Squibnocket Pond
2020

M.V.C. SAMPLING SUMMARY

Nature of the Pond

Squibnocket Pond is a large basin with a total depth of over five meters (approx. 17 ft) and is located within the Towns of Aquinnah and Chilmark. Squibnocket is connected to Menemsha Pond via a herring run through a culvert under State Road. This pond does not directly connect to the Atlantic Ocean, is maintained as an estuary by periodic overwash of the barrier beach and limited tidal exchange with Menemsha Pond. Land use around Squibnocket Pond is primarily residential, with some undeveloped and public use lands present.

Summary for 2020

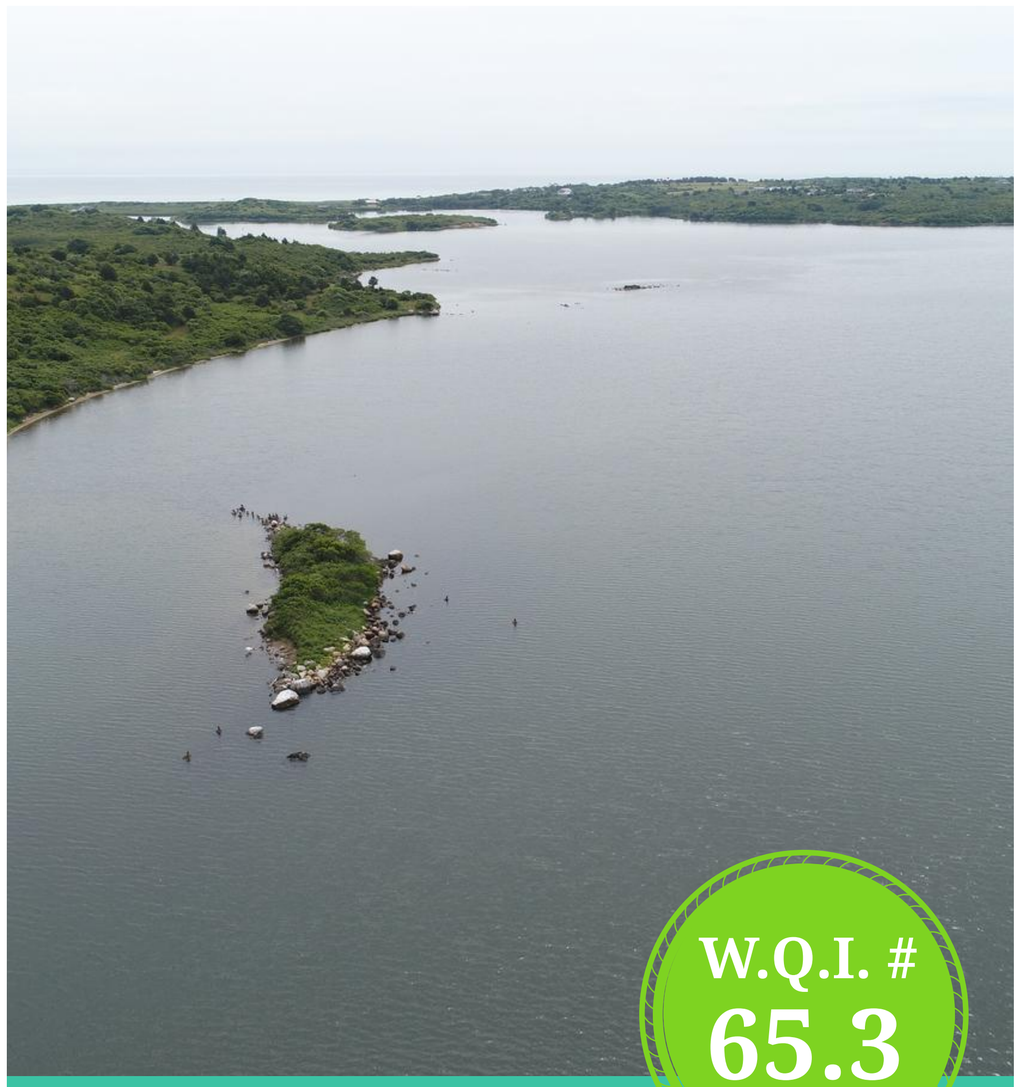
In 2020, Squibnocket Pond had some noticeable changes. Nutrients, especially nitrogen, decreased slightly at both stations but were still above threshold values. Although significant improvements were noted for total pigment levels, water clarity remained poor throughout the pond with no fundamental changes compared to past years. Nutrient concentrations and water clarity indicate a system that remains stressed by overload from surrounding land activities.
Cyanobacteria is observed in stagnant coves and will start to be formally monitored and tracked next sampling season.

