

## South Shore Salt Ponds and Salt Marshes

The network of coastal lagoons, locally referred to as salt ponds, that lie along Rhode Island's south shore are important shallow marine ecosystems with historically high productivity of commercially important fish and shellfish and provide habitat for resident and migrating shorebirds and water birds.

These lagoons are particularly vulnerable to changes associated with accelerated sea level rise, storms and sea surge, temperature increases and runoff from more precipitation. As sea level rise accelerates and storms cause sand to overwash, the barrier beaches tend to move landward, if unimpeded by development and human intervention. At Westerly's Napatree Point, the barrier has moved over 200 feet towards the town since the 1938 Hurricane.

Developed barriers may narrow over time, as sand overwash from storms (a natural event) is too often plowed off of the road and put back on the beach or taken away, not allowing the barrier to move inland. Barriers may also be more vulnerable to breaching. While breaching is natural for barriers and the lagoons behind them, the potential for increased frequency may affect the mix of salt and fresh water, as sand overwash becomes narrower and steeper, shortening the length of inlets to the lagoons and increasing exchange with ocean water. This will change the mix of salt and fresh water and cause changes for animal life that may not be so tolerant of salinity changes.

Salt marshes are other ecologically important habitats that provide a variety of ecosystem services, serving as nurseries and feeding grounds for fish, shellfish, birds, and invertebrates; filtering pollutants from groundwater and runoff; and buffering adjacent land and infrastructure from storms, erosion, and flooding. Loss of salt marsh habitat will likely occur due to accelerated sea level rise. If tidal marsh growth cannot keep up with the accelerated rate of sea level rise, or is not able to migrate landward to higher elevations due to development or steep slopes, a significant percentage of these wetlands may be permanently lost by the end of this century. The loss of salt marshes will negatively impact many shorebirds and commercially important species of fish and shellfish, allow more pollutants to reach coastal waters, and leave the coastline more vulnerable to storms and erosion.

The retreat of beaches and the shoreline due to accelerated erosion loss and inundation may increase concerns over private property rights and permit decisions that address public safety, welfare and access among others. The combined impacts of warming, sea level rise, and coastal hazards will likely coincide with falling property values in coastal areas and loss of tourism revenue. Tourism is one of Rhode Island's major sources of revenue so don't celebrate the loss of tourist traffic with road rage just yet.



*Photo Credit: RI Sea Grant*