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Freshwater Metadata Journal
DOI 10.15504/fmj.2015.5
ISSN 2312-6604
Published online: 2015-04-23

Published by University of Natural Resources and Life Sciences, Institute of Hydrobiology and Aquatic Ecosystem Management, BOKU - Vienna

Freshwater Metadata Journal 5: 1-10
http://freshwaterjournal.eu
DOI 10.15504/fmj.2015.5
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Please cite this paper as follows: Segurado P., Almeida C., Santos J. M., Neves R. & Ferreira M. T. , 2015. Biological and environmental database of Sorraia catchment (Portugal). Freshwater Metadata Journal 5: 1-10. http://dx.doi.org/10.15504/fmj.2015.5

Received: 2014-12-17 / Published: 2015-04-23

Keywords

Sorraia basin, fish, macro-invertebrates, diatoms, macrophytes, hydrology, climatic data, human pressures

Short description of the dataset/summary

The database presented here contains general and specific information for the Sorraia river basin in Portugal, compiled whithin the context of the FP7 MARS Project. The information is based on multiple datasets from multiple sources and contains data on hydrology, climate, water quality, geomorphological pressures and several biotic elements, including fish, macroinvertebrates, macrophytes and diatoms. The main source of information is the Portuguese Environmental Agency (APA) from the Ministry of the Environment, Territory and Energy.

General information

dataset entry ID:	MARS_10
name of the dataset:	
full name of the dataset:	Sorraia catchment (Portugal)
dataset short name:	Sorraia
type of dataset:	species (taxonomic group) per site database including environmental information
data type:	point data/observation data
science keywords according to GCMD:	
topic:	Agriculture, Biosphere, Climate Indicators, Land Surface, Terrestrial Hydrosphere
keywords:	climate, fish, hydrology, land use, macroinvertebrates, nutrients, river habitat, surface water, water quality

ISO topic category according to ISO 19115:
Biota, Environment, Inland Waters

Technical and administrative specifications

data format: Excel
operating system: Win 8/8.1
data language: English
current availability: internal
web address (URL): not available
currently available through GBIF: no
exchange planned: no
update level: continously updated
documentation:
type: others/specify
others/details: no documentation available
Do you plan to publish the data on the BioFresh data portal:
no
contact details:
metadata contact person:
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Intellectual property rights and citation

dataset publisher: not published
dataset creator (data compiler):
contact name: Pedro Segurado
contact email: psegurado@isa.ulisboa.pt
contact institution: Instituto Superior de Agronomia, Tapada da Ajuda, 1349-017 Lisboa
data contributors to/owners of this dataset:
single
criteria for using this dataset: The dataset needs to be requested from dataset creator with specific conditions of use.
citation of this dataset:

author(s): Pedro Segurado, Carina Almeida, José Maria Santos, Ramiro Neves & Teresa Ferreira
title: Biological and environmental database of Sorraia catchment, Portugal
year: 2014

citation of the metadata:

author(s): Segurado P., Almeida C., Santos J. M., Neves R. & Ferreira M. T.
title and journal (name, number, pages): Biological and environmental database of Sorraia catchment (Portugal). Freshwater Metadata Journal 5: 1-10
year: 2015
doi: http://dx.doi.org/10.15504/fmj.2015.5

General data specifications

regional coverage of the dataset:

scale of the dataset: catchment

spatial extend (bounding coordinates):

southernmost latitude [°]: 38.58
northernmost latitude [°]: 39.50
westernmost longitude [°]: -8.99
easternmost longitude [°]: -7.242
minimum altitude: 3 metres
maximum altitude: 380 metres
countries: Europe: Portugal

world climatic regions according to Köppen: Group C: temperate/mesothermal climates

freshwater ecoregions of the world (FEOW) according to WWF: Europe: Southern Iberia, Western Iberia

European ecoregions according to Illies (WFD): Iberic-Macaronesian Region (ER1)

ecosystem type: rivers, lakes/ponds

covered timeframe: 1990 - 2014

Site specifications

coordinate system/grid data: latitude/longitude, format: DD
projected, UTM

datum (e.g. WGS84): WGS84
grid data available: yes
resolution: 500m

ecosystem type classification:

rivers (classification according to WFD):
altitude typology
lowland: <200 m
size typology based on catchment area
large: 1000-10000 km²
geology
siliceous

lakes (classification mainly according to WFD):

altitude typology
mid-altitude: 200 to 800 m
depth typology based on mean depth
3-15m
size typology based on surfcae area
0,5 to 1 km², 1 to 10 km²
geology

site coding:
site coding available: yes, alphanumerical
number of digits: 6
example: DQA004
number of sites: <100
exact number of sites: 65

