IGB
Leibniz-Institut für Gewässerökologie
und Binnenfischerei

FRESHWATER RESEARCH AND ENVIRONMENTAL DATABASE

Schmaler Luzin

SL thermistor chain with oxygen

FRED Package 632

In recent years, numerous lakes throughout Germany have been included in a climate impact measurement programme. 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.

Lake Schmale Luzin

The Schmale Luzin is located in the Feldberger Seenlandschaft Nature Park, Mecklenburg-Vorpommern, about 25 km east of Neustrelitz. It is a typical glacial lake divided into the middle basin to the north and the Carwitz basin to the south. The maximum depth of 33.5 m is reached in the middle basin. Both parts of the lake are morphologically and limnologically comparable. The Schmale Luzin has an average depth of 14.5 m, a surface area of 1.45 km^2 and a volume of 20.98 million m^3. The catchment area has a size of 29.5 km^2 and consists mainly of forests. The Feldberger Haussee drained via the Seerosenkanal into the Schmaler Luzin, until this connection was artificially interrupted in 1969 in order to prevent the then heavily eutrophicated Feldberger Haussee from affecting the water quality of the Schmaler Luzin. Thus, the lake is mainly fed by the outlet of the Breiter Luzin and drains from the middle basin in the south into the Carwitz part of the lake.

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 m below the water surface. The loggers are attached to the rope at fixed intervals.

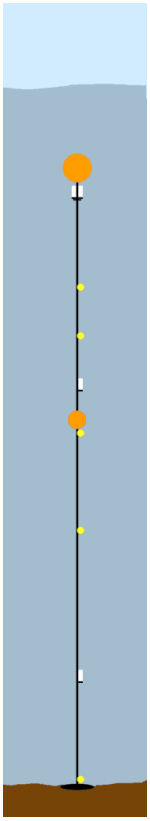


Abb. Scheme of a measurement chain with autonomous

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, bacause the distance of the loggers from the water surface changes.

Autonomous datalogger

Logger specifications

Parameter	name	accuracy	resolution	max. operating depth	
temperature	Tinytag Aquatic 2 TG-4100, Gemini Data Loggers	± 0.5°C according to manufacturer) ± 0.1°C (own experience)*	0.01 °C	500 m	
oxygen and temperature	miniDOT, Precision Measurement Engineering (PME)	according to manufacturer ± 5% ± 0.3 mg/l ± 0.1°C	0.01 mg/L 0.01 °C	100 m	
Wiper	miniWIPER, Precision Measurement Engineering (PME)				
pressure	Hobo U20L-02, Onset Computer Corporation	max. 2.55 kPa	< 0,04 kPa	30 m	

*only loggers with an accuracy of ± 0.03°C are used

To prevent mussel settlement, the 2 m DO logger is covered with copper tape and equipped with a wiper.

Data

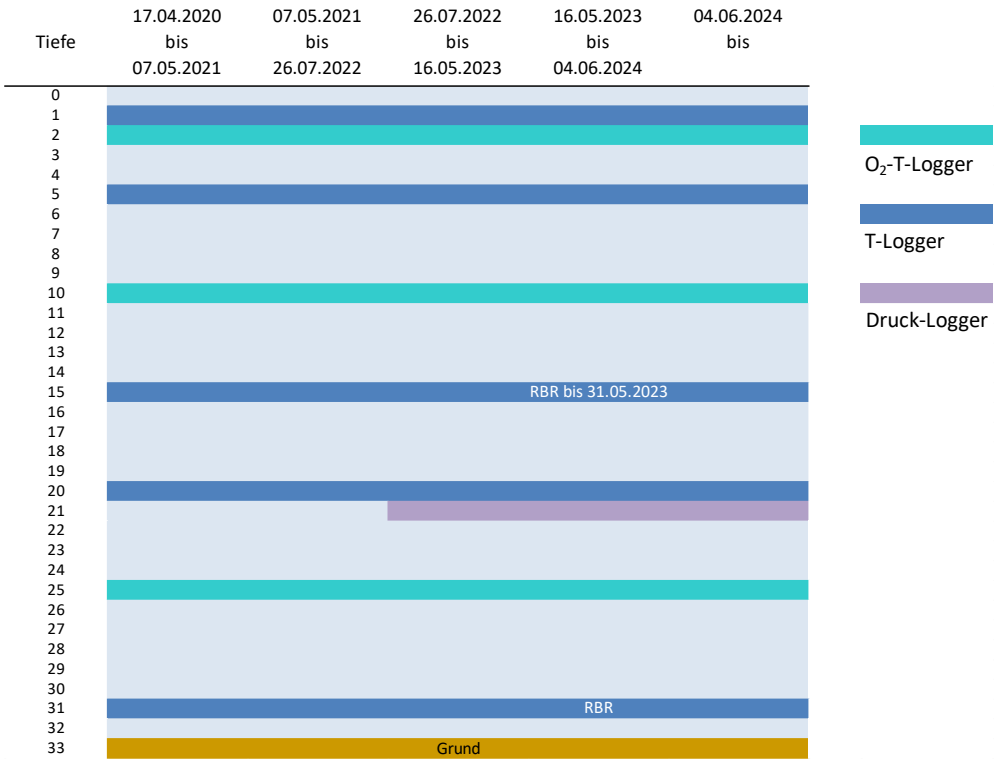
Time span 2020-04-17 ongoing

Intervall 30 min. (60 min. for pressure)

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

Schmaler Luzin (SL)							
Ordner	**20210507_SL_data**						
Datei	**Logger**	**Parameter**	**Logger-Nr.**	**Tiefe (m)**	**Messintervall**	**Messzeitraum**	**Bemerkungen**
Cat7392-686750_SL_2m.TXT	miniDot USB	O2 + T	7392-686750	2	30	17.04.2020 - 07.05.2021	
Cat7392-726790_SL_10m.TXT	miniDot USB	O2 + T	7392-726790	10	30	17.04.2020 - 07.05.2021	
Cat7450-572641_SL_25m.TXT	miniDot USB	O2 + T	7450-572641	25	30	17.04.2020 - 07.05.2021	
Tinytag891339_SL_1m.txt	Tinytag	T	891339	1	30	17.04.2020 - 07.05.2021	
Tinytag580504_SL_5m.txt	Tinytag	T	580504	5	30	17.04.2020 - 07.05.2021	
Tinytag664483_SL_15m.txt	Tinytag	T	664483	15	30	17.04.2020 - 07.05.2021	
Tinytag632359_SL_20m.txt	Tinytag	T	632359	20	30	17.04.2020 - 07.05.2021	
Tinytag891333_SL_31-5m.txt	Tinytag	T	891333	31.5	30	17.04.2020 - 07.05.2021	

Logger depth distribution 2020 bis 2024



Kontakt

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