A SYNTHESIS OF KNOWLEDGE ABOUT WATER QUALITY IN THE UPPER PARANÁ RIVER FLOODPLAIN

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Supplementary material

Table S1. List of articles about water quality used in this study.

Title	Year	Authors	Journal
Limnology in the Upper Paraná River floodplain: large-scale spatial and temporal patterns, and the influence of reservoirs	2009	Roberto et al.	Brazilian Journal of Biology
Interannual variability of phytoplankton in the main rivers of the Upper Paraná River floodplain, Brazil: influence of upstream reservoirs	2009	Rodrigues et al.	Brazilian Journal of Biology
Modeling chlorophyll-a and dissolved oxygen concentration in tropical floodplain lakes (Paraná River, Brazil)	2009	Rocha et al.	Brazilian Journal of Biology
Phytoplankton functional and morphological groups as indicators of environmental variability in a lateral channel of the Upper Paraná River floodplain	2014	Bortolini et al.	Acta Limnologica Brasiliensia
Periphytic Cyanobacteria in different environments from the upper Paraná river floodplain, Brazil	2007	Fonseca & Rodrigues	Acta Limnologica Brasiliensia
Influence of reservoirs on phytoplankton dispersion and functional traits: a case study in the Upper Paraná River, Brazil	2012	Bovo-Scomparin	Hydrobiologia
Mercury in two fish species from the Paraná river floodplain, Paraná, Brazil	1997	de Moraes et al.	Environmental Pollution
The variability in the hydrosedimentological regime supports high phytoplankton diversity in floodplain: A 12-year survey of the Upper Paraná River	2017	Bortolini et al.	Journal of Limnology
Composition and taxonomic similarity of the periphytic algal community in different natural substrates in a neotropical floodplain, Brazil	2015	Biolo et al.	African Journal of Plant Science

Spatial and seasonal distribution of chromophoric dissolved organic matter in the Upper Paraná River floodplain environments (Brazil)	2011	Teixeira et al.	Acta Limnologica Brasiliensia
Long-term variability of the phytoplankton community in an isolated floodplain lake of the Ivinhema River State Park, Brazil	2008	Bovo-Scomparin	Hydrobiologia
Composition of periphytic algae (except Bacillariophyceae) in different substrates of a semilotic environment from the Upper Paraná River floodplain, Brazil	2011	Biolo & Rodrigues	Brazilian Journal of Botany
Periphytic cyanobacteria in two lentic environments from the upper Paraná River floodplain	2005	Fonseca & Rodrigues	Brazilian Journal of Botany
Geochemistry of the Upper Paraná River floodplain: study of the Garças Pond and Patos Pond	2015	Remor et al.	Journal of Radioanalytical and Nuclear Chemistry
Phytoplankton community in the last undammed stretch of the Paraná River: considerations on the distance from the dam	2017	Bortolini et al.	Acta Limnologica Brasiliensia
Extreme hydrological periods: effects on phytoplankton variability and persistence in a subtropical floodplain	2016	Bortolini et al.	Hydrobiologia
Phytoplankton alpha diversity as an indicator of environmental changes in a neotropical floodplain	2015	Rodrigues et al.	Ecological Indicators
Seasonal fluctuation of some limnological variables on a floodplain lake (Patos lagoon) of the Upper Paraná River, Mato Grosso do Sul State, Brazil	2002	Rodrigues et al.	Brazilian Archives of Biology and Technology
Functional approach based on morphology as a model of phytoplankton variability in a subtropical floodplain lake: a long-term study	2015	Bortolini et al.	Hydrobiologia

