



WYDZIAŁ BIOLOGII
i OCHRONY ŚRODOWISKA
Uniwersytet Łódzki

Humans have caused both landscape change and climate change, leading to ecological calamities around the world in freshwater and coastal waters. Harmful algal blooms (HABs), more common and wicked because of excessive and non-stop fertilization and runoff from farms and urban areas, are accelerated by increased water temperatures. These HABs include hypoxia, dead zones, and red tide due to excessive nitrogen and phosphorus. We have also changed our landscapes by draining wetlands that could help with nutrient retention and carbon sequestration. The world has lost 87% of its wetlands, with half of that loss occurring in the 20th century alone. A sizeable increase in the wetland resources around the world is needed, especially for the strategic purpose of mitigating excess nutrients in regions with harmful algal blooms. Examples include: 1. minimizing phosphorus inflows to the oligotrophic Florida Everglades with 40,000 ha of new treatment wetlands added to an existing 24,000 ha of treatment wetlands, and 2. reducing nutrient inflows to Lake Erie in the Laurentian Great Lakes by restoring 40,000 ha, or 10 %, of the completely drained Great Black Swamp. A nutrient recycling approach applicable to landscapes around the world called “wetlaculture” (wetlands + agriculture) could help solve downstream nutrient pollution problems while decreasing the amount of fertilizers added to landscapes. We have established field physical models, two in temperate Ohio and one in subtropical Florida, for estimating the amount of time needed for wetlands to accumulate nutrients before flipping the land to agriculture. In addition, our early business model suggests that farmers could make profits comparable to crop by receiving payment for ecosystem services (PES) coupled with public Environmental Impact Bonds sold to investors.

BIO: Professor William J. Mitsch is Endowed Chair and Director of the Everglades Wetland Research Park, Florida Gulf Coast University in Naples Florida. He has been a professor for 43 years at 4 universities, most at The Ohio State University. He has 700 publications in wetlands/water quality, and ecological engineering including 5 editions of Wetlands. He received his Ph.D. in systems ecology at University of Florida and has advised, with thesis or dissertation, 79 graduate students. He was awarded the Stockholm Water Prize in 2004 and is currently Chair of the U.S. National Ramsar Committee.

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PHOTO: <https://www.nationalgeographic.com/travel/destinations/north-america/united-states/florida/>



Polskie Towarzystwo
Hydrologiczne – oddział Łódź
i Katedra Ekologii Stosowanej

Zaprasza na wykład

**3 kwietnia 2019 r. o 13.00
w Sali Rady Wydziału BiOŚ**

A TALE OF LANDSCAPE AND CLIMATE CHANGES: SUSTAINABLY SOLVING HARMFUL ALGAL BLOOMS WITH WETLANDS AND WETLACULTURE

Prof. William J. Mitsch



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