Physical, biogeochemical, and biological data for Lake Tanganyika (2017–2018)

for the lake-wide cruises in September/October 2017 and April/May 2018

Dataset

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Metadata tables[1] for the data set 'Physical, biogeochemical, and biological data for Lake Tanganyika'

Table 1. Description of the discrete sample data set from the lake-wide cruise at Lake Tanganyika in September/October 2017.

Title of dataset	*Nutrient, photo-pigment, and phytoplankton community data of Lake Tanganyika during the end of the cool dry season 2017*
Keywords	*Cyanobacterial blooms, diatom-diazotroph association, oligotrophic, stratification, phycocyanin, phycoerythrin, Lake Tanganyika, phytoplankton*
Lead author for the dataset	*Benedikt Ehrenfels*
Title and position of lead author	*Doctoral researcher*
Organization and address of lead author	*Eawag, Seestrasse 79, 6047 Kastanienbaum, Switzerland*
Email address of lead author	*benedikt.ehrenfels@eawag.ch*
Additional authors or contributors to the dataset	*Bernhard Wehrli, Athanasio S. Mbonde*
Organization associated with the data	*Swiss Federal Institute of Aquatic Science and Technology (Eawag), ETH Zürich, Tanzania Fisheries Research Institute (TAFIRI)*
Funding	*Bernhard Wehrli, From biogeochemistry to the ecological genomics of pelagic fish stocks - a study across 4 trophic levels , SNSF, 166589*
License	*CC BY 4.0*
Geographic location – verbal description	*Lake Tanganyika (Tanzania, regions Kigoma, Katavi, Rukwa)*
Geographic coverage bounding coordinates	*-4.50 °N, 29.47 °E to -8.52 °N, 31 °E*
Time frame - Begin date	*28. September 2017*
Time frame - End date	*8. October 2017*
General study design	*Lake-wide cruise aiming at sampling the pelagic of Lake Tanganyika during the end of the dry season. We collected vertical CTD profiles in combination with discrete water sampling at 9 stations from the North to the South of the lake.*
Methods description	*For each station, the sampling of all parameters was usually carried out within one day, whereas we spent two days at stations 2 and 7 to sample for additional analyses. The discrete water samples were collected with 20 or 30 L Niskin bottles (General Oceanics and Ocean Test Equipment). We estimated the depth of the discrete samples by equipping the lowest sample of each cast with a pressure sensor (RBR XR-420-CTD) and interpolated linearly to the water surface. Nutrient and photo-pigment analyses were carried out on-board, while the phytoplankton samples were fixed with Lugol solution, stored dark, and analysed at land-based laboratory facilities. Seston N and P content was determined at land-based facilities.*

[1] *This document liberally borrows from a template provided by the Environmental Data Initiative and L&O letters*

Laboratory, field, or other analytical methods	*Standard methods of nutrient analysis (Grasshoff et al., 1999, Methods of seawater analysis; Holmes et al., 2011, Can. J. Fish. Aquat. Sci. 56: 1801–1808. doi:10.1139/f99-128; Schnetger & Lehners, 2014, Mar. Chem. 160: 91–98. doi:10.1016/j.marchem.2014.01.010), pigment analysis (Wasmund et al., 2006, Oceanologia, 48: 125–144), and phytoplankton community analysis.* *A more detailed description can be found in the associated open-access publications:* Ehrenfels et al. (2020)*: Thermocline depth and euphotic zone thickness regulate the abundance of diazotrophic cyanobacteria in Lake Tanganyika, Biogeosciences Discuss., doi:10.5194/bg-2020-214, 2020.* Callbeck, Ehrenfels, et al. (2021): Anoxic chlorophyll maximum enhances local organic matter remineralization and nitrogen loss in Lake Tanganyika, Nat. Commun., 12(830), doi:10.1038/s41467-021-21115-5. Ehrenfels et al. (2021)*: Diazotrophic cyanobacteria are associated with a low nitrate resupply to surface waters in Lake Tanganyika, Front. Environ. Sci., 9, 277, doi:10.3389/fenvs.2021.716765.* Ehrenfels et al. (2023)*: Isotopic signatures induced by upwelling reveal regional fish stocks in Lake Tanganyika, PLoS One, doi:10.1371/journal.pone.0281828.*
Taxonomic species or groups	*Phytoplankton taxa including the classes chlorophyceae, dinophyceae, euglenophyceae, bacillariophyceae, and cyanophyceae*
Quality control	*Standard calibration, replicate measurements, determination of detection limits*
Additional information	*If concentration measurements were below detection limit, the value was set to 0.* *Nutrient concentration values well below the typical detection limits (0.22, 0.34, 0.20, and 0.03 µmol/L on average for phosphate, ammonium, nitrate, and nitrite, respectively) should be used with care, especially for quantitative analyses. We chose to include concentration values well below the calculated detection limit, if they were distinctly different from the blank values and associated to major water column features (surface, chlorophyll maximum, nutrient concentration gradients) and thus, might provide a qualitative insight into processes related to those features.* *Note that abundances of colony-forming cyanobacteria (Anabaenopsis, Dolichospermum, and Microcystis) are provided as both, numbers of colonies as well as number of cells (calculated based on mean number of cells in colonies).*

