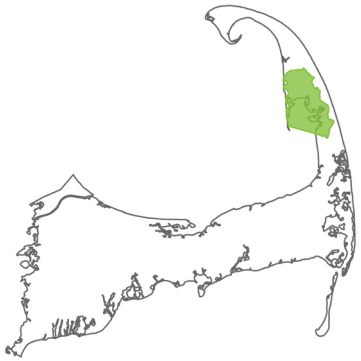
WATER THREAT LEVEL

LOW

WATERSHEDS: OUTER CAPE

WELLFLEET HARBOR



The Problem

Wellfleet Harbor is presently being assessed by the Massachusetts Estuaries Project (MEP) and a technical report is not yet complete (reports available at www.oceanscience.net/estuaries). Much evidence exists showing impaired conditions for the upper reaches of contributing subwatersheds, such as Duck Creek.

- **MEP TECHNICAL REPORT STATUS:** Data Collection Phase
- **TMDL STATUS:** In Progress
- **TOTAL WASTEWATER FLOW:** 307 million gal per year (MGY)
- **TREATED WW FLOW:** 36 MGY
- **SEPTIC FLOW:** 271 MGY
- **UNATTENUATED SEPTIC NITROGEN LOAD:** 26,004 kg/Y (kilograms per year)
- **ATTENUATED NITROGEN LOAD:** Not assessed

CONTRIBUTING TOWNS

- **EASTHAM**
- **TRURO**
- **WELLFLEET**
- **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.

WELLFLEET HARBOR EMBAYMENT

- **EMBAYMENT AREA:** 11,647 acres
- **EMBAYMENT VOLUME:** 5,848 million cubic feet
- **2012 INTEGRATED LIST STATUS:** Category 2 for fecal coliform
  - Category 2: Attaining some uses; other uses not assessed
  - www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf

WELLFLEET HARBOR WATERSHED

- **ACRES:** 12,322
- **PARCELS:** 5,009
- **PERCENT RESIDENTIAL PARCELS:** 73%
- **PARCEL DENSITY:** 2.5 acres per parcel (aprox.)
- **GROUNDWATER DISCHARGE PERMITS:** 2
  - Serving residential developments (mobile home parks)

Freshwater Sources

PONDS

- **IDENTIFIED SURFACE WATERS:** 26
- **NUMBER OF NAMED FRESHWATER PONDS:** 11
- **NUMBER WITH PRELIMINARY TROPHIC CHARACTERIZATION:** 10
- **2012 INTEGRATED LIST STATUS:** 7 listed

The Wellfleet Harbor embayment system is one of the Cape's largest. The large Harbor area has several large tributaries, including Duck Creek, Herring River, Blackfish Creek with Drummer Cove and Loagy Bay, and Silver Spring Harbor The estuary supports a variety of recreational uses including boating, swimming, shell fishing and fin fishing.

- Great Pond (Truro); Category 4a: TMDL completed (mercury)
- Snow Pond; Category 4a: TMDL completed (mercury)
- Long Pond; Category 4a: TMDL completed (mercury)
- Great Pond (Wellfleet); Category 4a: TMDL completed (mercury)
- Dyer Pond; Category 4a: TMDL completed (mercury)
- Ryder Pond/Higgins Pond; Category 5 (mercury, dissolved oxygen, phosphorus)

- **DISCUSSION:** The Towns of Wellfleet, Eastham and Truro have been participants in the Pond and Lake Stewardship (PALS) program and the Cape Cod National Seashore has an on-going monitoring program that has helped establish baseline water quality.

Streams

- **SIGNIFICANT FRESHWATER STREAM OUTLETS:** Not assessed
- **DISCUSSION:** A number of streams contribute to Wellfleet Harbor through surface water discharge including Herring River, Duck Creek, Pilgrim Spring, Blackfish Creek, Trout Brook, Fresh Brook, Silver Spring Brook and Hatches Creek.

Drinking Water Sources

- **WATER DISTRICTS:** 1
  - Wellfleet Water Supply
- **GRAVEL PACKED WELLS:** 17
  - 5 have nitrate concentrations between 0 and 0.5 mg/L
  - 3 have nitrate concentrations between 0.5 and 1 mg/L
  - 2 have nitrate concentrations between 1 and 2.5 mg/L
  - 3 have nitrate concentrations between 2.5 and 5 mg/L
  - 4 have no nitrate concentration data
- **SMALL VOLUME WELLS:**86

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. As a MEP report has not been completed there has been not been a TMDL for nitrogen established for Wellfleet Harbor.

The Town of Wellfleet relies heavily on Title 5 systems with more than 3,000 in use. Over 500 of these systems require variances and more than 300 of those systems are within 100 ft. of a drinking water supply. Approximately one third of the systems requiring a variance are located in the Duck Creek watershed alone, with the vast majority of all Title 5 systems in Wellfleet proper located within a contributing area to Wellfleet Harbor.

One clear indications of impairment is the past closures of shellfish beds within Wellfleet Harbor. As a large source of culture and revenue for both Wellfleet and Cape Cod as a whole, restoration of shellfish habitat should be considered a significant area of need.

Local Progress

EASTHAM

Eastham comprises 11% percent of the unattenuated nitrogen to Wellfleet Harbor, the majority of which exits through Hatches Creek and Sunken Meadow in the southern most portion of the embayment. As such, much of the nitrogen contribution to the bay is likely flushed and not a significant contributor to nitrogen loading issues in the embayment proper.

TRURO

Truro comprises 1% percent of the unattenuated nitrogen to Wellfleet Harbor, the entirety of which contributes to the Herring River sub-embayment. Restoration of Herring River will further attenuate contributions from Truro.

WELLFLEET

The majority (88%) of the unattenuated nitrogen to Wellfleet Harbor is contributed by the Town of Wellfleet. Wellfleet submitted a Comprehensive Wastewater Management Plan (CWMP) Interim Needs Assessment & Alternatives Analysis Report in June of 2012 which characterized current impairments and anticipated wastewater needs to address water quality and urban parcels with wastewater disposal challenges. The Needs Assessment indicates a relative decrease in water quality in the upper reaches of the watershed relative to water quality in the greater harbor. Water quality benefits from the large tidal fluctuations present in Cape Cod Bay. Water quality data for Duck Creek indicates eutrophication occurring in the summer months with relatively low dissolved oxygen and high chlorophyll a readings.

Local efforts in these towns are described in Chapter 6.