

# Hatches Harbor

PROVINCETOWN

LOW



Hatches Harbor Watershed

## Introduction to the Watershed Reports

In 2001, the Massachusetts Estuaries Project (MEP) was established to evaluate the health of 89 coastal embayment ecosystems across southeastern Massachusetts. A collaboration between coastal communities, the Massachusetts Department of Environmental Protection (MassDEP), the School of Marine Science and Technology (SMASST) at the University of Massachusetts-Dartmouth, the US Environmental Protection Agency (US EPA), the United States Geological Survey (USGS), the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), and the Cape Cod Commission, the purpose of the MEP is to identify nitrogen thresholds and necessary nutrient reductions to support healthy ecosystems.

The Cape Cod 208 Plan Update, certified and approved by the Governor of the Commonwealth of Massachusetts and the US EPA in 2015, provides an opportunity and a path forward to implement responsible plans for the restoration of the waters that define Cape Cod.

On Cape Cod there are 53 embayment watersheds with physical characteristics that make them susceptible to nitrogen impacts. In its 2003 report, “The Massachusetts Estuaries Project – Embayment Restoration and Guidance for Implementation Strategies”, MassDEP identifies the 46 Cape Cod embayments included in the

MEP. Thirty-three embayments studied to date require nitrogen reduction to achieve healthy ecosystem function. A Total Maximum Daily Load (TMDL) has been established (or a draft load has been identified and is under review) for these watersheds. For those embayments not studied, the 208 Plan Update recommends planning for a 25% reduction in nitrogen, as a placeholder, until information becomes available.

The 208 Plan Update directs Waste Treatment Management Agencies (WMAs) to develop watershed reports within 12 months of certification of the Plan Update. The Watershed Reports outline potential “bookend” scenarios for each watershed that include two scenarios to meet water quality goals in the watershed – a traditional scenario, which relies completely on the typical collection and centralized treatment of wastewater, and a non-traditional scenario, which uses remediation, restoration, and on-site reduction techniques to remove nutrients from raw and treated wastewater, groundwater and affected waterbodies.

The intent of the Watershed Reports is to outline two distinct approaches for addressing the nutrient problem. The reports are not intended to identify preferred and detailed plans for each watershed, but to facilitate discussions regarding effective and efficient solutions, particularly in watersheds shared by more than one town. In some cases, towns have provided information on collection areas and non-traditional technologies that have been specifically considered by that town.

The 208 Update developed a regionally consistent database of the nitrogen load entering each watershed. This data set includes estimates of wastewater, stormwater and fertilizer loads - similar to methodologies used by the MEP. Using this regionally consistent database, the Watershed MVP tool (wMVP) was developed so that different strategies (i.e., bookend scenarios) to reduce excess nitrogen load

could be evaluated. The Watershed Reports use the MEP recommendations for the required nitrogen load reductions necessary to meet the threshold loads (that serve as the basis for nitrogen management), and then use the wMVP and the regionally consistent database values to develop bookend scenarios. There are variations of load between the MEP and wMVP, primarily due to differences in comparing older and newer databases.

## Terms Defined

**Total nitrogen load:** the nitrogen load from the watershed contributed by septic, wastewater, fertilizer, stormwater, golf course, landfill, and natural sources.

**Attenuated nitrogen load:** the nitrogen load from the watershed that reaches the embayment after the effect of natural attenuation in wetlands, ponds or streams.

**Threshold:** the amount of nitrogen that a water body can receive from its watershed and still meet water quality goals; this number is based on MEP technical reports or Total Maximum Daily Load (TMDL) reports.

**Reduction target:** an approximation of the amount of nitrogen that needs to be removed from the watershed to achieve the threshold; this number is calculated by subtracting the threshold number from the attenuated total watershed load, and is for planning purposes only.

**Percent contribution:** the percent of attenuated nitrogen load that a town contributes to the watershed.

**Kilogram responsibility:** is calculated by applying the percent contribution to the reduction target and indicates the amount of nitrogen, in kg, that a community is responsible for addressing.

**Total Maximum Daily Load:** a regulatory term in the Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Establishing a TMDL is necessary when a water body has been listed on the 303D list of impaired waters.

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The Hatches Harbor Embayment system is located in the Town of Provincetown. Hatches Harbor is located within the Cape Cod National Seashore/National Park Service (NPS) boundary.

## The Problem

For the purposes of the Section 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 Hatches Harbor watershed.

- **MEP TECHNICAL REPORT STATUS:** Not Being Studied
- **TMDL STATUS:** Not Being Studied

## CONTRIBUTING TOWNS

The land area in this watershed is within the boundaries of the Cape Cod National Seashore and any nitrogen load that results from Seashore controlled property is not within control of the towns, therefore there is no contribution identified in Appendix 8C of the Cape Cod Section 208 Plan Update.

## HATCHES HARBOR ESTUARY

- **EMBAYMENT AREA:** 36 acres
- **EMBAYMENT VOLUME:** Unknown
- **2014 INTEGRATED LIST STATUS:** Not Listed

## HATCHES HARBOR WATERSHED

General watershed characteristics according to the current wMVP regional database (see figure on page 1 for watershed boundary) follow.

- **WATERSHED CHARACTERISTICS**
  - Acres: 1,124
  - Parcels: 1
  - Percent residential parcels: 0 %

## Freshwater Sources

### PONDS

- **IDENTIFIED SURFACE WATERS:** 3
- **NUMBER OF NAMED FRESHWATER PONDS:** 1
- **PONDS WITH PRELIMINARY TROPHIC CHARACTERIZATION:** 0
- **2014 INTEGRATED LIST STATUS:** 0 listed

Provincetown has participated in the Pond and Lake Stewardship (PALS) program, that has helped establish baseline water quality, 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. Trophic characterizations are based on most recent Commission staff assessment.

### STREAMS

■ **SIGNIFICANT FRESHWATER STREAM OUTLETS:**

Not assessed

Nitrate concentrations higher than 0.05 mg/L background concentrations, evident in public supply wells located in pristine areas, provide evidence of the impact of non-point source pollution on the aquifer and receiving coastal water bodies.

### DRINKING WATER SOURCES

■ **WATER DISTRICTS: 1**

- Provincetown Water Department

■ **GRAVEL PACKED WELLS: 0**

■ **SMALL VOLUME WELLS: 0**

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.

Drinking water data from Cape Cod Commission and MassDEP data sources.

## Degree of Impairment and Areas of Need

An MEP report has not been developed for Hatches Harbor, the land area is within the Cape Cod National Seashore and there is currently no residential development in the watershed. No wastewater needs have been identified at this time.