Table 2. Metadata of variables contained in the discrete sample data set from the lake-wide cruise at Lake Tanganyika in September/October 2017 explained in Table 1.

Dataset filename: *samples_sep-oct_2017.csv*
Dataset description: Concentrations of nutrients and photo-pigments as well as phytoplankton abundance data from the lake-wide cruise at Lake Tanganyika in September/October 2017 as explained in Table 1.

Column name	Description	Units	Missing data code
date	Sampling date	DD.MM.YYYY	
station	Station name	none	
latitude	Station latitude	° North	
longitude	Station longitude	° East	
depth	Sampling depth (estimated via pressure sensor)	m	
PO4	Measured phosphate concentration	µmol L^{-1}	blank
NH4	Measured ammonium concentration	µmol L^{-1}	blank
NO3	Measured nitrate concentration	µmol L^{-1}	blank
NO2	Measured nitrite concentration	µmol L^{-1}	blank
NP	Molar dissolved inorganic nitrogen versus phosphate ratio	molar ratio	blank
N_def	Nitrogen deficit calculated as 16 * PO4 – (NH4 + NO3 + NO2)	µmol L^{-1}	blank
seston_NP	Molar nitrogen versus phosphate ratio of seston	molar ratio	blank
DOC	Measured dissolved organic carbon concentration	mg C L^{-1}	blank
d15N-POM	$\delta^{15}N$ of particulate organic matter	‰	blank
d13C-POM	$\delta^{13}C$ of particulate organic matter	‰	blank
Chl	Measured extracted chlorophyll a concentration	µg L^{-1}	blank
PE	Measured extracted phycoerythrin concentration	µg L^{-1}	blank
PC	Measured extracted phycocyanin concentration	µg L^{-1}	blank
Botrococcus_braunii	Measured abundance of *Botrococcus braunii* (class Chlorophyceae)	cell mL^{-1}	blank
Dictyosphaerium_pulchellum	Measured abundance of *Dictyosphaerium pulchellum* (class Chlorophyceae)	cell mL^{-1}	blank
Dictyosphaerium_sp	Measured abundance of *Dictyosphaerium sp* (class Chlorophyceae)	cell mL^{-1}	blank
Gloeocystis_gigas	Measured abundance of *Gleocystis gigas* (class Chlorophyceae)	cell mL^{-1}	blank
Gloeocystis_sp	Measured abundance of *Gleocystis sp* (class Chlorophyceae)	cell mL^{-1}	Blank

