1067-92-1230 **Rachael L Miller Neilan*** (rmill48@lsu.edu), 2139 Energy, Coast, and Environment Building, Louisiana State University, Baton Rouge, LA 70803, and **Kenneth Rose**, **Sean Creekmore**, **Kevin Craig** and **Peter Thomas**. *Quantifying the effects of low dissolved oxygen on the growth, reproduction, and survival of fish.*

Low dissolved oxygen (DO) is a widespread and increasingly prevalent stressor in estuaries and coastal seas. Exposure to low DO can inhibit fish growth and reproduction and may result in death. We present an exposure-effects model that quantifies the reduction in an individual's vital rates (growth, reproduction, survival) given its DO exposure history. We estimate model parameters using published, constant exposure lab experiments and then use the model on an hourly time-step to predict the effects of fluctuating DO exposures. We illustrate the model's ability to replicate the growth, reproduction, and survival of a variety of species exposed to intermittent low DO in lab experiments. Finally, we present some preliminary results from the exposure-effects model embedded within a larger individual-based model designed to simulate the effects of hypoxia (DO $\leq$ 2.0 mg/l) on the population dynamics of Atlantic croaker, a common demersal fish species, in the northern Gulf of Mexico. (Received September 22, 2010)