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Description of the AQEM/STAR invertebrate database

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Keywords

macro-invertebrates, assessment, Europe, Water Framework Directive, environmental parameters, EU projects, AQEM, STAR

Short description of the dataset/summary

This database contains the macro-invertebrate data that were collected during the AQEM and STAR projects. Samples were taken in 14 European countries using the multi-habitat-sampling (MHS) method as well as the RIVPACS methodology for selected sites. Taxa were identified to the most precise achievable level. Additionally the database contains information on hydromorphology and environmental parameters. The latter include stressor gradients along which the samples were taken. Supplementary fish, macrophyte and diatom data from the STAR project are separately available and can be linked to the invertebrate database. The AQEM and STAR projects were funded by the EU 5th Framework Programme (FP5).

General information

dataset entry ID:	BF11
name of the dataset:	
full name of the dataset:	AQEM/STAR invertebrate database
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, Terrestrial Hydrosphere
ISO topic category according to ISO 19115:	
	Biota, Inland Waters

Technical and administrative specifications

data format:	Access
others/details:	Access 97/2000
operating system:	Win XP
others/details:	all Windows systems possible
data language:	English
current availability:	restricted access, internal
web address (URL):	www.eu-star.at
currently available through GBIF :	no
exchange planned:	no
comments:	Access currently for STAR/AQEM consortium only; please contact the responsible persons for other options. Different extracts of the database are available as Excel files: abiotic data, adjusted taxalists, combinations of river types per ecoregion, shape files for sample points, etc.
update level:	completed
documentation:	
type:	internal description
language:	German
Do you plan to publish the data on the BioFresh data portal:	
	yes
media for data delivery:	online internet (HTTP), e-mail
web address:	www.eu-star.at
fees:	free
comments:	Data can be sent by mail or downloaded from eu-star.at after access granted.
contact details:	
metadata contact person:	
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web address:	http://www.wau.boku.ac.at/en/ihg
technical contact person:	
first, last name:	Joerg Strackbein
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institution:	University of Duisburg-Essen
address:	Universitätsstrasse 5
postal code, city:	45141 Essen
country:	Germany
web address:	https://www.uni-due.de/aquatic_ecology
scientific contact person:	
first, last name:	Daniel Hering
email:	daniel.hering@uni-due.de

Intellectual property rights and citation

dataset publisher:	not published yet
dataset creator (data compiler):	
contact name:	AQEM and STAR project partners and the EU
contact email:	joerg.strackbein@uni-due.de
contact institution:	University of Duisburg-Essen
data contributors to/owners of this dataset:	single
criteria for using this dataset:	Data provider must be informed of publication 45 days in advance and can object to the use of the dataset within 30 days. Data must be publicly acknowledged and cited correctly.
citation of this dataset:	
author(s):	AQEM and STAR consortia
title:	AQEM and STAR macro-invertebrate database.
year:	2005
citation of the metadata:	
author(s):	Schmidt-Kloiber A., Strackbein J., Vogl R., Furse M.T. & Hering D.
title:	Description of the AQEM/STAR invertebrate database
year:	2014
doi:	http://dx.doi.org/10.15504/fmj.2014.2
dataset related references:	
reference 1:	
author(s):	Hering, D., Moog, O., Sandin, L. & Verdonshot, P.F.M.
title:	Overview and application of the AQEM assessment system. <i>Hydrobiologia</i> 516, 1-20.
year:	2004
reference 2:	
author(s):	Furse, M.T., Hering, D., Moog, O., Verdonshot, P.F.M., Sandin, L., Brabec, K., Gritzalis, K., Buffagni, A., Pinto, P., Friberg, N., Murray-Bligh, J., Kokes, J., Alber, R., Usseglio-Polatera, P., Haase, P., Sweeting, R., Bis, B., Szoszkiewicz, K., Soszka, H., Springe, G., Sporka, F. & Krno, I.
title:	The STAR project: context, objectives and approaches. <i>Hydrobiologia</i> 566, 3-29.
year:	2006
comments:	The database was collated and is owned by AQEM and STAR project partners and the EU (in total 22 partners).

