name of the dataset: AQEM/STAR invertebrate database  
full name of the dataset: AQEM/STAR invertebrate database  
type of dataset (more information): species (taxonomic group) per site database including environmental information  
data type: point data/observation data  
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).

science keywords according to GCMD: 
topic: Biosphere, Biological Classification, Terrestrial Hydrosphere

ISO topic category according to ISO 19115: 
Biota, Inland Waters
Dataset: AQEM/STAR invertebrate database

Technical and administrative specifications

<table>
<thead>
<tr>
<th>data format:</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>others/details:</td>
<td>Access 97/2000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>operating system:</th>
<th>Win XP</th>
</tr>
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<tr>
<td>others/details:</td>
<td>all Windows systems possible</td>
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| data language: | English |

<table>
<thead>
<tr>
<th>current access level:</th>
<th>restricted access, internal</th>
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</thead>
<tbody>
<tr>
<td>web address (URL):</td>
<td><a href="http://www.eu-star.at">www.eu-star.at</a></td>
</tr>
<tr>
<td>currently available through GBIF:</td>
<td>no</td>
</tr>
<tr>
<td>exchange planned:</td>
<td>no</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>media for data delivery:</th>
<th>online internet (HTTP), e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>web address:</td>
<td><a href="http://www.eu-star.at">www.eu-star.at</a></td>
</tr>
<tr>
<td>fees:</td>
<td>free</td>
</tr>
<tr>
<td>comments:</td>
<td>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. Data can be sent by mail or downloaded from eu-star.at after access granted.</td>
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update level: completed

documentation:

<table>
<thead>
<tr>
<th>type:</th>
<th>internal description</th>
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<tbody>
<tr>
<td>language:</td>
<td>German</td>
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</table>

contact details:

metadata contact person:

<table>
<thead>
<tr>
<th>first, last name:</th>
<th>Astrid Schmidt-Kloiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>phone:</td>
<td>0043-1-47654-5225</td>
</tr>
<tr>
<td>email:</td>
<td><a href="mailto:astrid.schmidt-kloiber@boku.ac.at">astrid.schmidt-kloiber@boku.ac.at</a></td>
</tr>
<tr>
<td>institution:</td>
<td>BOKU - University of Natural Resources &amp; Life Sciences</td>
</tr>
<tr>
<td>address:</td>
<td>Max Emanuel Straße 17</td>
</tr>
<tr>
<td>postal code, city:</td>
<td>1180 Vienna</td>
</tr>
<tr>
<td>country:</td>
<td>Austria</td>
</tr>
<tr>
<td>web address:</td>
<td><a href="http://www.wau.boku.ac.at/en/ihg">http://www.wau.boku.ac.at/en/ihg</a></td>
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technical contact person:

<table>
<thead>
<tr>
<th>first, last name:</th>
<th>Joerg Strackbein</th>
</tr>
</thead>
<tbody>
<tr>
<td>phone:</td>
<td>0049-201-183-4993</td>
</tr>
<tr>
<td>email:</td>
<td><a href="mailto:joerg.strackbein@uni-due.de">joerg.strackbein@uni-due.de</a></td>
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scientific contact person:

<table>
<thead>
<tr>
<th>first, last name:</th>
<th>Daniel Hering</th>
</tr>
</thead>
<tbody>
<tr>
<td>email:</td>
<td><a href="mailto:daniel.hering@uni-due.de">daniel.hering@uni-due.de</a></td>
</tr>
</tbody>
</table>
Intellectual property rights and citation

Dataset: AQEM/STAR invertebrate database

dataset publisher (already published): 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 the data in a publication/scientific analysis:
- Other/Additional criteria

other/additional criteria:
- 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 and journal (name, number, pages): Description of the AQEM/STAR invertebrate database
- year: 2014
- doi (if applicable): http://dx.doi.org/10.15504/fmj.2014.2

comments:
- The database was collated and is owned by AQEM and STAR project partners and the EU (in total 22 partners).
Dataset: AQEM/STAR invertebrate database

General data specifications

regional coverage of the dataset:
    scale of the dataset: continental
    continents: Europe

spatial extent (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
### Site specifications

**coordinate system/grid data:**
- **datum (e.g. WGS84):** latitude/longitude
- **format:** DMS
- **different national systems:** yes
- **grid data available:** no
- **comments:** Converted UTM coordinates are available as extra Excel sheet.

**site coding:**
- **site coding available:** yes
- **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 per: per site
available parameters:
  mean discharge
  precipitation

environmental data:
available parameters per catchment: catchment size
  GIS
  data source: site protocol
available parameters per catchment: catchment geology
  GIS
  data source: site protocol
available parameters per catchment: presence of barriers/dams/reservoirs (fragmentation)
  GIS
  data source: site protocol
available parameters per site: catchment land use upstream of sampling site
  GIS
  data source: site protocol
available parameters per site: information on riparian vegetation (incl. information on modification)
  field
  data source: site protocol
available parameters per site: information on embankment (incl. information on modification)
  field
  data source: site protocol
available parameters per site: information on channel form (incl. information on modification)
  field
  data source: site protocol
available parameters per site: information on cross section (incl. information on modification)
  GIS
  data source: site protocol
available parameters per site: information on water uses (e.g., irrigation, fish ponds)
  GIS
  data source: site protocol
available parameters per site: distance to next migration barrier upstream
  GIS
  data source: site protocol
available parameters per site: distance to next migration barrier downstream
  GIS
  data source: site protocol
available parameters per site: river length
  GIS
  data source: site protocol
available parameters per site: distance to source
  GIS
  data source: site protocol
available parameters per site: stream order (according to Strahler)
  GIS
  data source: site protocol
available parameters per site: slope
  GIS
  data source: site protocol
available parameters per site: altitude
  GIS
  data source: site protocol
available parameters per site: discharge
  field
  data source: site protocol
available parameters per site: current velocity
  field
  data source: site protocol
available parameters per site: maximum depth
  field
  data source: site protocol
available parameters per site: mean depth
  field
  data source: site protocol
available parameters per site: substrate composition
  field
  data source: site protocol

physico-chemistry data:
total P, ortho P, nitrate, nitrite, ammonium, hardness, alkalinity, oxygen
content, BOD5 (biochemical oxygen demand), pH, conductivity, chlorophyll, colour, substrate

**stressors influencing the sites:**

<table>
<thead>
<tr>
<th>stressor</th>
<th>restored sites available</th>
<th>data before/after restoration available</th>
<th>stressor gradient available</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>hydromorphological degradation</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>parameters of the STAR site protocol used for gradient classification</td>
</tr>
<tr>
<td>acidification</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>parameters of the STAR site protocol used for gradient classification</td>
</tr>
<tr>
<td>organic pollution</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>parameters of the STAR site protocol used for gradient classification</td>
</tr>
<tr>
<td>general degradation</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>parameters of the STAR site protocol used for gradient classification</td>
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</tbody>
</table>
### Biological data

<table>
<thead>
<tr>
<th>biological data origin:</th>
<th>from sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td>specify project:</td>
<td>AQEM and STAR, EU FP5 funded projects</td>
</tr>
<tr>
<td>organism group addressed:</td>
<td>macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Odonata, Plecoptera, Trichoptera, Chironomidae)</td>
</tr>
<tr>
<td>comments:</td>
<td>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.</td>
</tr>
</tbody>
</table>
Sample specifications/sample resolution

**Dataset:** AQEM/STAR invertebrate database

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

**taxonomic coding:**
- taxalist according to: AQEM/Star
- coding system: ID_AQEM, DV, TCM, Perla, shortcode, Furse code

**sample specifications:**
- 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

**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.