

Dr hab. Katarzyna Izydorczyk

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Education

- 2015 - Habilitation in ecology, Faculty of Biology and Environment Protection, University of Łódź
- 2003 - Ph.D. in ecohydrology, Faculty of Biology and Environment Protection, University of Łódź
- 1997 - M.Sc. in environmental protection, Department of Applied Ecology, University of Łódź

Main research areas

- Ecohydrological systematic solution for nutrient management in catchment
- Ecohydrological biotechnologies for reduction of diffuse pollution
- Biotic / abiotic regulations of toxic cyanobacterial bloom intensity
- Hydrological control of ecological processes in reservoirs
- Applied fluorescence technique for cyanobacterial bloom monitoring

Research projects

International projects:

- 2019-ongoing - **WATERDRIVE**: Water driven rural development in the Baltic Sea Region; Interreg Baltic Sea Region, #R094, National contact, WP5 Leader,
- 2018-ongoing - **RECONNECT**: Regenerating ecosystems with nature-based solutions for hydro-meteorological risk reduction" 776866-RECONNECT-H2020-SC5-2016-2017/H2020- SC5-2017-TwoStage, Investigator
- 2010-2014 - **EKOROB**: Ecotones for reducing diffusion pollution. Project financed by the European Community under financial instrument: LIFE+, component: 'Environmental Policy and Management', and the National Fund for Environmental Protection and Water Management. LIFE08 ENV/PL/000519, Main investigator
- 2010-2011 - **EHREK**: Ecohydrological recultivation of recreational reservoirs 'Arturowek' (Lodz) as a model approach to recultivation of urban reservoirs. Project financed by the European Community under financial instrument: LIFE+, component: 'Environmental Policy and Management', and the National Fund for Environmental Protection and Water Management. LIFE08 ENV/PL/000517. Investigator
- 2006-2011 - **SWITCH**: Sustainable Water Management Improves Tomorrow's Cities' Health, Project financed by the European Community under the 6th Framework Programme. EC - 018530-22006-2011. Investigator
- 2002-2005 - **TOXIC**: Barriers against cyanotoxins in drinking water. Project financed by the European Community under the 5th Framework Programme. EC-EVK1-2001-00182. Investigator
- 2002-2003 - **MIDI-CHIP-TOX**: Linking cyanobacterial diversity and cyanotoxins. Project financed by the European Community under the 5th Framework Programme. EC-EVK2-2002-00546. Investigator
- 2002-2005 - German-Polish bilateral cooperation project: „Controlling of algal blooms by micro- and ultrafiltration". Investigator

National projects:

- 2013-2016 - Do fish adapt to cyanobacterial blooms? Grant NCN UMO-2012/05/B/NZ8/00980. Main Investigator.
- 2010-2012 - Explanation of cause-effect relationships between occurrence of toxigenic cyanobacterial blooms and abiotic and biotic factors with emphasis on the role of viruses and bacteria. Grant of the Ministry of Science and Higher Education - MNiSW/NCN NN305 096439.
- 2008-2009 - Phenotype diversity and toxicity of invasive cyanobacteria coexisting with the blooms of *Planktothrix agardhii* (Gom.) Anagn. et Komarek in selected hypertrophic lakes in Wielkopolska Region. Grant of the Ministry of Science and Higher Education - MNiSW N304 051 31/1855. Investigator.
- 2006-2009 - Estimation of health hazard from toxic cyanobacterial bloom appearance during summer in Jeziorsko Reservoir. Voivodship Fund for Environmental Protection and Water Management in Lodz. 247/BN/D/2007.
- 2005-2007 - The ecotoxicological analyses of surface water; 2PO5F 056 28
- 2004-2007 - The analyse of spatial and temporal dynamics of hydrological and microbiological determining sediments quality in the Sulejow Reservoir in aspect of their agricultural usage; 2 PO4 G 12027; project coordinator
- 2004-2006 - Application of molecular methods for monitoring of hepatotoxic strains of cyanobacteria in drinking and recreational water of Poland 2PO4F 044 27
- 2003-2006 - The risk of health estimation by cyanotoxins in drinking water using cytotoxicity and genotoxicity tests 0546/PO5/2003/25
- 2001-2004 - Elimination of cyanobacterial toxins during treatment process 7T09D 01321
- 2000-2002 - Application of fluorescence in vivo for the assessment of abiotic factors influence on succession of phytoplankton community in the Sulejow Reservoir 6 PO4F 065 19; project coordinator
- 1998-1999 - Identification of potential areas of toxic algal blooms generation in the Sulejow Reservoir; 6PO4F05312, project coordinator

Publications

Co-author of 84 publications and book chapters, including 29 publications in Web of Sciences

Main publications:

Izydorczyk K., Piniewski M., Krauze K., Courseau L., Czyż P., Giełczewski M., Kardel I., Marcinkowski P., Szuwart M., Zalewski M., Frątczak W. 2019. The ecohydrological approach, SWAT modelling, and multi-stakeholder engagement – A system solution to diffuse pollution in the Pilica basin, Poland. *Journal of Environmental Management* 248: 109329

Frątczak W., Michalska-Hejduk D., Zalewski M., **Izydorczyk K.** 2019. Effective phosphorous reduction by a riparian plant buffer zone enhanced with a limestone-based barrier. *Ecological Engineering* 130: 94-100.

Izydorczyk K., Michalska-Hejduk D., Jarosiewicz P., Zalewski M., Frątczak W., 2018. Extensive grasslands as an effective measure for nitrate and phosphate reduction from highly polluted subsurface flow - case studies from Central Poland. *Agricultural Water Management* 203: 470-250.