General data specifications

regional coverage of the dataset:	
scale of the dataset:	continental
spatial extend (bounding coordinates):	
southernmost latitude [°]:	35
northernmost latitude [°]:	60
westernmost longitude [°]:	-8
easternmost longitude [°]:	26
minimum altitude:	1 metres
maximum altitude:	1820 metres
countries:	Europe: Austria, Czech Republic, Denmark, France, Germany, Greece, Italy,

Latvia, Netherlands, Poland, Portugal, Slovakia, Sweden, United Kingdom

European ecoregions according to Illies (WFD):

Iberic-Macaronesian Region (ER1), Italy, Corsica and Malta (ER3), Alps (ER4), Hellenic Western Balkan (ER6), Eastern Balkan (ER7), Western Highlands (ER8), Central Highlands (ER9), The Carpathians (ER10), Central Plains (ER14), Baltic Province (ER15), Eastern Plains (ER16), Great Britain (ER18), Fenno-Scandian Shield (ER22)

ecosystem type:

rivers

covered timeframe:

2000 - 2004

Site specifications

coordinate system/grid data:

latitude/longitude, format: DMS

datum (e.g. WGS84):

different national systems

grid data available:

no

comments:

Converted UTM coordinates are available as extra Excel sheet.

ecosystem type classification:

rivers (classification according to WFD):

altitude typology

mid-altitude: 200 to 800 m, lowland: <200 m

exact altitudinal data available

size typology based on catchment area

medium: 100-1000 km², large: 1000-10000 km²

exact catchment size data available

geology

calcareous, siliceous

site coding:

site coding available:

yes, alphanumerical

number of digits:

8

example:

S0100571

number of sites:

100 - 1000

exact number of sites:

785

comments:

Coordinates: decimal and deg-min-sec values.

Number of waterbodies was not documented.

Geology for several sites not surveyed.

Climate and environmental data

climate related data:

available parameters per site:

mean discharge

data source: depends on country

environmental data:

available parameters per catchment:

catchment size

data source: GIS

catchment geology

data source: GIS/field survey (site protocol)

presence of barriers/dams/reservoirs (fragmentation)

available parameters per site:	<p>data source: GIS/field survey (site protocol)</p> <p>catchment land use upstream of sampling site</p> <p>data source: GIS, field survey (site protocol)</p> <p>information on riparian vegetation (incl. information on modification)</p> <p>data source: field survey (site protocol)</p> <p>information on embankment (incl. information on modification)</p> <p>data source: field survey (site protocol)</p> <p>information on channel form (incl. information on modification)</p> <p>data source: field survey (site protocol)</p> <p>information on cross section (incl. information on modification)</p> <p>data source: GIS, field survey (site protocol)</p> <p>information on water uses (e.g., irrigation, fish ponds)</p> <p>data source: GIS, field survey (site protocol)</p> <p>distance to next migration barrier upstream</p> <p>data source: GIS, field survey (site protocol)</p> <p>distance to next migration barrier downstream</p> <p>data source: GIS, field survey (site protocol)</p> <p>river length</p> <p>data source: GIS</p> <p>distance to source</p> <p>data source: GIS</p> <p>stream order (according to Strahler)</p> <p>data source: GIS, other</p> <p>slope</p> <p>data source: GIS, field survey (site protocol)</p> <p>altitude</p> <p>data source: GIS, field survey (site protocol)</p> <p>discharge</p> <p>data source: field survey (site protocol)</p> <p>current velocity</p> <p>data source: field survey (site protocol)</p> <p>maximum depth</p> <p>data source: field survey (site protocol)</p> <p>mean depth</p> <p>data source: field survey (site protocol)</p> <p>substrate composition</p> <p>data source: field survey (site protocol)</p>
physico-chemistry data:	<p>total P, ortho P, nitrate, nitrite, ammonium, hardness, alkalinity, oxygen content, BOD5 (biochemical oxygen demand), pH, conductivity, chlorophyll, colour, substrate</p>
stressors influencing the sites:	
reference sites available:	yes

