



## Metadata

# ORganic and Conventional Agriculture's impact on aquatic biodiversity

SUPPORTED BY



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### General information

#### name of the dataset:

full name of the dataset: *ORganic and Conventional Agriculture's impact on aquatic biodiversity*

full name of the dataset (original/national language):

*Impact van biologische en conventionele landbouw op aquatische biodiversiteit*

dataset short name: *ORCA*

**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:

*The database of the ORCA project (A comparative analysis of ORganic and Conventional Agriculture's impact on aquatic biodiversity) comprises species occurrence data of different organism groups (zooplankton, macro-invertebrates, macrophytes, amphibians (eDNA) and fish (eDNA)) and data on physical, chemical and morphometric variables of 48 small farmland ponds distributed over Flanders, Belgium.*

short description of the dataset/summary (original/national language):

*De database van het ORCA project (een vergelijkende studie naar de impact van biologische en conventionele landbouw op aquatische biodiversiteit) omvat gegevens over het voorkomen van soorten in verschillende groepen organismen (zoöplankton, macro-invertebraten, macrofyten, amfibieën (eDNA) en vissen (eDNA)) en gegevens over fysische, chemische en morfometrische variabelen van 48 kleine in het landbouwareaal gesitueerde vijvers verspreid over Vlaanderen, België.*

#### keywords according to [GCMD](#):

topic: *Agriculture, Biosphere, Biological Classification, Land Surface, Terrestrial Hydrosphere*

#### ISO topic category according to [ISO 19115](#):

*Farming, Biota, Environment, Geoscientific Information, Inland Waters*

#### INSPIRE keywords according to [GEMET](#):

*Agricultural and aquaculture facilities, Bio-geographical regions, Land use farmland ponds, occurrences, environmental conditions, Belgium, organic farming, conventional farming, eDNA*

#### own science keywords:

*ORCA*

#### related project:

#### funding:

*BELSPO research project BR/175/A1/ORCA and BR/175/A1/ORCA-2*

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## Technical and administrative specifications

**data format:** *Excel*  
**operating system:** *all Windows systems*  
**data language:** *English*  
**current access level:** *internal*

currently available through [GBIF](#): *no*

exchange planned: *yes*

data in data repository: *no*

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

*yes*

**update level:** *completed*

**documentation:**

type: *manual*

language: *English*

**contact details:**

metadata contact person:

first, last name: *Luc De Meester*

phone: *+32 16323708*

email: *luc.demeester@kuleuven.be*

institution: *KU Leuven*

address: *Charles Deberiotstraat 32 - box 2439*

postal code, city: *3000 Leuven*

country: *Belgium*

web address: <https://bio.kuleuven.be/eeb/ldm>

technical contact person:

first, last name: *Pieter Lemmens*

phone: *+32 16373691*

email: *pieter.lemmens@kuleuven.be*

scientific contact person:

first, last name: *Pieter Lemmens*

phone: *+32 16373691*

email: *pieter.lemmens@kuleuven.be*

## Intellectual property rights and citation

(if the dataset is already published):

### dataset creator (data compiler):

contact name: *Marie Cours*  
 contact email: *marie.cours@naturalsciences.be*  
 contact institution: *Royal Belgian Institute of Natural Sciences*

### data contributors to/owners of this dataset:

number: *multiple*  
 17

### provider 1:

provider institute: *KU Leuven*  
 contact name: *Luc De Meester*  
 contact position: *KU Leuven*  
 contact email: *luc.demeester@kuleuven.be*

criteria for using the data in a publication/scientific analysis:

*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.*

### provider 2:

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Koen Martens*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *koen.martens@naturalsciences.be*

criteria for using the data in a publication/scientific analysis:

*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.*

### provider 3:

provider institute: *Research Institute for Nature and Forest (INBO)*  
 contact name: *Dries Adriaens*  
 contact position: *Research Institute for Nature and Forest (INBO)*  
 contact email: *dries.adriaens@inbo.be*

criteria for using the data in a publication/scientific analysis:

*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.*

### provider 4:

provider institute: *KU Leuven*  
 contact name: *Pieter Lemmens*  
 contact position: *KU Leuven*  
 contact email: *pieter.lemmens@kuleuven.be*

criteria for using the data in a publication/scientific analysis:

*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.*

### provider 5:

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Jeroen Venderickx*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *jeroen.venderickx@naturalsciences.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 6:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *Luc Denys*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *luc.denys@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 7:**

provider institute: *KU Leuven*  
 contact name: *Rafaela Almeida*  
 contact position: *KU Leuven*  
 contact email: *rafaela.almeida@kuleuven.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 8:**

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Marie Cours*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *marie.cours@naturalsciences.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 9:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *Rein Brys*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *rein.brys@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 10:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *Jo Packet*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *jo.packet@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 11:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *Joachim Mergeay*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *joachim.mergeay@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 12:**

