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**Past, Present and Future of Aquatic Ecosystem Modeling: Can Biology and People Keep Up with Computers?****Dubravko Justic, LSU**

Coast to Cosmos Adjunct Faculty Presentation

Johnston Hall 338

November 07, 2012 - 09:00 am

**Abstract:**

Over the past several decades, coupled hydrodynamic-water quality models have become major research tools across the aquatic sciences. The size and the complexity of these models have been steadily increasing due to developments in computer technology and computational techniques. This transition from simple box models to 2-dimensional and 3-dimensional mega models has had a number of advantages and drawbacks. An advantage of complex models, if they are well-formulated and tested, is that they can provide understanding of cause-effect mechanisms over large spatial scales that are impossible to derive solely from observational data. A disadvantage of complex models is their extensive data requirements for inputs, calibration and validation. The presentation discusses some fundamental challenges in developing complex hydrodynamic-water quality models that pertain to the coupling of physics and biology, model data requirements, calibration and validation issues.

**Speaker's Bio:**

Dubravko Justic is a Professor in the Department of Oceanography and Coastal Sciences at Louisiana State University, Baton Rouge, Louisiana, USA. He received his PhD in Biological Oceanography from the University of Zagreb in 1989. His research interests include ecosystem modeling, coastal eutrophication, hypoxia, and potential impacts of climate change on coastal ecosystems. He has studied extensively the low oxygen zones in the northern Adriatic Sea and the northern Gulf of Mexico and has used mathematical models to describe and dissect controls of environmental factors on hypoxia and predict the consequences of management actions.