stressor	restored sites available	data before/after restoration available	stressor gradient available	comments
hydromorphological degradation	no	no		parameters of the STAR site protocol used for gradient classification
acidification	no	no		parameters of the STAR site protocol used for gradient classification
organic pollution	no	no		parameters of the STAR site protocol used for gradient classification
general degradation	no	no		parameters of the STAR site protocol used for gradient classification

Biological data

biological data origin:	from sampling
specify project:	AQEM and STAR, EU FP5 funded projects
organism group addressed:	macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Odonata, Plecoptera, Trichoptera, Chironomidae)
comments:	Fish data are stored in the EFI+ database, which is linked to this database. Macrophyte and diatom data are also available. Replicate samples are included.

Sample specifications/sample resolution

macro-invertebrates:

sample information:

covered timeframe:	2000 - 2003
historical data:	no
palaeo data:	no
season:	spring, summer, autumn, winter
temporal resolution/frequency of sampling:	per season
time series data:	no
comments:	Identification to the most precise achievable level; identification level depends on the country and on the taxonomic group.

taxonomic resolution:

level:	genus, species, other
other taxonomic levels:	higher than genus level 20%
percentage of species level data:	55

taxonomic coding:

taxalist according to:	AQEM/Star
reference(s):	Schmidt-Kloiber, A., Graf, W., Lorenz, A., Moog, O. (2006): The AQEM/STAR taxalist - a pan-European macro-invertebrate ecological database and taxa inventory. <i>Hydrobiologia</i> 566, 325-342.
coding system:	ID_AQEM, DV, TCM, Perla, shortcode, Furse code

sample specifications:

type:	quantitative (abundance data)
replicate samples:	yes
number of samples:	260
specification of method(s) used for sampling and sorting:	Multi-Habitat-Sampling (MHS), RIVPACS sampling
reference(s):	Hering, D., Buffagni, A., Moog, O., Sandin, L., Sommerhäuser, M., Stubauer, I., Feld, C.K., Johnson, R., Skoulikidis, N., Verdonshot, P.F.M. & Zarádková, S. (2003): The development of a system to assess the ecological quality of streams based on macroinvertebrates - design of the sampling programme within the AQEM project. <i>International Review of Hydrobiology</i> 88, 345-361. Wright, J.F., Sutcliffe, D.W. & Furse, M.T. (eds) (2000): <i>Assessing the biological quality of fresh waters: RIVPACS and other techniques</i> , published by the Freshwater Biological Association, Ambleside, ISBN 978-0900386-62-6.
sample type (e.g. habitat specific samples, composite samples etc.):	composite samples
specific sample location (e.g. littoral, profundal, transect, shoreline, hyporheic zone, etc.):	Number and location of the individual samples based on the proportional cover of substrates at the sampling site.

Other specifications**GIS layers, shapes related to the dataset:**

no data available

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:

Complete invertebrate samples and difficult to identify specimens were sent between project partners and cross-checked, site protocol data were entered and quality checked, taxonomic adjustments were made, raw and adjusted taxa lists are available

comments:

General information: www.aqem.de and www.eu-star.at. The projects were funded under FP5, contract numbers and EVK1-CT1999-00027 and EVK1-CT 2001-00089.

Acknowledgements

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- Wright, J.F., Sutcliffe, D.W. & Furse, M.T. (eds), 2000. *Assessing the biological quality of fresh waters: RIVPACS and other techniques*, published by the Freshwater Biological Association, Ambleside, ISBN 978-0900386-62-6.