

Exploring the cost-effectiveness of restored marshes as filters of runoff pollution in a world of rising seas.

- ▶ Dauphin Island Sea Lab
- ▶ Weeks Bay National Estuarine Research Reserve
- ▶ Weeks Bay Foundation, Inc
- ▶ University of Alabama
- ▶ University of Connecticut

Research Questions

- ▶ Put all the effort into shoreline restoration, what will the effects of sea level rise?
- ▶ Can we devise effective management strategies to reduce runoff pollution through marsh restoration?
- ▶ Can we maintain capacity to reduce runoff pollution in an era of rising seas?
- ▶ Series of experiments
 - to quantify runoff pollution removal by marshes restored to varying degrees of coverage under current and future sea level scenarios. We will
 - generate different runoff regimes, ranging from intense, short-lived rainfall to prolonged, light drizzle, and quantify nitrogen filtration (loss and retention) as the runoff plume travels through the restored marshes.

Research Outcomes

- ▶ Cost-effective management strategies to reduce runoff pollution through marsh restoration
- ▶ Strategies that consider effects of sea level rise
 - Alter fringing marshes through increased flooding
 - Alter fringing marshes through salinity stress
- ▶ Training modules to increase the capacity of coastal resource managers

Collaboration Outcomes

- ▶ Develop a well-coordinated, collaborative plan between participating scientists and end-users
- ▶ Create of an effective decision support tool that will guide end-users in best marsh restoration practices to reduce runoff pollution
- ▶ Adaptive strategies to rising sea levels

Management Applications Team

- ▶ End-users
 - Public and Private
 - Need to meet stormwater regulatory compliance
- ▶ Guide the research to meet end-user goals
- ▶ Advisory role in developing decision-support tool and training
- ▶ Benefit from targeting research efforts to meet individual needs