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 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.

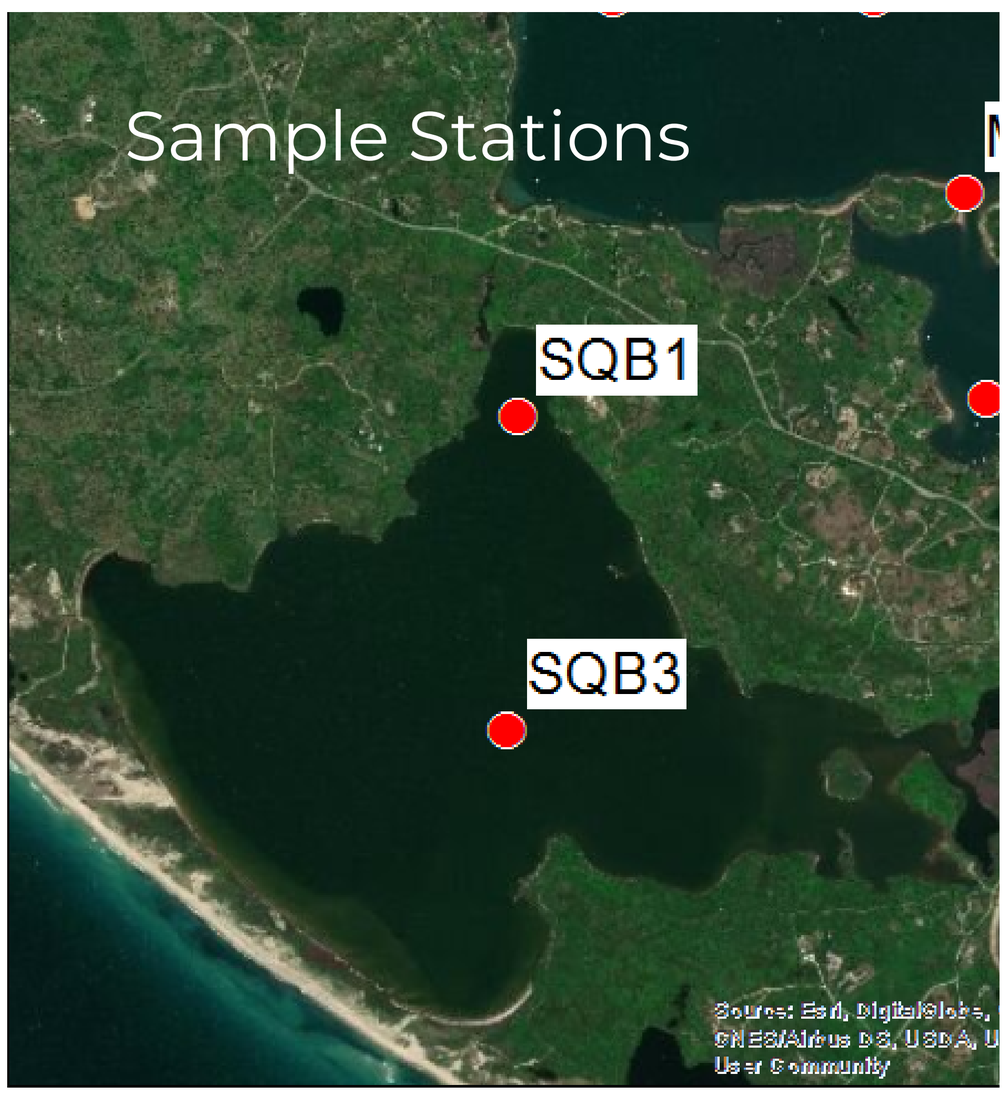
MARTHA'S VINEYARD COMMISSION

