

Lake Tashmoo

2020

M.V.C. SAMPLING SUMMARY

Nature of the Lake

Lake Tashmoo is a simple estuary located in the Town of Tisbury. A single tidal inlet connects to Vineyard Sound. This body of water is used for various activities, including recreational swimming, fishing, boating, commercial fin fishing, and shellfishing. Tashmoo is home to a large mooring field. Eelgrass beds, although stressed in some areas, remain in the estuary. A small freshwater pond, Tashmoo Spring Pond, feeds into Lake Tashmoo through a herring run at the Southern end.

Summary for 2020

In 2020, Tashmoo saw a decrease in nitrogen and pigment at most sampling locations in the pond. Throughout its sampling history we have observed cycles of rising and falling nutrients and growth. The system can vary year to year and a calculation of a 5-10 year average would more accurately reflect changes. High bacteria counts have been observed in Tashmoo. Stormwater remediation projects are planned for Tashmoo, which should reduce nitrogen and bacterial contamination. Although eelgrass remains in the estuary, improved flushing near the inlet allows new areas of eelgrass growth near the inlet. In the upper reaches, eelgrass remains stressed due to poor light penetration caused by turbid water. Tisbury maintains regulations for no anchoring in eelgrass.

Why Sampling is Important

Field measurements and water samples are collected during the summer months to determine the pond's water quality. MVC staff collects water samples and water quality indicators including: temperature, oxygen levels, salinity, conductivity, pH, time, depth, and weather conditions at the time of our sampling. Water samples are also tested for several nutrients that in excess can be detrimental to the quality of the water and the systems it supports. Our sampling protocol is consistent with the Massachusetts Estuaries Project (MEP) and the Mass DEP TMDL recommendations, which developed the nitrogen threshold. Water samples are sent for analysis to the University of Massachusetts at Dartmouth, School of Marine Science and Technology.



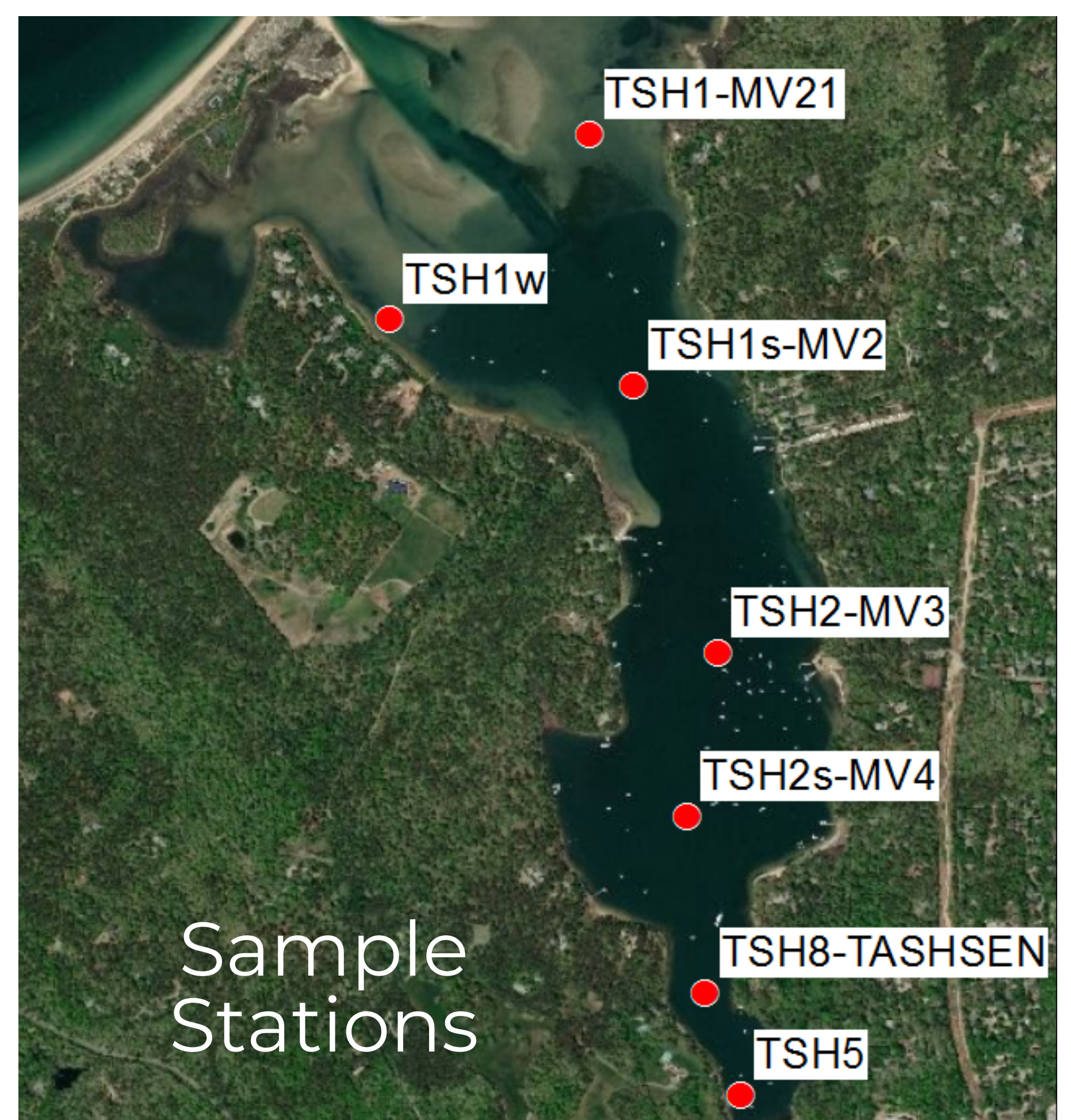
Please forward questions to:
Sheri Caseau, Water Resource Planner
Martha's Vineyard Commission (508) 693-3453

