National Park Service
U.S. Department of the Interior

Cape Cod National Seashore

www.nps.gov/caco

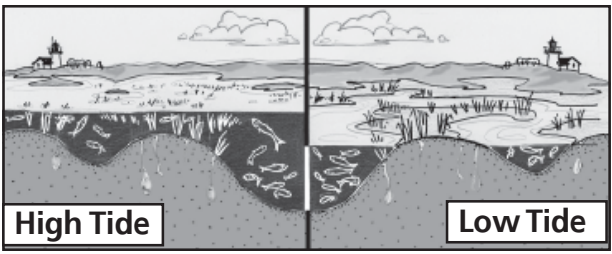
Hatches Harbor Salt Marsh Restoration

Proceed along the trail to a dike (0.5 mile), where you will see some of the impacts to plant and animal communities caused by the 1930 installation of this dike, and the early results of National Park Service restoration efforts.

A Healthy Salt Marsh

The area before you was once a 200- acre undisturbed salt marsh. The wetland on your left remains natural, undisturbed salt marsh. Its uniform appearance indicates the presence of just a few species of salt marsh grasses and seaweed. Despite the lack of plant diversity, salt marsh plant communities are among the most efficient in the world in converting solar and tidal energy into food for animals, rivaling tropical rain forests in the amount of plant material (biomass) produced each year.

In contrast with the small number of plant species, the diversity of marine and estuarine animals that find food and shelter here is very high. Marine fish, shellfish, crabs and lobsters rely on salt marsh habitats at critical life stages.



During each flood tide thousands of killfish (*Fundulus*) move with the tide onto the marsh surface to feed on bits of plant matter and invertebrates. During the ebb tide they move back into creeks to be pursued by larger predatory bluefish (*Pomatomus saltatrix*) and striped bass (*Morone saxatalis*).

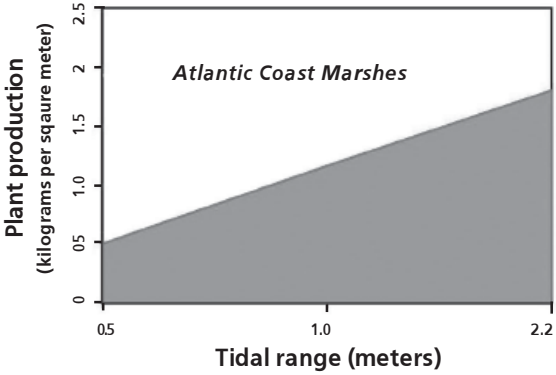
Walk ahead to where the large pipes (culverts) pass through the dike.

A Changed Environment

Until 1930, the wetland on your right was part of this productive salt marsh. The installation of the dike on which you are standing caused dramatic changes in plant and animal communities. The blockage of saltwater and the addition of freshwater from rainfall and groundwater inflow allowed freshwater- adapted plants to move in and crowd out those adapted to saltwater. Invasive plants, such as the common reed (*Phragmites australis*) thrived. Also, the lowered water level and lack of tides made it impossible for estuarine fish to reach and feed on the wetland surface.

In 1987, following extensive research, the National Park Service (NPS) initiated a program to restore the marsh. The first step was to remove a tide gate that had prevented seawater from passing through a small culvert between the two wetlands. Saltwater flow was restored, and fish gained access to the marsh. In 1999 the small culvert was replaced by the four- 7' X 3' box culverts. These culverts have been opened incrementally since then, causing tidal heights and salinities to again approach those of the natural marsh to your left.

NPS scientists monitoring the project are noticing significant changes. The invasive common reed is dying. Shellfish have recolonized the area and estuarine fish are again foraging in tidal creeks and on the marsh surface. With each new high tide this marsh is being revitalized. We invite you to return again to witness this dynamic process.



Salt Marsh productivity is largely driven by tidal range, i.e. the difference in elevation of high and low tides.