

Edgartown Great Pond 2020

M.V.C. SAMPLING SUMMARY

Nature of the Pond

Edgartown Great Pond is a coastal salt pond estuary that lies entirely within Edgartown. The watershed extends to West Tisbury. This pond has many embayments and is primarily used for recreational swimming, fishing, and boating, as well as commercial fin-fishing and shellfishing. Recent improvements in water quality may be due to decreases in nitrogen loading and regularly scheduled inlet openings. Eelgrass thrives in the lower portion of the pond, south of Swan's Neck. Re-establishing eelgrass in the tributaries will continue with improved water quality.

Summary for 2020

In 2020, Edgartown great pond had some noticeable changes, and consistent monitoring of trends should continue. This year, a significant increase in nitrogen was observed, with levels surpassing the Total Maximum Daily Load (TMDL) values at many sites. Overall total pigment levels decreased. In tributaries that do not flush and that receive nutrient-rich water are still a concern. Inlet opening events and wastewater treatment facility advancements appear to have improved some aspects of water quality in the pond and its embayments. Further improvement of the pond, including decreasing nutrient input from septic and agricultural systems, can increase Edgartown Great Pond's commercial, recreational, and aesthetic value.

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.



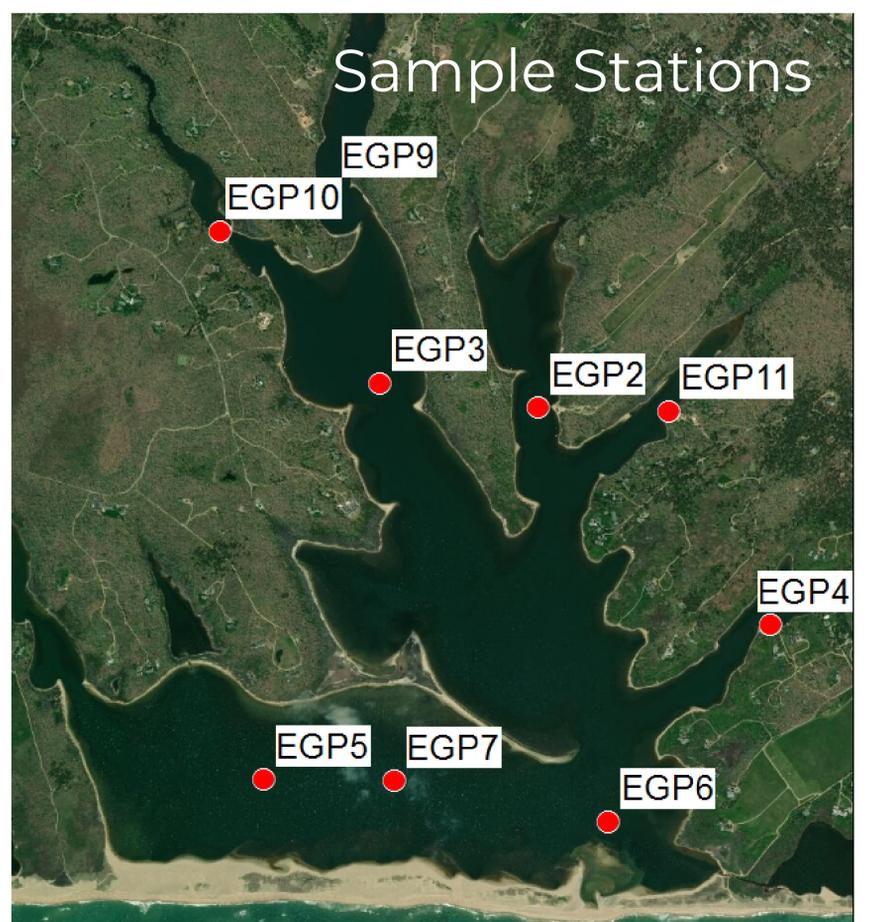
Please forward questions to:
Sheri Caseau, Water Resource Planner
Martha's Vineyard Commission (508) 693-3453