Oocystis_lacustris	Measured abundance of *Oocystis lacustris* (class Chlorophyceae)	cell mL^{-1}	blank
Oocystis_solitaria	Measured abundance of *Oocystis solitaria* (class Chlorophyceae)	cell mL^{-1}	blank
Oocystis_sp	Measured abundance of *Oocystis sp* (class Chlorophyceae)	cell mL^{-1}	blank
Scenedesmus_sp	Measured abundance of *Scenedesmus sp* (class Chlorophyceae)	cell mL^{-1}	blank
Spirogyra_sp	Measured abundance of *Spirogyra sp* (class Chlorophyceae)	cell mL^{-1}	blank
Staurastrum_sp	Measured abundance of *Staurastrum sp* (class Chlorophyceae)	cell mL^{-1}	blank
Glenodinium_sp	Measured abundance of *Glenodinium sp* (class Dinophyceae)	cell mL^{-1}	blank
Peridium_sp	Measured abundance of *Peridium sp* (class Dinophyceae)	cell mL^{-1}	blank
Trachelomonas_sp	Measured abundance of *Trachelomonas sp* (class Euglenophyceae)	cell mL^{-1}	blank
Trachelomonas_volvocina	Measured abundance of *Trachelomonas volvocina* (class Euglenophyceae)	cell mL^{-1}	blank
Amphora_calumeticoides	Measured abundance of *Amphora calumeticoides* (class Bacillariophyceae)	cell mL^{-1}	blank
Aulacoseira_sp	Measured abundance of *Aulacoseira sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Cyclotella_sp	Measured abundance of *Cyclotella sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Cymbella_sp	Measured abundance of *Cymbella sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Epithemia_sp	Measured abundance of *Epithemia sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Fragilaria_sp	Measured abundance of *Fragilaria sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Navicula_sp	Measured abundance of *Navicula sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Nitzschia_acicularis	Measured abundance of *Nitzschia acicularis* (class Bacillariophyceae)	cell mL^{-1}	blank
Nitzschia_asterionoides	Measured abundance of *Nitzschia asterionoides* (class Bacillariophyceae)	cell mL^{-1}	blank
Rhopalodia_sp	Measured abundance of *Rhopalodia sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Stephanodiscus_sp	Measured abundance of *Stephanodiscus sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Surirella_sp	Measured abundance of *Surirella sp* (class Bacillariophyceae)	cell mL^{-1}	blank

Anabaenopsis_tanganyikae_colony	Measured abundance of *Anabaenopsis tanganyikae* (class Cyanophyceae)	colony mL^{-1}	blank
Chroococcus_sp	Measured abundance of *Chroococcus sp* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_flos-aquae_colony	Measured abundance of Measured abundance of *Dolichospermum flos-aquae* (class Cyanophyceae)	colony mL^{-1}	blank
Dolichospermum_spiroides_colony	Measured abundance of *Dolichospermum spiroides* (class Cyanophyceae)	colony mL^{-1}	blank
Dolichospermum_sp_colony	Measured abundance of *Dolichospermum sp* (class Cyanophyceae)	colony mL^{-1}	blank
Microcystis_sp_colony	Measured abundance of *Microcystis sp* (class Cyanophyceae)	colony mL^{-1}	blank
Sphinctosiphon_polymorphus	Measured abundance of *Sphinctosiphon polymorphus* (class Cyanophyceae)	cell mL^{-1}	blank
Anabaenopsis_tanganyikae_cell	Measured abundance of *Anabaenopsis tanganyikae* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_flos-aquae_cell	Measured abundance of Measured abundance of *Dolichospermum flos-aquae* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_spiroides_cell	Measured abundance of *Dolichospermum spiroides* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_sp_cell	Measured abundance of *Dolichospermum sp* (class Cyanophyceae)	cell mL^{-1}	blank
Microcystis_sp_cell	Measured abundance of *Microcystis sp* (class Cyanophyceae)	cell mL^{-1}	blank
Shannon-Wiener	Shannon-Wiener Index based on the cell abundance of the phytoplankton community		blank

Table 3. Description of the CTD profile data set from the lake-wide cruise at Lake Tanganyika in September/October 2017.

