NATIONAL COASTAL ECOSYSTEM PREDICTION SYSTEM

Science informing coastal ecosystems, communities, infrastructure protection and resilience

GOAL

This effort aims to deliver a nationwide, user-informed framework for applying marsh models to gain a better understanding of marsh habitat predictions as a result of sea-level rise. Leveraging multi-agency collaboration with stakeholders, including modelers and end-users, these co-developed results will provide science that informs the protection and resilience of coastal ecosystems and infrastructure

To achieve these goals we need to:
- Establish a marsh model community of practice
- Conduct a retrospective analysis
- Create a national marsh model framework

There are a number of models designed to predict marsh habitat change, and these can be brought together in an improved framework to meet user needs at a national scale.

COMMUNITY OF PRACTICE

Fostering productive dialogue between marsh modelers and marsh model end-users

OBJECTIVES

- Address end-user questions and needs surrounding model application
- Engage marsh modelers, helping progress the retrospective analysis and a marsh model framework

IMPACT

- Informs model advancement, advancing marsh model capabilities and utility through a diverse community of practitioners, leading to more robust model application

RETROSPECTIVE ANALYSIS

Identifying how well our marsh models predict our observed conditions today.

OBJECTIVES

- Run models for ~40 years at testbeds and explore how the models predict today's observed conditions
- Demystify model differences using standardized inputs and outputs
- Conduct a performance analysis
- Develop a prototype operational platform

IMPACT

- Increases end-user certainty in marsh models' ability to accurately predict future conditions and inform decision making

NATIONAL MARSH MODEL

Understanding what future marsh changes we can expect with sea-level rise

OBJECTIVES

- Establish comprehensive model inputs and output libraries
- Distribute model outputs in a single, user-friendly interface
- Provide guidance on marsh prediction usage and model similarities/differences
- Standardize code to optimize model expansion and evolution

IMPACT

- Provides equitable access to marsh models across the United States coastline, preparing us to be more responsive to changes in the environment and in coastal decision-making.

OUTCOMES

- Expand the amount, quality, and accessibility of available marsh prediction information nationwide
- Establish the predominant marsh models in single coded language, enabling the modeling field to move closer to operating its first complete performance analysis across all models
- Improve future modeling capabilities (e.g., expansion to new habitat types and iterative model updates) to ensure that coastal decision makers continue to receive the best possible information
- Empower end users to make informed management decisions that maximize the value of existing tidal wetlands and support planning to ensure space for tidal wetlands to migrate under sea-level rise