

# Menemsha Pond

## 2020

### M.V.C. SAMPLING SUMMARY

#### Nature of the Pond

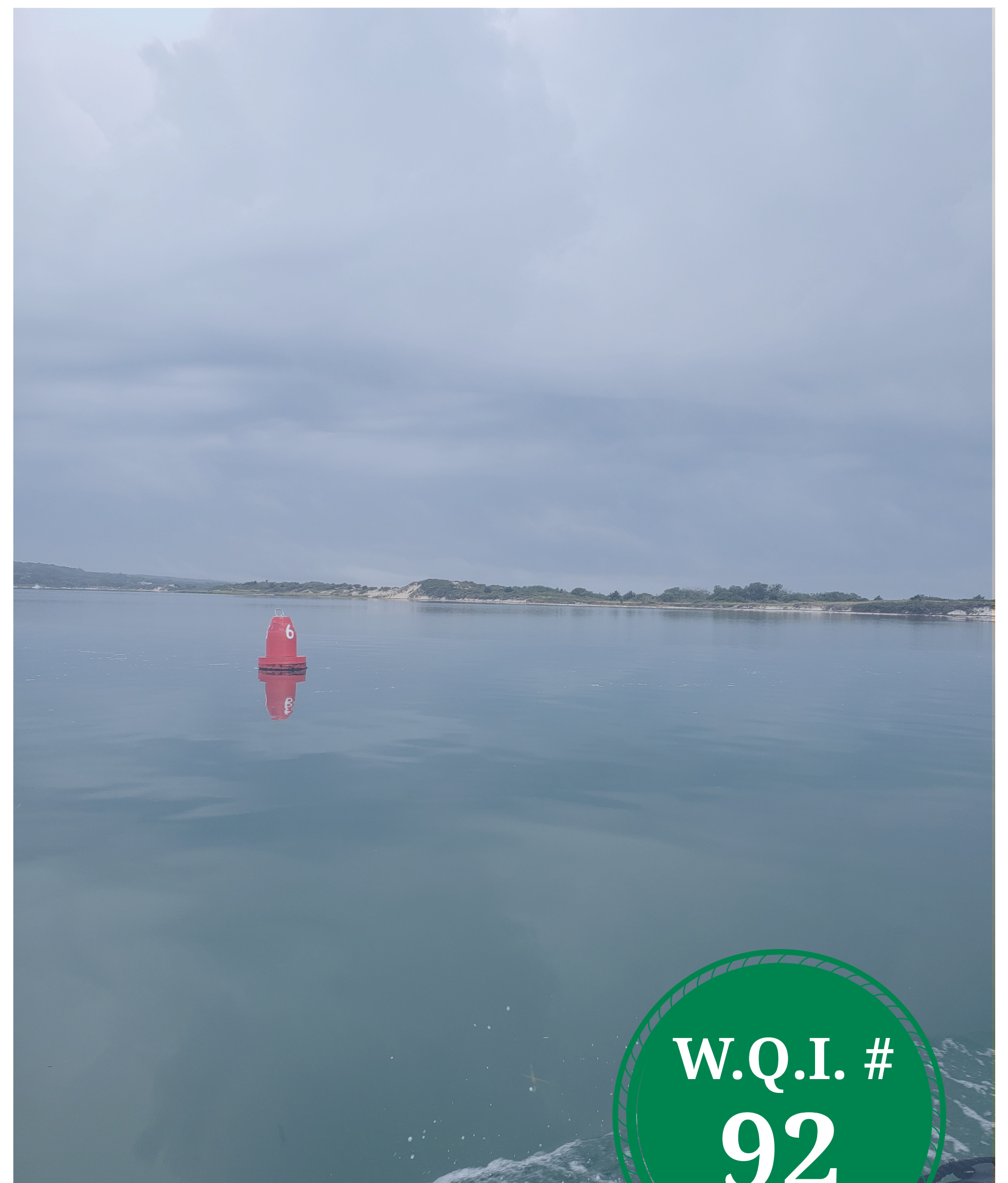
Menemsha Pond is a complex estuary system located within the Towns of Chilmark and Aquinnah and shared by the Wampanoag Tribe of Aquinnah. Menemsha Pond is connected to Squibnocket Pond via a herring run located under State Road. Menemsha pond is open to the Vineyard Sound and Menemsha Bight via the Menemsha Channel. The pond accommodates a limited bay scallop fishery, and a growing number of commercial oyster aquaculture projects. Menemsha Pond is also used for recreational swimming, boating, fin and shell fishing and is a cultural resource to the Tribe.

