Farm Pond
2019

M.V.C. SAMPLING SUMMARY

Nature of the Pond

Farm Pond is a coastal salt pond with limited tidal flushing that lies entirely within the Town of Oak Bluffs. Approximately 8 acres of salt marsh border this pond. The main culvert at the barrier beach connects this pond to the Vineyard Sound but does not provide adequate flushing. A secondary culvert does exist, but is not functional. Progress is being made towards enlarging and improving the main culvert's flow. Eelgrass is present throughout the pond and provides much needed habitat for several marine species. An invasive stinging jellyfish has been found in the pond.

Summary for 2019

Water quality has improved slightly in Farm Pond in recent years, as we have seen decreases in nitrogen but we have also seen rises in total pigment. The rise in total pigment may be due to rising water temperatures and more abundant clear, sunny days. Dissolved Oxygen remains near the stress threshold of 4 mg/L, below which can cause species death, a healthy system should be above 6 mg/L. This system should continue to be monitored as current conditions are close to the tipping point. This spring the northern half of the pond was opened for shellfishing. The rest of the pond remains closed to shellfishing due to dense eelgrass growth that the Town of Oak Bluffs does not wish to disturb.

2019 Sampling Dates

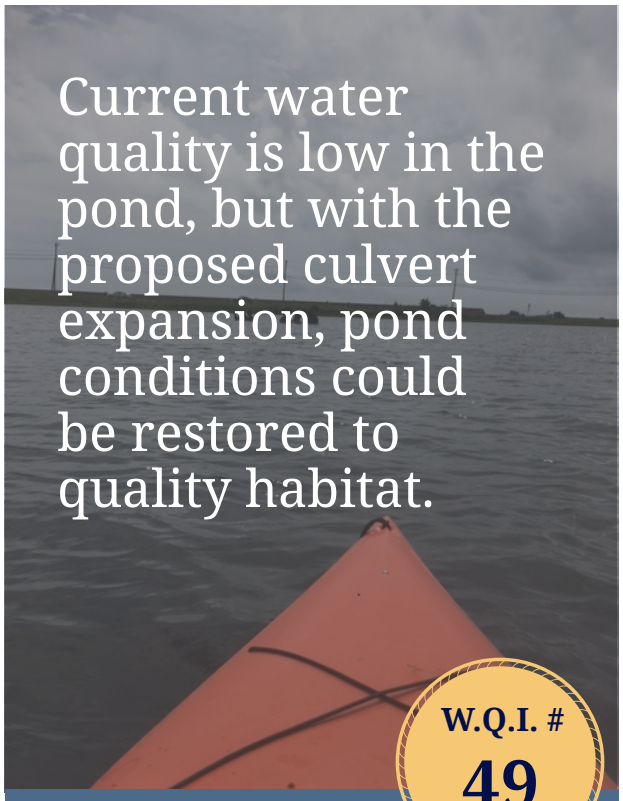
August 5

August 22

September 19

Fun Fact

During the summer Vanessa the sea serpent and her baby help monitor the pond!



Water Quality Index

The water quality index score can range from 0 to 100 (low to high), and is based on parameters that are consistently monitored in this pond. Overall the water quality of Farm Pond is moderate to poor. Opening the culvert will improve the water quality in the pond.

FRM-3 is the most impaired station, mainly due to high amounts of total pigment and very low dissolved oxygen, indicating a stressed system. The entire pond will continue to be monitored to evaluate conditions.

