



## Metadata

# Abiotic and biotic data of the rivers Pinka and Lafnitz 2012 - 2014

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### General information

#### name of the dataset:

full name of the dataset: *Abiotic and biotic data of the rivers Pinka and Lafnitz 2012 - 2014*  
dataset short name: *BIO\_CLIC*

**type of dataset ([more information](#)):** *species (taxonomic group) per site database including environmental information*

data type: *point data/observation data, descriptive data*

short description of the dataset/summary:

*During the project BIO\_CLIC abiotic and biotic data of the rivers Pinka and Lafnitz were collected from the year 2012 until 2014, in order to analyse the present state of river morphology, riparian vegetation, riparian microclimate, fish species and benthic invertebrate abundance and diversity. This data was produced to be able to predict the near stream microclimate and stream water temperature until the end of the century, estimate the stress on aquatic organisms and the ability of vegetation to mitigate this stress.*

*Initially only stream water observations, predictions of the river Pinka and corresponding input data for extreme heat wave events used in Trimmel et al. (2016a) are available for download. Other parts of the data set may be included later after they have been published.*

**science keywords according to [GCMD](#):**

topic: *Atmosphere, Biosphere, Biological Classification, Climate Indicators*

**ISO topic category according to [ISO 19115](#):**

*Biota, Climatology/Meteorology/Atmosphere, Environment, Inland Waters*

## Technical and administrative specifications

<b>data format:</b>	<i>others/specify</i>
others/details:	<i>different data formats: csv, txt, Access, Excel</i>
<b>operating system:</b>	<i>all operating systems</i>
others/details:	<i>some data is only available for Windows</i>
<b>data language:</b>	<i>English</i>
<b>current access level:</b>	<i>web (public)</i>
web address (URL):	<i>http://data.freshwaterbiodiversity.eu/data/FWM_8-Pinka_Lafnitz/</i>
others/details:	<i>data are deposited in the repository of the Freshwater Biodiversity Data Portal</i>
currently available through <a href="#">GBIF</a> :	<i>no</i>
exchange planned:	<i>no</i>
data in data repository:	<i>yes</i>
specify repository:	<i>Initially only stream water observations, predictions of the river Pinka and corresponding input data for extreme heat wave events used in Trimmel et al. (2016a) are available for download. Other parts of the data set may be included after they have been published.</i>

### Do you plan to publish the data on the Freshwater Biodiversity Data Portal:

	<i>already published through BioFresh</i>
media for data delivery:	<i>online internet (HTTP)</i>
web address:	<i>http://data.freshwaterbiodiversity.eu/data/FWM_8-Pinka_Lafnitz/</i>
<b>update level:</b>	<i>completed, others/specify</i>
others/details:	<i>some data are not analyzed yet</i>

### documentation:

type:	<i>scientific paper, others/specify</i>
language:	<i>English</i>
specify:	<i>final report</i>
others/details:	<i>http://bioclic.boku.ac.at</i>

### contact details:

metadata contact person:	
first, last name:	<i>Trimmel Heidelinde</i>
phone:	<i>+43 1 47654 81425</i>
email:	<i>heideline.trimmel@boku.ac.at</i>
institution:	<i>Institute of Meteorology, University of Natural Resources and Life Sciences</i>
address:	<i>Gregor-Mendel-Strasse 33</i>
postal code, city:	<i>1180 Vienna</i>
province, state:	<i>Vienna</i>
country:	<i>Austria</i>
web address:	<i>https://www.wau.boku.ac.at/en/met/</i>

### technical contact person:

first, last name:	<i>Martin Seebacher</i>
phone:	<i>+43 1 47654 81220</i>
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### scientific contact person:

first, last name:	<i>Andreas Melcher</i>
phone:	<i>+43 1 47654 81223</i>
email:	<i>andreas.melcher@boku.ac.at</i>

**comments:**

*other related websites:*

*<http://bioclic.boku.ac.at/>*

*<http://www.wau.boku.ac.at/met/forschungsthemen/atmosphaerische-strahlung/forschungsbereich-strahlung-energiebilanz-und-bodengebundene-ferne-kundung/forschungsschwerpunkte/strahlungstransport-und-energiebilanz-in-gewaessern>*