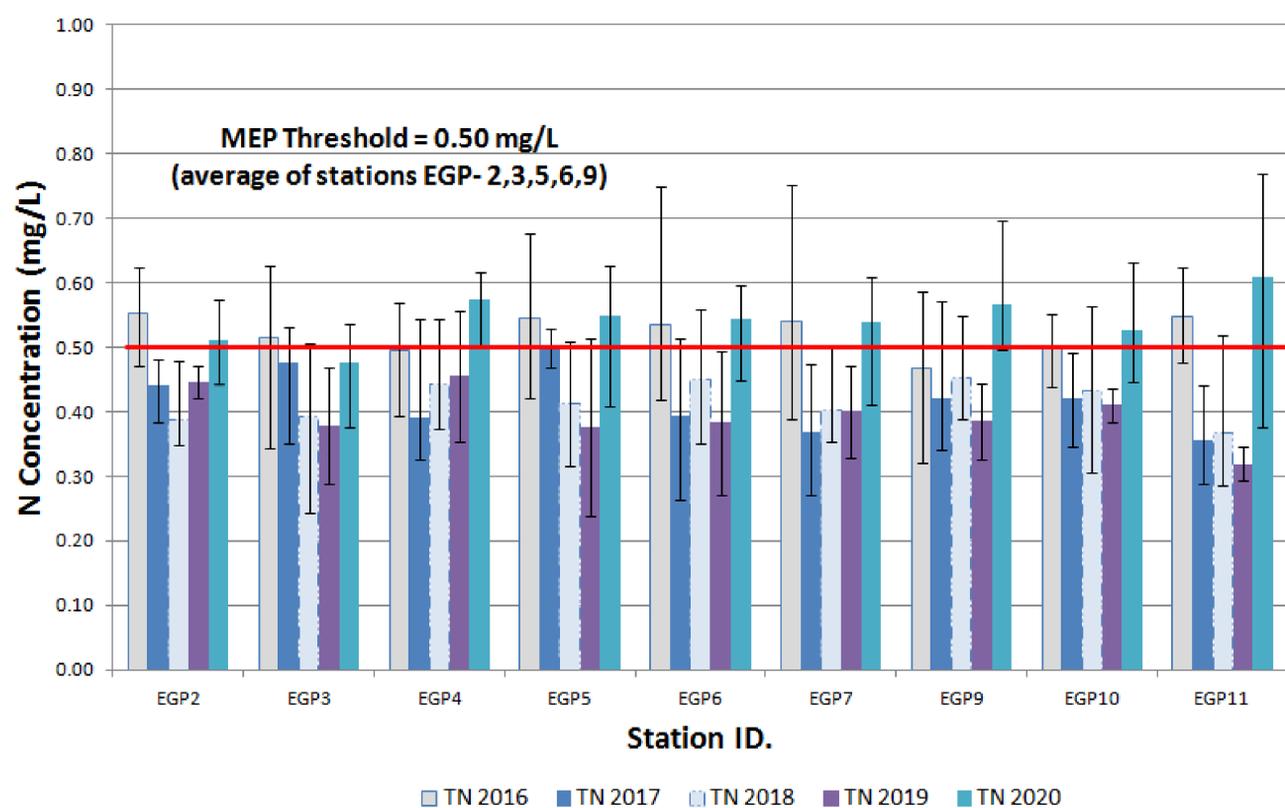
Water Quality Index

The water quality index score is a tool used to assess the well-being of a pond. It is composed of several parameters including water clarity, oxygen and nutrient levels. The score can range from 0 (low) to 100 (high) and is based on data collected as part of a rigorous sampling schedule.

Overall the quality of Edgartown Great Pond is moderate to high for the 2020 season. It is important to emphasize that index scores reflect the status of the entire system, not of specific areas. Water quality in the tributaries remains lower than in the basin, especially at sample site EGP 10 (Janes Cove).



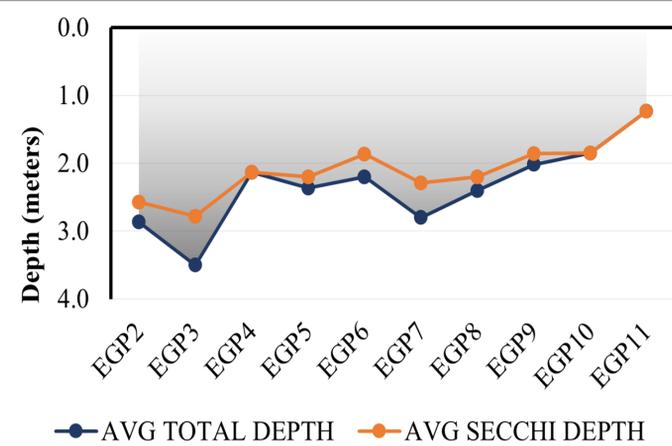
Edgartown Great Pond: Total N Gradient (2016, 2017, 2018, 2019, 2020)



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 within the 2020 sample year increased at every site, with most sites now being near or above the MEP set threshold of 0.5 mg/L. The only station which is not above the threshold was EGP3. Still, this station saw an increase in nutrient concentration compared to previous years.