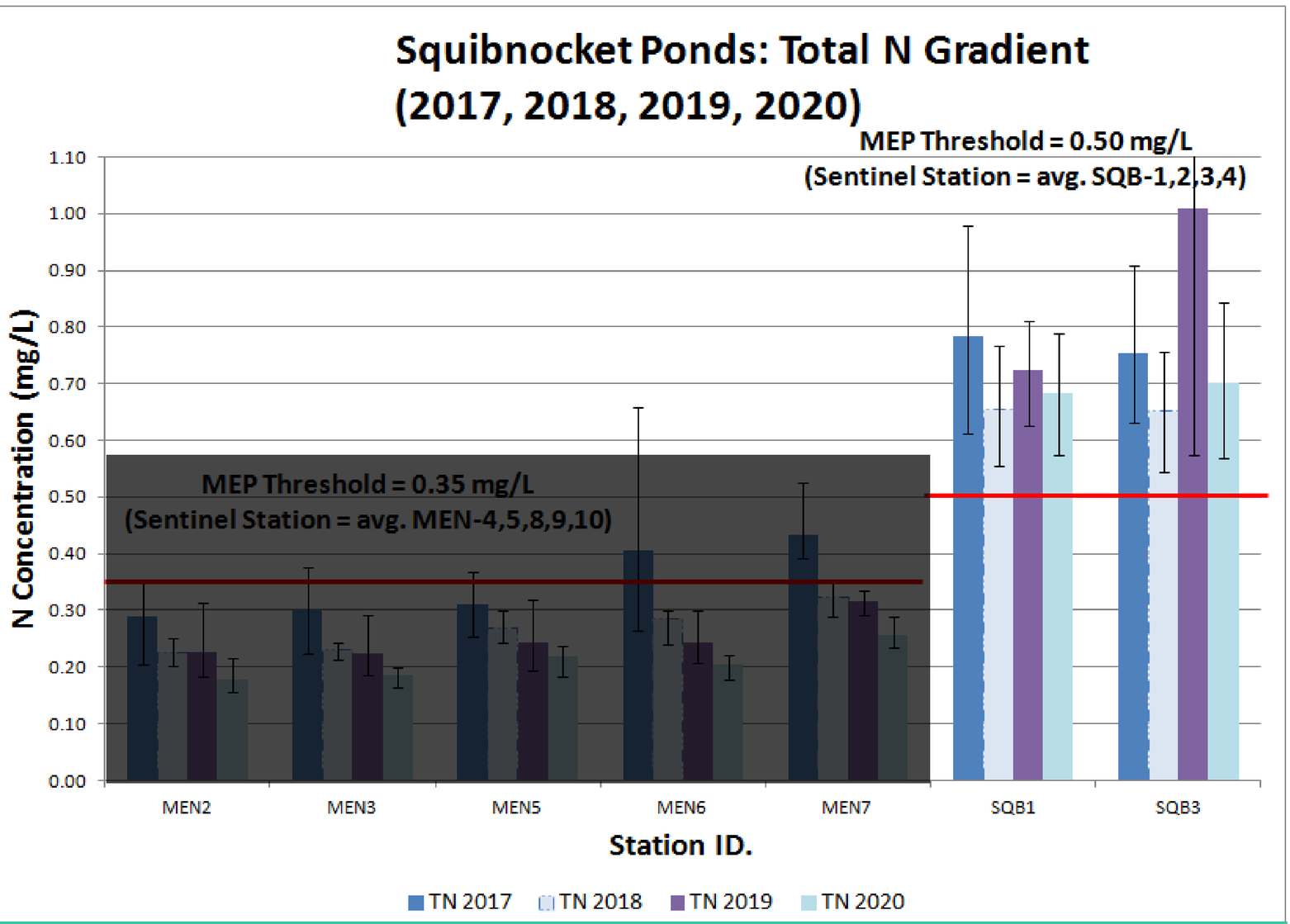
Please forward questions to:
Sheri Caseau, Water Resource Planner
Martha's Vineyard Commission (508) 693-3453



