

 Open access • Journal Article • DOI:10.1890/04-0373

Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover — Source link

Steven Declerck, Jochen Vandekerkhove, Liselotte S. Johansson, Koenraad Muylaert ...+12 more authors

Institutions: Katholieke Universiteit Leuven, University of Granada, Goethe University Frankfurt, Royal Netherlands Academy of Arts and Sciences ...+1 more institutions

Published on: 01 Jul 2005 - Ecology (Wiley-Blackwell)

Topics: Species richness, Macrophyte and Trophic level


Related papers:

- [Alternative equilibria in shallow lakes](#)
- [Trophic structure, species richness and biodiversity in Danish lakes: changes along a phosphorus gradient](#)
- [Ecology of Shallow Lakes](#)
- [The Structuring Role of Submerged Macrophytes in Lakes](#)
- [Plankton Biodiversity Along a Gradient of Productivity and Its Mediation by Macrophytes](#)

Share this paper:    


View more about this paper here: <https://typeset.io/papers/multi-group-biodiversity-in-shallow-lakes-along-gradients-of-4n5h6vfgke>

Database on environmental conditions and biodiversity in shallow lakes in Belgium and the Netherlands

Pieter Lemmens , Aaike De Wever, Jochen Vandekerkhove, Koenraad Muylaert, Katleen Van der Gucht, Gabriel Zwart, Wouter Rommens, Jeroen Van Wichelen, Vanessa Geenens, Wim Vyverman, Luc Brendonck, Koen Martens, Steven A.J. Declerck & Luc De Meester



Database on environmental conditions and biodiversity in shallow lakes in Belgium and the Netherlands

Pieter Lemmens¹ , Aaike De Wever³, Jochen Vandekerckhove¹, Koenraad Muylaert², Katleen Van der Gucht², Gabriel Zwart⁴, Wouter Rommens¹, Jeroen Van Wichelen², Vanessa Geenens², Wim Vyverman², Luc Brendonck¹, Koen Martens³, Steven A.J. Declerck¹ & Luc De Meester¹

¹ Laboratory of Aquatic Ecology, Evolution and Conservation, Leuven, Belgium; corresponding author: pieter.lemmens@kuleuven.be

² Ghent University, Protistology and Aquatic Ecology, Ghent, Belgium

³ Royal Belgian Institute of Natural Sciences, Brussels, Belgium

⁴ Centre for Limnology, Netherlands Institute of Ecology (NIOO-KNAW), Wageningen, The Netherlands

Please cite this paper as follows: Lemmens, P., De Wever, A., Vandekerckhove, J., Muylaert, K., Van der Gucht, K., Zwart, G., Rommens, W., Van Wichelen, J., Geenens, V., Vyverman, W., Brendonck, L., Martens, K., Declerck, S.A.J. & De Meester, L., 2018. Database on environmental conditions and biodiversity in shallow lakes in Belgium and the Netherlands. *Freshwater Metadata Journal* 29: 1-9. <https://doi.org/10.15504/fmj.2018.29>

Received: 2018-01-15 / Published: 2018-08-17

Keywords

shallow lakes, Belgium, The Netherlands, plankton, fish, macrophytes, macro-invertebrates

Short description of the dataset/summary

The BIOMAN dataset comprises local environmental data and community data of different organism groups (bacterioplankton, zooplankton, ciliates, phytoplankton, macro-invertebrates, fish, protists and aquatic vegetation) from 98 shallow lakes covering three geographic regions in Europe sampled in 2000-2001. The database BIOMAN-Belgium is a subset of the overall BIOMAN dataset and includes data from 39 shallow lakes located in Belgium and the Netherlands.

General information

dataset entry ID:	SF_23
name of the dataset:	
full name of the dataset:	BIOMAN-Belgium, biodiversity in shallow lakes in Belgium and the Netherlands
dataset short name:	BIOMAN-Belgium
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](#):

own science keywords: Biota, Environment, Inland Waters
shallow lakes, Belgium, the Netherlands, plankton, fish, macro-invertebrates,
macrophytes

related project:

BIOMAN

funding:

The dataset generation was funded by the EU-project BIOMAN (EVK2-CT-1999-00046).

