



The Problem

For the purposes of the §208 Plan Update, areas of wastewater need are primarily defined by the amount of nitrogen reduction required as defined by the Total Maximum Daily Load (TMDL) and/or Massachusetts Estuaries Project (MEP) technical report. An MEP report has not been completed for the Provincetown and Hatches Harbor watersheds.

- **MEP TECHNICAL REPORT STATUS:** Not Being Studied
- **TMDL STATUS:** Not Being Studied
- **TOTAL WASTEWATER FLOW:** 154 MGY (million gal per year)
 - Treated WW Flow: 55 MGY
 - Septic Flow: 99 MGY
- **UNATTENUATED SEPTIC NITROGEN LOAD:** 11,938 kilograms per year (kg/Y)
- **ATTENUATED NITROGEN LOAD:** Not assessed

CONTRIBUTING TOWNS

- **PROVINCETOWN**
- **TRURO**
- **DISCUSSION:** A portion of the land area in this watershed is within the boundaries of the Cape Cod National Seashore and any nitrogen load that results is not within control of the towns.

Provincetown Harbor Estuary

- **EMBAYMENT AREA:** 3,523 acres
- **EMBAYMENT VOLUME:** Unknown
- **2012 INTEGRATED LIST STATUS:** Category 4a for fecal coliform
 - Category 4a: TMDL completed
 - www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf

PROVINCETOWN HARBOR WATERSHED

- **ACRES:** 4,203
- **PARCELS:** 2,524
- **PERCENT RESIDENTIAL PARCELS:** 72%
- **PARCEL DENSITY:** 1.7 acres per parcel (approx.)
- **WASTEWATER TREATMENT FACILITIES:** 1
 - Provincetown Municipal

HATCHES HARBOR ESTUARY

- **EMBAYMENT AREA:** 36 acres
- **EMBAYMENT VOLUME:** Unknown
- **2012 INTEGRATED LIST STATUS:** Not Listed

The Provincetown and Hatches Harbor Embayment systems are located primarily in the town of Provincetown with contributing areas to Provincetown Harbor located in Truro. Hatches Harbor, along with portions of Provincetown Harbor, is located within the Cape Cod National Seashore/National Park Service (NPS) boundary. Provincetown Harbor is a multi-use harbor supporting recreational and commercial uses year round.

WATERSHEDS: OUTER CAPE

PROVINCETOWN AND HATCHES HARBOR

HATCHES HARBOR WATERSHED

- ACRES: 1,124
- PARCELS: 1
- PERCENT RESIDENTIAL PARCELS: 0%
- WASTEWATER TREATMENT FACILITIES: 0

Freshwater Sources

PONDS

- IDENTIFIED SURFACE WATERS: 34
- NUMBER OF NAMED FRESHWATER PONDS: 11
- PONDS WITH PRELIMINARY TROPHIC CHARACTERIZATION: 0
(Listed In Appendix 4C, Ponds With Water Quality Data)
- 2012 INTEGRATED LIST STATUS: 1 listed
 - Clapps Pond; Category 3: No uses assessed
- DISCUSSION: The Towns of Provincetown and Truro have been participants in the Ponds and Lake Stewardship (PALS) program and the National Park Service has a regular monitoring program for its water resources that has helped establish baseline pond water quality data throughout Cape Cod. Seven of the ponds in Provincetown and Hatches Harbor have water quality data. However, many ponds in the watershed are shallow transitional surface waters with significant wetland plants, therefore, these ponds are listed as not interpreted, which indicates that not enough information has been gathered to assign a typical pond trophic status.

STREAMS

- SIGNIFICANT FRESHWATER STREAM OUTLETS: Not assessed

DRINKING WATER SOURCES

- WATER DISTRICTS: 1
 - Provincetown Water Department
- GRAVEL PACKED WELLS: 0
- SMALL VOLUME WELLS: 0
- DISCUSSION: In 1908, Provincetown was given legislative authority to use the Pamet Lens in Truro due to the naturally high iron and manganese of the Pilgrim Lens.

Degree of Impairment and Areas of Need

As an MEP report has not been developed for Provincetown and Hatches Harbors, wastewater needs are determined based upon other factors, such as Title5 compliance.

An existing wastewater treatment facility and excellent tidal fluctuation contribute to the lack of eutrophication in these watersheds. Beach closures have been attributed to bacteriological contamination, both through the use of private septic systems and stormwater runoff. Both sewer expansions and innovative stormwater management techniques, such as porous pavement on Commercial Street, have contributed to fewer beach closures in recent years. The Provincetown Harbor Stormwater Mitigation Project report (2011) identifies 25 ocean outfalls conveying untreated stormwater runoff into the Harbor. The report provides descriptions and remediation status for a number of the outfalls and has prioritized them in order of need. To date, more than a dozen of the outfalls are in various states of final design, implementation or have been completed to mitigate stormwater runoff. With the design assistance from the University of New Hampshire Stormwater Center, a leader in porous pavement design and monitoring,

Provincetown has successfully installed a porous pavement stormwater best management practice (BMP) on Commercial Street. While at the time of this report the system has been installed for less than one calendar year, preliminary data shows a marked reduction in beach closures dates.

Provincetown Harbor is listed on the 2012 Integrated List of Impaired Waters as a Category 4a impaired water body for fecal coliform.

LOCAL PROGRESS

PROVINCETOWN

Provincetown has implemented multiple phases of sewerage resulting in over 30% of the town served by the municipal wastewater treatment facility. The majority of sewered parcels are located on the harbor waterfront near the town center. The pro-active sewerage, largely driven by zoning and development needs, coupled with excellent tidal fluctuations leaves Provincetown Harbor with little worry for eutrophication and with a relatively high level of water quality. Pathogens are the primary contaminant of interest for this water body.

TRURO

While none of Truro's contributing portions to Provincetown Harbor are currently sewered, discussions to connect parcels near Beach Point off of Shore Rd have begun between towns.

Local town efforts are described in Chapter 6.