

**Using SLAMM 6.0.1 to Model Likely Paths for Salt Marsh Migration in North Kingstown, Rhode Island in
Response to Sea Level Rise**

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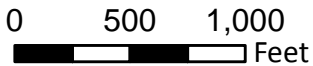
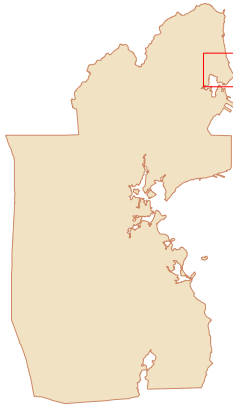
The Nature Conservancy of Rhode Island

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Sample Interpretations for North Kingstown, Rhode Island

The following pages show a sampling of locations with a set of interpretations of the results. These are meant only to illustrate one way that these data can be used.

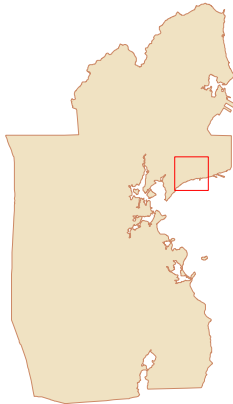
3 foot SLR



Calf Pasture Point Beach and Nature Preserve is a town owned property with existing salt marsh and quality beaches. This property is projected to have some of the best opportunity for future marsh migration in the town. Since it is already owned by the town and is presumably managed for recreation and habitat, sea level rise mitigation efforts could focus on the management and stewardship of this property.

- 1 This existing patch of salt marsh is projected to suffer minimal loss due to inundation, which is more than offset by gains. It has a good opportunity to migrate landward and model projections show an increase in future marsh habitat. A cursory review of aerial photography shows some type of drainage ditches running parallel to the beach and into the existing marsh. Future management activities could have significant impact to this site. Ideally, a management and monitoring plan could be implemented to help maintain the recreational beach and habitat.
- 2 Due to the gently sloping nature of this area model projections show the opportunity for significant new salt marsh. These results should be taken with at least a touch of skepticism as there is not currently salt marsh close to this scale present. These do however point to a large potential that should be reviewed further, perhaps some on the ground study is needed.
- 3 At three feet of sea level rise this fringe of salt marsh shows a pretty straight forward landward migration without much change in the area of coverage. At five feet sea level rise the model predicts the loss of the fringe.
- 4 Though the marsh fringe at site 3 is lost at five feet of sea level rise there is new opportunity for marsh migration through this inlet to the cove and land areas behind.

3 foot SLR



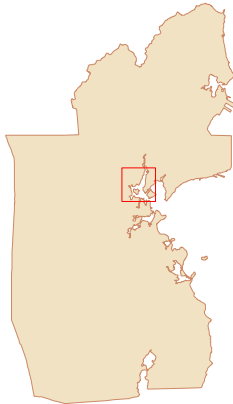
0 500 1,000 Feet



The former Quonset Air Station is now home to a business park. The model was run without preventing the conversion of developed land to marsh habitat. This allows a complete picture of habitat restoration potential but does show some unlikely results. It is important to interpret these properly.

- 1 The business park has flat topography and sits very close to sea level. Because of this the model predicts a fair amount of potential salt marsh habitat. Since this area is intensely developed, including extensive building and parking areas it is not a suitable substrate for marsh development. This model and other inundation projections do however highlight the extreme impacts that Quonset faces due to sea level rise. Perhaps whatever responses, engineering or otherwise, that take place here in the future could incorporate some sort of marsh restoration or another type of 'green infrastructure' approach.
- 2 This parcel is owned by the Rhode Island Economic Development Corporation. It contains a reasonable amount of salt marsh with just enough of an undeveloped buffer to allow it to roughly maintain its current area.
- 3 This privately owned parcel is part of a cluster of parcels owned by the same individual. This parcel acts as a buffer between the residence and the bay. It appears to be actively managed for views and beach access. Land owner activity in this area will have a great impact on the future of this property. It seems likely that this land owner will need to address sea level rise in the future. The feasibility of green infrastructure as opposed to harder options should be explored.

3 foot SLR



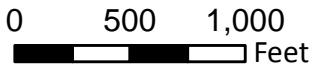
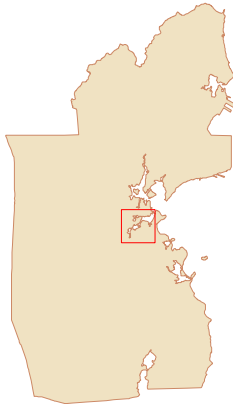
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Mill cove contains a mix of residential development, private and protected open space.

- ① This privately owned parcel currently hosts a substantial amount of salt marsh. At three feet of sea level rise it is projected to allow for some migration but also a good deal of loss to inundation. At five feet of sea level rise the loss is even greater but some marsh is still projected.
- ② These parcels are classified as open space and have reasonably significant salt marsh currently and projected into the future.
- ③ The western edge of the cove is a mix of developed parcels and open space. There are existing patches of salt marsh currently. The model predicts a more extensive fringe of marsh in the future but more confidence can be given to those areas that already contain marsh than those that don't.

3 foot SLR



Wickford Cove is surrounded by a mix of residential and commercial properties and transportation infrastructure. Much of which is threatened by sea level rise.

- ① This cove is projected to support an increase in salt marsh as sea level rises to three feet but much of that is lost at the five foot level. This loss, combined with the highly developed context make this a less desirable location for future salt marsh habitat.
- ② Wickford is very susceptible to inundation due to sea level rise. Many of its roads and bridges are at risk. As engineering solutions are designed it will be important to ensure that they allow ecosystem functions such as sufficient water flow to maintain the health of the cove.
- ③ This existing fringe of salt marsh is projected to migrate and maintain a relatively consistent area. This could be a likely candidate for conservation, either through purchase or conservation easement.