Water quality near the inlet continues to improve; however, nutrient input should continue to be monitored to ensure nitrogen levels remain below the recommended threshold.

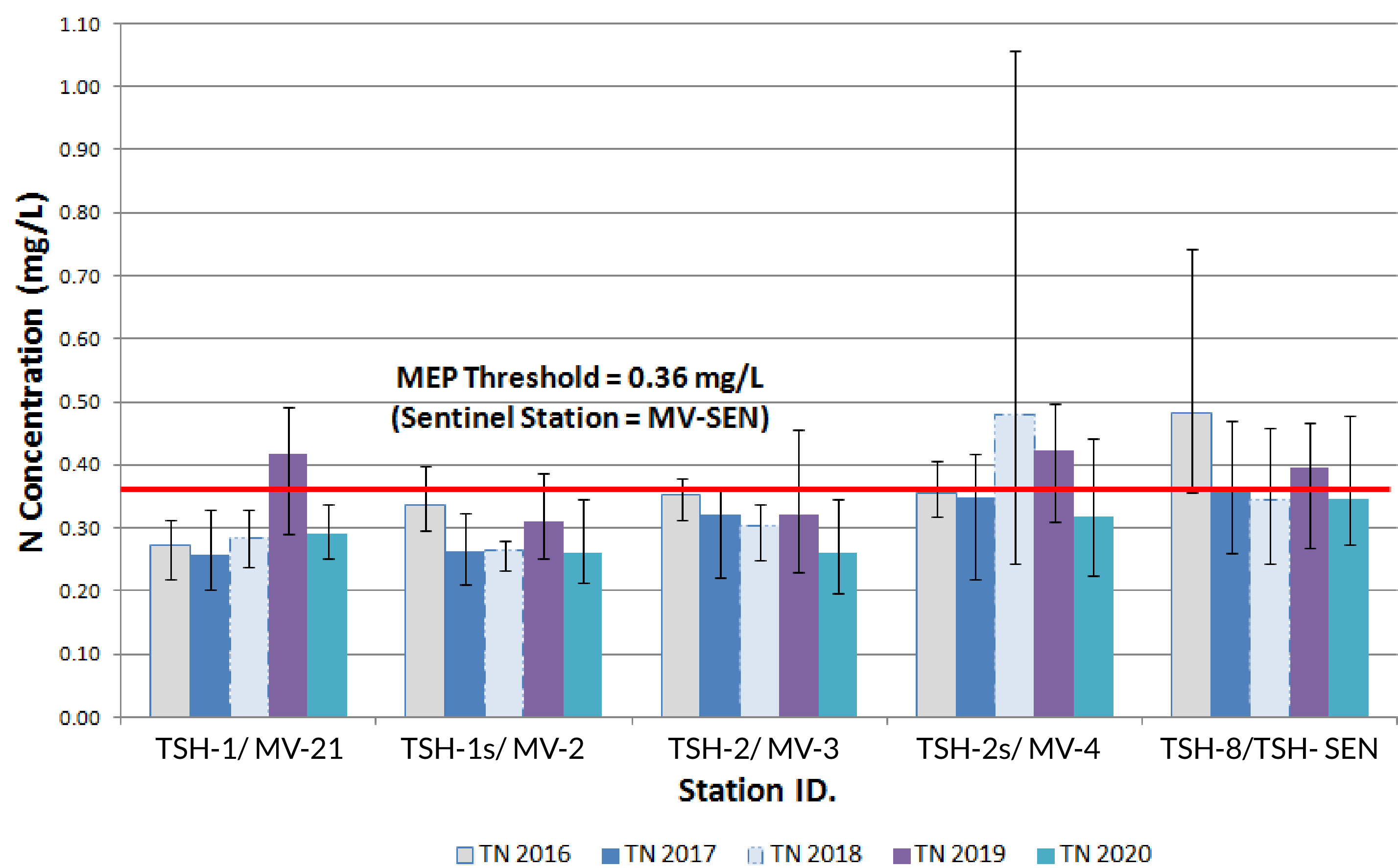
W.Q.I. #
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Water Quality Index

The water quality index score is a tool used to assess the well-being of a pond. It is composed of several parameters in the pond including water clarity, Oxygen levels, and nutrient levels. The score can range from 0 (low) to 100 (high) and is developed from data collected as part of a rigorous sampling schedule. Water quality on Lake Tashmoo is high. It receives good flushing from the ocean and maintains an eelgrass population throughout the mooring field and sand flats.



