1056-BA-2121 **Louis J. Gross*** (`gross@tiem.utk.edu`). *Environmental Modeling & Big Projects: Lessons from Everglades Restoration Planning.*

As human-dominated systems spread across our planet, we need to evaluate how human modifications to natural systems impact the services provided by ecosystems. While inherently a global issue, much of our planning occurs at a regional level. Mathematical and computational models play a key role in regional planning – it is impractical to carry out controlled experiments at these scales. Models can assess alternative scenarios, incorporate the trade-offs important to stakeholders with differing criteria for the objectives of management, and consider the impacts of uncertainty of future conditions. One of the largest attempts to date to evaluate alternative management plans at regional extent has been the massive project associated with the restoration of the Everglades of South Florida. To provide a common scientific framework to assess the impacts of alternative plans on the biotic components of the natural systems, we developed a multi-model (ATLSS - Across Trophic Level System Simulation) consisting of many linked-models using different mathematical approaches & coordinated through a common set of tools. I'll describe how we developed ATLSS, how the differing models address biological questions for various ecosystem components, and lessons learned from this long-term project. (Received September 23, 2009)