Climate and environmental data

climate related data:
spatial resolution of the data (if not catchment/site related):
others/specify
available parameters per catchment:
mean annual temperature January, July
data source: weather station, SNIRH (National Water Resources Institute)
mean annual temperature for each month
data source: weather station, SNIRH (National Water Resources Institute)
minimal, maximal and mean winter and summer temperatures
data source: weather station, SNIRH (National Water Resources Institute)
daily air temperatures
data source: weather station, SNIRH (National Water Resources Institute)
mean annual precipitation
data source: weather station, SNIRH (National Water Resources Institute)
winter and summer precipitation
data source: weather station, SNIRH (National Water Resources Institute)
evaporation
data source: weather station, SNIRH (National Water Resources Institute)
mean discharge
data source: ARBVS; weather station, SNIRH (National Water Resources Institute)
Solar radiation, humidity, wind speed
data source: weather station, SNIRH (National Water Resources Institute)

environmental data:
available parameters per catchment:
catchment size

data source: SNIRH (National Water Resources Institute)
catchment land cover/land use
data source: GSE Land M2.1, Corine2006, Global Cover 2006
presence of barriers/dams/reservoirs (fragmentation)
data source: SNIRH (National Water Resources Institute)
hydrological regime/flow regime
data source: SNIRH (National Water Resources Institute)

available parameters per site:

catchment land use upstream of sampling site
data source: SNIRH (National Water Resources Institute)
information on embankment (incl. information on modification)
data source: SNIRH (National Water Resources Institute)
information on channel form (incl. information on modification)
data source: SNIRH (National Water Resources Institute)
information on cross section (incl. information on modification)
data source: SNIRH (National Water Resources Institute)
distance to next migration barrier upstream
data source: EFI+ Project
distance to next migration barrier downstream
data source: EFI+ Project
distance to the next lake upstream
data source: EFI+ Project
river length
data source: SNIRH (National Water Resources Institute)
distance to source
data source: SNIRH (National Water Resources Institute)
distance to mouth
data source: SNIRH (National Water Resources Institute)
stream order (according to Strahler)
data source: SNIRH (National Water Resources Institute)
slope
data source: SNIRH (National Water Resources Institute)
altitude
data source: SNIRH (National Water Resources Institute)
hydrological regime/flow regime
data source: SNIRH (National Water Resources Institute)
mean depth
data source: SNIRH (National Water Resources Institute)
wetted width
data source: SNIRH (National Water Resources Institute)
information on instream habitat (incl. information on modification)
data source: SNIRH (National Water Resources Institute)

physico-chemistry data:

total P, nitrate, nitrite, total N, ammonium, TOC (total organic carbon), oxygen content, chlorophyll, Secci disc depth, thermocline depth, sediment/soil parameters

other physico-chemical parameters:

Data on lake's trophic state and stratification are available

stressors influencing the sites:

reference sites available:

no
no stressor data available

Biological data

biological data origin: general compilation
- specify method: report search
- organism group addressed: fish, macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Odonata, Plecoptera, Coleoptera, Trichoptera, Chironomidae), (benthic) diatoms, macrophytes

Sample specifications/sample resolution

fish:

sample information:
- covered timeframe: 1994 - 2009
- historical data: yes
- palaeo data: no
- season: spring, summer, autumn
- temporal resolution/frequency of sampling: For most sites only one fishing occasion is available.
- time series data: no
- comments: Historical data includes records on the presence of diadromous fish from the 18th and 19th century.

taxonomic resolution:
- level: species
- percentage of species level data: 100

taxonomic coding:
- taxalist according to: Kottelat & Freyhof (2007)
- reference(s): Kottelat M. & Freyhof J. 2007. Handbook of European Freshwater Fishes. Kottelat, Cornol and Freyhof, Berlin, 646 pp.
- coding system: 3 initials of the genus and species names with an undescore separator
- example: Sal_tru

sample specifications:
- type: quantitative (abundance data)
- replicate samples: no
- number of samples: 65
- specification of method(s) used for sampling and sorting: Sites were sampled by electrofishing during lowflow periods employing standard European methods (EN, 2003), mostly by wading. There is only one sample per site available.
- reference(s): EN 14011, 2003. Water Quality - Sampling of Fish with Electricity. Comité Européen de Normalisation (CEN).