## Intellectual property rights and citation

dataset publisher (already published): *Heidelinde Trimmel*

### dataset creator (data compiler):

contact name: *Heidelinde Trimmel*  
contact email: *heidelinde.trimmel@boku.ac.at*  
contact institution: *Institute of Meteorology, University of Natural Resources and Life Sciences*

### data contributors to/owners of this dataset:

*multiple*  
number: *6*

#### provider 1:

provider institute: *Institute of Soil Bioengineering and Landscape Construction, Univ. of Nat. Res.*  
contact name: *Gerda Kalny*  
contact email: *gerda.kalny@boku.ac.at*  
criteria for using the data in a publication/scientific analysis: *The dataset needs to be requested from dataset creator with specific conditions of use.*  
comments: *river morphology, field study  
riparian vegetation, field study*

#### provider 2:

provider institute: *Institute of Meteorology, University of Natural Resources and Life Sciences*  
contact name: *Philipp Weihs*  
contact email: *philipp.weihs@boku.ac.at*  
criteria for using the data in a publication/scientific analysis: *The dataset needs to be requested from dataset creator with specific conditions of use.*  
comments: *stream water temperature, measurements  
near stream microclimate, measurements*

#### provider 3:

provider institute: *Institute of Meteorology, University of Natural Resources and Life Sciences*  
contact name: *Heidelinde Trimmel*  
contact email: *heidelinde.trimmel@boku.ac.at*  
criteria for using the data in a publication/scientific analysis: *The dataset is publicly available (data portal, data archive) and can be used without restrictions, but dataset creator/data contributors must be informed prior to publication. Data must be acknowledged and cited correctly.*  
comments: *stream water temperature, numerical predictions*

#### provider 4:

provider institute: *Institute of Hydrobiology and Aquatic Ecosystem Management, Univ. of Nat. Res.*  
contact name: *Andreas Melcher*  
contact email: *andreas.melcher@boku.ac.at*  
criteria for using the data in a publication/scientific analysis: *The dataset needs to be requested from dataset creator with specific conditions of use.*  
comments: *fish species and assemblages, sampling*

#### provider 5:

provider institute: *Institute of Hydrobiology and Aquatic Ecosystem Management, Univ. of Nat. Res.*

contact name: *Florian Dossi*

contact email: *florian.dossi@boku.ac.at*

criteria for using the data in a publication/scientific analysis: *The dataset needs to be requested from dataset creator with specific conditions of use.*

comments: *benthic invertebrate abundance and diversity, sampling*

**provider 6:**

provider institute: *Institute of Meteorology, University of Natural Resources and Life Sciences*

contact name: *Herbert Formayer*

contact email: *herbert.formayer@boku.ac.at*

criteria for using the data in a publication/scientific analysis: *The dataset needs to be requested from dataset creator with specific conditions of use.*

comments: *near stream microclimate, numerical predictions*

**citation of this dataset:**

author(s): *Kalny, G., Dossi, F., Formayer, H., Graf, W., Rauch, H.P, Trimmel, H., Weihs, P., Melcher, A.*

title: *Abiotic and biotic data of the rivers Pinka and Lafnitz 2012 - 2014*

year: *2016*

doi (if applicable): *<https://doi.org/10.13148/BFFWM8>*

**citation of the metadata:**

author(s): *Trimmel H., Kalny G., Dossi F., Formayer H., Graf W., Leitner P., Leidinger D., Nadeem I., Rauch H. P. , Weihs P. & Melcher A.*

title and journal (name, number, pages): *Abiotic and biotic data of the rivers Pinka and Lafnitz 2012 - 2014. Freshwater Metadata Journal 22: 1-12*

year: *2017*

doi (if applicable): *<https://doi.org/10.15504/fmj.2017.22>*

## General data specifications

### regional coverage of the dataset:

scale of the dataset: *catchment*  
continents: *Europe*

### spatial extent (bounding coordinates):

southernmost latitude [°]: *46.9766*  
northernmost latitude [°]: *47.5153*  
westernmost longitude [°]: *15.8115*  
easternmost longitude [°]: *16.4939*  
minimum altitude: *240 metres*  
maximum altitude: *1480 metres*  
countries: *Europe: Austria*