#### Summary for 2020

Water quality in the central basin of Menemsha Pond is excellent. Water clarity was similar to previous years and dissolved oxygen remains above threshold levels. This is notable as these findings indicate high-quality habitat. Total nitrogen levels and pigment concentrations decreased when compared to 2019. It should be noted that MEN-6 and MEN-7 both have reduced flushing being furthest from Vineyard Sound, which may result in lower habitat quality. Additionally, we note MEN-7 may be of concern as it is near a mooring field and is adjacent to the smaller, more impacted Stonewall Pond. MEN-6 and MEN-7 should continue to be monitored to ensure that good water quality remains throughout Menemsha Pond.

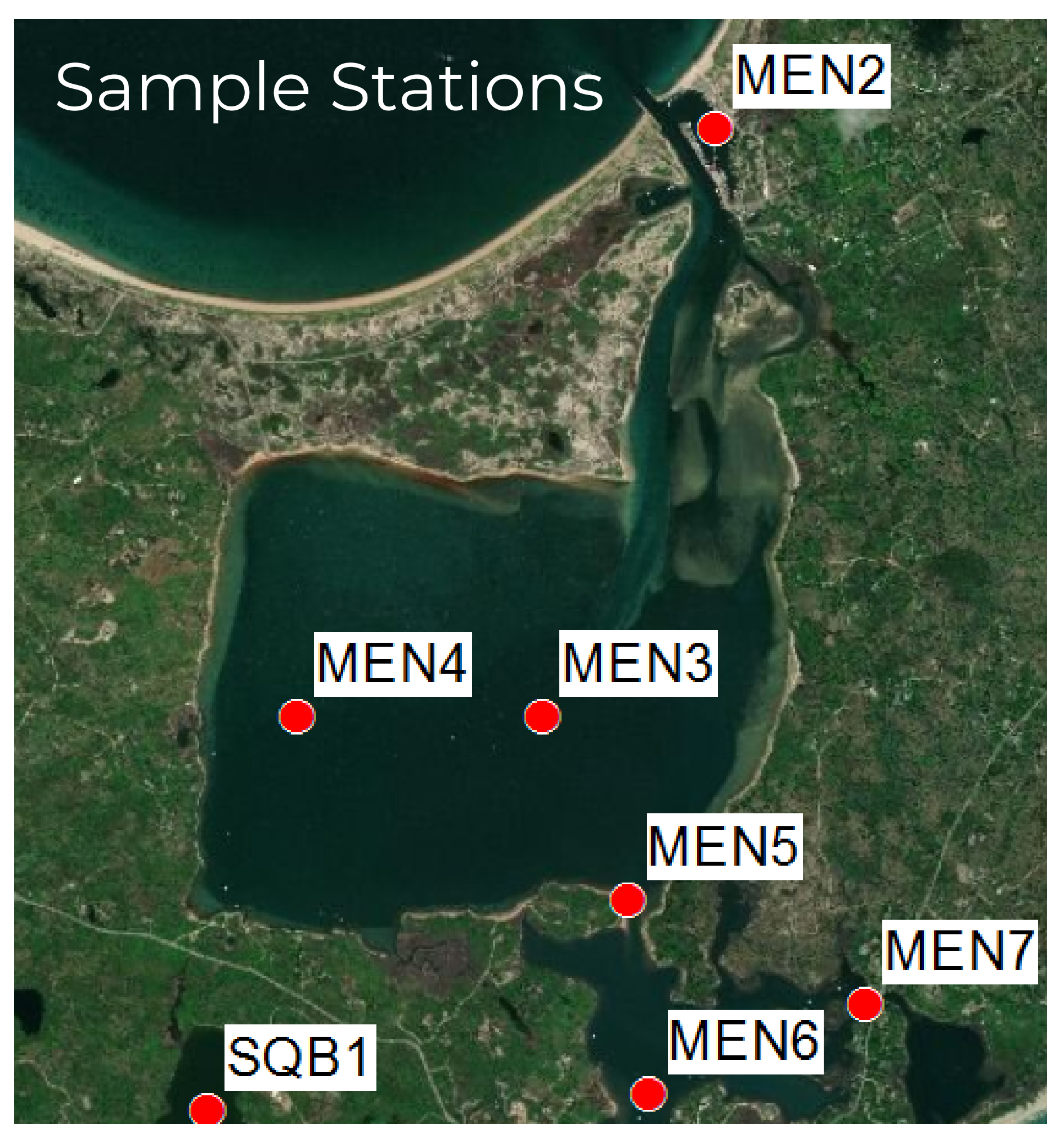
#### Why Sampling is Important

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.



