WATERSHED REPORT: MID CAPE

Scorton Creek

SANDWICH

WATER THREAT LEVEL

LOW

The Scorton Creek system is an estuary with shoreline located entirely in the Town of Sandwich. It receives tidal flow from Cape Cod Bay, which has an average 9-foot tidal fluctuation, is incised along the north side of the Sandwich Moraine and extends approximately 1.5 to 2 miles inland through salt marsh. The embayment supports a variety of recreational uses including boating, swimming, shell fishing and fin fishing.

The Problem

The Massachusetts Estuaries Project (MEP) technical report (available at www.oceanscience.net/estuaries) indicates that the Scorton Creek system has not exceeded its critical nitrogen threshold and can assimilate additional nitrogen without water quality impairment.

- **MEP TECHNICAL REPORT STATUS:** Final
- **TMDL STATUS:** TMDL not required
- **WASTEWATER FLOW:** 187 MGY (million gal per year)
  - Treated Wastewater Flow: 10
  - Septic Flow: 177
- **UNATTENUATED TOTAL NITROGEN LOAD (MEP):** 19,239 Kg/Y (kilograms per year)
- **ATTENUATED TOTAL NITROGEN LOAD (MEP):** 14,650 Kg/Y

CONTRIBUTING TOWNS

Percent contributions listed below are the aggregate sub-embayment contributions identified in Appendix 8C of the Cape Cod Section 208 Plan Update (contributions are based on attenuated load where available). See Appendix 8C for detailed town allocations by sub-embayment.

- **BARNSTABLE:** 56%
- **SANDWICH:** 44%

SCORTON CREEK ESTUARY

- **EMBAYMENT AREA:** 31 acres
- **EMBAYMENT VOLUME:** Unknown
- **2014 INTEGRATED LIST STATUS:** Category 4A for fecal coliform
  - Category 4a: TMDL is completed
  - www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf

SCORTON CREEK WATERSHED

- **ACRES:** 6,983
- **PARCELS:** 3,026
- **% DEVELOPED RESIDENTIAL PARCELS:** 80%
- **PARCEL DENSITY:** 2.3 acres per parcel (approx.)
- **WASTEWATER TREATMENT FACILITIES:** 3
  - Riverview School
  - Sandwich High School
  - Oak Ridge School

Freshwater Sources

PONDS

- **IDENTIFIED SURFACE WATERS:** 22
- **NUMBER OF NAMED FRESHWATER PONDS:** 3

- **PONDS WITH PRELIMINARY TROPHIC CHARACTERIZATION:** 1
- **2014 INTEGRATED LIST STATUS:** None Listed

Trophic characterizations are based on most recent Commission staff assessment.

STREAMS

- **SIGNIFICANT FRESHWATER STREAM OUTLETS:** 2
  - Scorton Creek
  - Long Creek

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
  - Sandwich Water District
- **GRAVEL PACKED WELLS:** 1
  - 1 has nitrate concentrations between 0 and 0.5 mg/L
- **SMALL VOLUME WELLS:** 1

Degree of Impairment

Based upon all lines of evidence, the estuary has not exceeded its threshold nitrogen level.

The 2014 Integrated List of Impaired Waters lists Scorton Creek as being a Category 4a impaired water body for fecal coliform.

Collection & Non-Collection Scenarios

Regional Data

In 2010, the Commission sought to collect regionally consistent data for the purposes of watershed scenario development. Both parcel data and water use data was identified and collected for the entire region. While the scientific basis for planning is the thresholds identified in the MEP technical reports, each report uses data from different years, and in some cases the MEP data used is 10 or more years old. In addition, there are watersheds on Cape Cod without the benefit of an MEP report; therefore, similar data was not available for planning purposes.

The updated regional data set was used to estimate wastewater, stormwater and fertilizer loads, using the same methodologies as the MEP. This approach allows for a reevaluation of existing development, which may have changed in the last 10 years. Parcel data included in the regional database is from 2010-2012 and water use data is from 2008-2011, depending on the water district. This approach allows for regionally consistent watershed scenario development.

Watershed Scenarios

The watershed scenarios that follow outline possibilities for the watershed. A series of non-traditional technologies that might be applicable are included, as well as the amount of flow and approximate number of residential parcels that would need to be collected if a traditional collection system and treatment facility was implemented. Some assumptions were made in determining the approximate flows and parcels for collection, including a treatment factor of 5 parts per million (ppm), disposal occurring inside the watershed, and no natural attenuation, therefore prioritizing parcels with a direct impact on the water body. Site specific determinations of collection areas may result in the need to collect more or less parcels to meet the nutrient reduction target. The scenarios presented are meant to act as a starting point for discussions regarding effective and cost efficient solutions.

The Scorton Creek watershed has been identified by MEP as having excess nitrogen capacity. No nitrogen reduction is required at this time; therefore, no scenarios are presented. This will be reevaluated as data as regional data sets are updated.

SCORTON CREEK NITROGEN SOURCES	TOTAL NITROGEN LOAD (kg-N/yr)
Wastewater	18,317
Fertilizer	2,715
Stormwater	2,804
Other	1,439
TOTAL	25,272
Total Watershed Load (including atmospheric)	25,272
Total Watershed Threshold	57,696
TOTAL LOAD TO BE REMOVED*	-32,424

*The watershed currently has excess capacity and does not require nitrogen removal at this time.