Longitudinal gradient in limnological variables in the Upper Paraná River: a brief description and the importance of undammed tributaries	2017	Santana et al.	Acta Limnologica Brasiliensia
Periphytic algae in distinct environments of the upper Paraná river floodplain	2006	Algarte et al.	Acta Scientiarum. Biological Sciences
Phytoplankton functional groups indicators of environmental conditions in floodplain rivers and lakes of the Paraná Basin	2017	Zanco et al.	Acta Limnologica Brasiliensia
Chironomidae (Diptera) community structure in two subsystems with different states of conservation in a floodplain of southern Brazil	2010	Rosn et al,	Acta Limnologica Brasiliensia
Organic carbon variation patterns on the Upper Paraná River Floodplain	2008	Teixeira et al.	Oecologia Australis
Spectroscopic characterization of dissolved organic matter in the Upper Paraná River floodplain	2008	de Azevedo et al.	Oecologia Australis
Drivers of phytoplankton richness and diversity components in Neotropical floodplain lakes, from small to large spatial scales	2017	Moresco et al.	Hydrobiologia
A protection area in a subtropical floodplain influenced the phytoplankton taxonomic and functional diversity	2020	Oineda et al.	Oecologia Australis
Habitat complexity drives the turnover and nestedness patterns in a periphytic algae community	2019	Osório et al.	Limnology
Can zooplankton grazing affect the functional features of phytoplankton in subtropical shallow lakes? - Experiment in situ in the south of Brazil	2019	Silva et al.	Limnetica
Plastic ingestion by carnivore fish in a neotropical floodplain: seasonal and interspecific variations	2023	Cardozo et al.	Environmental Science and Pollution Research

Variability in mean size of phytoplankton in two floodplain lakes of different climatic regions	2018	Iatskiu et al.	Hydrobiologia
Águas da planície de inundação do alto Rio Paraná: uma análise por espectroscopia de campo e dados limnológicos	2009	Guimarães et al.	Simpósio Brasileiro de Sensoriamento Remoto XIV
Chlorophyll-a and suspended inorganic material affecting the shell traits of testate amoebae community	2016	Schwind et al.	Acta Protozool
Temporal variation of limnological factors in the Upper Paraná River floodplain habitats	2004	Rocha et al.	Acta Scientiarum. Biological Sciences
Effects of water quantity on connectivity: The case of the upper Paraná River floodplain	2009	Agostinho et al.	Ecohydrology & Hydrobiology
Dam reverse flow events influence limnological variables and fish assemblages of a downstream tributary in a Neotropical floodplain	2020	Ferreira et al.	River Research an Applications
Relationships between multiple biological groups and classification schemes in a Neotropical floodplain	2012	Padial et al.	Ecological Indicators
Periphytic algae community in different environments of the upper Parana River floodplain	2005	Fonseca & Rodrigues	Acta Scientiarum. Biological Sciences
Composition and species richness phytoplankton in a subtropical floodplain lake: a long-term study	2014	Bortolini et al.	Acta Limnologica Brasiliensia
Dry season limnological conditions and basin geology exhibit complex relationships with δ13C and δ15N of carbon sources in four Neotropical floodplains	2017	Zaia Alves et al.	Plos one
Periphytic diatom ecological guilds in floodplain: Ten years after dam	2016	Algarte et al.	Ecological Indicators
Functional diversity and trait-environment relationships of periphytic algae in subtropical floodplain lakes	2016	Dunk et al.	Ecological Indicators

Effects of the intensity of land-use changes on taxonomic and functional diversity of fish in a Neotropical floodplain	2023	Yofukuji et al.	Aquatic Sciences
Experimental evaluation of microplastic consumption by using a size-fractionation approach in the planktonic communities	2022	da Silva et al.	Science of The Total Environment
Drivers of fish trophic guild composition in lakes of the Upper Paraná River floodplain	2022	Lopes et al.	Aquatic Sciences
The phytoplankton community as a descriptor of environmental variability: a case study in five reservoirs of the Paraná River basin	2022	Silva et al.	Acta Limnologica Brasiliensia
Macrohabitat classification of wetlands as a powerful tool for management and protection: The example of the Paraná River floodplain, Brazil	2021	Junk et al.	Ecohydrology & Hydrobiology
Ecosystem Shift from Submerged to Floating Plants Simplifying the Food Web in a Tropical Shallow Lake	2020	Moi et al.	Ecosystems
Periphytic algae biomass at different shading levels: An experimental approach	2021	Santos & Rodrigues	Acta Limnologica Brasiliensia
Testate amoebae as indicators for suspended inorganic material in floodplains influenced by dam	2018	Schwind et al.	International Review of Hydrobiology
Environmental and spatial processes influencing phytoplankton biomass along a reservoirs-river-floodplain lakes gradient: A metacommunity approach	2017	Bortolini et al.	Freshwater Biology
Productivity gradient affects the temporal dynamics of testate amoebae in a neotropical floodplain	2017	Schwind et al.	Ecological Indicators
Rivers affect the biovolume and functional traits of phytoplankton in floodplain lakes	2017	Pineda et al.	Acta Limnologica Brasiliensia

