

Metadata describing the biological and environmental database of the Ruhr catchment (Germany)

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Metadata describing the biological and environmental database of the Ruhr catchment (Germany)

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Keywords

Ruhr basin, fish, macroinvertebrates, macrophytes, land use, hydromorphology, physico-chemical parameters, freshwater, rivers

Short description of the dataset/summary

The database of the EU project MARS contains point data of macroinvertebrates, fish and macrophytes including hydromorphological, physico-chemical and land use information. Most biotic and physico-chemical data have been collected as part of an extensive national monitoring survey. Land use information (ATKIS land cover data) was GIS-based generated for fixed buffer strips with different widths and lengths.

General information

dataset entry ID:	MARS_14
name of the dataset:	
full name of the dataset:	Biological and environmental database of the Ruhr catchment (Germany)
type of dataset:	species (taxonomic group) per site database including environmental information
data type:	point data/observation data
science keywords according to GCMD:	
topic:	Biosphere, Biological Classification
keywords:	macroinvertebrates, macrophytes, fish, freshwater, river, hydromorphology, land use, physico-chemical parameters
ISO topic category according to ISO 19115:	
	Biota, Environment, Inland Waters

Technical and administrative specifications

data format:	Access
operating system:	all Windows systems
data language:	English
current access level:	internal
currently available through GBIF :	no
exchange planned:	no
data in data repository:	no
update level:	continuously updated
documentation:	
type:	internal description
language:	English

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

no

contact details:

metadata contact person:

first, last name:	Alexander Gieswein
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country:	Germany
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technical contact person:

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scientific contact person:

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email:	alexander.gieswein@uni-due.de

Intellectual property rights and citation

dataset creator (data compiler):

contact name:	Alexander Gieswein
contact email:	alexander.gieswein@uni-due.de
contact institution:	University of Duisburg-Essen

data contributors to/owners of this dataset:

	multiple
number:	4

data contributor/owner 1:

contact name:	Alexander Gieswein
contact email:	alexander.gieswein@uni-due.de
contact institute:	Department of Aquatic Ecology, University of Duisburg-Essen

criteria for using this part of the dataset:

The dataset needs to be requested from dataset creator with specific conditions

of use.

data contributor/owner 2:

contact name: Michael Holland
 contact email: Michael.Holland@lanuv.nrw.de
 contact institute: Landesamt für Natur, Umwelt und Verbraucherschutz NRW
 criteria for using this part of the dataset:

The dataset needs to be requested from dataset creator with specific conditions of use.

data contributor/owner 3:

contact name: Petra Podraza
 contact email: petra.podraza@ruhrverband.de
 contact institute: Ruhrverband
 criteria for using this part of the dataset:

The dataset needs to be requested from dataset creator with specific conditions of use.

data contributor/owner 4:

contact name: Jelka Lorenz
 contact email: jelka.lorenz@limares.de
 contact institute: Limares
 criteria for using this part of the dataset:

The dataset needs to be requested from dataset creator with specific conditions of use.

citation of this dataset:

author(s): Alexander Gieswein
 title: Biological and environmental database of the Ruhr catchment (Germany)
 year: 2014

citation of the metadata:

author(s): Gieswein A.
 title and journal (name, number, pages): Metadata describing the biological and environmental database of the Ruhr catchment (Germany). Freshwater Metadata Journal 14: 1-7
 year: 2016
 doi: <http://dx.doi.org/10.15504/fmj.2016.14>

General data specifications

regional coverage of the dataset:

scale of the dataset: catchment

spatial extent (bounding coordinates):

southernmost latitude [°]: 50,923073
 northernmost latitude [°]: 51,528715
 westernmost longitude [°]: 6,723155
 easternmost longitude [°]: 8,622136
 minimum altitude: 17 metres
 maximum altitude: 674 metres
 countries: Europe: Germany

world climatic regions according to Köppen:

Group C: temperate/mesothermal climates

freshwater ecoregions of the world (FEOW) according to [WWF](#):

Europe: Central & Western Europe

European ecoregions according to Illies (WFD):

	Central Highlands (ER9)
ecosystem type:	rivers
covered timeframe:	2001 - 2013

Site specifications

coordinate system/grid data:	latitude/longitude, format: DD projected, UTM
datum (e.g. WGS84):	WGS84; GCS_ETRS_1989
grid data available:	no
ecosystem type classification:	rivers (classification according to WFD):
	altitude typology
	mid-altitude: 200 to 800 m
	size typology based on catchment area
	large: 1000-10000 km ²
	exact catchment size data available
	geology
	siliceous
site coding:	
site coding available:	yes, numerical
number of digits:	4
example:	0150
number of sites:	>1000
exact number of sites:	1435

Climate and environmental data

climate related data:	no data available
environmental data:	
available parameters per catchment:	catchment size
	data source: GIS
available parameters per site:	catchment land use along a buffer strip (100m width on both sides) upstream (10km) of the sampling site
	data source: GIS (ATKIS land use data)
	distance to source
	slope
	data source: GIS
	altitude
	data source: GIS
comments:	Catchment land use in buffer strips with different widths and lengths.
physico-chemistry data:	total P, total N
availability of physico-chemical data, if there is more than one sample per site:	mean values per site
stressors influencing the sites:	
reference sites available:	no

stressor	restored sites available	data before/after restoration available	stressor gradient available	comments
hydromorphological degradation	no	no	no	

Biological data

biological data origin: from sampling
 specify project: compilation of national monitoring and different project survey data
 organism group addressed: fish, macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Odonata, Plecoptera, Coleoptera, Trichoptera, Chironomidae), macrophytes

