

ABSTRACT

Reverse osmosis (RO) treatment of brackish and reclaimed water is vital for addressing global water scarcity due to drought and urban population growth. While the RO treatment achieves over 99% rejection of various contaminants, it produces 15% to 25% of feed water as a concentrated waste stream with constituents concentrated by 4 to 6.6 times. This brine management is critical, especially in inland communities. In our laboratory, we are developing a photobiological treatment process using brackish diatoms, like *Gedaniella flavovirens*, and natural sunlight. These diatoms utilize dissolved silica and absorb nutrients while precipitating certain cations. Our work demonstrates the technical and economic feasibility of this approach through bench- and pilot-scale experiments, lifecycle cost analysis, metagenomics and transcriptomics, and analyses of harvested biomass. This presentation will share recent advancements and explore associated challenges and opportunities.

PRESENTER:

Dr. Keisuke Ikehata
Texas State University

Friday, Oct. 25, 2024

4:00-5:00 PM



BIOGRAPHY

Dr. Keisuke Ikehata is an Assistant Professor in the Ingram School of Engineering at Texas State University in San Marcos, TX. He joined Texas State as one of the four founding members of the new Civil Engineering Program in July 2019. Dr. Ikehata earned his PhD in Civil and Environmental Engineering from the University of Alberta in 2003. Prior to his position at Texas State, he worked at a water resources engineering firm in Southern California for eight years and taught at the University of California, Riverside, and California State University, Fullerton, for one and a half years. Dr. Ikehata's research interests include water quality management, water reuse and desalination, the taste, odor, and appearance of potable water, and public perceptions of water reuse. His research has received funding from the National Science Foundation, the US Bureau of Reclamation, industry sponsors, and utility companies.



The University of Texas at San Antonio
UTSA Earth and Planetary Sciences
College of Sciences

AND
Institute for Water Research, Sustainability and Policy



Boosting Freshwater Production at Brackish Water Desalination and Potable Reuse Facilities Using Brackish Diatoms and Secondary Reverse Osmosis

HYBRID EVENT:

[BSE 2.102](#)

LINK TO ACCESS MEETING:

<https://utsa.zoom.us/j/93940178884?pwd=gAsFWtPieyliYa7IWpasSypzTxTK7h.1>