Effects of nutrient enrichment on primary and secondary productivity in a subtropical floodplain system: an experimental approach	2018	de Melo et al.	Hydrobiologia
Sedimentation rate and accumulation of nutrients in the Upper Paraná river floodplain	2022	Remor et al.	Journal of Radioanalytical and Nuclear Chemistry
Periphytic algae response to temperature changes and artificial nutrient enrichment	2009	Murkami & Rodrigues	Acta Scientiarum. Biological Sciences
Comparative limnological analysis of two lagoons on the floodplain of the Upper Parana River, Brazil	1997	Pagioro et al.	International Journal of Ecology Environmental Sciences
Experimental nutrient enrichment increases plankton taxonomic and functional richness and promotes species dominance overtime	2023	Dittrich et al.	Hydrobiologia

Table S2. List of cyanobacteria species recorded in the studies about on water quality in the upper Paraná River floodplain.

Species	Year	Article
Anabaena cylindrica Lemmermann 1896	2005	Fonseca & Rodrigues.
Anabaena sphaerica Bornet & Flahault 1886	2005; 2014	Fonseca & Rodrigues.; Bortolini et al.
Anabaenopsis sp.	2014	Bortolini et al.
Anacystis sp.	2014	Bortolini et al.
Anagnostidinema amphibium (Gomont) Strunecký, JRJohansen & Komárek 2017	2007	Fonseca & Rodrigues.
Aphanizomenon flos-aquae Ralfs ex Bornet & Flahault 1886	2014	Bortolini et al.
Aphanocapsa annulata G.B.McGregor 2007	2005;2018	Andame et al; Adame, Dunck & Rodrigues.
Aphanocapsa delicatissima West & G.S. West 1912	2017	Bortolini et al.
Aphanocapsa elachista West & G.S. West 1894	2016;2017	Bortolini et al; Bortolini et al.
Aphanocapsa holsatica (Lemmermann) G. Cronberg & J. Komárek 1994	2017	Bortolini et al.
Aphanocapsa koordersii K. Strøm 1923	2017	Bortolini et al.
Aphanocapsa parasitica (Kützing) Komárek & Anagnostidis 1995	2005;2011;2014	Fonseca & Rodrigues; Biolo & Rodrigues; Bortolini et al.
Aphanocapsa sp.	2018	Melo et al.
Aphanothece microscopica Nägeli 1849	2011; 2014	Biolo & Rodrigues; Bortolini et al
Aphanothece sp.	2014	Bortolini et al.
*Arthrospira laxa (*G.M.Smith*)* W.B.Crow 1927	2007	Fonseca & Rodrigues.
Arthrospira sp.	2015	Rodrigues. et al
Borzia trilocularis Cohn ex Gomont 1892	2005, 2019	Fonseca & Rodrigues; Osório et al.
Calothrix brevissima G.S.West 1907	2005;2014, 2019	Fonseca & Rodrigues.; Bortolini et al.; Osório et al.
Calothrix cylindrica Frèmy 1924	2014	Bortolini et al.
Calothrix fusca Bornet & Flahault 1886	2005;2014;2018	Andame et al.; Bortolini et al.; Adame, Dunck & Rodrigues
Chamaesiphon investiens Skuja 1964	2011	Biolo & Rodrigues
Chamaesiphon sp.	2014, 2019	Bortolini et al.; Osório et al.

