

# ENVIRONMENTAL Fact Sheet



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WMB-CP-14

2005

## NH Salt Marsh Restoration: Little River Salt Marsh, N. Hampton

**Year of Project:** 2000

**Type of Project:** Tidal Restriction Removal

**Contractor:** Northeast Wetland Restoration

**Primary Project Partners:** Town of N. Hampton, Natural Resources Conservation Service, NH Coastal Program

**Type of Monitoring:** Post-Restoration for Phase I and Pre-Restoration for Phase II



**Location:** Little River Salt Marsh is located on Route 1A (Ocean Boulevard) in North Hampton, just southwest of Route 111 and just northwest of North Hampton State Beach. The main tidal creek is located at the intersection of Route 1A and Sea Road. Parking is available at North Hampton State Beach, however, for volunteer monitors, please park at the Lamprey Homestead Conservation Area on Route 111 just before it intersects with Route 1A.

The Little River Salt Marsh is a back barrier marsh lying between Little Boar's Head in North Hampton and a rocky headland just south of North Shore Road in Hampton. USDA soil maps indicate that originally the marsh was approximately 193 acres in size. Until recently most of the original marsh had been greatly reduced to 160 acres. The amount of healthy salt marsh was only 42 acres.

**Background:** After nearly a decade of partnership efforts, adequate tidal flow has been restored to Little River Salt Marsh. Now, recovery of native marsh habitat can begin and freshwater flooding caused by an inadequate outlet will end.

### The Issues:

**Tidal Restriction.** For over a century, there has been inadequate salt water flow into the marsh. Little River salt marsh deteriorated because it lacked a connection to the ocean of sufficient size to allow adequate tidal flow to



*Little River Pre-Restoration Aerial – October 2000*

the marsh. Without tidal flow the overall health of the marsh is reduced.

In 1890, residents installed a culvert known locally as "the trunk" near the fish houses at Little Boars's Head. This was replaced by a 30-inch culvert in 1929 and with a 48-inch culvert in 1948. All of these early culverts were too small to allow adequate tidal flow into the marsh.

**Invasive Species Replacing Native Salt Marsh Plants.** Over the years, the lack of saltwater allowed invasive species such as common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*) to dominate large portions of the marsh. Much of the original salt marsh (on the upland edges) was also turning into freshwater red-maple swamp due to lack of tidal flushing and ponding of freshwater runoff.

**Flooding to Nearby Homes.** In addition, flooding to nearby houses occurred regularly, as the small culvert was restricting the flow of Little River during and after storms. Little River Salt Marsh was acting like a clogged bathtub. The solution was actually very simple - replace the old restrictive culverts with culverts that allow adequate daily tidal flow and rapid drainage of the marsh after it rains.

Residents in Hampton and North Hampton expressed a strong interest in restoring the marsh and solving their flooding problems. Preliminary studies indicated that it was possible to solve both problems simultaneously. For example, a large storm in the fall of 1996 raised water levels in the marsh to 11.6 ft. Modeling showed that if the proper-sized culvert was in place then, the water would have risen to only 7.8 ft, below elevation for all the adjacent buildings.

#### **Project Goals:**

- Remove the tidal restriction and allow adequate tidal flow to the marsh.
- Reduce flooding and allow proper drainage of the marsh.



*Little River Culvert Replacement –  
November 2000*

#### **Restoration:**

In 1998, the New Hampshire Natural Resources Conservation Service (NRCS) conducted detailed surveys on the hydrology of the salt marsh. The US Army Corps of Engineers ran hydrologic models of the marsh. NRCS engineers and ecologists then developed a restoration plan that would allow adequate tidal flow to the marsh and reduce flooding. A recommendation was made to replace the 48 inch culvert with two adjacent 6 feet by 12 feet box culverts. Some dredging of the marsh creeks was also necessary due to hundreds of years of siltation and to eliminate erosion potential. In addition, two other roads in the marsh also had undersized culverts, which needed to be replaced to complete the restoration.

In the spring of 2000, the culvert at the Appledore Road crossing was replaced and in the late fall of 2000, the culvert at the Route 1A crossing was replaced. These new culverts seem gigantic in proportion to the old culvert, emphasizing the restriction to flow that had been ongoing for years. To accommodate increased flows in and out of the marsh, portions of the Little River channel were also enlarged.

Currently, tidal flow has been restored to approximately 170 acres of salt marsh. Approximately 100 acres of marsh have begun to revert back to salt marsh from invasive brackish/red-maple swamp. Salinity levels have returned to "normal" throughout the marsh and systematic monitoring is being conducted to evaluate changes in the marsh over time.

**Other Project Partners:**

US Fish & Wildlife Services (USFWS), National Oceanic Atmospheric Admin. (NOAA), The U.S. Army Corps of Engineers (USACOE), NH Dept. Transportation (DOT), Rockingham County Conservation District, NH Department of Environmental Services (DES), Ducks Unlimited (DU).

**Funding the Project:**

NRCS, \$470,000; National Coastal Wetland Conservation Grant Program, \$300,000; USFWS, \$200,000; Town of N. Hampton, \$100,000; Local Private Donations, \$50,000; NOAA, \$30,000; NFWS: \$30,000, DES, \$25,000; Ducks Unlimited, \$5,000 for a project total of **\$1,310,000**.

**For Additional Information:**

Seacoast Online News Article:

[Mosquitoes' primary predator returns to marsh](#)