



## The Problem

The Massachusetts Estuaries Project (MEP) technical report (available at [www.oceanscience.net/estuaries](http://www.oceanscience.net/estuaries)) indicates the Falmouth Inner Harbor system exceeds its critical threshold for nitrogen, resulting in impaired water quality. While the MEP report has been completed, a total maximum daily load (TMDL) for nitrogen has not been established by MassDEP and US EPA.

- **MEP TECHNICAL REPORT STATUS:** Final
- **TMDL STATUS:** In Progress
- **TOTAL WASTEWATER FLOW:** 32 MGY (Million Gal/Per Year)
  - Treated WW Flow: 4 MGY
  - Septic Flow: 28 MGY
- **UNATTENUATED TOTAL NITROGEN LOAD (MEP):** 3,505 kg/Y (kilograms per year)
- **ATTENUATED TOTAL NITROGEN LOAD (MEP):** 2,770 kg/Y
- **SOURCES OF CONTROLLABLE NITROGEN (MEP):**
  - 77% Septic Systems
  - 7% Lawn Fertilizer
  - 10% Stormwater From Impervious Surfaces
  - 5 % Wastewater Treatment Facilities
  - 1% Golf Course Fertilizer

## CONTRIBUTING TOWN

- **FALMOUTH**

## THE MEP RESTORATION SCENARIO

- **WATERSHED TOTAL NITROGEN REDUCTION TARGET:** 24%
- **WATERSHED SEPTIC REDUCTION TARGET:** 31%  
(The scenario represents the aggregated sub-embayment percent removal targets from the MEP technical report)

## FALMOUTH INNER HARBOR ESTUARY

- **EMBAYMENT AREA:** 351 acres
- **EMBAYMENT VOLUME:** 15 million cubic feet
- **2012 INTEGRATED LIST STATUS:** Category 2
  - Category 2: Attaining some uses; other uses not assessed
  - [www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf](http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf)

Falmouth Inner Harbor has shoreline located entirely in the Town of Falmouth. Falmouth Inner Harbor receives tidal flow from Nantucket Sound through an armored inlet and extends nearly 3/4 of a mile to its head at Robbins Road. The harbor is heavily used for recreational and commercial boating.

# WATERSHEDS: UPPER CAPE

# FALMOUTH INNER HARBOR

## FALMOUTH INNER HARBOR WATERSHED

- ACRES: 37
- PARCELS: 524
- % DEVELOPED RESIDENTIAL PARCELS: 72%
- PARCEL DENSITY: 0.07 acres per parcel (approx.)
- WASTEWATER TREATMENT FACILITIES: 1
  - Atria Woodbriar assisted living facility

■ **DISCUSSION:** The Town of Falmouth has not been fully engaged in the Pond and Lake Stewardship (PALS) program that has helped establish regional freshwater baseline water quality.

## Freshwater Sources

### PONDS

- IDENTIFIED SURFACE WATERS: 4
- NUMBER OF NAMED FRESHWATER PONDS: 3
- PONDS WITH PRELIMINARY TROPHIC CHARACTERIZATION: 0  
(Listed In Appendix 4C, Ponds With Water Quality Data)
- 2012 INTEGRATED LIST STATUS: None listed

### STREAMS

- SIGNIFICANT FRESHWATER STREAM OUTLETS: 0
- **DISCUSSION:** Characterization of fresh water streams is a regular part of the MEP technical reports. There are no tributary streams mapped in the Falmouth Inner Harbor watershed.