Godlewska, M., Balk, H., Kaczkowski, Z., Jurczak, T., **Izydorczyk, K.**, Długoszewski, B., Jaskulska, A., Gągała-Borowska, I., Mankiewicz-Boczek, J. 2018. Night fish avoidance of *Microcystis* bloom revealed by simultaneous hydroacoustic measurements of both organisms. *Fisheries Research*, 207, 74-84.

Izydorczyk K., Michalska-Hejduk D., Frątczak W., Bednarek A., Łapińska M., Jarosiewicz P., Kosińska A., Zalewski M. 2015. Strefy buforowe i biotechnologie ekohydrologiczne w ograniczaniu zanieczyszczeń obszarowych. [in Polish, ang: *Buffer zones and ecohydrological biotechnologies to reduce diffuse pollution*]. ERCE PAN, ISBN 978-83-928245-1-0

- Frątczak W., **Izydorczyk K.** (red) 2015. Program działań dla ograniczenia zanieczyszczeń obszarowych w zlewni Pilicy powyżej Zbiornika Sulejowskiego. [in Polish, ang.: Action Programme to reduce diffuse pollution in the Pilica catchment.] ERCE PAN, ISBN 978-83-928245-2-7
- Piniewski M., Marcinkowski P., Kardel I., Giełczewski M., **Izydorczyk K.**, Frątczak W. 2015. Spatial quantification of non-point source pollution in a mesoscale catchment for an assessment of buffer zones efficiency. *Water*, 7: 1889-1920.
- Wojtal-Frankiewicz A., Kruk A., Frankiewicz P., Oleksińska Z., **Izydorczyk K.** 2015. Long-Term Patterns in the Population Dynamics of *Daphnia longispina*, *Leptodora kindtii* and Cyanobacteria in a Shallow Reservoir: A Self-Organising Map (SOM) Approach. *PLoS ONE* 10: e0144109.
- Izydorczyk K.**, Frątczak W., Drobnińska A., Cichowicz E., Michalska-Hejduk D., Gross R., Zalewski M. 2013. A biogeochemical barrier to enhance a buffer zone for reducing diffuse phosphorus pollution – preliminary results. *Ecohydrology & Hydrobiology* 13: 104-112.
- Gągała I., **Izydorczyk K.**, Jurczak T., Pawełczyk J., Dziadek J., Wojtal-Frankiewicz A., Józwick A., Jaskulska A., Mankiewicz-Boczek J. 2013. Role of Environmental Factors and Toxic Genotypes in The Regulation of Microcystins-Producing Cyanobacterial Blooms. *Microbial Ecology* 67: 465-479.
- Mankiewicz-Boczek J., Palus J., Gągała I., **Izydorczyk K.**, Jurczak T., Dziubałtowska E., Stępnik M., Arkusz J., Komorowska M., Skowron A., Zalewski M. 2011. Effects of microcystins-containing cyanobacteria from a temperate ecosystem on human lymphocytes culture and their potential for adverse human health effects. *Harmful Algae* 10: 356-365.
- Trojanowska A., **Izydorczyk K.** 2010. Phosphorus fractions transformation in sediments before and after cyanobacterial bloom: implications for reduction of eutrophication symptoms in dam reservoir. *Water, Air and Soil Pollution* 211: 287-298.
- Wojtal-Frankiewicz A., Sieczko A., **Izydorczyk K.**, Jurczak T., Frankiewicz P. 2010. Competitive influence of zebra mussel (*Dreissena polymorpha*) on *Daphnia longispina* population dynamics on the presence of cyanobacteria. *International Review of Hydrobiology* 95: 313-329.
- Izydorczyk K.**, Carpentier C, Mrówczyński J, Wagenvoort A, Jurczak T, Tarczyńska M. 2009. Establishment of an Alert Level Framework for cyanobacteria in drinking water resources by using the Algae Online Analyser for monitoring cyanobacterial chlorophyll a. *Water Research* 43: 989-996.
- Wagner I, **Izydorczyk K.**, Kiedrzyńska E, Mankiewicz-Boczek J, Jurczak T, Zalewski M. 2009. Ecohydrological approach for protection and enhancement of ecosystem services for societies at the Pilica catchment demonstration project. *Ecohydrology & Hydrobiology* 9: 13-39
- Izydorczyk K.**, Jurczak T, Wojtal-Frankiewicz A, Skowron A, Mankiewicz-Boczek J, Tarczyńska M. 2008. Influence of abiotic and biotic factors on microcystin content in *Microcystis aeruginosa* cells in a eutrophic temperate reservoir. *Journal of Plankton Research* 30: 393-400.
- Izydorczyk K.**, Skowron A, Wojtal A, Jurczak T. 2008. The stream inlet to a shallow bay of a drinking water reservoir a 'Hot-Spot' for *Microcystis* Blooms Initiation. *International Review of Hydrobiology* 93: 257-268.
- Wojtal A, Bogusz D, Menshutkin V, **Izydorczyk K.**, Frankiewicz P, Wagner-Łotkowska I, Zalewski M. 2008. Study of the *Daphnia*-*Leptodora*-juvenile Percids interactions using DALIS model in biomanipulated Sulejow Reservoir. *International Journal of Limnology* 44: 7-23.
- Izydorczyk K.**, Tarczyńska M., Jurczak T., Mrówczyński J., Zalewski M. 2005. Measurement of phycocyanin fluorescence as an online Early warning system for cyanobacteria in reservoir intake water. *Environmental Toxicology* 20: 425-430.
- Jurczak T., Tarczyńska M., **Izydorczyk K.**, Mankiewicz J., Zalewski M., Meriluoto J. 2005. Elimination of microcystins by water treatment process – examples from Sulejow Reservoir, Poland. *Water Research* 39: 2394-2406.