## Site specifications

<b>coordinate system/grid data:</b>	<i>projected, others others: MGI_Austria_GK_M34, Transverse Mercator</i>
datum (e.g. WGS84):	<i>Bessel_1841</i>
<b>site coding:</b>	
site coding available:	<i>yes</i>
	<i>alphanumerical</i>
number of digits:	<i>12</i>
example:	<i>L_ROHR_26,08</i>
<b>number of sites:</b>	<i>&lt;100</i>
exact number of sites:	<i>64</i>
<b>comments:</b>	<i>There are two different site codings used: (1) The water temperature simulation dataset uses the side coding distance from mouth (km 89-38, each 500m). Here only the river Pinka is included. (2) In the additional datasets of each research group the data is sorted according to an alphanumerical code denoting the river distance from source of the field survey sample points.</i>

## Climate and environmental data

### climate related data:

available per: *per catchment*  
 spatial resolution of the data (if not catchment/site related):  
*others/specify*

others: *at reference station*

available parameters:

*hourly air humidity, air temperature, wind, global radiation  
 own measurements / regional climate scenarios*

comments:

*The following data are included in the downloadable data set: (1) hourly air humidity, air temperature, wind, global radiation was recorded at our reference station at an unobstructed site at Pinka DFS 39 (Trimmel et al. 2016a+b); (2) INCA data (Haiden et al. 2011) were compared and adjusted to fit the local site; (3) for future scenarios data was extracted from regional climate scenarios (Radu et al. 2008). The full methodology is described in Trimmel et al. 2016a.*

*Additional continuous and campaign meteorological measurements were made to characterize the near stream microclimate and energy balance at the river surface, which are not included in the downloadable data (air temperature/air humidity/global radiation/PAR within the riparian vegetation buffer, radiation balance at the river).*

*Haiden, T., Kann, A., Wittmann, C., Pistotnik, G., Bica, B., and Gruber, C., 2011. The Integrated Nowcasting through Comprehensive Analysis (INCA) System and Its Validation over the Eastern Alpine Region, Weather Forecast., 26, 166-183, doi:10.1175/2010WAF2222451.1*

*Radu, R., Déqué, M., Somot, S., 2008. Spectral nudging in a spectral regional climate model, Tellus A Dynamic Meteorology and Oceanography, 60 Issue: 5 Pages: 898-910.*

### environmental data:

available parameters per catchment: *catchment land cover/land use  
 own measurements/field study*

available parameters per catchment: *river morphology, riparian vegetation, water temperature measurements  
 own measurements/field study/simulations*

available parameters per site: *river length  
 field study/ part of simulation input*

available parameters per site: *distance to source  
 field study/*

available parameters per site: *distance to mouth  
 field study/ part of simulation input*

available parameters per site: *stream order (according to Strahler)  
 field study/*

available parameters per site: *slope  
 part of simulation input, calculated with TTools*

available parameters per site: *altitude  
 part of simulation input, calculated with TTools*

available parameters per site: *hydrological regime/flow regime  
 own measurements/field study*

available parameters per site: *discharge  
 part of simulation results*



available parameters per site: *current velocity*  
*particulate matter results*

available parameters per site: *maximum depth*  
*particulate matter results*

available parameters per site: *mean depth*  
*particulate matter results*

available parameters per site: *substrate composition*  
*particulate matter results*

**physico-chemistry data:**

comments:

*Water temperature was sampled hourly at each site including measurements at tributaries. Vertical and horizontal sections were measured.*  
*Future water temperature was modeled using the deterministic model Heat Source version 9 (Boyd and Kasper 2003, Trimmel et al. 2016a).*

**stressors influencing the sites:**

reference sites available: *yes*

stressor	restored sites available	data before/after restoration available	stressor gradient available	comments
thermal stress	yes	no	yes	

## Biological data

**biological data origin:**

*from sampling*

specify project:

