Dr hab. Katarzyna Izydorczyk

Address:

European Regional Centre for Ecohydrology of Polish Academy of Sciences
3, Tylna Str., 90-364 Lodz , Poland
phone: +48 42 681 70 07
fax: +48 42 681 30 69
www.erce.unesco.lodz.pl

e-mail: k.izydorczyk@erce.unesco.lodz.pl

Education

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

Main researchareas

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

Research projects:

International projects:

- 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.
- 2006-2011 - **SWITCH**: Sustainable Water Management Improves Tomorrow's Cities' Heath, Project financed by the European Community under the 6th Framework Programme. EC – 018530-22006-2011
- 2002-2005 - **TOXIC**: Barriers against cyanotoxins in drinking water. Project financed by the European Community under the 5th Framework Programme. EC-EVK1-2001-00182.
- 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
- 2002-2005 - German-Polish bilateral cooperation project: „Controlling of algal blooms by micro- and ultrafiltartion"

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 - Programme of recultivation of the Wióry and Brody Iłżeckie Reservoirs in the Kamienna River Catchment – pilot research work. Pursuant to the Agreement No. 162/W/2008 between the Regional Water Management Board in Warsaw and the International Institute ERCE of the Polish Academy of Sciences under auspices of UNESCO in Lodz.
- 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 hepetotoxic 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; 6PO4FO5312, project coordinator

Publications

Co-author of 56 publications and book chapters, including 24 publications in Web of Sciences

Main publications:

1. **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
2. 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
3. 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.
4. Godlewska M., **Izydorczyk K**., Kaczkowski Z., Jóźwik A., Długoszewski B., Ye S., Lian Y., Guillard J. 2015. Do fish and blue-green algae blooms coexist in space and time? Fisheries Research 173: 93-100.
5. 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.
6. **Izydorczyk K**., Frątczak W., Drobniewska 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.

7. Gągała I., **Izydorczyk K**., Jurczak T., Pawełczyk J., Dziadek J., Wojtal-Frankiewicz A., Jóźwik 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.

8. 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.

9. 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.

10. 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.

11. **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.

12. Wagner I, **Izydorczyk** K, Kiedrzynska 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

13. **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.

14. **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.

15. 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.

16. **Izydorczyk** K., Tarczynska M., Jurczak T., Mrowczynski 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.

17. Jurczak T., Tarczynska 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.

Main honours and awards

- 2006 - Awards of Major of the City of Lodz for co-authorship of the publications cycle concern formulate and application of the Ecohydrology Concept for inland water quality improvement