



# East River Marsh Fact Sheet

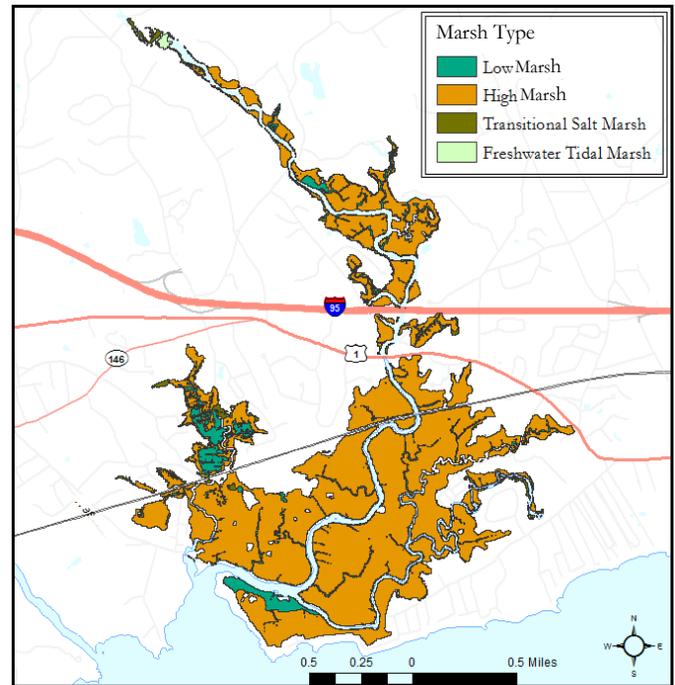
Guilford & Madison, CT

## Background

The East River Marsh's (ERM's) 886 acres of high marsh dominated tidal wetlands provide critical *ecosystem services* such as fish and wildlife nursery habitat, water quality enhancement, shoreline flood and erosion control and outdoor recreation opportunities. Together with associated coastal woodlands, streams, inland wetlands, vernal pools, and grasslands, the ERM is among coastal Connecticut's most ecologically significant areas.

Although among Connecticut's most productive ecosystems, coastal marshes like the ERM are also the most vulnerable to a more recently recognized threat – accelerating rates of long term sea-level-rise (SLR). To better understand how the ERM may respond to sea level rise, the **Sea Level Affecting Marshes Model (SLAMM)** was applied to Connecticut's shoreline. Model results indicate that a rising sea could significantly change the kind and extent of the ERM and other Connecticut coastal marshes<sup>1</sup>.

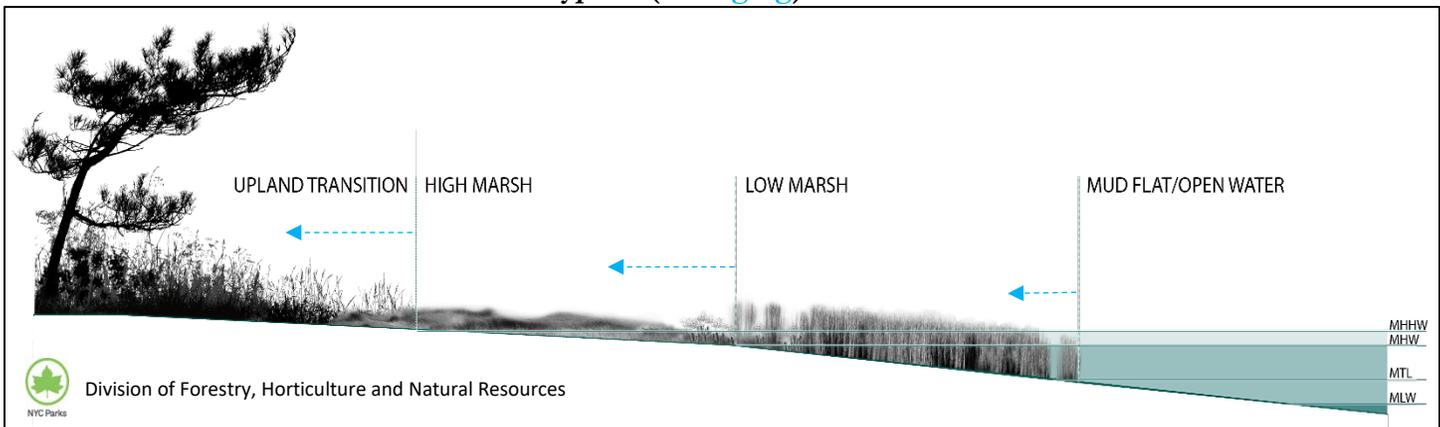
East River Marsh (2010)