*BIO\_CLIC, Austria*

organism group addressed:

*fish, macro-invertebrates (Mollusca, Ephemeroptera, Odonata, Plecoptera, Coleoptera, Trichoptera, Chironomidae), angiosperms (riparian vegetation), invasive species*

## Sample specifications/sample resolution

### fish:

#### sample information:

covered timeframe:  
 year from - to: 1991 - 2013  
 historical data: yes  
 palaeo data: no  
 season: spring, summer, autumn  
 temporal resolution/frequency of sampling:  
 once pro site  
 time series data: no  
 comments: Historical data (not sampled during the project BIO\_CLIC) received from BAW Scharfling for the time period: 1991 - 2012.

#### taxonomic resolution:

percentage of species level data: 100

#### taxonomic coding:

taxalist according to: BMFLUW 2010  
 citation: BMLFUW, Federal Ministry of Agriculture, Forestry, Environment and Water Management (Publisher). 2010: Leitfaden zur Erhebung der biologischen Qualitätselemente Teil A1 - Fische. Vienna

#### sample specifications:

replicate samples: yes  
 number of samples: 626  
 specification of method(s) used for sampling and sorting:  
*All over, several transects at a total of 17 stretches (626 sampling points in the Lafnitz and 271 in the Pinka) were recorded to characterize the abiotic meso habitats. Beside the abiotic characterization of the habitats, point-abundance electric fish samplings (n = 35) were performed to record the occurring fish species and their life stages in 2012 and October 2013. To describe and analyze temporal trends of fish communities datasets were assembled from different sources (IHG DB) and ATFIBASE database (BAW Scharfling). Additionally, fish data from the river Lafnitz was provided by Gerhard Woschitz and Georg Wolfram. Altogether, 52 fish sampling events from external sources were included in the dataset for this study, covering the period from 1991 to 2013 (Guldenschuh 2014).*  
 citation: *Guldenschuh M., 2014. Longitudinal zonation of habitat parameters and fish species assemblages in the Austrian lowland rivers Lafnitz and Pinka. Masterthesis at the University of Natural Resources and Life Sciences, Vienna.*  
 sample type (e.g. habitat specific samples, composite samples etc.):  
*Habitat sampling 2012 and 2013, additional historic quantitative and qualitative data from 1991 on.*  
 specific sample location (e.g. littoral, profundal, transect, shoreline, hyporheic zone, etc.):  
*All river, from upstream down to the Hungarian border.*

### macro-invertebrates:

#### sample information:

covered timeframe:  
 year from - to: 2012 - 2014  
 historical data: no

palaeo data: *no*  
season: *spring, summer, autumn*  
temporal resolution/frequency of sampling:  
*4 times in three years*  
time series data: *no*  
comments: *Samples were taken in: May 2012; August 2012; October 2012; March 2014.*

**taxonomic resolution:**

percentage of species level data: *70*  
comments: *Identification was mainly based on the Screening-Taxa List according to Ofenböck et al. (2010). However, in many cases Ephemeroptera, Plecoptera and Trichoptera taxa could be identified to a lower level, whereas Diptera taxa were mainly identified to family level. The taxonomic composition of each site was quantified using the Regional Zonation Index (RZI) calculated by the software Ecoprof 4.0 (Moog et al., 2013).*

**taxonomic coding:**

taxalist according to: *Ofenböck et al. (2010)*  
citation: *Ofenböck, T., Moog, O., Hartmann, A., & Stubauer, I., 2010. Leitfaden zur Erhebung der biologischen Qualitätselemente Teil A2-Makrozoobenthos. Bundesministerium für Land- und Forstwirtschaft, Umwelt- und Wasserwirtschaft, S. 1-103.*