Water Quality Index Score

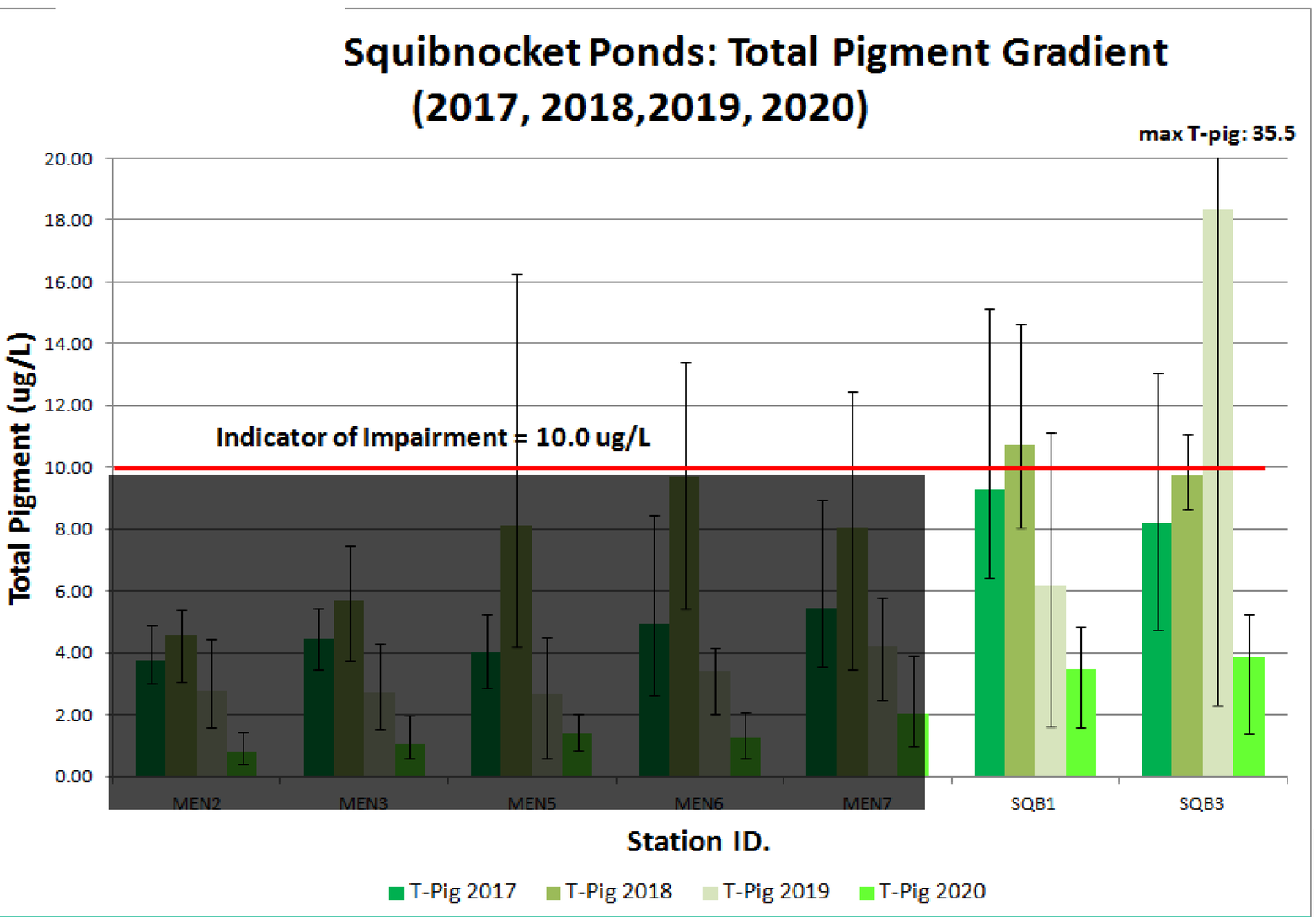
The water quality index score is a tool used to assess the well-being of the pond as a whole. It is composed of several parameters on the pond including water clarity, Oxygen levels, and nutrient levels. The score can range from 0 to 100 and is developed from data collected as part of a rigorous sampling schedule. Water quality on Squibnocket Pond is described as moderate to high for the 2020 sampling season. Pigment levels decreased from 2019 to 2020 creating better water clarity in the pond. Water quality increased significantly from 2019 to 2020 overall, increasing from 38 to 65.3.