Title of dataset	*CTD data of Lake Tanganyika during the end of cool dry season 2017*
Keywords	*temperature, water column stability, Lake Tanganyika*
Lead author for the dataset	*Benedikt Ehrenfels*
Title and position of lead author	*Doctoral researcher*
Organization and address of lead author	*Eawag, Seestrasse 79, 6047 Kastanienbaum, Switzerland*

Email address of lead author	*benedikt.ehrenfels@eawag.ch*
Additional authors or contributors to the dataset	*Bernhard Wehrli, Athanasio S. Mbonde*
Organization associated with the data	*Swiss Federal Institute of Aquatic Science and Technology (Eawag), ETH Zürich, Tanzania Fisheries Research Institute (TAFIRI)*
Funding	*Bernhard Wehrli, From biogeochemistry to the ecological genomics of pelagic fish stocks - a study across 4 trophic levels , SNSF, 166589*
License	*CC BY 4.0*
Geographic location – verbal description	*Lake Tanganyika (Tanzania, regions Kigoma, Katavi, Rukwa)*
Geographic coverage bounding coordinates	*-4.50 °N, 29.47 °E to -8.52 °N, 31 °E*
Time frame - Begin date	*28. September 2017*
Time frame - End date	*8. October 2017*
General study design	*Lake-wide cruise aiming at sampling the pelagic of Lake Tanganyika during the end of the dry season. We collected vertical CTD profiles in combination with discrete water sampling at 9 stations from the North to the South of the lake.*
Methods description	*For each station, the sampling of all parameters was usually carried out within one day, whereas we spent two days at stations 2 and 7 to sample for additional analyses. We used a Sea-Bird SBE 19plus CTD probe for the continuous sensor profiles.*
Laboratory, field, or other analytical methods	*Raw data were bin averaged by 0.5 m to remove high frequency noise caused by waves etc.; Water column stability was calculated as buoyancy frequency (N2) using the software SBE Data Processing.*
Taxonomic species or groups	
Quality control	*Regular factory-calibration by Sea-Bird*

Table 4. Metadata of variables contained in the CTD profile data set from the lake-wide cruise at Lake Tanganyika in September/October 2017 explained in Table 3.

Dataset filename: *bin_avg_ctd_profiles_sep-oct_2017.csv*
Dataset description: Bin averaged CTD profiles from the lake-wide cruise at Lake Tanganyika in September/October 2017 as explained in Table 3.

Column name	Description	Units
date	Sampling date	DD.MM.YYYY
time	Eastern African Time at the start of the cast	hh:mm:ss
station	Station name	none
latitude	Station latitude	° North
longitude	Station longitude	° East
depth	Sampling depth	m
temperature	Measured temperature	° C
N2	Calculated buoyancy frequency	s^{-2}

Table 5. Description of the discrete sample data set from the lake-wide cruise at Lake Tanganyika in April/May 2018.

Title of dataset	*Nutrient, photo-pigment, and phytoplankton community data of Lake Tanganyika during the end of the warm rainy season 2018*
Keywords	*Cyanobacterial blooms, diatom-diazotroph association, oligotrophic, stratification, phycocyanin, phycoerythrin, Lake Tanganyika, phytoplankton*
Lead author for the dataset	*Benedikt Ehrenfels*
Title and position of lead author	*Doctoral researcher*
Organization and address of lead author	*Eawag, Seestrasse 79, 6047 Kastanienbaum, Switzerland*
Email address of lead author	*benedikt.ehrenfels@eawag.ch*
Additional authors or contributors to the dataset	*Bernhard Wehrli, Athanasio S. Mbonde*
Organization associated with the data	*Swiss Federal Institute of Aquatic Science and Technology (Eawag), ETH Zürich, Tanzania Fisheries Research Institute (TAFIRI)*
Funding	*Bernhard Wehrli, From biogeochemistry to the ecological genomics of pelagic fish stocks - a study across 4 trophic levels , SNSF, 166589*
License	*CC BY 4.0*
Geographic location – verbal description	*Lake Tanganyika (Tanzania, regions Kigoma, Katavi, Rukwa)*
Geographic coverage bounding coordinates	*-4.50 °N, 29.47 °E to -8.52 °N, 31 °E*
Time frame - Begin date	*27. April 2018*
Time frame - End date	*7. May 2018*
General study design	*Lake-wide cruise aiming at sampling the pelagic of Lake Tanganyika during the end of the dry season. We collected vertical CTD profiles in combination with discrete water sampling at 9 stations from the North to the South of the lake.*
Methods description	*For each station, the sampling of all parameters was usually carried out within one day, whereas we spent two days at stations 2 and 7 to sample for additional analyses. The discrete water samples were collected with 20 or 30 L Niskin bottles (General Oceanics and Ocean Test Equipment). We estimated the depth of the discrete samples from the length of the rope due to technical problems with the pressure sensor (RBR XR-420-CTD). We assume that these estimates slightly overestimate the actual depth compared to the method used in the data set from September/October 2017. Nutrient and photo-pigment analyses were carried out on-board, while the phytoplankton samples were fixed with Lugol solution, stored dark, and analysed at land-based laboratory facilities. Seston N and P content was determined at land-based facilities.*
Laboratory, field, or other analytical methods	*Standard methods of nutrient analysis (Grasshoff et al., 1999, Methods of seawater analysis; Holmes et al., 2011, Can. J. Fish. Aquat. Sci. 56: 1801–1808. doi:10.1139/f99-128; Schnetger & Lehners, 2014, Mar. Chem. 160: 91–98. doi:10.1016/j.marchem.2014.01.010), pigment analysis (Wasmund*