## Sea Level Rise and Marsh Change

One way marshes responds to SLR is to move to higher ground. As shown in the following figure, SLR shifts (→) the three coastal marsh zone boundaries (low, high and transitional marsh) inland, including into areas of previously dry upland where new marsh can establish if suitable conditions exist. However, as these marsh migration areas are developed or fortified to prevent regular tidal flooding, the marsh's ability to adapt to SLR is compromised. Conserving marsh migration areas is therefore an important first step in sustaining coastal marshes like the ERM.

Zones of a Typical (**Changing**) Connecticut Saltmarsh



MHHW-mean higher high water (average of highest tides of month); MHW-mean high water; MTL-mean tide level (average MHW & MLW); MLW-mean low water

<sup>1</sup> For more on SLAMM go to <http://s.uconn.edu/slammviewer> to access the *Sea Level Rise Effects on Roads and Large Marshes Data Viewer on CT ECO*. Select **Layer List** and zoom in to the ERM. Select the **Project Info** and then **Info** tabs for information on how SLAMM works.

## How Will the ERM Change with Sea Level Rise?

East River Marsh Change Under Two Alternative Sea Level Rise Scenarios\* (acres)

Marsh Type	2010 (Initial Conditions)	2055 High-Medium SLR	2055 High SLR	2100 High-Medium SLR	2100 High SLR
Low	75	297	765	972	238
High	778	606	157	19	5
Transitional	31	33	49	48	73
Fresh Tidal	2	2	2	1	0
<b>Total</b>	<b>886</b>	938	973	1040	<b>316</b>

\* SLAMM can consider 5 SLR scenarios to generate results. The **High-Medium** scenario of 18 inches by 2055 (and ~4 feet by 2100) approximates the 20 inches of SLR scenario by mid-century adopted by the State of Connecticut as an upper bound for coastal resilience planning. The **High** SLR scenario is approximately 6 feet by 2100. More recently derived mid-range Year 2100 SLR for Connecticut provided by U.S. 4<sup>th</sup> National Climate Assessment exceed these rates.

As presented in the preceding table, SLR may change the ERM from a high marsh to low marsh dominated system by mid-century, potentially reducing the total area of marsh by 2100 under a High SLR scenario. In addition, because some marsh migration areas will be either developed or fortified to prevent tidal flooding, these results overestimate the future extent of the ERM. Although all the implications of such changes to the marsh are not fully understood, preliminary results of on-going investigations of Connecticut coastal marshes indicate that low marsh may not provide the same suite of ecosystem services as high marsh, while reductions in ecosystem services created by significant declines in the total area of coastal marsh is generally well accepted.

### Developing an ERM Marsh Migration Area Conservation Strategy

#### Near Term - 2020

- Present the results of the East River Marsh SLR Response investigation to area residents and the marsh conservation community.
- Contact marsh migration area landowners to explain their properties' significance to the long term health of the ERM.
- Host a gathering of marsh migration area landowners to explain how they can help sustain the ERM and learn to about their interest in, and potential concerns about, marsh migration area conservation and management.
- Host a workshop explaining land conservation and land management options available to property owners concerned about the future condition of their marsh-front property.

#### Mid Term (2021-2025)

- Develop a 'compact' among cooperating organizations, including land trusts and conservation commissions interested in preparing a long term strategy for working with local marsh-front property owners to achieve mutual ERM marsh management goals.
- Amend municipal land conservation and plans of conservation and development to enhance policies that support marsh migration area conservation and conservation acquisition funding.
- Update zoning and other land use requirements to implement marsh migration policies.