Why Sampling is Important

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

MARTHA'S VINEYARD COMMISSION

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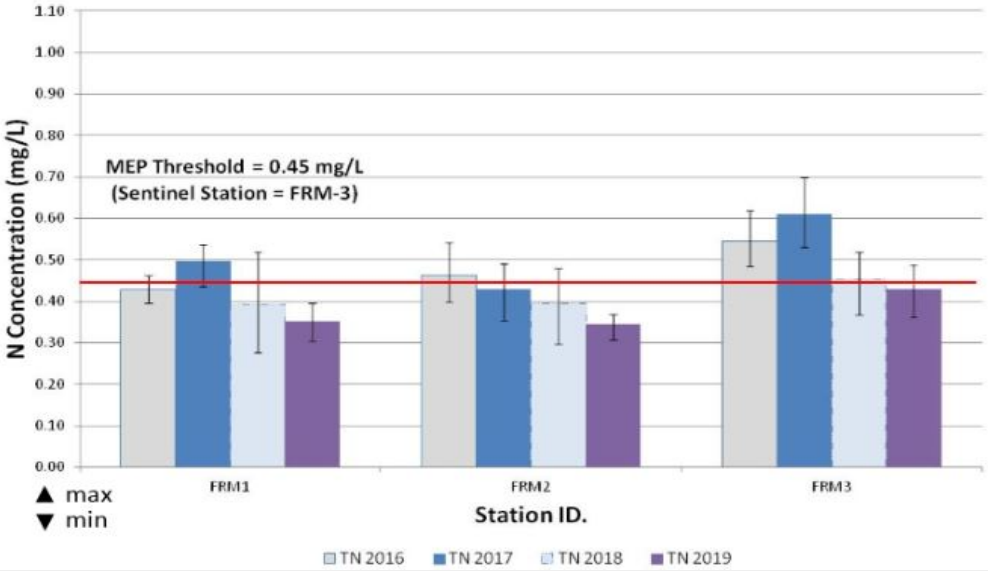
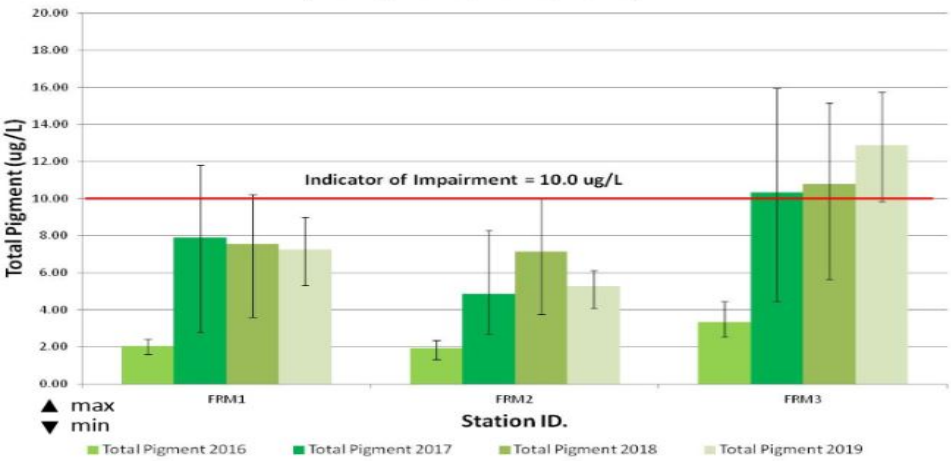
Farm Pond: Total N Gradient (2016, 2017, 2018, 2019)



Nitrogen is a limiting nutrient and is necessary for plant, phytoplankton, and algae growth. Excess nitrogen can cause eutrophication, and decreased water quality. Total nitrogen levels are above the recommended threshold at all stations, and this must be decreased in order for pond water quality to improve.

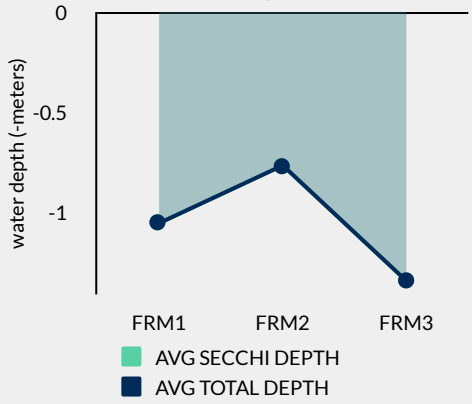
Farm Pond: Total Pigment Gradient (2016, 2017, 2018,2019)



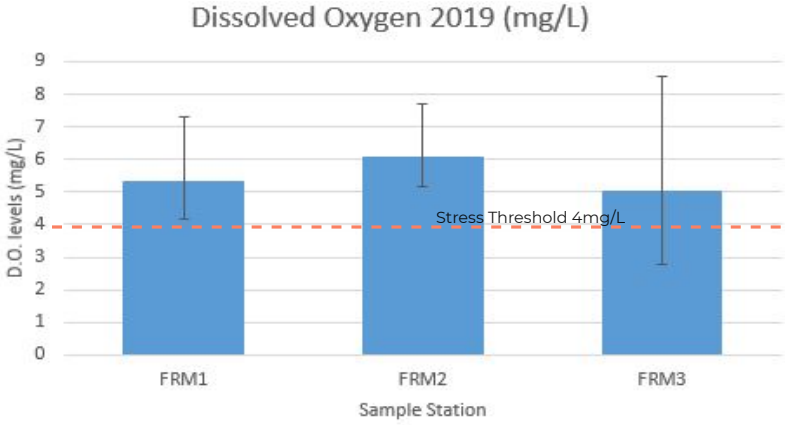
Total Pigment indicates the level of microscopic plant life in the water, which can be influenced by nitrogen levels. FRM-3 has relatively high pigment and nitrogen levels which, combined with low dissolved oxygen can lead to eutrophication.

Water Clarity

Water clarity is a measure of how deep we can see at each sample site. Farm pond is shallow, with 100% water clarity at all stations but continued increases in pigment could decrease visibility in the future.



Dissolved Oxygen 2019 (mg/L)



Dissolved Oxygen

Dissolved Oxygen (DO) is above the threshold at all sample stations but if DO decreases at any stations the pond's water quality and benthic community could be greatly impacted. DO should continue to be monitored, particularly at FRM-3, and management plans to increase water quality should be put in place. DO concentrations shown here are a snapshot of conditions at the time the sample was taken. DO levels can widely fluctuate throughout the day and night including dipping into levels that may cause stress.

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'd like to extend a special thanks to Chuck Fisher and the Oak Bluffs shellfish staff for their help and knowledge. For more information on water quality on The Vineyard please visit http://www.mvcommission.org/.