Sample specifications/sample resolution

fish:

sample information:

covered timeframe: 2002 - 2013
 historical data: no
 palaeo data: no
 season: spring, summer, autumn, winter
 temporal resolution/frequency of sampling: sampling frequency is highly variable, varying from single to annual sampling
 time series data: no
 comments: diverse mix of national monitoring and different project sampling data

taxonomic resolution:

level: genus, species
 percentage of species level data: 99

taxonomic coding:

taxalist according to: Mauch et al. 2003
 reference(s): Mauch, E., Schmedtje, U., Maetze, A. & Fischer, F., 2003. Taxaliste der Gewässerorganismen Deutschlands zur Kodierung biologischer Befunde, Informationsberichte Heft 1/03. Bayerisches Landesamt für Wasserwirtschaft, München.
 coding system: Dv-Nr
 example: 9020

sample specifications:

type: quantitative (abundance data)
 replicate samples: no
 number of samples: 506
 specification of method(s) used for sampling and sorting: electro fishing, WFD method
 reference(s): Dußling, U., Berg, R., Klinger, H. & Wolter, C., 2004. Assessing the ecological status of river systems using fish assemblages. Assessing the ecological status of river systems using fish assemblages. Handbuch Angewandte Limnologie, 20. Erg. Lfg. 12/04: 1-84.

macro-invertebrates:**sample information:**

covered timeframe:	2001 - 2013
historical data:	no
palaeo data:	no
season:	spring, summer, autumn, winter
temporal resolution/frequency of sampling:	sampling frequency is highly variable, varying from single to annual sampling
time series data:	no
comments:	diverse mix of national monitoring and different project sampling data

taxonomic resolution:

level:	family, genus, species
percentage of species level data:	46

taxonomic coding:

taxalist according to:	www.freshwaterecology.info
coding system:	ID-fwe
example:	5291

sample specifications:

type:	quantitative (abundance data)
number of samples:	1629
specification of method(s) used for sampling and sorting:	Multi-Habitat-Sampling (MHS)
reference(s):	Haase, P., Lohse, S., Pauls, S., Schindehütte, K., Sundermann, A., Rolauuffs, P. & Hering, D., 2004. Assessing streams in Germany with benthic invertebrates: development of a practical standardised protocol for macroinvertebrate sampling and sorting. <i>Limnologica</i> 34 (4): 349-365.

macrophytes:**sample information:**

covered timeframe:	2006 - 2013
historical data:	no
palaeo data:	no
season:	summer, autumn
temporal resolution/frequency of sampling:	sampling frequency is highly variable, varying from single to annual sampling
time series data:	no
comments:	diverse mix of national monitoring and different project sampling data

taxonomic resolution:

level:	genus, species
percentage of species level data:	95

taxonomic coding:

taxalist according to:	Mauch et al. 2003
reference(s):	Mauch, E., Schmedtje, U., Maetze, A. & Fischer, F. 2003: Taxaliste der Gewässerorganismen Deutschlands zur Kodierung biologischer Befunde, Informationsberichte Heft 1/03. Bayerisches Landesamt für Wasserwirtschaft, München.
coding system:	DV-Nr
example:	2074

sample specifications:

type:	semi-quantitative
replicate samples:	no

number of samples: 447
 specification of method(s) used for sampling and sorting: WFD method
 reference(s): Schaumburg, J., Schranz, C., Meilinger, P., Stelzer, D., Hofmann, G., Foerster, J., Gutowski, A., Schneider, S., Köpf, B. & Schmedtje, U., 2005. Makrophyten und Phytobenthos in Fließgewässern und Seen - Das deutsche Bewertungsverfahren: Entwicklung, Praxistest und Ausblick. *Limnologie Aktuell* 11: 63-75.

Other specifications

GIS layers, shapes related to the dataset:

catchments, river-sub-basins
 land use
 others (specify): Hydromorphological data available for each 100m stretch of the streams in the basin (20 parameters per 100m stretch).
 Digital Elevation Model (10m grid size).

availability of photos: no

availability of maps: no

quality control procedures:

Were any quality control procedures applied to your dataset?
 no

Acknowledgements

The data compilation was supported by the MARS project (Managing Aquatic ecosystems and water Resources under multiple Stress) funded under the 7th EU Framework Programme, Theme 6 (Environment including Climate Change), Contract No.: 603378 (<http://www.mars-project.eu>).

References

- Dußling, U., Berg, R., Klinger, H. & Wolter, C., 2004. Assessing the ecological status of river systems using fish assemblages. *Handbuch Angewandte Limnologie*, 20. Erg. Lfg. 12/04: 1-84.
<http://dx.doi.org/10.1002/9783527678488.hbal2004006>
- Haase, P., Lohse, S., Pauls, S., Schindehütte, K., Sundermann, A., Rolaußs, P. & Hering, D., 2004. Assessing streams in Germany with benthic invertebrates: development of a practical standardised protocol for macroinvertebrate sampling and sorting. *Limnologica* 34 (4): 349-365. [http://dx.doi.org/10.1016/S0075-9511\(04\)80005-7](http://dx.doi.org/10.1016/S0075-9511(04)80005-7)
- Mauch, E., Schmedtje, U., Maetze, A. & Fischer, F., 2003. Taxaliste der Gewässerorganismen Deutschlands zur Kodierung biologischer Befunde, Informationsberichte Heft 1/03. Bayerisches Landesamt für Wasserwirtschaft, München.
- Schaumburg, J., Schranz, C., Meilinger, P., Stelzer, D., Hofmann, G., Foerster, J., Gutowski, A., Schneider, S., Köpf, B. & Schmedtje, U., 2005. Makrophyten und Phytobenthos in Fließgewässern und Seen? Das deutsche Bewertungsverfahren: Entwicklung, Praxistest und Ausblick. *Limnologie aktuell* 11: 63-75.