	et al., 2006, Oceanologia, 48: 125–144), and phytoplankton community analysis. *A more detailed description can be found in the associated open-access publications:* Ehrenfels et al. (2020)*: Thermocline depth and euphotic zone thickness regulate the abundance of diazotrophic cyanobacteria in Lake Tanganyika, Biogeosciences Discuss., doi:10.5194/bg-2020-214, 2020.* Callbeck, Ehrenfels, et al. (2021): Anoxic chlorophyll maximum enhances local organic matter remineralization and nitrogen loss in Lake Tanganyika, Nat. Commun., 12(830), doi:10.1038/s41467-021-21115-5. Ehrenfels et al. (2021)*: Diazotrophic cyanobacteria are associated with a low nitrate resupply to surface waters in Lake Tanganyika, Front. Environ. Sci., 9, 277, doi:10.3389/fenvs.2021.716765.* Ehrenfels et al. (2023)*: Isotopic signatures induced by upwelling reveal regional fish stocks in Lake Tanganyika, PLoS One, doi:10.1371/journal.pone.0281828.*
Taxonomic species or groups	*Phytoplankton taxa including the classes chlorophyceae, dinophyceae, euglenophyceae, bacillariophyceae, and cyanophyceae*
Quality control	*Standard calibration, replicate measurements, determination of detection limits*
Additional information	*If concentration measurements were below detection limit, the value was set to 0* *Nutrient concentration values well below the typical detection limits (0.22, 0.34, 0.20, and 0.03 µmol/L on average for phosphate, ammonium, nitrate, and nitrite, respectively) should be used with care, especially for quantitative analyses. We chose to include concentration values well below the calculated detection limit, if they were distinctly different from the blank values and associated to major water column features (surface, chlorophyll maximum, nutrient concentration gradients) and thus, might provide a qualitative insight into processes related to those features.* *Note that abundances of colony-forming cyanobacteria (Anabaenopsis, Dolichospermum, and Microcystis) are provided as both, numbers of colonies as well as number of cells (calculated based on mean number of cells in colonies).*

Table 6. Metadata of variables contained in the discrete sample data set from the lake-wide cruise at Lake Tanganyika in April/May 2018 explained in Table 5.

Dataset filename: *samples_apr-may_2018.csv*
Dataset description: Concentrations of nutrients and photo-pigments as well as phytoplankton abundance data from the lake-wide cruise at Lake Tanganyika in April/May 2018 as explained in Table 5.