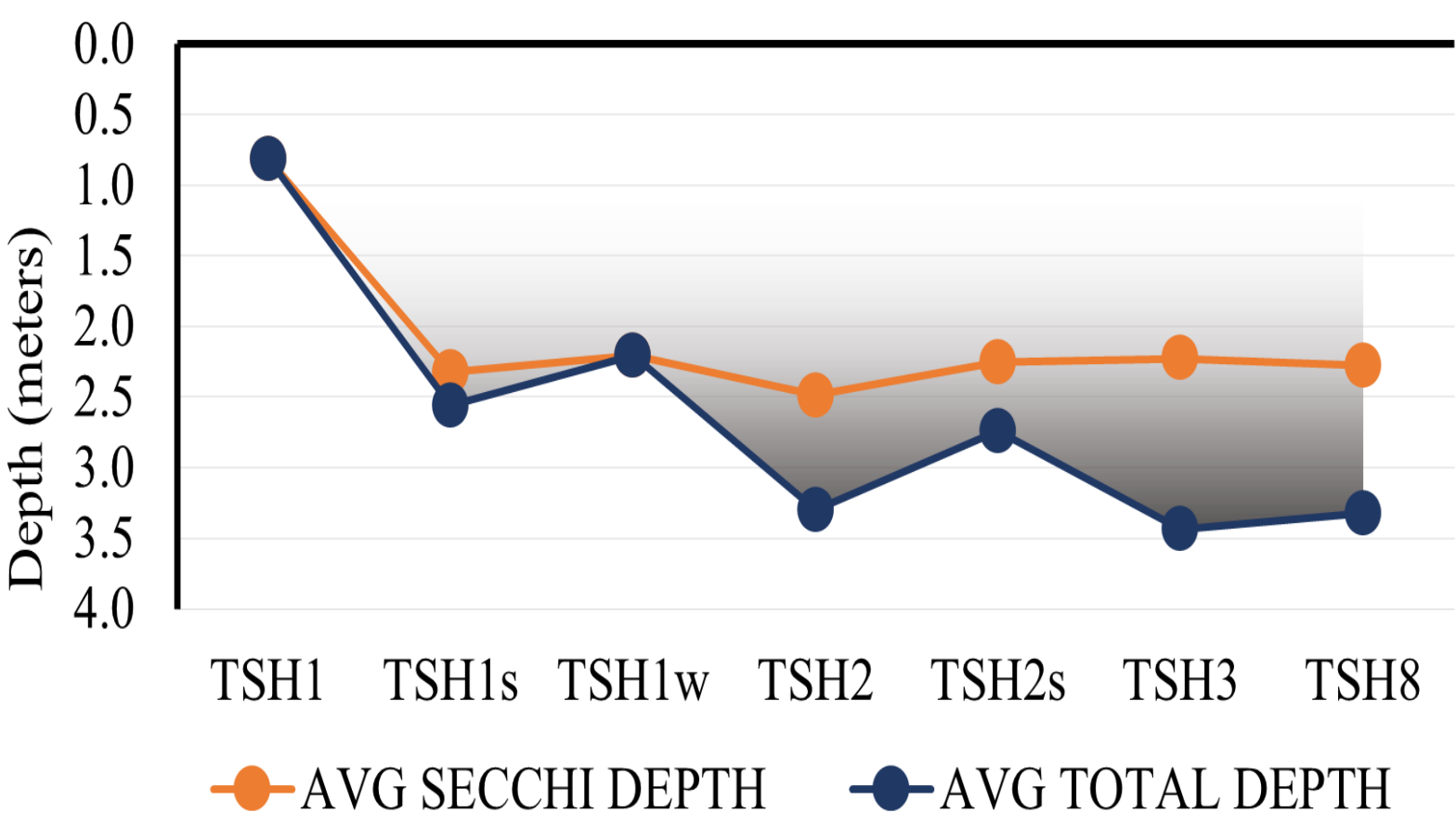
Lake Tashmoo: Total N Gradient (2016, 2017, 2018, 2019, 2020)



Total Nitrogen

Nitrogen is a limiting nutrient and is necessary for plant, phytoplankton, and algae growth, but it can be harmful in excess. Nitrogen levels in the 2020 sample year decreased at every site. All sites in 2020, are near or below the MEP set threshold of 0.36 mg/L. We see spikes of Nitrogen above the threshold at TSH-2 and TSH- 8, these sites receive less flushing and are impacted by heavy boat traffic.