#### Water Quality Index

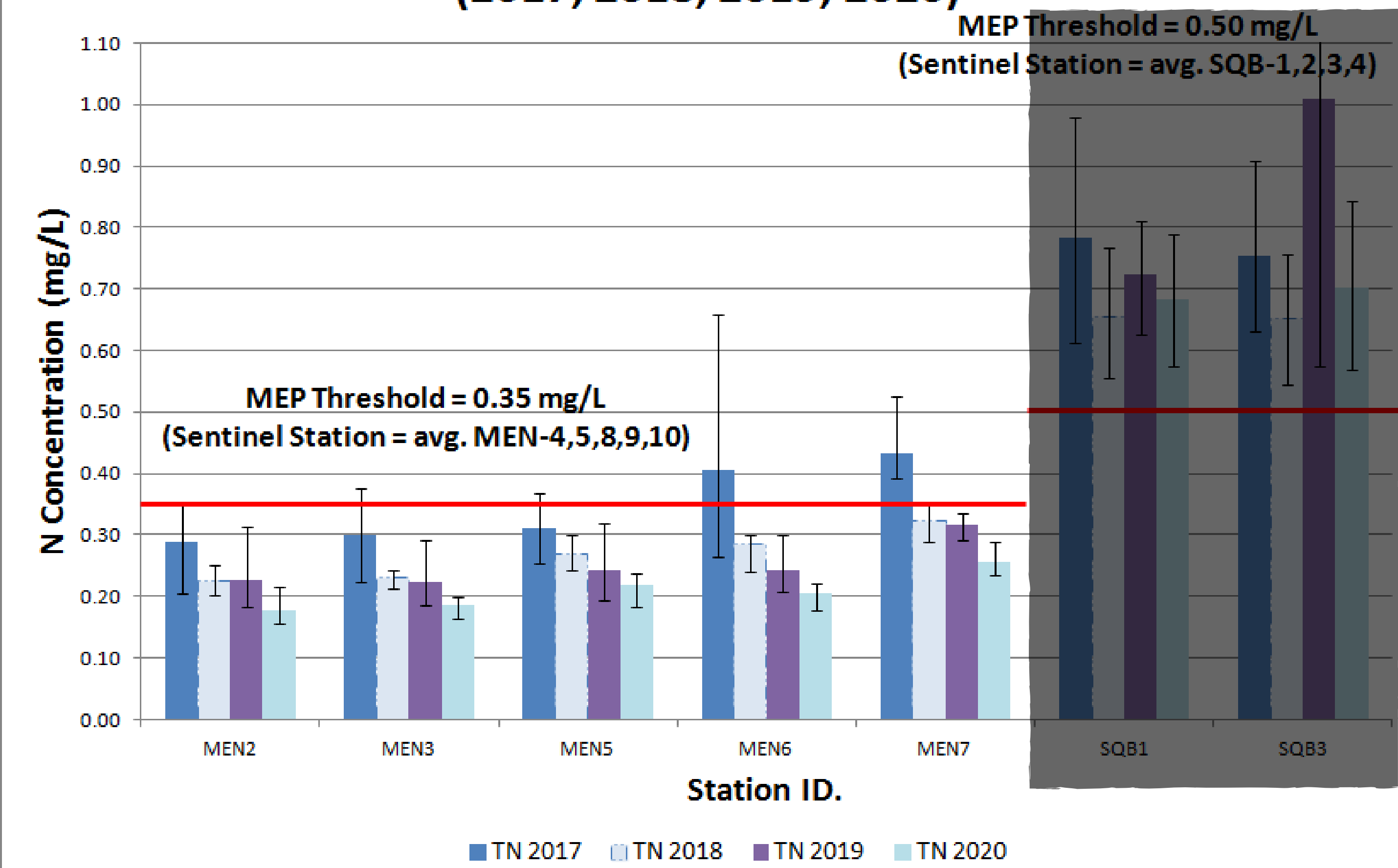
The water quality index score is a tool used to assess the well-being of the pond as a whole. It is composed of several parameters on the pond including water clarity, Oxygen levels, and nutrient levels. The score can range from 0 (worst) to 100 (best) and is developed from data collected as part of a rigorous sampling schedule. Water quality in Menemsha was characterized as "high" obtaining an even higher score than the previous year (2019 score of 90). Excellent flushing and surrounding maintenance keep it in tip-top shape.