Column name	Description	Units	Missing data code
date	Sampling date	DD.MM.YYYY	
station	Station name	none	
latitude	Station latitude	° North	
longitude	Station longitude	° East	
depth	Sampling depth (estimated via rope length)	m	
PO4	Measured phosphate concentration	µmol L^{-1}	blank
NH4	Measured ammonium concentration	µmol L^{-1}	blank
NO3	Measured nitrate concentration	µmol L^{-1}	blank
NO2	Measured nitrite concentration	µmol L^{-1}	blank
NP	Molar dissolved inorganic nitrogen versus phosphate ratio	molar ratio	blank
N_def	Nitrogen deficit calculated as 16 * PO4 – (NH4 + NO3 + NO2)	µmol L^{-1}	blank
seston_NP	Molar nitrogen versus phosphate ratio of seston	molar ratio	blank
DOC	Measured dissolved organic carbon concentration	mg C L^{-1}	blank
d15N-POM	$\delta^{15}N$ of particulate organic matter	‰	blank
d13C-POM	$\delta^{13}C$ of particulate organic matter	‰	blank
DIC	Measured dissolved inorganic carbon concentration	mg L^{-1}	blank
d13C-DIC	Measured $\delta^{13}C$ of dissolved inorganic carbon	‰	blank
CO2_fix	Experimentally determined CO_2 fixation rates	nmol C L^{-1} d^{-1}	blank
Chl	Measured extracted chlorophyll a concentration	µg L^{-1}	blank
PE	Measured extracted phycoerythrin concentration	µg L^{-1}	blank
PC	Measured extracted phycocyanin concentration	µg L^{-1}	blank
Dictyosphaerium_pulchellum	Measured abundance of *Dictyosphaerium pulchellum* (class Chlorophyceae)	cell mL^{-1}	blank
Dictyosphaerium_sp	Measured abundance of *Dictyosphaerium sp* (class Chlorophyceae)	cell mL^{-1}	blank
Oocystis_lacustris	Measured abundance of *Oocystis lacustris* (class Chlorophyceae)	cell mL^{-1}	blank
Oocystis_solitaria	Measured abundance of *Oocystis solitaria* (class Chlorophyceae)	cell mL^{-1}	blank
Oocystis_sp	Measured abundance of *Oocystis sp* (class Chlorophyceae)	cell mL^{-1}	blank
Glenodinium_sp	Measured abundance of *Glenodinium sp* (class Dinophyceae)	cell mL^{-1}	blank

Peridium_sp	Measured abundance of *Peridium sp* (class Dinophyceae)	cell mL^{-1}	blank
Trachelomonas_sp	Measured abundance of *Trachelomonas sp* (class Euglenophyceae)	cell mL^{-1}	blank
Amphora_calumeticoides	Measured abundance of *Amphora calumeticoides* (class Bacillariophyceae)	cell mL^{-1}	blank
Aulacoseira_sp	Measured abundance of *Aulacoseira sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Cyclotella_sp	Measured abundance of *Cyclotella sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Cymbella_sp	Measured abundance of *Cymbella sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Epithemia_sp	Measured abundance of *Epithemia sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Fragilaria_sp	Measured abundance of *Fragilaria sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Navicula_sp	Measured abundance of *Navicula sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Nitzschia_acicularis	Measured abundance of *Nitzschia acicularis* (class Bacillariophyceae)	cell mL^{-1}	blank
Nitzschia_asterionoides	Measured abundance of *Nitzschia asterionoides* (class Bacillariophyceae)	cell mL^{-1}	blank
Nitzschia_sp	Measured abundance of *Nitzschia sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Rhopalodia_sp	Measured abundance of *Rhopalodia sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Surirella_sp	Measured abundance of *Surirella sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Synedra_sp	Measured abundance of *Synedra sp* (class Bacillariophyceae)	cell mL^{-1}	blank
Anabaenopsis_tanganyikae_colony	Measured abundance of *Anabaenopsis tanganyikae* (class Cyanophyceae)	colony l mL^{-1}	blank
Chroococcus_sp	Measured abundance of *Chroococcus sp* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_flos-aquae_colony	Measured abundance of Measured abundance of *Dolichospermum flos-aquae* (class Cyanophyceae)	colony mL^{-1}	blank
Microcystis_flos-aquae_colony	Measured abundance of *Microcystis flos-aquae* (class Cyanophyceae)	colony mL^{-1}	blank
Sphinctosiphon_polymorphus	Measured abundance of *Sphinctosiphon polymorphus* (class Cyanophyceae)	cell mL^{-1}	blank
Chroococcus_sp	Measured abundance of *Chroococcus sp* (class Cyanophyceae)	cell mL^{-1}	blank

