



The Problem

The Massachusetts Estuaries Project (MEP) technical report (available at www.oceanscience.net/estuaries/) indicates that the Quissett Harbor system exceeds its critical threshold for nitrogen, resulting in impaired water quality. 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:** 10 MGY (million gal/year)
 - Treated WW Flow: 0 MGY
 - Septic Flow: 10 MGY
- **UNATTENUATED TOTAL NITROGEN LOAD (MEP):** 1,718 kg/Y (kilograms per year)
- **ATTENUATED TOTAL NITROGEN LOAD (MEP):** 1,718 kg/Y
- **SOURCES OF CONTROLLABLE NITROGEN (MEP):**
 - 84% Septic Systems
 - 5% Lawn Fertilizer
 - 8% Stormwater From Impervious Surfaces
 - 3% Golf Course Fertilizer

CONTRIBUTING TOWN

- **FALMOUTH**

THE MEP RESTORATION SCENARIO

- **WATERSHED TOTAL NITROGEN REDUCTION TARGET:** 22%
- **WATERSHED SEPTIC REDUCTION TARGET:** 27%
(The scenario represents the aggregated sub-embayment percent removal targets from the MEP technical report)

QUISSETT HARBOR ESTUARY

- **EMBAYMENT AREA:** 109 acres
- **EMBAYMENT VOLUME:** 56 million cubic feet
- **2012 INTEGRATED LIST STATUS:** Category 4a for fecal coliform
 - Category 4a: TMDL is completed
 - www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf

QUISSETT HARBOR WATERSHED

- **ACRES:** 309
- **PARCELS:** 1471% Developed Residential Parcels: 80%
- **PARCEL DENSITY:** 1.8 acres per parcel (approx.)
- **WASTEWATER TREATMENT FACILITIES:** 0

The Quissett Harbor embayment system has a shoreline located entirely in the Town of Falmouth. It is comprised of a large inland basin that receives tidal flow from Buzzards Bay and extends nearly 3/4 of a mile to Quissett Harbor Road. The Harbor supports a variety of recreational uses including boating, swimming, shell fishing and fin fishing.

Freshwater Sources

PONDS

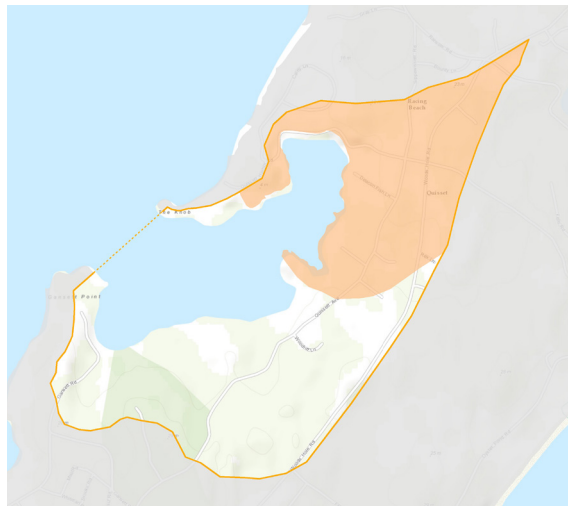
- IDENTIFIED SURFACE WATERS: 1
- NUMBER OF NAMED FRESHWATER PONDS: 0
- PONDS WITH PRELIMINARY TROPHIC CHARACTERIZATION: 0
- (LISTED IN APPENDIX 4C, PONDS WITH WATER QUALITY DATA)
- 2012 INTEGRATED LIST STATUS: None listed

STREAMS

- SIGNIFICANT FRESHWATER STREAM OUTLETS: 0

DRINKING WATER SOURCES

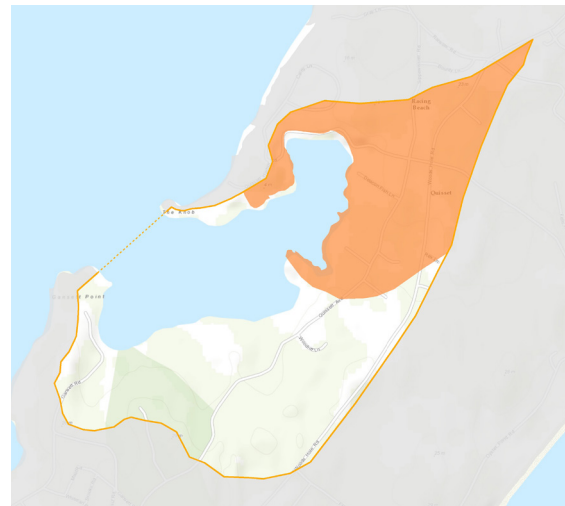
- WATER DISTRICTS: 1
 - Falmouth Water Department
- GRAVEL PACKED WELLS: 0
- SMALL VOLUME WELLS: 0



Degree of Impairment and Areas of Need

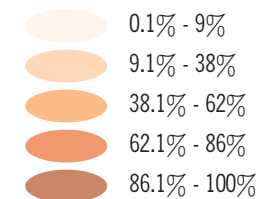
For the purposes of the §208 Plan Update areas of need are primarily defined by the amount of nitrogen reduction required as defined by the TMDL and/or MEP technical report. These were referred to above as 27% of the septic nitrogen load, or 22% of the total nitrogen load. The MEP technical report also provides a specific targeted amount of nitrogen reduction required by subwatershed, as shown in Figure 4-1 QH Subwatersheds with Total Nitrogen Removal Targets and Figure 4-2 QH Subwatersheds with Septic Nitrogen Removal Targets.

The nitrogen load from the watershed exceeds the threshold for Quissett 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:** Healthy to Moderately Impaired
- **MAIN BASIN:** Healthy to Moderately Impaired
- **INNER BASIN:** Moderately Impaired
- **SENTINEL STATIONS:**
 - Total Nitrogen Concentration: 0.34 mg/L
 - Total Nitrogen Concentration Existing: 0.3537 mg/L (As reported at the MEP sentinel water-quality monitoring stations)



Subwatersheds with Total Nitrogen Removal Targets

Figure 4-1 QH

Subwatersheds with Septic Nitrogen Removal Targets

Figure 4-2 QH

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. The first phase includes the sewerage of the Little Pond watershed, upgrades to the wastewater facility and construction of a new discharge site outside of the West Falmouth Harbor watershed. The plan also includes a series of pilot projects that will be conducted concurrently with the sewerage project over the next 5 years, at which time the Town will re-evaluate its options for comprehensive wastewater management

Local efforts are described in more detail in Chapter 6.