macro-invertebrates:

sample information:
- covered timeframe: 2010 - 2011
- historical data: no
- palaeo data: no
- season: spring, summer

time series data: no

taxonomic resolution:

level: family

taxonomic coding:

taxalist according to: not specified

coding system: family name

example: Corixidae

sample specifications:

type: quantitative (abundance data)

replicate samples: no

number of samples: 8

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

Sampling was based on methodology defined by the former Portuguese water authorities (INAG, 2008): six trawls (1m length and 0.25 m width), proportionally distributed throughout the available habitats.

reference(s): INAG, I.P. 2008. Manual para a avaliação biológica da qualidade da água em sistemas fluviais segundo a Directiva Quadro da Água. Protocolo de amostragem e análise para os macroinvertebrados bentónicos. Ministério do Ambiente, Ordenamento do Território e do Desenvolvimento Regional. Instituto da Água, Lisboa.

comments: More sites are expected to be included soon.

(benthic) diatoms:

sample information:

covered timeframe: 2004 - 2011

historical data: no

palaeo data: no

season: spring, summer

time series data: no

taxonomic resolution:

level: species

percentage of species level data: 100

taxonomic coding:

taxalist according to: Identification followed Krammer and Lange-Bertalot (1986, 1988, 1991a, 1991b).

reference(s): Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Naviculaceae. Süßwasserflora von Mitteleuropa, Vol. 1. Gustav Fischer Verlag, Stuttgart.
Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Bacillariaceae, Epithemiaceae, Surirellaceae. Süßwasserflora von Mitteleuropa, Vol. 2. Gustav Fischer Verlag, Stuttgart.
Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Centrales, Fragilariaceae, Eunoticeae. Süßwasserflora von Mitteleuropa, Vol. 3. Gustav Fischer Verlag, Stuttgart.
Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Achnanthaceae. Kristische Ergänzungen zu Navicula (Lineolatae) und Gomphonema, Gesamtliteraturverzeichnis. Süßwasserflora von Mitteleuropa, Vol. 4. Gustav Fischer Verlag, Stuttgart.

coding system: species name

example: Achnanthes brevipes

sample specifications:

type: quantitative (abundance data)

replicate samples: no
number of samples: 12
specification of method(s) used for sampling and sorting:
Samples were collected according to standard methods (EN, 2003; Kelly et al., 1998). Counting of the diatom cells followed standard procedures (EN, 2004) with a minimum of 400 valves identified and counted.
reference(s): EN 13946, 2003. Water quality - guidance standard for the routine sampling and pretreatment of benthic diatoms for rivers. Comité Européen de Normalisation (CEN).
EN 14407, 2004. Water quality - guidance standard for the identification, enumeration and interpretation of benthic diatom samples from running waters. Comité Européen de Normalisation (CEN).
Kelly M.G., Cazaubon A., Coring E., Dell'Uommo A., Ector L., Goldsmith B., et al., 1998. Recommendations for the routine sampling of diatoms for water quality assessments in Europe. Journal of Applied Phycology 10: 215-224.
comments: More sites are expected to be included soon.

macrophytes:

sample information:

covered timeframe: 2004 - 2005
historical data: no
palaeo data: no
season: spring, summer
time series data: no

taxonomic resolution:

level: species
percentage of species level data: 98

taxonomic coding:

taxalist according to: Many different sources were used.
reference(s): Castroviejo S. et al. (coor.), 1986-2012. Flora Iberica. Plantas vasculares de la Península Ibérica, e Islas Baleares. Real Jardín Botánico, CSIC. Madrid.
Franco J.A., 1971-1984. Nova Flora de Portugal (Continente e Açores), Author Edition. Lisboa.
Franco J.A. & Rocha-Afonso M.L. 1994 -1998. Nova Flora de Portugal (Continente e Açores), Escolar Editora. Lisboa.
Tutin T.G., Heywood V.H., Burgess N.A., Moore D.M., Valentine D.H., Walters S.M. & Webb D.A. (eds). 1964-1993. Flora Europaea. Cambridge University Press, UK.
coding system: species name
example: Agrostis stolonifera

sample specifications:

type: quantitative (abundance data)
replicate samples: no
number of samples: 16
specification of method(s) used for sampling and sorting:
Sampling methods were based on the European standards EN14184 (2003) and EN14996 (2006), and adaptations can be found in the Sampling Survey Guidebook for Macrophytes (Instituto da Água IP, 2008). Surveyors waded upstream within the channel in a zig-zag manner, re-wading downstream to ensure that all the species were recorded and to confirm species abundance (measured as percentage cover). If channel access was hazardous, surveying was done by walking along the banks. Surveys include mainly vascular plant species

and bryophyte, some macroalgae were identified.