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Marc Knockaert*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *marc.knockaert@naturalsciences.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 13:**

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Koen Parmentier*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *koen.parmentier@naturalsciences.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 14:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *Aaike De Wever*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *aaikede.wever@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 15:**

provider institute: *Research Institute for Nature and Forest*  
 contact name: *An Leyssen*  
 contact position: *Research Institute for Nature and Forest*  
 contact email: *an.leyssen@inbo.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 16:**

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Isa Schön*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *ischoen@naturalsciences.be*  
 criteria for using the data in a publication/scientific analysis:  
*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.*

**provider 17:**

provider institute: *Royal Belgian Institute of Natural Sciences*  
 contact name: *Thierry Vercauteren*  
 contact position: *Royal Belgian Institute of Natural Sciences*  
 contact email: *thierry.vercauteren@proximus.be*  
 criteria for using the data in a publication/scientific analysis:  
*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): *Cours, M., Lemmens, P., Almeida, R., Brys, R., Denys, L., De Wever, A., Knockaert, M., Leyssen, A., Mergeay, J., Packet, J., Parmentier, K., Schön, I., Venderickx, J., Vercauteren, T., Adriaens, D., Martens, K. & De Meester, L.*  
 title and journal (name, number, pages):  
*Database of the ORCA project (A comparative analysis of ORganic and Conventional Agriculture's impact on aquatic biodiversity).*  
 year: *2021*

**citation of the metadata:**

author(s): *Cours, M., Lemmens, P., Almeida, R., Brys, R., Denys, L., De Wever, A., Knockaert, M., Leyssen, A., Mergeay, J., Packet, J., Parmentier, K., Schön, I., Venderickx, J., Vercauteren, T., Adriaens, D., Martens, K. & De Meester, L.*  
 title and journal (name, number, pages):  
*Metadata description of the ORCA database (ORganic and Conventional Agriculture's impact on aquatic biodiversity). Freshwater Metadata Journal*  
*0: 0-0*  
 year: *0000*  
 doi (if applicable): <https://doi.org/10.15504/fmj.0000.0>

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## General data specifications

### regional coverage of the dataset:

spatial extent of the dataset: *national*  
continents: *Europe*

### spatial extent (bounding coordinates):

southernmost latitude [°]: *50.721357*  
northernmost latitude [°]: *51.425765*  
westernmost longitude [°]: *2.645698*  
easternmost longitude [°]: *5.856698*  
countries: *Europe: Belgium*

### 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*

**coverage timeframe:** *2017*

year to: *2018*

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## Site specifications

<b>coordinate system/grid data:</b>	<i>latitude/longitude, format: DD</i>
datum (e.g. WGS84):	<i>WGS84</i>
grid data available:	<i>no</i>
site coding available:	<i>yes</i>
	<i>alphanumerical</i>
example:	<i>WVLPOP0713</i>
<b>number of sites:</b>	<i>&lt;100</i>
exact number of sites:	<i>48</i>
<b>comments:</b>	<i>Reference:</i> <i>Leyssen, A., Scheers, K., Smeekens, V., Wils, C., Packet, J., De Knijf, G. &amp; Denys, L. (2020). Watervlakken versie 1.1: polygonenkaart van stilstaand water in Vlaanderen. Uitgave 2020. Rapporten van het Instituut voor Natuur- en Bosonderzoek 2020 (40). Instituut voor Natuur- en Bosonderzoek, Brussel. DOI: doi.org/10.21436/inbor.19088385</i> <i><a href="http://www.geopunt.be/catalogus/datasetfolder/61c4245b-a177-4fe8-a5cc-455475d7b40f">http://www.geopunt.be/catalogus/datasetfolder/61c4245b-a177-4fe8-a5cc-455475d7b40f</a></i>



## Climate and environmental data

**climate related data:** *no climate data available*

**environmental data:** *no environmental data per catchment available*

available parameters per site: *maximum depth  
field measurement*

available parameters per site: *proportion of land use types within several fixed perimeters around ponds  
data source: Van Daele, T. (2014). Landgebruikskaart NARA-T 2014: Studie uitge*

comments: *distance statistics between pond, buffer area and nearest crop/grassland land use*

*reference:*

*Departement Landbouw & Visserij (2016). Landbouwgebruikspercelen ALV, 2016. Verdeeld door Agentschap Informatie Vlaanderen, <http://www.geopunt.be/catalogus/datasetfolder/68621fdf-7948-48eb-b141-3f85751c44cb>*