Water Clarity

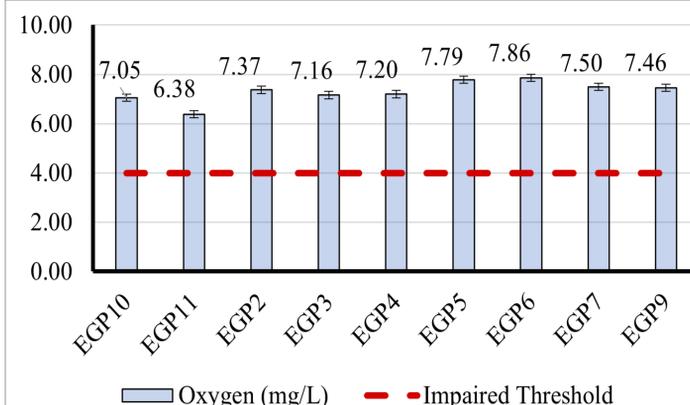


Water Clarity in 2020 was high, with most sites having over two meters of light penetration. In 2020, we observed a slight decrease in water clarity at all sampling stations relative to 2019. This may be due to that sampling stations having higher recorded depths in 2020.

2020 Sampling Dates

- July 7th
- July 29th
- September 16th
- December 2nd

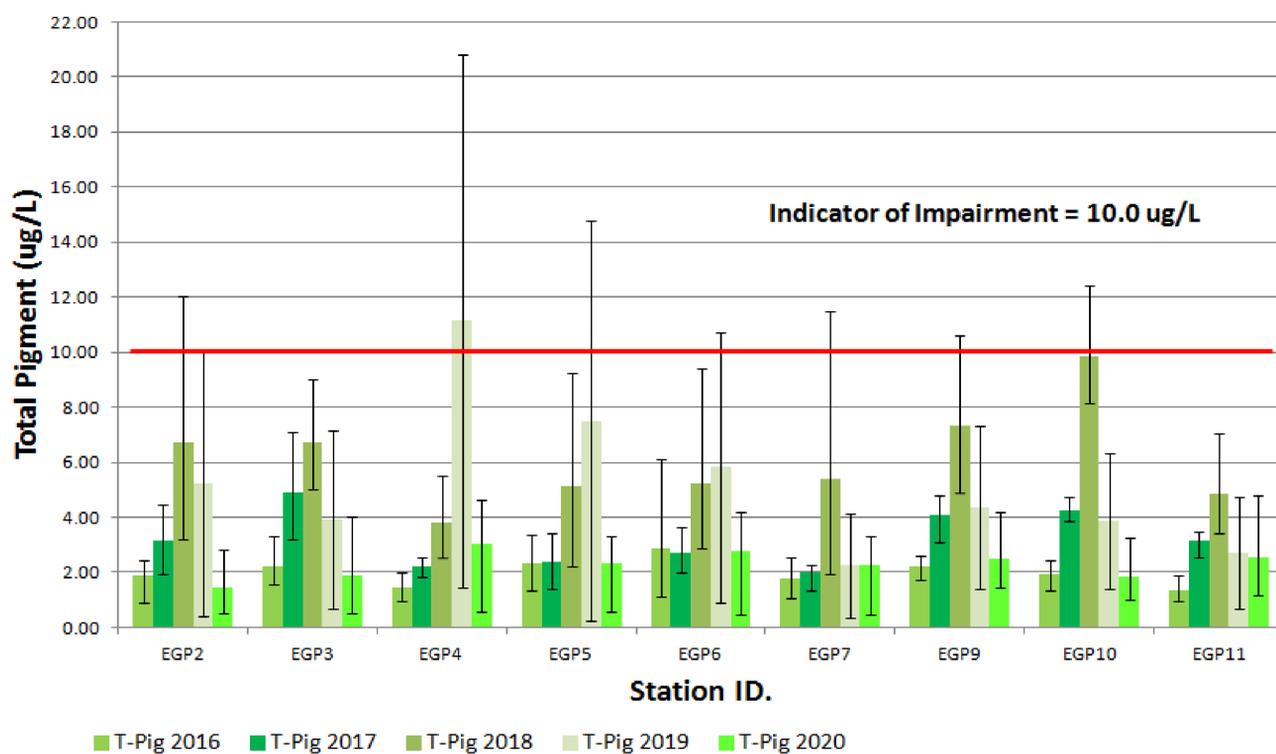
Dissolved Oxygen



Dissolved Oxygen (DO) levels in 2020 were excellent and remain above the stress threshold of 6 mg/L at all monitoring stations. No significant changes were noted when comparing to previous years. DO above the threshold is ideal and can support natural benthic communities such as eelgrass, shellfish, and fin fish in the pond.

Disclaimer: Dissolved Oxygen (DO) concentrations shown here are a snapshot of conditions at the time samples were taken. DO levels can widely fluctuate throughout the day and night due to photosynthesis and respiration of plants.

Edgartown Great Pond: Total Pigment Gradient (2016, 2017, 2018, 2019, 2020)



Total Pigment

Total Pigment indicates the level of microscopic plant matter in the water, which is often influenced by nitrogen levels. In 2020, the total pigment within EGP decreased at nearly all sampling stations and was well below the targeted threshold value.