reference(s): INAG, I.P. 2008. Manual para a avaliação biológica da qualidade da água em sistemas fluviais segundo a Directiva Quadro da Água. Protocolo de amostragem e análise para os macrófitos. Ministério do Ambiente, Ordenamento do Território e do Desenvolvimento Regional. Instituto da Água, Lisboa.

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

Survey area included the in-stream river part that is under water or temporarily exposed under conditions of dry-water flow or for longer periods under certain natural conditions.

Other specifications

GIS layers, shapes related to the dataset:

species distribution
hydrological information (as HydroSHEDS)
catchments, river-sub-basins
land use
dams/reservoirs/barriers
environmental variables (freshwater or terrestrial)
climatic variables (current and predictions)

availability of photos: yes

availability of maps: yes

quality control procedures:

Were any quality control procedures applied to your dataset?

no

Acknowledgements

We thank Helena Alves, Manuela Morais, Salomé Almeida and Francisca Aguiar.

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EN 13946, 2003. Water quality - guidance standard for the routine sampling and pretreatment of benthic diatoms for rivers. Comité Européen de Normalisation (CEN).

EN 14011, 2003. Water quality - sampling of fish with electricity. Comité Européen de Normalisation (CEN).

EN 14407, 2004. Water quality - guidance standard for the identification, enumeration and interpretation of benthic diatom samples from running waters. Comité Européen de Normalisation (CEN).

Franco J.A., 1971-1984. Nova Flora de Portugal (Continente e Açores). Author Edition. Lisboa.

Franco J.A. & Rocha-Afonso M.L., 1994-1998. Nova Flora de Portugal (Continente e Açores). Escolar Editora. Lisboa.

INAG, I.P., 2008. Manual para a avaliação biológica da qualidade da água em sistemas fluviais segundo a Directiva Quadro da Água. Protocolo de amostragem e análise para os macrófitos. Ministério do Ambiente, Ordenamento do Território e do Desenvolvimento Regional. Instituto da Água, Lisboa.

INAG, I.P., 2008. Manual para a avaliação biológica da qualidade da água em sistemas fluviais segundo a Directiva Quadro da Água. Protocolo de amostragem e análise para os macroinvertebrados bentónicos. Ministério do Ambiente, Ordenamento do Território e do Desenvolvimento Regional. Instituto da Água, Lisboa.

Kelly M.G., Cazaubon A., Coring E., Dell'Uomo A., Ector L., Goldsmith B., Guasch H., Hürlimann J., Jarlman A., Kawecka B., Kwandrans J., Laugaste R., Lindstrøm E.-A., Leitao M., Marvan P., Padisák J., Pipp E., Prygiel J., Rott E., Sabater S., van Dam H., Vizinet J., 1998. Recommendations for the routine sampling of diatoms for water quality assessments in Europe. Journal of Applied Phycology 10: 215-224. http://dx.doi.org/10.1023/A:1008033201227

Kottelat M. & Freyhof J., 2007. Handbook of European Freshwater Fishes. Kottelat, Cornol and Freyhof, Berlin, 646 pp.

Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Achnanthaceae. Kristische Ergänzungen zu Navicula (Lineolatae) und Gomphonema, Gesamtliteraturverzeichnis. Süßwasserflora von Mitteleuropa, Vol. 4. Gustav Fischer Verlag, Stuttgart.

Krammer K. & Lange-Bertalot H., 1986. Bacillariophyceae. Bacillariaceae, Epithemiaceae, Surirellaceae. Süßwasserflora von Mitteleuropa, Vol. 2. Gustav Fischer Verlag, Stuttgart.

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Tutin T.G., Heywood V.H., Burgess N.A., Moore D.M., Valentine D.H., Walters S.M., Webb D.A. (eds.), 1964-1993. Flora Europaea. Cambridge University Press, UK.