Cape Cod Atlas of

Tidally Restricted Salt Marshes

Cape Cod, Massachusetts

Conducted & Prepared by

Cape Cod Commission

for the
Massachusetts
Wetlands Restoration Program

December, 2001

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TRURO

Restrictions of the Pamet River by:

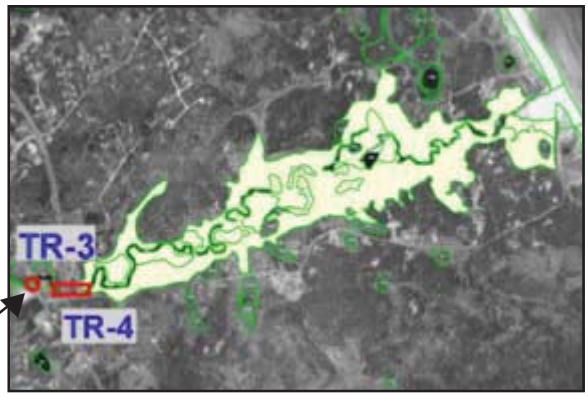
Truro Center Road/Route 6A (Wilder Dike)

Site TR-3

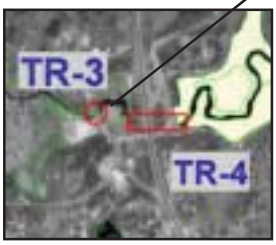
and

Route 6

Site TR-4



Upstream Affected Area (acres): SS – 119.72; M – 32.66.



Site Descriptions

The Pamet River runs east/west, its eastern end and non-tidal headwaters originating behind coastal bank on the Atlantic Ocean near Ballston Beach. It flows across the Cape, discharging through Pamet Harbor into Cape Cod Bay. The river and its associated wetlands effectively split Cape Cod into north and south sections. The river is divided into two hydrologically different sections, one estuarine and one freshwater river system, by two tidal restrictions that occur approximately half way along its length. Site TR-3, the seaward lying restriction, occurs at the Wilder Dike that supports Truro Center Road/Route 6A. The dike is fitted with a clapper valve (tide gate) at the seaward end of a 3-foot metal pipe. Site TR-4 lies just upstream of TR-3 where a 4-foot concrete culvert conveys the Pamet River under Route 6.

The total upstream affected marsh area totals 152.38 acres, delineated by the Wetlands Conservancy Program as 32.66 acres of shallow marsh and 119.72 acres of shrub swamp. Pamet Harbor supports shellfish resource areas that are open seasonally to shellfishing. This system does support a limited population of anadromous fish. Most of the upstream affected area of the Pamet River system is within the Cape Cod National Seashore.

General Information

Wilder Dike was built in 1869 to replace a bridge and was fitted with the culvert and clapper valve. This profoundly changed the upstream salt-tolerant vegetation. Further alterations to the water management system in the Pamet River came in 1952 when Route 6 was built. The 4-foot culvert quickly showed signed of inadequacy, though it still remains today.[1]

The 3-foot metal pipe and clapper gate set within this headwall (visible below the water line) pass only the seaward flow of the Pamet River under Wilder Dike (Truro Center Road/Route 6A).

The 3-foot pipe opening is visible here upstream of Wilder Dike.

[1]Portnoy, 2002, p. 3.

(continued on page T6)

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Restrictions of the Pamet River by:

Truro Center Road/Route 6A (Wilder Dike)

Site TR-3

and

Route 6

Site TR-4

The Pamet River channel is approximately 20 feet wide seaward of Wilder Dike and 30 feet wide upstream of Route 6. Visual indicators of a restriction at site TR-3 and TR-4 include minor bank erosion. *Phragmites* growth is significant seaward of site TR-3. *Phragmites* and cattails dominate the marsh area between TR-3 and TR-4, delineated as 2.55 acres of shrub swamp.

Site TR-3
- Restriction width – 3 feet (with clapper valve)
- Restriction length – 60 feet
- Upstream salt marsh – none

Site TR-4
- Restriction width – 4 feet
- Restriction length – 375 feet
- Upstream salt marsh – none

After crossing underground for approximately 375 feet the Pamet River emerges upstream of Route 6 through this 4-foot opening in the concrete headwall.

Once upstream of both restrictions the banks of the Pamet River take on a freshwater, riverine appearance.

Comments

Storm surges have overwashed the barrier dune system at Ballston Beach inundating the freshwater portion of the Pamet River system with saltwater three times in recent decades. Salt water can be retained in the upstream system for days because the large volume of overwash water can only exit the system during a low tide due to the pressure on the clapper valve and is further restricted by the size of the culvert under Route 6.[2] Because the retention of storm tides has the potential for serious disturbance of both ecological and social values in the flood plain, removal of the tidal restrictions at sites TR-3 and TR-4 is being considered.

In 1996 the Cape Cod National Seashore and the Town of Truro initiated a study, conducted by the Cape Cod Commission (CCC) and the Army Corps of Engineers (ACOE). The ACOE determined that enlarged culverts (6 by 16 feet) at Route 6 and Wilder Dike could provide sufficient cross-sectional area to allow overwash water to exit the upper Pamet in less than two days. This resizing and removal of the tide gate would also allow enough regular seawater flooding to cause salt marsh restoration through much, but not all, of the upper Pamet.[3] The CCC Water Resources Office evaluated the potential groundwater impacts associated with removal of the clapper valve at Wilder Dike (site TR-3). One primary concern of removal is the potential impact on private wells and septic systems in the upper Pamet River valley. The CCC study concluded that, with removal, the tidal ranges within the river will have minimal effect on groundwater levels in the river valley and that saltwater flow from the river into the surrounding groundwater lenses will be prevented, indicating that wells and septic systems will not be adversely impacted.[4]

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[2] ACOE, 1998, p. ii.
[3] id. pp. ii-iii.
[4] Cape Cod Commission, 1997, pp. E-2 and 36-37.