Please forward questions to:  
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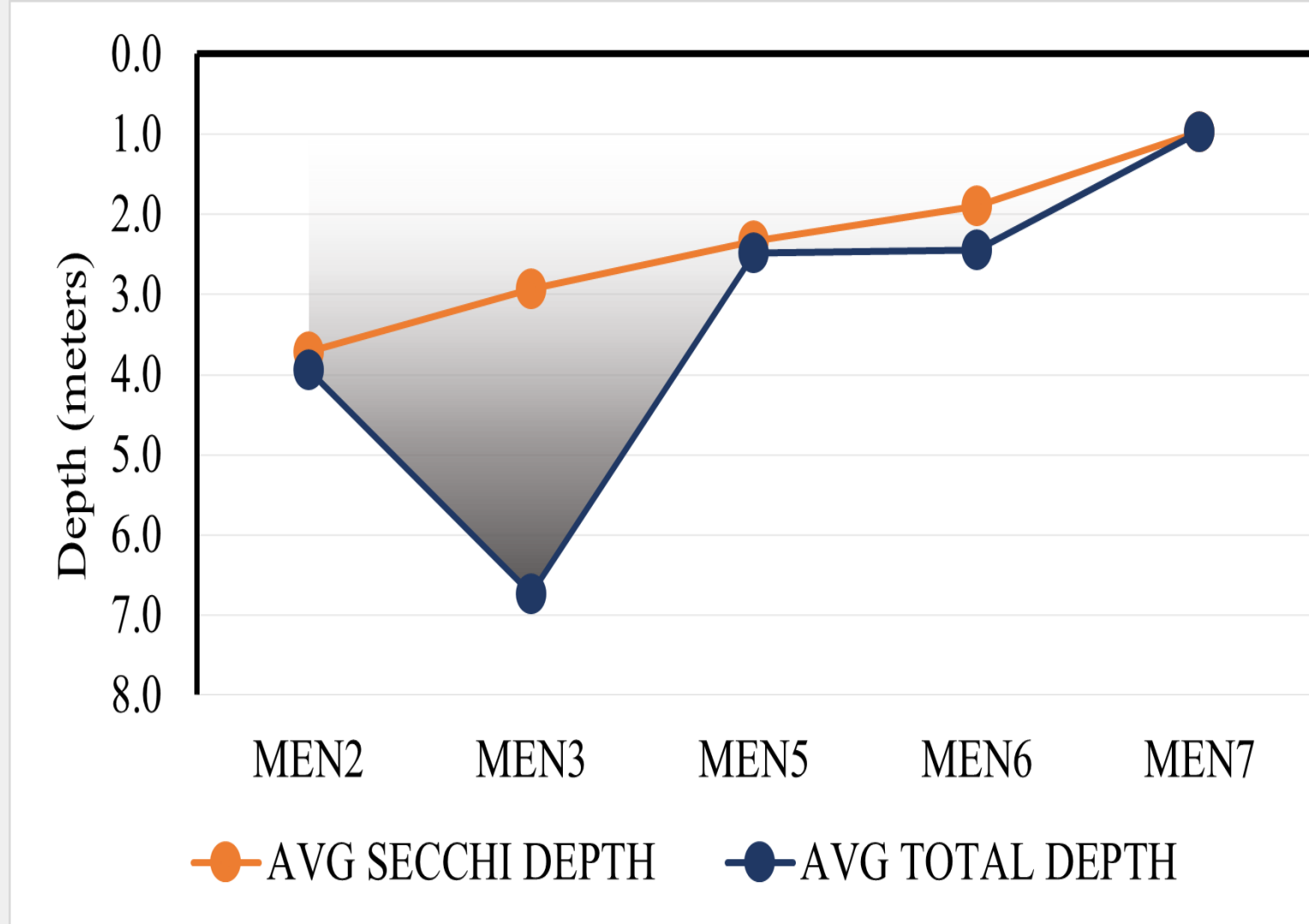
## Menemsha-Squibnocket Ponds: Total N Gradient (2017, 2018, 2019, 2020)



### Total Nitrogen

Nitrogen is necessary for plant, phytoplankton, and algae growth, but in excess can be harmful to the system. Menemsha pond nitrogen levels continue to decrease when compared to previous years and remain below the Total Maximum Daily Load (TMDL) threshold established by the DEP. Values are also observed to be slightly higher in areas that are further away from the inlet.