Anabaenopsis_tanganyikae_cell	Measured abundance of *Anabaenopsis tanganyikae* (class Cyanophyceae)	cell mL^{-1}	blank
Dolichospermum_flos-aquae_ cell	Measured abundance of Measured abundance of *Dolichospermum flos-aquae* (class Cyanophyceae)	cell mL^{-1}	blank
Microcystis_flos-aquae_ cell	Measured abundance of *Microcystis flos-aquae* (class Cyanophyceae)	cell mL^{-1}	blank
Shannon-Wiener	Shannon-Wiener Index based on the cell abundance of the phytoplankton community		blank

Table 7. Description of the CTD profile data set from the lake-wide cruise at Lake Tanganyika in April/May 2018.

Title of dataset	*CTD data of Lake Tanganyika during the end of the warm rainy season 2018*
Keywords	*temperature, water column stability, irradiance, Lake Tanganyika*
Lead author for the dataset	*Benedikt Ehrenfels*
Title and position of lead author	*Doctoral researcher*
Organization and address of lead author	*Eawag, Seestrasse 79, 6047 Kastanienbaum, Switzerland*
Email address of lead author	*benedikt.ehrenfels@eawag.ch*
Additional authors or contributors to the dataset	*Bernhard Wehrli, Athanasio S. Mbonde*
Organization associated with the data	*Swiss Federal Institute of Aquatic Science and Technology (Eawag), ETH Zürich, Tanzania Fisheries Research Institute (TAFIRI)*
Funding	*Bernhard Wehrli, From biogeochemistry to the ecological genomics of pelagic fish stocks - a study across 4 trophic levels , SNSF, 166589*
License	*CC BY 4.0*
Geographic location – verbal description	*Lake Tanganyika (Tanzania, regions Kigoma, Katavi, Rukwa)*
Geographic coverage bounding coordinates	*-4.50 °N, 29.47 °E to -8.52 °N, 31 °E*
Time frame - Begin date	*27. April 2018*
Time frame - End date	*7. May 2018*
General study design	*Lake-wide cruise aiming at sampling the pelagic of Lake Tanganyika during the end of the dry season. We collected vertical CTD profiles in combination with discrete water sampling at 9 stations from the North to the South of the lake.*
Methods description	*For each station, the sampling of all parameters was usually carried out within one day, whereas we spent two days at stations 2 and 7 to sample for additional analyses. We used a Sea-Bird SBE 19plus CTD probe for the continuous sensor profiles.*
Laboratory, field, or other analytical methods	*Raw data were bin averaged by 0.5 m to remove high frequency noise caused by waves etc.; Water column stability was calculated as buoyancy frequency (N2) using the software SBE Data Processing.*

Taxonomic species or groups	
Quality control	*Regular factory-calibration by Sea-Bird*

Table 8. Metadata of variables contained in the CTD profile data set from the lake-wide cruise at Lake Tanganyika in April/May 2018 explained in Table 7.

Dataset filename: *bin_avg_ctd_profiles_apr-may_2018.csv*
Dataset description: Bin averaged CTD profiles from the lake-wide cruise at Lake Tanganyika in April/May 2018 as explained in Table 7.

Column name	Description	Units
date	Sampling date	DD.MM.YYYY
time	Eastern African Time at the start of the cast	hh:mm:ss
station	Station name	none
latitude	Station latitude	° North
longitude	Station longitude	° East
depth	Sampling depth	m
temperature	Measured temperature	°C
conductivity	Measured conductivity	µS cm^{-1}
pH	Measured pH	pH unit
N2	Calculated buoyancy frequency	s^{-2}
PAR	Percent of surface photosynthetically active radiation	%

References

Callbeck, C. M., Ehrenfels, B., Baumann, K. B. L., Wehrli, B. and Schubert, C. J.: Anoxic chlorophyll maximum enhances local organic matter remineralization and nitrogen loss in Lake Tanganyika, Nat. Commun., 12(830), doi:10.1038/s41467-021-21115-5, 2021.

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