Technical and administrative specifications

data format:

Excel

operating system:

all Windows systems

data language:

English

current access level:

web (public)

web address:

<https://www.gbif.org/dataset/9575ab07-e816-4cd6-aa99-483343a825e6>

currently available through [GBIF](#): yes

exchange planned: no

data in data repository: no

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

already published through the Freshwater Biodiversity Data Portal

update level:

completed

documentation:

type: scientific paper

language: English

contact details:

metadata contact person:

first, last name: Luc De Meester
email: luc.demeester@kuleuven.be
institution: KU Leuven
address: Charles Deberiotstraat 32
postal code, city: 3000 Leuven
country: Belgium

technical contact person:

first, last name: Luc De Meester
email: luc.demeester@kuleuven.be

scientific contact person:

first, last name: Luc De Meester
email: luc.demeester@kuleuven.be

Intellectual property rights and citation

dataset publisher:

Pieter Lemmens

dataset creator (data compiler):

contact name: Pieter Lemmens

contact email: pieter.lemmens@kuleuven.be
contact institution: KU Leuven

data contributors to/owners of this dataset:

multiple
number: 6

data contributor/owner 1:

contact name: Steven Declerck
contact email: s.declerck@nioo.knaw.nl
contact institute: Centre for Limnology, Netherlands Institute of Ecology (NIOO-KNAW)
criteria for using this part of the dataset:

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.

data contributor/owner 2:

contact name: Wouter Rommens
contact email: luc.demeester@kuleuven.be
contact institute: KU Leuven
criteria for using this part of the dataset:

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.

data contributor/owner 3:

contact name: Koenraad Muylaert
contact email: koenraad.muylaert@kuleuven.be
contact institute: KU Leuven
criteria for using this part of the dataset:

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.

data contributor/owner 4:

contact name: Jochen Vandekerkhove
contact email: luc.demeester@kuleuven.be
contact institute: KU Leuven
criteria for using this part of the dataset:

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.

data contributor/owner 5:

contact name: Katleen Van der Gucht
contact email: luc.demeester@kuleuven.be
contact institute: Ghent University
criteria for using this part of the dataset:

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.

data contributor/owner 6:

contact name: Gabriel Zwart
contact email: zwart@cl.nioo.knaw.nl
contact institute: Centre for Limnology, Netherlands Institute of Ecology (NIOO-KNAW)
criteria for using this part of the dataset:

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.

citation of this dataset:

author(s): Lemmens, P., Vandekerkhove, J., Muylaert, K., Van der Gucht, K., Zwart, G., Rommens, W., Van Wichelen, J., Geenens, V., Vyverman, W., Brendonck, L., Martens, K., Declerck, S.A.J. & De Meester, L.

title and journal (name, number, pages): bioman_belgium, BioFresh. Sampling event dataset.

year: 2018

version: 1.3

doi: <https://doi.org/10.15468/duzvog>

citation of the metadata:

author(s): Lemmens P., De Wever A., Vandekerkhove J., Muylaert K., Van der Gucht K., Zwart G., Rommens W., Van Wichelen J., Geenens V., Vyverman W., Brendonck L., Martens K., Declerck S.A.J. & De Meester L.

title and journal (name, number, pages): Database on environmental conditions and biodiversity in shallow lakes in Belgium and the Netherlands. Freshwater Metadata Journal 29: 1-9

year: 2018

doi: <https://doi.org/10.15504/fmj.2018.29>

dataset related references:

reference 1:

author(s): Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L.

title: Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. Ecology 86(7): 1905-1915.

year: 2005

General data specifications

regional coverage of the dataset:

spatial extent of the dataset: national

continents: Europe

countries: Europe: Belgium, Netherlands

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):

Western Plains (ER13)

ecosystem type:

lakes/ponds

covered timeframe:

2000 - 2001

Site specifications

coordinate system/grid data:

latitude/longitude, format: DM

datum (e.g. WGS84): WGS84

grid data available:	no
site coding:	
site coding available:	yes, alphanumerical
number of digits:	4
example:	GAV, KP
number of sites:	<100
exact number of sites:	39

Climate and environmental data

climate related data:	no climate data available
environmental data:	no environmental data per catchment available no environmental data per site available
comments:	Data on land use around each lake was estimated as percentage coverage as described in: Declerck, S., Vandekerckhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. <i>Ecology</i> 86(7): 1905-1915.
physico-chemical data:	total P, ortho P, nitrate, nitrite, total N, water temperature, conductivity, chlorophyll, Secchi disc depth, suspended solids
other physico-chemical parameters:	silica concentration
availability of physico-chemical data, if there is more than one sample per site:	per sample
stressors influencing the sites:	no stressor data available
reference sites available:	no

Biological data

biological data origin:	from sampling, BIOMAN
organism group addressed:	fish, macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Coleoptera, Trichoptera, Chironomidae), zooplankton, phytoplankton, macrophytes, other group(s): bacterioplankton, ciliates, protists