Chlorogloea sp.	2014	Bortolini et al.
Chroococcus dispersus (Keissler) Lemmermann 1904	2014	Bortolini et al.
Chroococcus limneticus Lemmermann. 1898	2014;2015	Bortolini et al; Rodrigues, LC. et al
Chroococcus cf. major Komárek & Komárková-Legnerová * 2007	2014	Bortolini et al.
Chroococcus minor (Kützing) Nägeli 1849	2011;2014	Biolo & Rorigues; Bortolini et al.
Chroococcus minimus Lemmermann. 1904	2011; 2015	Biolo & Rodrigues; Rodrigues et al
Chroococcus minutus (Kützing) Nägeli 1849	2005;2011;2014; 2015	Fonseca & Rodrigues;.Biolo & Rodrigues; Bortolini et al; Rodrigues et al
Cyanodictyon sp.	2014	Bortolini et al.
Cylindrospermum catenatum Ralfs ex Bornet & Flahault 1886	2014	Bortolini et al.
Cylindrospermum muscicola Kützing ex Bornet & Flahault 1886	2014, 2019	Bortolini et al.; Osório et al.
Desmonostoc muscorum (Bornet & Flahault) Hrouzek & Ventura 2013	2007	Fonseca. & Rodrigues
Dolichospermum affine (Lemmermann) Wacklim,L. Hoff. & Komá 2009	2005;2014	Fonseca. & Rodrigues
Dolichospermum circinale (Rabenhorst ex Bornet & Flahault) Wacklin, Hoffmann & Komárek 2009	2008;2016; 2017	Bovo- Scomparin et al; Bortolini et al.
Dolichospermum planctonicum (Brunnthaler) Wacklin, L.Hoffmann & Komárek *2009*	2008; 2013; 2014; 2016; 2017	Bovo-Scomparin,et al; Bortolini et al.; Bortolini,et al; Pineda et al
Dolichospermum solitarium (Klebahn) Wacklin, L Hoffmann & Komárek 2009	2017	Zanco et al.
Dolichospermum spiroides (Klebahn) Wacklin, L Hoffmann & Komárek 2009	2015; 2017	Fonseca & Rodrigues.; Pineda et al, Zanco et al.
Geitleribactron subaequale (Geitler) Komárek 1975	2011	S. Biolo & L. Rodrigues;
Geitlerinema splendidum (Gomont) Anagnostidis 1989	2005	Fonseca & Rodrigues.
Gomphosphaeria sp.	2014	Bortolini et al.
Hapalosiphon arboreus West & G.S.West 1894	2005;2007	Fonseca & Rodrigues.
Hapalosiphon luteolus West & G.S. West 1897	2005,2007	Fonseca & Rodrigues.
Heteroleibleinia Kuetzingii (Schmidle) Compère 1985	2005;2007	Fonseca & Rodrigues.
Jaaginema geminatum (G.Schmid) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues.
Jaaginema homogeneum (Frémy) Anagnostidis & Komárek 1988	2007,2015	Fonseca & Rodrigues; Rodrigues. et al