### Water Clarity

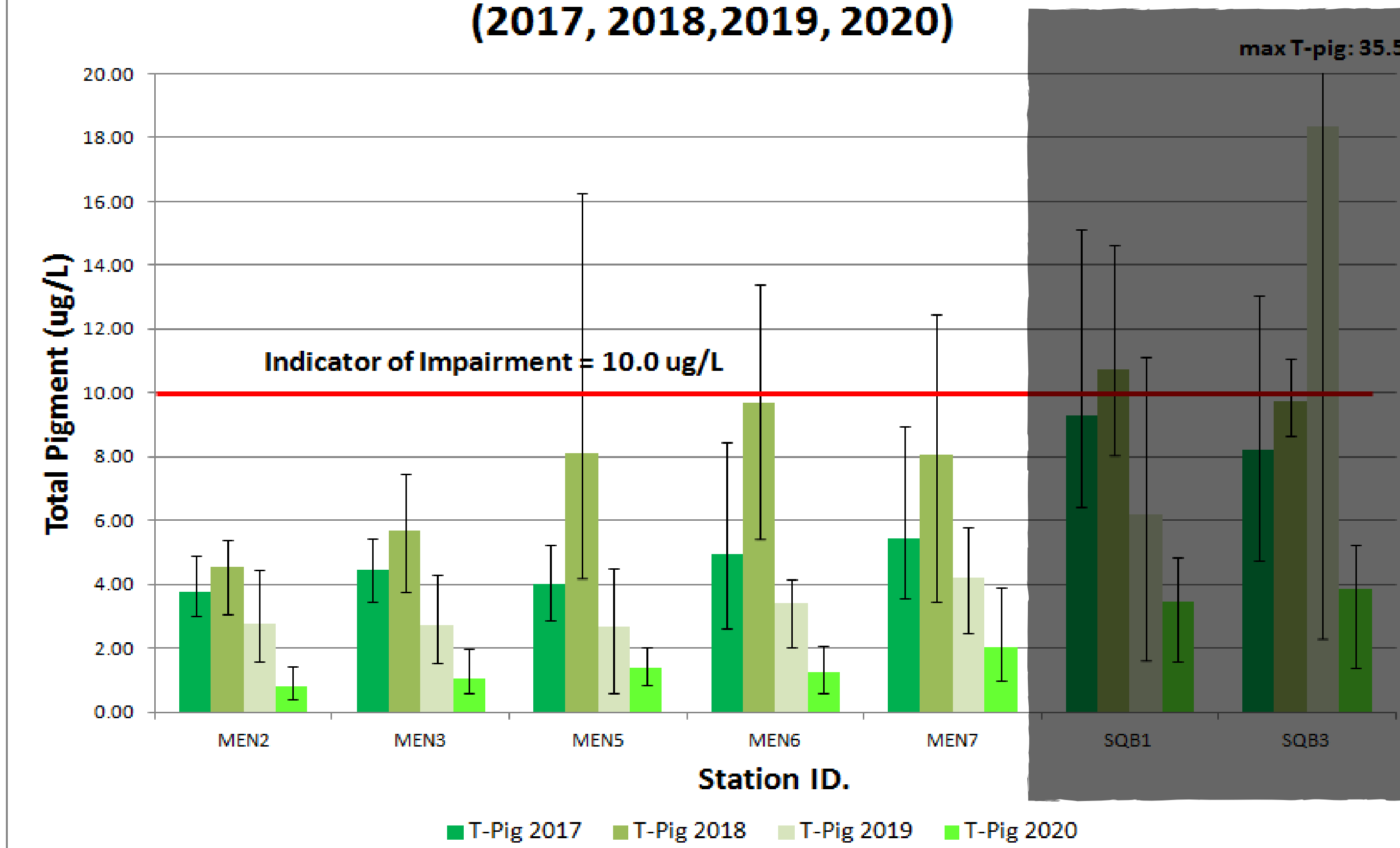


In the summer of 2020, water clarity was high across all sampling stations within Menemsha Pond. The average Secchi depth was 2.7 meters at the deeper stations. Future monitoring will confirm if a trend toward improved water quality is developing relative to previous years of data.