Sample specifications/sample resolution

fish:	
sample information:	
covered timeframe:	2000 - 2001
historical data:	no
palaeo data:	no
season:	autumn

temporal resolution/frequency of sampling:	either in 2000 or in 2001
time series data:	no
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic resolution:	
level:	species
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic coding:	
reference(s):	Please refer to Declerck et al. (2005) for more details.
sample specifications:	
type:	quantitative (abundance data)
replicate samples:	no
specification of method(s) used for sampling and sorting:	Please refer to Declerck et al. (2005) for more details.
reference(s):	Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. <i>Ecology</i> 86(7): 1905-1915.
macro-invertebrates:	
sample information:	
covered timeframe:	2000 - 2001
historical data:	no
palaeo data:	no
season:	summer
temporal resolution/frequency of sampling:	either in 2000 or in 2001
time series data:	no
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic resolution:	
level:	family
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic coding:	
reference(s):	Please refer to Declerck et al. (2005) for more details.
sample specifications:	
type:	quantitative (abundance data)
replicate samples:	no
number of samples:	39
specification of method(s) used for sampling and sorting:	Please refer to Declerck et al. (2005) for more details.
reference(s):	Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. <i>Ecology</i> 86(7): 1905-1915.
zooplankton:	
sample information:	
covered timeframe:	2000 - 2001
historical data:	no
palaeo data:	no

season: spring, summer, autumn
temporal resolution/frequency of sampling: monthly either in 2000 or in 2001; samples from different sampling occasions were pooled
time series data: no
comments: Please refer to Declerck et al. (2005) for more details.

taxonomic resolution:

level: species
percentage of species level data: 100
comments: Please refer to Declerck et al. (2005) for more details.

taxonomic coding:

reference(s): Please refer to Declerck et al. (2005) for more details.

sample specifications:

type: quantitative (abundance data)
replicate samples: no
number of samples: 39
specification of method(s) used for sampling and sorting:

Please refer to Declerck et al. (2005) for more details.
reference(s): Declerck, S., Vandekerckhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. *Ecology* 86(7): 1905-1915.

phytoplankton:**sample information:**

covered timeframe: 2000 - 2001
historical data: no
season: spring, summer, autumn
temporal resolution/frequency of sampling: monthly during the growing season (May-October) either in 2000 or 2001; samples from different sampling occasions were pooled
comments: Please refer to Declerck et al. (2005) for more details.

taxonomic resolution:

level: genus

taxonomic coding:

reference(s): Please refer to Declerck et al. (2005) for more details.

sample specifications:

type: quantitative (abundance data)
replicate samples: no
number of samples: 39
specification of method(s) used for sampling and sorting:

Please refer to Declerck et al. (2005) for more details.
reference(s): Declerck, S., Vandekerckhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. *Ecology* 86(7): 1905-1915.

macrophytes:**sample information:**

covered timeframe: 2000 - 2001

historical data:	no
palaeo data:	no
season:	summer
temporal resolution/frequency of sampling:	per year
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic resolution:	
level:	species
percentage of species level data:	100
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic coding:	
reference(s):	Please refer to Declerck et al. (2005) for more details.
sample specifications:	
type:	quantitative (abundance data)
replicate samples:	no
number of samples:	39
specification of method(s) used for sampling and sorting:	Please refer to Declerck et al. (2005) for more details.
reference(s):	Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. <i>Ecology</i> 86(7): 1905-1915.
other group(s):	
sample information:	
covered timeframe:	2000 - 2001
historical data:	no
season:	spring, summer, autumn
temporal resolution/frequency of sampling:	per year
time series data:	no
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic resolution:	
level:	
other taxonomic levels:	protists & bacteria: DGGE, ciliates: species level
comments:	Please refer to Declerck et al. (2005) for more details.
taxonomic coding:	
reference(s):	Please refer to Declerck et al. (2005) for more details.
sample specifications:	
type:	quantitative (abundance data)
replicate samples:	no
specification of method(s) used for sampling and sorting:	Please refer to Declerck et al. (2005) for more details.
reference(s):	Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck L. & De Meester, L. (2005): Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. <i>Ecology</i> 86(7): 1905-1915.

Other specifications

availability of photos: no

availability of maps: no

quality control procedures:

Were any quality control procedures applied to your dataset?

yes

quality control protocols and comments:

Species names were checked using the GBIF species list.

Acknowledgements

The BIOMAN database has been collected as part of the EU funded BIOMAN project (EVK-CT-1999-00046). The authors acknowledge the funding of the SAFRED project (Saving freshwater biodiversity research data - 2015-2018) that allowed processing and publishing the BIOMAN data, amongst others.

References

Declerck, S., Vandekerkhove, J., Johansson, L., Muylaert, K., Conde-Porcuna, J. M., Van der Gucht, K., Pérez-Martínez, C., Lauridsen, T., Schwenk, K., Zwart, G., Rommens, W., López-Ramos, J., Jeppesen, E., Vyverman, W., Brendonck, L. & De Meester, L., 2005. Multi-group biodiversity in shallow lakes along gradients of phosphorus and water plant cover. *Ecology* 86(7): 1905-1915