Jaaginema quadripunctulatum (Brühl & Biswas) Anagnostidis & Komárek 1988	2005;2007	Fonseca & Rodrigues.
Jaaginema subtilissimum (Kützing ex Forti) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues.
Jaaginema cf. thermalis Anagnostidis & Komárek	2007	Fonseca & Rodrigues.
Kamptonema proteus (Skuja) Struneck, Komárek & J.Smarda 2014	2007	Fonseca & Rodrigues.
Komvophoron crassum (Vozzhennikova) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues.
Komvophoron schmidlei (Jaag) Anagnostidis & Komárek 1988	2015	Rodrigues, LC. et al
Leibleinia epiphytica (Hieronymus) Compère 1985	2005;2007;2008; 2011; 2014	Fonseca. & Rodrigues; Biolo et al; Biolo & Rodrigues; Biolo et al.
Leptolyngbya angustissima (West & G.S.West) Anagnostidis. & Komárek 1988	2011	Biolo &Rodrigues
Leptolyngbya boryana (Gomont) Anagnostidis & Komárek 1988	2019	Osório et al.
Leptolyngbya cebennensis (Gomont) I.umezaki & M.Watanabe 1994	2007	Fonseca & Rodrigues.
Leptolyngbya lagerheimii (Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues.
Leptolyngbya foveolarum (Gomont) Anagnostidis & Komárek 1988	2011	Biolo & Rodrigues
Leptolyngbya fragilis (Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues.
Leptolyngbya perelegans (Lemmermann) Anagnostidis. & Komárek 1988	2005;2007;2008;2011; 2014	Fonseca & Rodrigues.; Biolo et al;. Biolo &Rodrigues; Biolo at al.
Leptolyngbya cf. *Polysiphoniae* (Frémy) Anagnostidis 2001	2007	Fonseca & Rodrigues
Leptolyngbya purpurascens (Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Leptolyngbya ramosa (J.B.Petersen) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Leptolyngbya valderiana (Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Limnothrix sp.	2005	Fonseca & Rodrigues
Lyngbya thermalis Kützing ex Gomont 1892	2005;2007;2015, 2019	Fonseca & Rodrigues; Rodrigues. et al, Osório et al.
Lyngbya comperei P.A.C.Senna 1983	2007	Fonseca & Rodrigues
Lyngbya gomontiana Senna 1983	2007	Fonseca & Rodrigues
Lyngbya nigra C.Agardh ex Gomont 1892	2005	Fonseca & Rodrigues
Lyngbya martensiana Meneghini ex Gomont 1892	2007,2015	Fonseca & Rodrigues Rodrigues, et al.

Merismopedia duplex Playfair 1918	2005;2014	Fonseca & Rodrigues
Merismopedia glauca (Ehrenberg) Kützing 1845	2015	Rodrigues. et al
Merismopedia cf. minima G.Beck 1897	2014	Fonseca & Rodrigues
Merismopedia tenuissima Lemmermann 1898	2005;2014;2015;2017, 2019	Fonseca & Rodrigues; Fonseca & Rodrigues; Rodrigues et al; Bortolini et al., Osório et al.
Merismopedia sp.	2014	Fonseca & Rodrigues
Microchaete tenera Thuret ex Bornet & Flahault 1886	2014	Fonseca & Rodrigues
Microcoleus Autumnalis (Gomont)Strunecky, Komárek & JRJohansen 2013	2007	Fonseca & Rodrigues
Microcoleus favosus (Gomont) Strunecky, Komárek & JRJohansen 2013	2007	Fonseca & Rodrigues
Microcystis aeruginosa (Kützing) Kützing 1846	2014;2015; 2017; 2022	Bortolini, et al; Rodrigues et al, Bortolini et al; Susicley et al; Silva et al.
Nodularia sp.	2014	Fonseca & Rodrigues
Nostoc cf. *commune* (Bornet & Flahault) Elenkin 1931	2005	Fonseca & Rodrigues
Oscillatoria annae Goor 1918	2005	Fonseca & Rodrigues
Oscillatoria limosa C.Agardh ex Gomont 1892	2005	Fonseca & Rodrigues
Oscillatoria princeps Vaucher ex Gomont 1892	2005	Fonseca & Rodrigues
Oscillatoria pseudogeminata G.Schmid 1914	2007	Fonseca & Rodrigues
Oscillatoria rupicola Hansgirg ex Forti 1907	2007	Fonseca & Rodrigues
Oscillatoria sancta Kützing ex Gomont 1892	2015	Rodrigues et al
Oscillatoria simplicissima Gomont 1892	2007	Fonseca & Rodrigues
Oscillatoria subbrevis Schmidle 1901	2005	Fonseca & Rodrigues
Oscillatoria trichoides Szafer 1910	2007	Fonseca & Rodrigues
Oscillatoria sp.	2015	Bortolini et al.
Planktolyngbya tallingii Komárek & Kling 1991	2007	Fonseca & Rodrigues;
Planktothrix agardhii (Gomont) Anagnostidis & Komárek 1988	2015	Rodrigues et al
Planktothrix prolifica (Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Phormidium granulatum (Kisselev) Anagnostidis & Komárek 1988	2005;2007	Fonseca & Rodrigues

