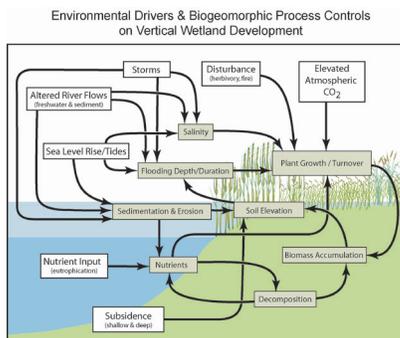


# Patuxent Wildlife Research Center

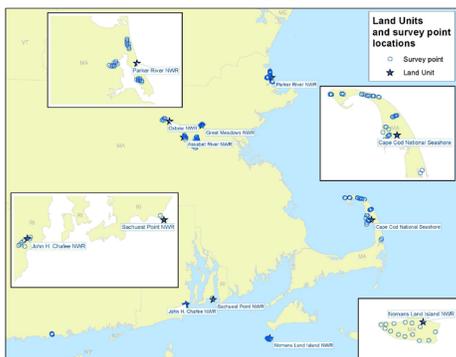
## Coastal Wetland Dynamics and Wildlife Populations: Modeling the Effects of Sea Level Rise and Landscape Change



**The Challenge:** Accelerations in sea-level rise and global climate change have important implications for the integrity of coastal wetlands and for efforts to restore and protect a variety of wildlife species and the systems they inhabit. Persistence and adaptation to these stressors depends on the net effects of changes in physical processes and biotic responses. Future planning by decision makers will require scientifically sound forecasts of potential impacts, knowledge of sea-level rise thresholds, and indications of the potential effectiveness of various adaptation strategies.



**The Science:** We will model the response of individual intertidal wetland complexes using a state of the art computer simulation model being developed by USGS and then develop hierarchical spatial models to determine how wildlife species endemic to the Northeast coastal zone, such as rails, bitterns, several species of coastal sparrows are affected by sea level rise (i.e., climate change) and changing land use patterns.



**The Future:** This modeling effort will enable us to forecast ecosystem responses to a wide variety of scenarios and provide critical feedback to managers, which will enable them to modify strategies for the sustainable management of coastal wetlands and the endemic species.