Metadata

European Mountain Lake Database

General information

database entry ID: *BF16*

name of the database:

full name of the database: *European Mountain Lake Database*

database short name: *EMERGE*

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

data type: *point data/observation data*

short description of the database/summary:

The database brings together physical, chemical and biological data from approximately 350 European mountain lakes. These were collected as part of a one off survey undertaken in 2000. Lakes were sampled for a range of contemporary and sub-fossil organisms including planktonic crustaceans, rotifers, littoral invertebrates, chironomids, diatoms and cladocerans. Survey and cartographic data were used to determine environmental characteristics at each site. Organic pollutants and trace metal concentrations were measured in the lake sediment.

science keywords according to GCMD:

topic: *Biological Classification*

keywords: *European Mountain lakes, alpine lakes, sub-arctic lakes, lake typology, long-range pollution, climate warming*

ISO topic category according to ISO 19115:

Inland Waters

Technical and administrative specifications

data format:	*Access*
operating system:	*all Windows systems*
data language:	*English*
current access level:	*restricted access, internal*
web address (URL):	*no web address*
update level:	*update planned*
Do you plan to update the database during BioFresh (before 4/2014)?	*yes*
documentation:	
type:	*internal description*
language:	*English*
delivery of the database for the BioFresh data portal:	
media:	*e-mail*
web address:	*no web address*
size:	*17 MB*
format:	*MS Excel 97-2003, Text file (e.g. txt, csv)*
contact details:	

meta data contact:

first, last name:	*Martin Kernan*
phone:	*+44(0)207 6790523*
email:	*m.kernan@ucl.ac.uk*

technical contact person:

first, last name:	*Martin Kernan*
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scientific contact person:

first, last name:	*Martin Kernan*
phone:	*+44(0)207 6790523*
email:	*m.kernan@ucl.ac.uk*

institution:

name:	*Environmental Change Research Centre, University College London*
address:	*Pearson Building, Gower Street*
postal code, city:	*WC1E6BT London*
country	*UK*
comments:	*Note that the data will not be available for uploading onto the portal - owners have requested that data requests be passed on via UCL for consideration.*

Intellectual property rights and citation

database owner:	*BioFresh project partner*
contact details:	*Martin Kernan (m.kernan@ucl.ac.uk)*
citation:	
author(s):	*Kernan, M., Catalan, J., and Curtis, C.*
reference title:	*A biological survey of high mountain and high latitude lakes across Europe: aims, sampling strategy, methods and main achievements. Fundamental and Applied Limnology, Advances in Limnology 62, 3-16.*
year:	*2009*
data provider(s) to this database:	*single*
criteria for using the data in a publication/scientific analysis:	
	Other/Additional criteria
Other/Additional criteria:	*The data were compiled by UCL from surveys undertaken by 10 institutes across Europe. Parts of the data will be freely available. All requests for access to the data should be sent to UCL who will pass on to other institutes for consideration.*

General data specifications

regional coverage of the database:

scale of the database:	*continental*
continents:	*North America, Europe*

spatial extend (bounding coordinates):

southernmost latitude [Â°]:	*42° 9' 35.9994*
northernmost latitude [Â°]:	*69° 57' 35.9994*
westernmost longitude [Â°]:	*-51° 15' 35.9994*
easternmost longitude [Â°]:	*21° 9' 36*
minimum altitude:	*150 meters*
maximum altitude:	*2990 meters*
countries:	*North America: Greenland* *Europe: Austria, Bulgaria, Finland, France, Italy, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Switzerland, United Kingdom*

Site specifications

coordinate system/grid data:	*Latitude/Longitude*
	projected
datum (e.g. WGS84):	*WGS84*
grid data available:	*no*
site coding available:	*yes*
	alphanumerical
example:	*SC0399*
number of sites:	*100 - 1000*
exact number of sites:	*356*
comments:	*ecosystem type classifications could be applied as altitude, depth, surface area and geology are available at most sites*

Climate and environmental data

climate related data:

available per:	*per catchment*
available parameters:	*mean annual temperature January, July*
available parameters:	*mean annual temperature for each month*
data source:	*modelled*
available parameters:	*mean annual precipitation*
data source:	*modelled*
available parameters:	*mean discharge*
comments:	*climate related data are not consistent across all sites. Air temperature and precipitation have been modelled by one of the partners*

environmental data:

available parameters per catchment:	*catchment size*
data source:	*GIS*
available parameters per catchment:	*catchment geology*
data source:	*maps*
available parameters per catchment:	*catchment land cover/land use*
data source:	*maps and satellite*
available parameters per catchment:	*presence of barriers/dams/reservoirs (fragmentation)*
available parameters per catchment:	*hydrological regime/flow regime*
available parameters per site:	*catchment land use upstream of sampling site*
data source:	*maps and satellite*
available parameters per site:	*information on riparian vegetation (incl. information on modification)*
available parameters per site:	*information on embankment (incl. information on modification)*
available parameters per site:	*information on channel form (incl. information on modification)*
available parameters per site:	*information on cross section (incl. information on modification)*
available parameters per site:	*information on water uses (e.g., irrigation, fish ponds)*
available parameters per site:	*distance to next migration barrier upstream*
available parameters per site:	*distance to next migration barrier downstream*
available parameters per site:	*river length*
available parameters per site:	*distance to source*
available parameters per site:	*distance to mouth*
available parameters per site:	*stream order (according to Strahler)*
available parameters per site:	*slope*
available parameters per site:	*altitude*
data source:	*mapped*
available parameters per site:	*hydrological regime/flow regime*
available parameters per site:	*discharge*
available parameters per site:	*current velocity*
available parameters per site:	*maximum depth*
data source:	*surveyed*
available parameters per site:	*mean depth*
data source:	*surveyed*
available parameters per site:	*wetted width*
available parameters per site:	*substrate composition*
data source:	*surveyed*
available parameters per site:	*information on instream habitat (incl. information on modification)*
physico-chemistry data:	*total P, nitrate, total N, ammonium, sulphate, chloride, sodium, magnesium, labile aluminium, calcium, alkalinity, TOC (total organic carbon), water temperature, pH, conductivity, chlorophyll, Secci disc depth, substrate,*

sediment/soil parameters

comments: *Generally one sample per site*

stressors influencing the sites:

stressor	restored sites available	data before/after restoration available	stressor gradient available	comments
acidification	**no**	**no**		
organic pollution	**no**	**no**		
toxic stress	**no**	**no**		