Water Clarity

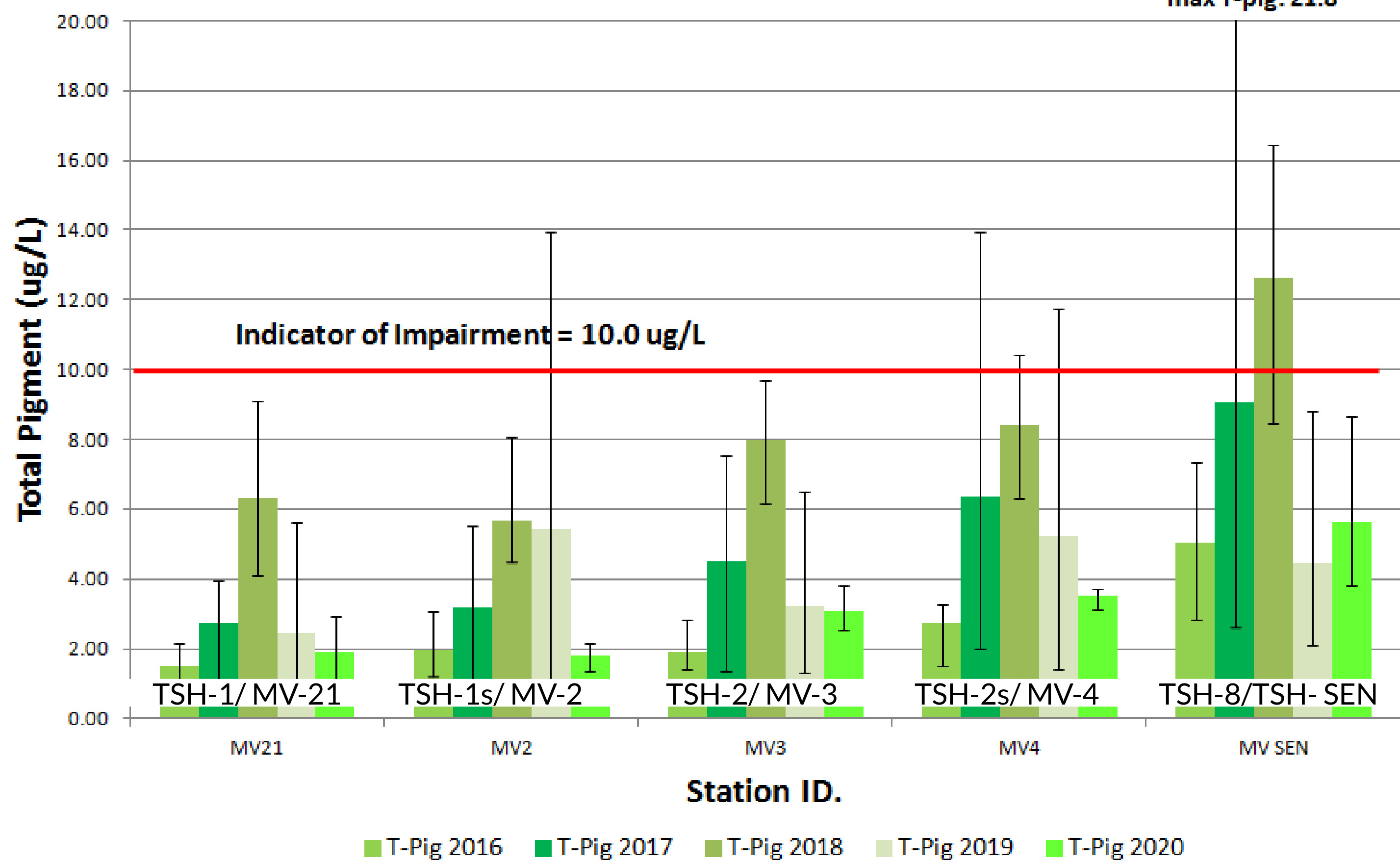


Water clarity across Tashmoo was on average 2.3 meters at deep sites and had 100% light penetration at shallow sites. This indicates good flushing at stations in the main basin. Corresponding decreased pigment levels may have led to the increased water clarity levels throughout the pond.

2020 Sampling Dates

- June 28th
- July 1st
- July 9th
- July 16th
- July 30th
- August 9th
- August 16th
- August 25th

