖ2021_50m.TXT	miniDot USB	O2 + T	7450-171292	50	30	31.05.2021 - 14.04.2022	
Tinytag896302_PLÖ2021_01m.txt	Tinytag	T	896302	1	30	31.05.2021 - 14.04.2022	
Tinytag905142_PLÖ2021_05m.txt	Tinytag	T	905142	5	30	31.05.2021 - 14.04.2022	
Tinytag589394_PLÖ2021_10m.txt	Tinytag	T	589394	10	30	31.05.2021 - 14.04.2022	
Tinytag656720_PLÖ2021_15m.txt	Tinytag	T	656720	15	30	31.05.2021 - 14.04.2022	
Tinytag891344_PLÖ2021_30m.txt	Tinytag	T	891344	30	30	31.05.2021 - 14.04.2022	
Tinytag656726_PLÖ2021_40m.txt	Tinytag	T	656726	40	30	31.05.2021 - 14.04.2022	
Tinytag896295_PLÖ2021_54m.txt	Tinytag	T	896295	54	30	31.05.2021 - 14.04.2022	
20220414_PLÖ2021_data.xlsx	alle					31.05.2021 - 14.04.2022	Zusammenstellung
Ordner	**20231024 PLÖ data**						
Datei	**Logger**	**Parameter**	**Logger-Nr.**	**Tiefe (m)**	**Messintervall**	**Messzeitraum**	**Bemerkungen**
miniDot1185_PLÖ2023_2m.TXT	miniDot RS232	O2 + T	6881-1185	2	30	01.11.2022 - 24.10.2023	
miniDot1314_PLÖ2023_10m.TXT	miniDot RS232	O2 + T	6881-1314	10	30	01.11.2022 - 24.10.2023	
miniDot1326_PLÖ2023_20m.TXT	miniDot RS232	O2 + T	6881-1326	20	30	01.11.2022 - 16.08.2023	bis August 2023
miniDot0624_PLÖ2023_30m.TXT	miniDot RS232	O2 + T	6881-0624	30	30	01.11.2022 - 24.10.2023	
miniDot1320_PLÖ2023_40m.TXT	miniDot RS232	O2 + T	6881-1320	40	30	01.11.2022 - 19.02.2023	bis Februar 2023
miniDot0741_PLÖ2023_50m.TXT	miniDot RS232	O2 + T	6881-0741	50	30	01.11.2022 - 24.10.2023	
tinytag658045_PLÖ2023_1m.txt	Tinytag	T	658045	1	30	01.11.2022 - 24.10.2023	
tinytag953587_PLÖ2023_5m.txt	Tinytag	T	953587	5	30	01.11.2022 - 24.10.2023	
tinytag953583_PLÖ2023_15m.txt	Tinytag	T	953583	15	30	01.11.2022 - 24.10.2023	
tinytag953571_PLÖ2023_25m.txt	Tinytag	T	953571	25	30	01.11.2022 - 24.11.2022	nur ein Monat
tinytag919598_PLÖ2023_55m.txt	Tinytag	T	919598	55	30	01.11.2022 - 24.10.2023	
20231024_PLÖ2023_data.xlsx	alle					01.11.2022 - 24.10.2023	Zusammenstellung

Contakt

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