**sample specifications:**

replicate samples: *no*  
number of samples: *406*  
specification of method(s) used for sampling and sorting:  
*- In May and August 2012 lithal substrates were sampled according to the Multi-Habitat-Sampling approach (AQEM-Consortium, 2002) (19 samples Lafnitz and 16 samples Pinka). Twenty pooled samples were taken at each investigation site, whereby each sample represents a 5% share of available habitats in the river section.*  
*- In October 2012 and March 2014, single-habitat-samples per transects were taken (290 samples Lafnitz). At least 20 sampling units were taken at each site. Choriotope type as well as flow velocity (bottom; near and at 40% of water depth) was documented for each sample.*  
*- Habitat structures directly linked to the riparian vegetation such as large wood (LW) were sampled separately at all dates if present (58 LW samples Lafnitz and 6 LW samples Pinka). Length, width and volume of each large wood piece were measured to calculate macro-invertebrate densities (Ind/m<sup>2</sup>) and biomass per square meter.*  
*- In addition, adults were collected with light traps and sweeping net to support the identification of Ephemeroptera, Plecoptera and Trichoptera species (11 sampling dates Lafnitz and 6 sampling dates Pinka).*  
*- The screening taxa list according to Ofenböck et al. (2010) was used as reference species list.*  
citation: *- AQEM consortium, 2002. Manual for the application of the AQEM system. A comprehensive method to assess European streams using benthic macroinvertebrates, developed for the purpose of the Water Framework Directive. Version 1.0, February 2002.*  
*- Moog, O., Hartmann, A., Schmidt-Kloiber, A., Vogl, R., & Koller-Kreimel, V., 2013. ECOPROF Vers. 4.0, www.ecoprof.at.*

- Ofenböck, T., Moog, O., Hartmann, A., & Stubauer, I., 2010. Leitfaden zur Erhebung der biologischen Qualitätselemente Teil A2-Makrozoobenthos. Bundesministerium für Land- und Forstwirtschaft, Umwelt- und Wasserwirtschaft, S. 1-103.

sample type (e.g. habitat specific samples, composite samples etc.):

- MHS sampling according to AQEM (2002) in May and August of 2012
  - Single habitat sampling in October 2012 and March 2014
  - Large wood sampling: May 2012; August 2012; October 2012; March 2014
- 

### angiosperms:

#### **sample information:**

covered timeframe:

year from - to: 2013 - 2013

historical data: no

season: summer

time series data: no

comments: Area-wide from source to the Austrian border in a 50m buffer of the river banks.

#### **taxonomic resolution:**

percentage of species level data: 75

comments: Available in an additional data set.

#### **taxonomic coding:**

taxalist according to: *Cejka et al. (2005)*

citation: *Cejka, A., Dvorak., M., Fortmann, I., Knogler, E., Korner, I., Schlägl, G., Wendelin, B., Wolfram, G., Zechmeister T.C., Das Lafnitztal: Flusslandschaft im Herzen Europas, Federal Environment Agency - Austria, Vienna, 2005.*

#### **sample specifications:**

replicate samples: no

number of samples: 1

specification of method(s) used for sampling and sorting:

*Definition of areas of same vegetation composition by aerial photographs. Overall height, density and dominating species were recorded in field. Reference species lists were used from *Cejka et al. (2005)**

citation: *Cejka, A., Dvorak., M., Fortmann, I., Knogler, E., Korner, I., Schlägl, G., Wendelin, B., Wolfram, G., Zechmeister T.C., Das Lafnitztal: Flusslandschaft im Herzen Europas, Federal Environment Agency - Austria, Vienna, 2005.*

specific sample location (e.g. littoral, profundal, transect, shoreline, hyporheic zone, etc.):

*Riparian vegetation in a 50 m buffer orographically left and right of the river bank from source to the Austrian border.*

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### invasive species:

#### **sample information:**

covered timeframe:

year from - to: 2013 - 2013

historical data: no

season: summer

time series data: *no*

**taxonomic resolution:**

**taxonomic coding:**

**sample specifications:**

comments: *Invasive species are included in the angiosperm data set; rough estimation.*

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## Other specifications

### GIS layers, shapes related to the dataset:

others (specify): *others/specify*  
*measurement points and sampling habitats*

**availability of photos:** *yes*

**availability of maps:** *yes*

### quality control procedures:

Were any quality control procedures applied to your dataset?  
*yes*

quality control protocols and comments:  
*data mining analyses*