### 2020 Sampling Dates

- July 1st
- July 16th
- July 29th
- August 17th
- August 27th

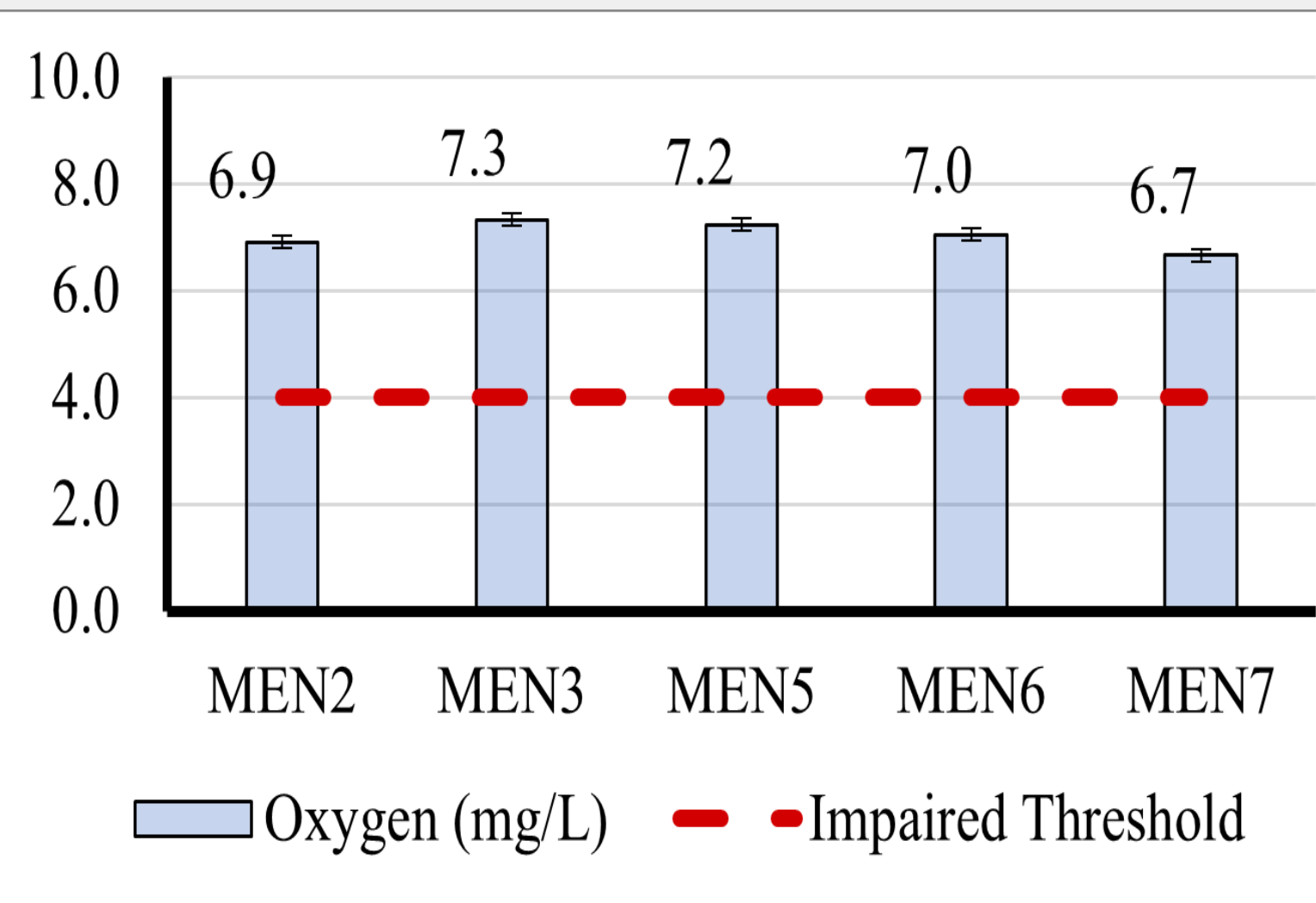
## Menemsha-Squibnocket Ponds: Total Pigment Gradient (2017, 2018, 2019, 2020)



### Total Pigment

Total Pigment indicates the level of microscopic plant matter in the water, plant matter that is often influenced by nitrogen levels. In 2020, the total pigment concentrations in Menemsha Pond decreased and remained below the impairment value. Similar to nitrogen, pigment concentrations increase in areas that are further away from the inlet and receive less flushing.

### Dissolved Oxygen



Dissolved Oxygen (DO) levels in 2020 are above 6 mg/L, indicating excellent water quality and the potential for a thriving benthic community in the Pond. No significant changes in DO were observed when compared to previous years. Disclaimer: Dissolved Oxygen (DO) concentrations shown here are snapshots of conditions at the time samples were taken. DO levels can fluctuate widely throughout the day and night due to photosynthesis and respiration of plants.