Phormidium holdenii Branco, Sant'Anna, Azevedo & Sormus 1997	2007	Fonseca & Rodrigues
Phormidium irriguum (Kützing ex Gomont) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Phormidium jadinianum Gomont 1893	2007	Fonseca & Rodrigues
Phormidium cf. jasorvense (Vouk) Anagnostidis & Komárek 1988	2007	Fonseca & Rodrigues
Phormidium molle Gomont 1892	2007,2011	Fonseca & Rodrigues. Biolo & Rodrigues
Phormidium natans (Gomont) P.A.C.Senna & Compère, nom. illeg. 1998	2007	Fonseca & Rodrigues
Phormidium retzii Kützing ex Gomont 1892	2007	Fonseca & Rodrigues
Phormidium willei (N.L.Gardner) Anagnostidis & Komárek 1988	2005,2007	Fonseca & Rodrigues
Porphyrosiphon martensianus) Meneghini ex Gomont) Anagnostidis & Komárek 1988	2005	Fonseca & Rodrigues
Pseudanabaena catenata Lauterborn 1915	2007	Fonseca & Rodrigues
Pseudanabaena frigida (F.E.Fritsch) Anagnostidis 2001	2011	Biolo & Rodrigues
Pseudanabaena galeata Böcher 1949	2007	Fonseca & Rodrigues
Pseudanabaena cf. mínima (G.S.An) Anagnostidis 2001	2005;2018	Adame et al; Adame, K.L., Dunck & Rodrigues,
Pseudanabaena moniliformis Komárek & Kling 1991	2005;2007;2011	Fonseca & Rodrigues; Biolo & Rodrigues
Pseudanabaena mucicola Naumann & Huber-Pestalozzi) Schwabe 1964	2009;2015; 2017; 2019	Rodrigues et al; Susicley, et al; Silva et al., Osório et al.
Pseudanabaena sp.	2017, 2019	Bortolini et al., Osório et al.
Radiocystis fernandoi Komárek & Komárková-Legnerová 1993	2008;2009; 2013; 2015; 2017;2022	Bovo-Scomparin et al; Rodrigues. et al; Bovo-Scomparin, et al; Rodrigues et al; ZANCO et al; Agostinho et al.
Raphidiopsis raciborskii (Woloszynska) Aguilera & al. 2018	2014; 2015; 2017, 2019	Fonseca & Rodrigues; Rodrigues et al; Bortolini et al, Osório et al.
Rivularia cf. aquatica Wildeman 1897	2007	Fonseca & Rodrigues
Rivularia cf. globiceps G.S.West 1907	2007	Fonseca & Rodrigues
Romeria gracilis (Koczwara) Koczwara 1932	2015;2017	Bortolini et al.; Rodrigues et al
Schizothrix lamyi Gomont 1892	2007	Fonseca & Rodrigues
Scytonema chiastum Geitler 1925	2007	Fonseca & Rodrigues
Scytonema mirabile Bornet 1889	2007	Fonseca & Rodrigues

Spirulina princeps West & G.S.West 1902	2005	Fonseca & Rodrigues
Stigonema sp.	2007	Fonseca & Rodrigues
Synechococcus elongatus (Nägeli) Nägeli 1849	2014	Fonseca & Rodrigues
Synechococcus mundulus Skuja 1964	2014	Fonseca & Rodrigues
Synechococcus sp.	2014; 2015	Fonseca & Rodrigues; Bortolini et al.
Synechocystis aquatilis Sauvageau 1892	2005;2009;2014;2015;2016;2017	Fonseca & Rodrigues; Rodrigues et al; Fonseca & Rodrigues, Rodrigues et al; Bortolini et al.
Synechocystis pevalekii Ercegovic 1925	2014	Fonseca & Rodrigues
Synechocystis cf. sulfuricus Dor	2014	Fonseca & Rodrigues
Trichodesmium lacustre Klebahn 1895	2005;2015	Fonseca & Rodrigues; Rodrigues et al