

# UConn

## UNIVERSITY OF CONNECTICUT

Department of Marine Sciences  
Presents a Seminar By

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### **Predicting hypoxia in the northern Gulf of Mexico: Results from model sensitivity and intercomparison studies**

A large hypoxic zone forms every summer over the continental shelf in the northern Gulf of Mexico because of significant nutrient and freshwater inputs from the Mississippi/Atchafalaya River System, but interannual variations in the size of the hypoxic area are large. Several coupled circulation-hypoxia models are under development for this region in order to improve mechanistic understanding of the processes responsible for hypoxia formation and as tools to inform nutrient management decisions. Here the sensitivity of hypoxia predictions to variations in sediment oxygen consumption and choice of physical horizontal boundary conditions is evaluated for a hypoxia model based on the Regional Ocean Modeling System (ROMS). Next the initial results of an intercomparison of multiple models, which is being undertaken within the NOAA-funded Coastal & Ocean Modeling Testbed (COMT), is reported. Four circulation models are included: two implementations of the ROMS, one implementation of the Finite Volume Coastal Ocean model (FVCOM), and one implementation of the U.S. Navy's coastal ocean model (NCOM). In order to elucidate the effects of model physics on hypoxia, all circulation models were initially run with the same, highly simplified hypoxia model, which parameterizes oxygen sinks in water column and sediment, and includes air-sea gas exchange. The second step of the intercomparison will include a detailed analysis of the full ecosystem-hypoxia models. The ultimate goal of this work is to improve model formulations, hindcasts, forecasts and mechanistic understanding.

**Host:** Jim O'Donnell

**Time & Date:** 11:00 am, Friday, April 24, 2015

**Place:** Marine Sciences Building, Seminar Room 103

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