### DRINKING WATER SOURCES

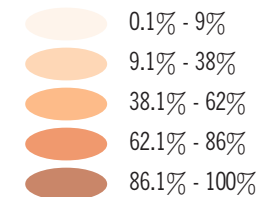
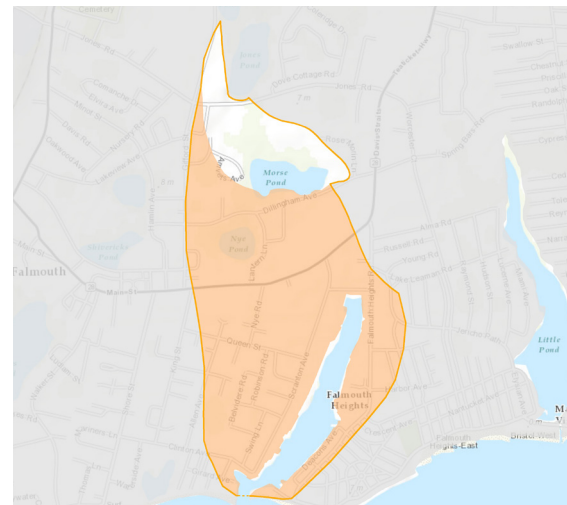
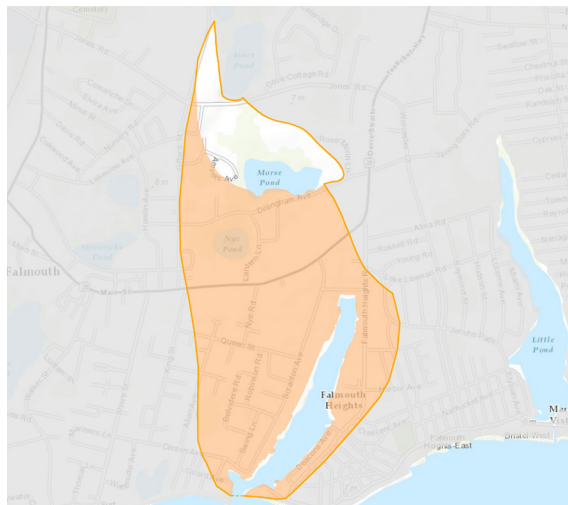
- WATER DISTRICTS: 1
  - Falmouth Water Department
- GRAVEL PACKED WELLS: 0
- SMALL VOLUME WELLS: 0

## LOCAL PROGRESS

### FALMOUTH

The Town of Falmouth Comprehensive Wastewater Management Plan (CWMP) was approved under Joint Massachusetts Environmental Policy Act (MEPA)/Development of Regional Impact (DRI) review in early 2014 and received town meeting and ballot vote approval in spring 2014 to implement its first phase – sewerage of the Little Pond watershed. The Falmouth CWMP also includes a series of pilot projects that may assist in further reducing nitrogen under an adaptive management approach. Additional sewerage of the Falmouth Inner Harbor watershed is not part of the present CWMP.

Local efforts are described in more detail in Chapter 6.



Subwatersheds with Total Nitrogen Removal Targets

Figure 4-1 FIH

Subwatersheds with Septic Nitrogen Removal Targets

Figure 4-2 FIH

### Degree of Impairment

For the purposes of the §208 Plan Update areas of need are primarily defined by the amount of nitrogen reduction required as defined by the TMDL and/or MEP technical report. Watersheds that have MEP technical reports, but lack a finalized TMDL are defined by the critical nitrogen reduction values identified by the MEP. These were referred to above as 31% of the septic nitrogen load, or 24% of the total nitrogen load. The MEP technical report also provides a specific targeted amount of nitrogen reduction required by

subwatershed (see Figure 4-1 FIH Subwatersheds with Total Nitrogen Removal Targets and Figure 4-2 FIH Subwatersheds with Septic Nitrogen Removal Targets).

The nitrogen load from the watershed exceeds the threshold for Falmouth Inner Harbor, resulting in impaired water quality. The ecological health of a water body is determined from water quality, extent of eelgrass, assortment of benthic fauna, and dissolved oxygen and ranges from 1-severe degradation, 2-significantly impaired, 3-moderately impaired, 4- healthy habitat conditions.

### MEP ECOLOGICAL CHARACTERISTICS AND WATER QUALITY

- **OVERALL ECOLOGIC CONDITION:** Moderately/Significantly Impaired
- **INNER BASIN:** Moderately/Significantly Impaired
- **OUTER BASIN:** Moderately/Significantly Impaired
- **SENTINEL STATIONS:**
  - Total Nitrogen Concentration Threshold: 0.50 mg/L
  - Total Nitrogen Concentration Existing: 0.50 mg/L (As reported at the MEP sentinel water-quality monitoring stations)