Total Nitrogen

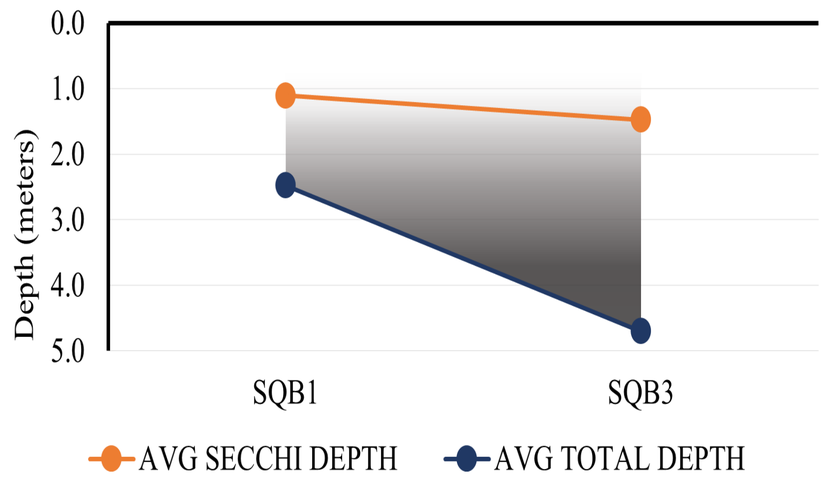
Nitrogen is a limiting nutrient necessary for plant, phytoplankton, and algae growth, but in excess can be harmful to the system. In 2020, Squibnocket pond has had a significant reduction in nitrogen at SQB-3 and a minor reduction at SQB-1. Both sites, even with the improvement, are still above the targeted MEP and TMDL threshold.



Total Pigment

Total Pigment indicates the level of microscopic plant matter in the water, which nitrogen levels can influence. In the past, Squibnocket pond total pigment has been near or exceeded the indicator of impairment, but this year has had significant reductions. The largest improvement in pigment concentration was at SQB3, with levels dropping below the impairment threshold.

Water Clarity

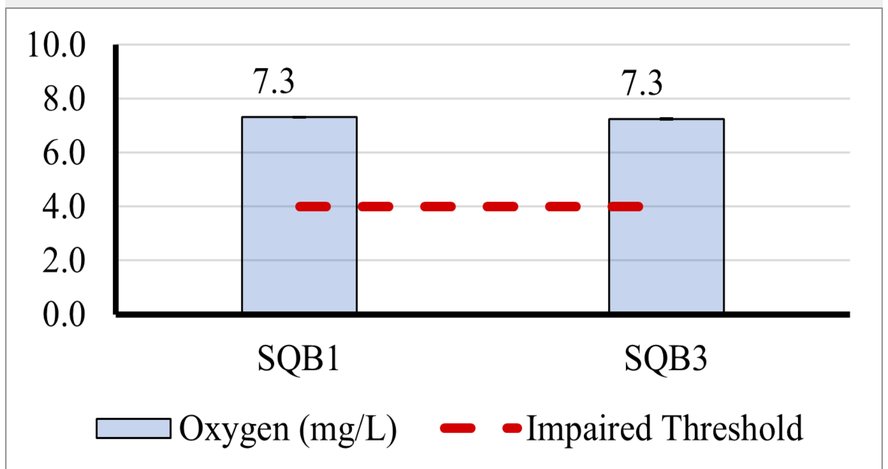


In 2020, both stations had low water clarity. These depths are similar to last year's Secchi depths values but with less recorded total pigment during the year. The low water clarity could be caused by high turbidity from sources within or outside the pond.

2020 Sampling Dates

- June 30th
- July 8th
- July 15th
- July 30th
- August 3rd
- August 17th
- August 31st

Dissolved Oxygen



Dissolved Oxygen (DO) levels in 2020 are above 6 mg/L indicating good water quality and a sustainable benthic community in the pond. No remarkable changes were observed compared to previous years of data.

Disclaimer: Dissolved Oxygen (DO) 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.

This research was made possible via grants from District Local Technical Assistance Program. The Martha's Vineyard Commission is a regulatory agency tasked with monitoring the environmental health of all towns on Martha's Vineyard. We extend a special thanks to the Wampanoag Natural Resources Department for their help and knowledge. For more information on water quality on The Vineyard please visit https://www.mvcommission.org/