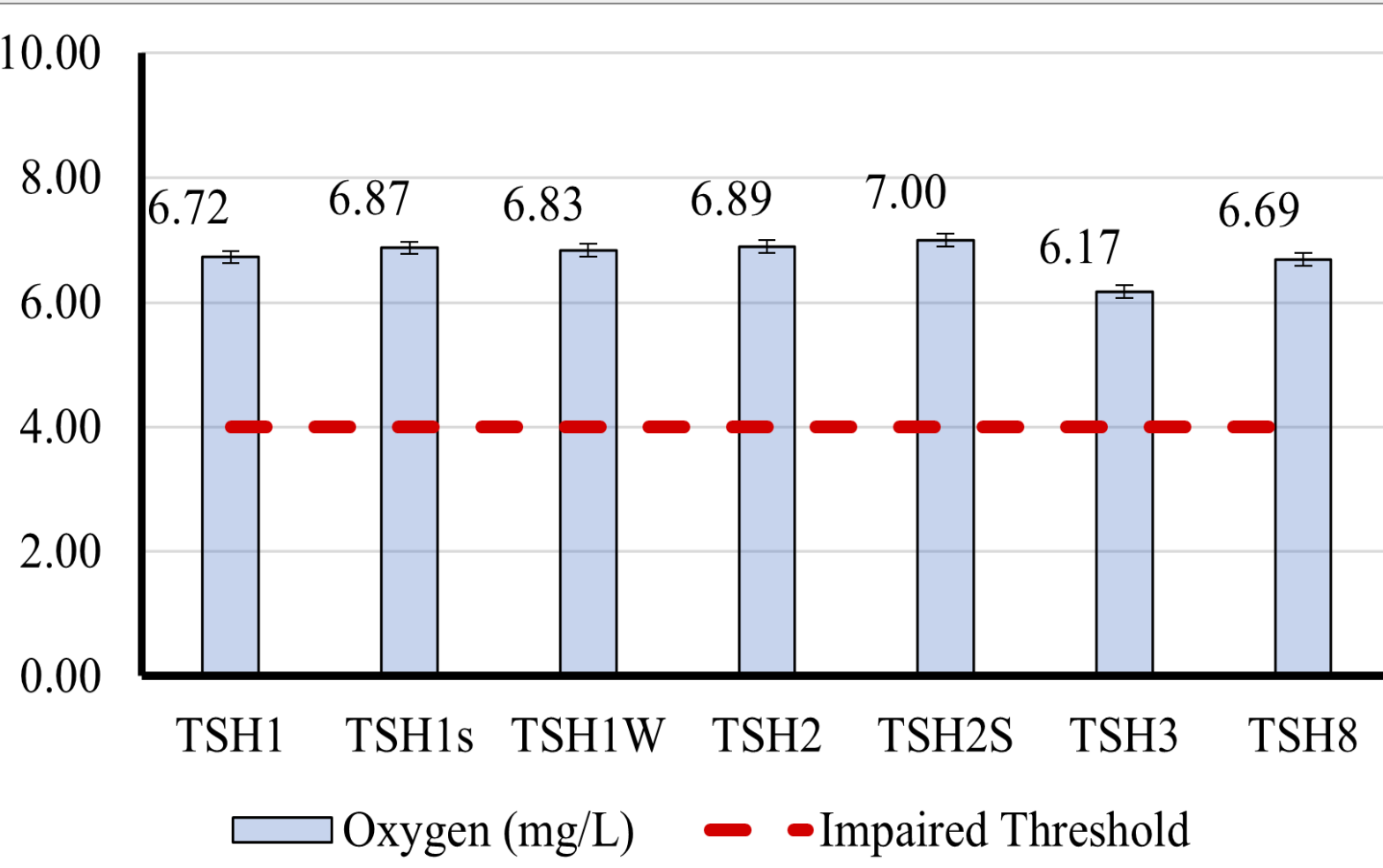
Lake Tashmoo: Total Pigment Gradient (2016, 2017, 2018, 2019, 2020)



Total Pigment

Total Pigment indicates the level of microscopic plant life in the water, which can be influenced by nutrient levels. In 2020, all stations were below the impairment threshold. Lower total pigment levels correspond with higher water clarity which allows for more light penetration to eelgrass beds.

Dissolved Oxygen



In 2020, Dissolved Oxygen (DO) levels were above 6 mg/L, indicating adequate oxygen available to the benthic community. This indicates good water quality and an ability for sustainable benthic communities such as eelgrass, shellfish and fin fish in the pond. Disclaimer: Dissolved Oxygen concentrations shown here are snapshots of conditions at the time samples are taken. DO levels can fluctuate widely throughout the day and night due to photosynthesis and respiration of plants.