

Overview of available datasets- Lake Constance data documentation

Updated 19/03/2019

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Lake name: Lake Constance

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Sampling site

Lake Constance (LC) is a temperate, large (476 km²), deep (mean depth = 101 m, max. depth 252 m), and warm-monomictic lake north of the European Alps of glacial origin. It has weak pelagic-benthic coupling, and little allochthonous input into the pelagic zone (Bäuerle and Gaedke 1998). The focal measuring site is in the north-western fjord-like arm of the lake (mean depth ca. 100 m, max. depth 146 m).

Overview of available files

Table 1 provides an overview of the time series data from Lake Constance as they are stored in the LakeBase database. There are data gaps, i.e., not all parameters are available for all years from 1979-2000. Time series marked in **bold** face have already been uploaded to the database as of March 2019 – more will follow in 2019-2020. Table 2 is a lookup table to associate parameters from Table 1 with the titles of the data packages used in LakeBase.

Abbreviations

In Table 1, the abbreviations are:

Abbreviation	Name
SRP	Soluble Reactive Phosphorus
SRSi	Soluble reactive silica
POM	Particulate organic matter
SBV	Acid-binding capacity (German: Säurebindungsvermögen)
PAR	Photosynthetically active radiation
APP	Autotrophic picoplankton
HNF	Heterotrophic nanoflagellates
HPLC	High-performance liquid chromatography

Table 1. Overview of time series data on Lake Constance in the LakeBase database.

Parameter / Year	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Water Temperature	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Conductivity									x	x	x	x	x	x	x	x	x	x	x			
Total Phosphorus														x	x	x	x	x	x			
SRP	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Nitrate	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
SRSi	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Ammonium													x	x	x	x	x					
Calcite								x	x				x	x	x	x	x	x	x			
Sedimentation							x	x	x				x	x	x		x	x	x			
POM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
SBV	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
pH	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Secchi depth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Depth-resolved PAR								x	x	x	x	x	x	x	x	x	x	x	x			
Euphotic depth								x	x	x	x	x	x	x	x	x	x	x	x			
Vertical mixing intensity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
Surface irradiance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x						
Carbon flows									x	x	x	x	x	x	x							
Phosphorus flows									x	x	x	x	x	x	x							
Total biomass									x	x	x	x	x	x	x	x	x	x				
Size spectrum									x	x	x	x	x	x	x	x	x					
Phytoplankton pigments (HPLC)									x	x	x	x	x	x	x	x						
Phytoplankton chlorophyll		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Phytoplankton biomass	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Phytoplankton primary productivity		x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x			
Bacterial biomass									x	x	x	x	x	x	x	x	x	x	(x)			
Bacterial production												x	x		x	x	x	x	x			
APP biomass									x	x	x	x	x	x	x	x	x					
HNF biomass									x	x	x	x	x									
Ciliate biomass									x	x	x	x	x	x	x	x	x	x	x	x		
Rotifer biomass						x	x		x	x	x	x	x	x	x	x	x	(x)				
Crustacean biomass	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			

Table 2: Association between names of parameters in Table 1 and titles of uploaded data packages in LakeBase.

Parameter	Name of data package in LakeBase
Water Temperature	n.a.
Conductivity	n.a.
Total Phosphorus	n.a.
SRP	n.a.
Nitrate	n.a.
SRSi	n.a.
Ammonium	n.a.
Calcite	n.a.
Sedimentation	n.a.
POM	n.a.
SBV	n.a.
pH	n.a.
Secchi depth	Lake Constance Secchi depth, Euphotic depth, Surface irradiance, Turbidity
Depth-resolved PAR	Lake Constance Secchi depth, Euphotic depth, Surface irradiance, Turbidity
Euphotic depth	Lake Constance Secchi depth, Euphotic depth, Surface irradiance, Turbidity
Vertical mixing intensity	Lake Constance Vertical Mixing Intensity
Surface irradiance	Lake Constance Secchi depth, Euphotic depth, Surface irradiance, Turbidity
Carbon flows	Lake Constance Carbon and Phosphorus Flows
Phosphorus flows	Lake Constance Carbon and Phosphorus Flows
Total biomass	Lake Constance Total Biomass in 13 Groups
Size spectrum	Lake Constance Size Spectrum
Phytoplankton pigments (HPLC)	n.a.
Phytoplankton chlorophyll	Lake Constance Chlorophyll-a
Phytoplankton biomass	Lake Constance Phytoplankton Biomass
Phytoplankton primary productivity	Lake Constance Primary Production
Bacterial biomass	Lake Constance Bacterioplankton Biomass
Bacterial production	Lake Constance Bacterioplankton Production
APP biomass	Lake Constance Autotrophic Picoplankton Biomass
Het. nanoflagellate biomass	n.a.
Ciliate biomass	Lake Constance Ciliate Biomass
Rotifer biomass	n.a.
Crustacean biomass	n.a.

References

General references on Lake Constance

Bäuerle E, Gaedke U (1998) *Lake Constance: characterization of an ecosystem in transition*. Stuttgart, Germany: Schweizerbartsche Verlagsbuchhandlung.

Boit, A. & U. Gaedke (2014) Benchmarking Successional Progress in a Quantitative Food Web. *PLoS One* 9(2): e90404