**physico-chemical data:** *total P, nitrate, nitrite, total N, ammonium, sulphate, chloride, hardness, alkalinity, oxygen content, water temperature, pH, conductivity, chlorophyll, Secci disc depth, suspended solids, sediment/soil parameters*

other physico-chemical parameters *phycocyanine, DOC, Silicate, phosphate*

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*

<i>stressor</i>	<i>restored sites available</i>	<i>data before/after restoration available</i>	<i>stressor gradient available</i>	<i>comments</i>
<i>other stressors</i>	<i>no</i>	<i>no</i>	<i>no</i>	<i>organic vs conventional agricultural land use</i>

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## Biological data

**biological data origin:** *from sampling,*  
specify project: *ORCA*  
specify method:  
organism group addressed: *amphibians, fish, macro-invertebrates (Mollusca, Coleoptera), zooplankton (Cladocera), macrophytes*  
comments: *Three macroinvertebrate groups were addressed: Coleoptera, Heteroptera, Gastropoda.*

## Sample specifications/sample resolution

### amphibians:

#### sample information:

covered timeframe:  
 year from - to: 2018 - 2018  
 historical data: no  
 season: spring  
 temporal resolution/frequency of sampling:  
 per year  
 time series data: no

#### taxonomic resolution:

percentage of species level data: 90

#### taxonomic coding:

taxalist according to: *INBO reference database and De Bie et al. (2012)*  
 citation: *De Bie, T., De Meester, L., Brendonck, L., Martens, K., Goddeeris, B., Ercken, D., Hampel, H., Denys, L., Vanhecke, L., Van der Gucht, K., Van Wichelen, J., Vyverman, W. & Declerck, S.A. (2012). Body size and dispersal mode as key traits determining metacommunity structure of aquatic organisms. Ecology Letters 15(7): 740-747.*

#### sample specifications:

presence/absence  
 replicate samples: no  
 number of samples: 48  
 specification of method(s) used for sampling and sorting:  
 eDNA data

### fish:

#### sample information:

covered timeframe:  
 year from - to: 2018 - 2018  
 historical data: no  
 palaeo data: no  
 season: spring  
 temporal resolution/frequency of sampling:  
 per year  
 time series data: no

#### taxonomic resolution:

percentage of species level data: 100

#### taxonomic coding:

taxalist according to: *INBO reference database and De Bie et al. (2012)*  
 citation: *De Bie, T., De Meester, L., Brendonck, L., Martens, K., Goddeeris, B., Ercken, D., Hampel, H., Denys, L., Vanhecke, L., Van der Gucht, K., Van Wichelen, J., Vyverman, W. & Declerck, S.A. (2012). Body size and dispersal mode as key traits determining metacommunity structure of aquatic organisms. Ecology Letters 15(7): 740-747.*

#### sample specifications:

presence/absence  
 replicate samples: no  
 number of samples: 48  
 specification of method(s) used for sampling and sorting:  
 eDNA data

macro-invertebrates:**sample information:**

covered timeframe:

year from - to: 2017 - 2017

historical data: no

palaeo data: no

season: summer

temporal resolution/frequency of sampling:

per year

time series data: no

comments: data of Coleoptera, Heteroptera and Gastropoda

**taxonomic resolution:**

percentage of species level data: 90

**taxonomic coding:**

taxalist according to: see De Bie et al. (2012)

citation: De Bie, T., De Meester, L., Brendonck, L., Martens, K., Goddeeris, B., Ercken, D., Hampel, H., Denys, L., Vanhecke, L., Van der Gucht, K., Van Wichelen, J., Vyverman, W. & Declerck, S.A. (2012). Body size and dispersal mode as key traits determining metacommunity structure of aquatic organisms. *Ecology Letters* 15(7): 740-747.**sample specifications:**

semi-quantitative

replicate samples: no

number of samples: 48

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

net sampling

zooplankton:**sample information:**

covered timeframe:

year from - to: 2017 - 2017

historical data: no

palaeo data: no

season: summer

temporal resolution/frequency of sampling:

per year

time series data: no

**taxonomic resolution:**

percentage of species level data: 95

**taxonomic coding:**

taxalist according to: see De Bie et al. (2012)

citation: De Bie, T., De Meester, L., Brendonck, L., Martens, K., Goddeeris, B., Ercken, D., Hampel, H., Denys, L., Vanhecke, L., Van der Gucht, K., Van Wichelen, J., Vyverman, W. & Declerck, S.A. (2012). Body size and dispersal mode as key traits determining metacommunity structure of aquatic organisms. *Ecology Letters* 15(7): 740-747.**sample specifications:**

semi-quantitative

replicate samples: no

number of samples: 48

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

densities (number of individuals per liter)



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## Other specifications

### GIS layers, shape files related to the dataset:

*land use*

availability of photos: *yes*

availability of maps: *no*

### quality control procedures:

Were any quality control procedures applied to your dataset?

*yes*

quality control protocols and comments:

*Species, difficult to identify, were checked by taxonomic experts.*