TransTech Talk Series # 23

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Coastal Water Quality and Public Health in the North American Great Lakes : The Science, Technology & Policy Behind Beach Management

Dr. Phanikumar Mantha, Ph.D.

Professor, Michigan State University

Monday, December 23, 2024 9:30 – 10:30 am (IST)

Join from the meeting link
https://tinyurl.com/TransTech-Talk-23

ABOUT THE TALK :

Good coastal water quality protects public health and sustains tourism and local economies. To protect the public from illness following exposure to contaminated water (e.g., swimming), marine and freshwater beaches in the US are closed whenever levels of indicator bacteria such as *Escherichia coli* (E. coli) or *Enterococci* exceed a threshold value determined by epidemiological studies. Traditional methods of sample collection and laboratory analysis take several hours to a day or more. During this time conditions at the beach could change, potentially exposing the public to contaminated water. An attractive alternative approach is to use well-tested mathematical models to make real-time predictions of beach water quality. Once tested, models can generate predictions in a fraction of the time it takes to run laboratory assays and can reliably predict water quality and offer insights into key processes that contribute to water quality degradation. The focus of this talk is on the science, technology and management of beaches in the context of the freshwater beaches of the Great Lakes in North America and how models can be developed, tested and refined to aid beach management. This approach can be extended to other coastal regions to enhance water quality and support blue economy initiatives.

ABOUT THE SPEAKER :

Dr. Phanikumar Mantha is a Professor in the Department of Civil and Environmental Engineering (College of Engineering) and AgBioResearch (College of Agriculture & Natural Resources) at Michigan State University in East Lansing, USA. Dr. Mantha earned his Ph.D. from the Indian Institute of Science, Bangalore in 1990 and worked as a Scientist at the CSIR-Center for Mathematical Modeling and Computer Simulation (C-MMACS), National Aerospace Laboratories in Bangalore between 1990-95 where he received the Sir C.V. Raman Young Scientist Award. Research interests in his group include hydrology, water resources, coastal/nearshore process modelling and biophysical modelling. Dr. Mantha published 80+ papers in peer-reviewed international journals and presented his work at numerous national and international conferences. He is a Fellow of the Geological Society of America (GSA) and is currently a US Fulbright scholar visiting India. His research was funded by federal and state agencies including the National Science Foundation, National Atmospheric and Oceanic Administration, National Aeronautics and Space Administration, US Department of Agriculture, and the United States Geological Survey.

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