Biological data

biological data origin:	*from sampling*
specify project:	*Sampling - EMERGE project*
organism group addressed:	*fish, macro invertebrates (Ephemeroptera, Plecoptera, Trichoptera, Chironomidae), zooplankton (Cladocera), phytoplankton, (benthic) diatoms*

Sample specifications/sample resolution

fish:

sample information:

covered timeframe:

year from - to: *2000 - 2000*

historical data: *no*

palaeo data: *no*

season: *autumn*

time series data: *no*

comments: *Fish data were compiled from a variety of secondary sources and are qualitative in nature*

taxonomic resolution: *species*

percentage of species level data: *100*

taxonomic coding:

coding system: *Latin names used*

example: *Carassius carassius* *1*

sample specifications: *qualitative*

replicate samples: *no*

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

No samples - qualitative estimate of presence/absence

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

No samples - qualitative estimate of presence/absence

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

No samples - qualitative estimate of presence/absence

macro invertebrates:

sample information:

covered timeframe:

year from - to: *2000 - 2001*

historical data: *no*

palaeo data: *yes*

season: *autumn*

time series data: *no*

taxonomic resolution: *species*

percentage of species level data: *40*

taxonomic coding:

coding system: *Generally abbrviations of species and genus*

example: *Cren Alp = Crenobia alpina*

sample specifications: *quantitative (abundance data)*

replicate samples: *no*

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

Benthic invertebrates were sampled from the littoral zone using the kick sampling method over a two-minute period, kicking in short series while moving around to cover as many different micro-habitats as possible. Sample were sorted on site and conserved with 96% alcohol

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

Habitat specific

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

Littoral

other important sample related informations:

Samples were also taken from stream inflows and outflows

zooplankton:

sample information:

covered timeframe:

year from - to: *2000 - 2001*

historical data: *no*

palaeo data: *yes*

season: *autumn*

time series data: *no*

taxonomic resolution: *species*

percentage of species level data: *80*

taxonomic coding:

coding system: *First letter of genus amnd species*

example: *AA = Arctodiaptomus alpinus*

sample specifications: *quantitative (abundance data), presence/absence*

replicate samples: *no*

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

Large planktonic crustaceans were sampled at the deepest part of the lake using a 200 μm mesh net hauled vertically several times from 1.5 x secchi disc depth. Samples were preserved in 4% formaldehyde solution. A 40 μm mesh net was employed to capture rotifers using vertical and lateral hauls at about 5 m depth (where possible).

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

Habitat specific

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

Pelagic

phytoplankton:

sample information:

covered timeframe:

year from - to: *2000 - 2001*

historical data: *no*

season: *autumn*

time series data: *no*

taxonomic resolution: *species*

percentage of species level data: *70*

taxonomic coding:

coding system: *First letters of genus and species*

example: *ANKISPIR = Ankistrodesmus spiralis*

sample specifications: *quantitative (abundance data), qualitative*

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

Water samples for chemical and phytoplankton analyses were taken with water samplers from the depth corresponding to the peak of chlorophyll a, estimated according to the EMERGE protocols. From the lakes located in the CA and JA district, only samples for qualitative phytoplankton analysis were collected, either with sampling bottles or plankton nets. Phytoplankton species composition and biovolume were determined locally with an inverted microscope on samples preserved in Lugol, according to UTERMÖHL (1958). Because of the low phytoplankton density, phytoplankton samples (1-6 l) were pre-concentrated using a 5 μm

plankton net (NF district) or pre-sedimentation cylinders (as in TY and AV district). Identification was done to species level, whenever possible, based on current literature. Each phytoplankton taxon was labelled with an 8-character code, including the regional code in the case of unidentified taxa.

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

Habitat specific

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

Pelagic

(benthic) diatoms:

sample information:

covered timeframe:

year from - to: *2000 - 2001*

historical data: *no*

palaeo data: *yes*

comments: *Sediment core tops and bottoms were analysed at each site to characterise pre-industrial assemblages*

taxonomic resolution: *species*

percentage of species level data: *95*

taxonomic coding:

coding system: *Diatcode*

example: *AC003A = Achnanthes microcephala*

sample specifications: *quantitative (abundance data)*

replicate samples: *no*

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

Several sediment cores were taken from the deepest part of the lake. The surface layer (0–0.5 cm) from each was amalgamated and homogenised to provide sufficient materials for subsequent analysis for subfossil chironomids, diatoms, cladocerans and pigments (sample frozen as soon as possible). Following preparation, diatom samples were mounted on slides using Naphrax, a toluene based diatom mountant, and approximately 500 valves were counted

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

composite samples (sediment tops)

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

As well as surface sediment samples, epilithic diatoms were samples from the littoral zone

Other specifications

GIS layers, shapes related to the database:

catchments, river-sub-basins

land use

availability of photos: *yes*

availability of maps: *yes*

quality control procedures:

Were any quality control procedures applied to your database?

no