Chilmark Pond 2019

M.V.C. SAMPLING SUMMARY

Nature of the Pond

Chilmark Pond is a closed coastal pond that lies entirely within the Town of Chilmark. This system consists of upper (western end), middle and lower Chilmark Pond. When the pond is opened the lower basin requires about 15 days for a 95 % flush, although the upper pond remains primarily fresh water. Historically, the lower basin of the pond has been primarily impaired by nitrogen input from septic systems. Meanwhile, the Upper Ponds have been mainly impacted by agricultural nitrogen input from fertilizers and animals. Since the upper and middle ponds are mainly freshwater, they are impacted by phosphorous pollution as well, which can cause cyanobacteria blooms.

Summary for 2019

Water quality on Chilmark Pond may be on the rise in the main basin, however, more can be done to improve Upper Chilmark Pond and its tributaries. The frequent pond openings allow for the lower pond to flush, although the decrease in water level during these opening events heavily impact recreational use. The upper pond remains entirely freshwater because of input of fresh water from the tributaries. Cyanobacteria blooms have been observed in the middle pond for the past several years. Further management plans should be implemented to decrease nutrient loading so that water quality on the entire pond can be improved. This will increase the recreational and aesthetic value of the pond.

2019 Sampling Dates

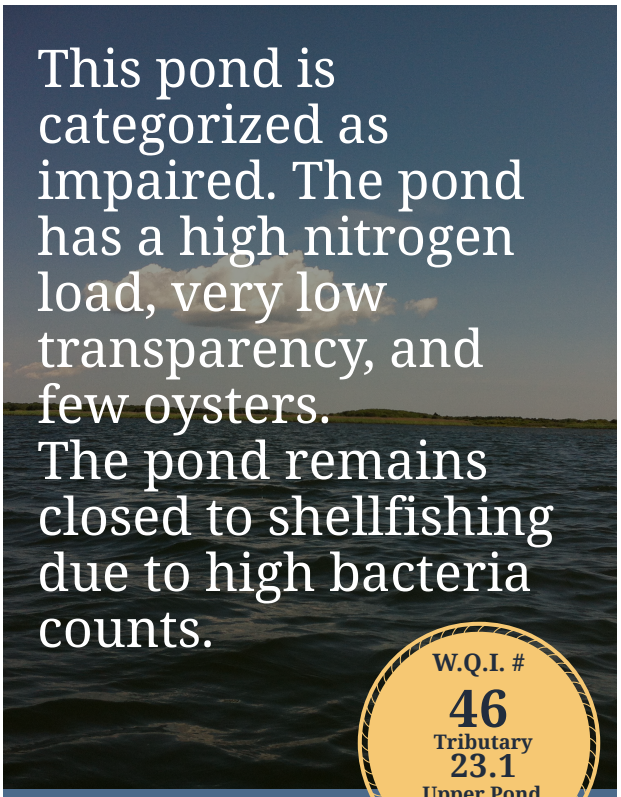
July 16
August 1
September 3
October 21
November 27

Fun Fact

Chilmark Pond supports shellfish and fin-fish ecosystems!

MARTHA'S VINEYARD COMMISSION

Please forward questions to:
Sheri Caseau
Water Resource Planner
Martha's Vineyard Commission
33 New York Avenue
Oak Bluffs, MA 02557
(508) 693-3453

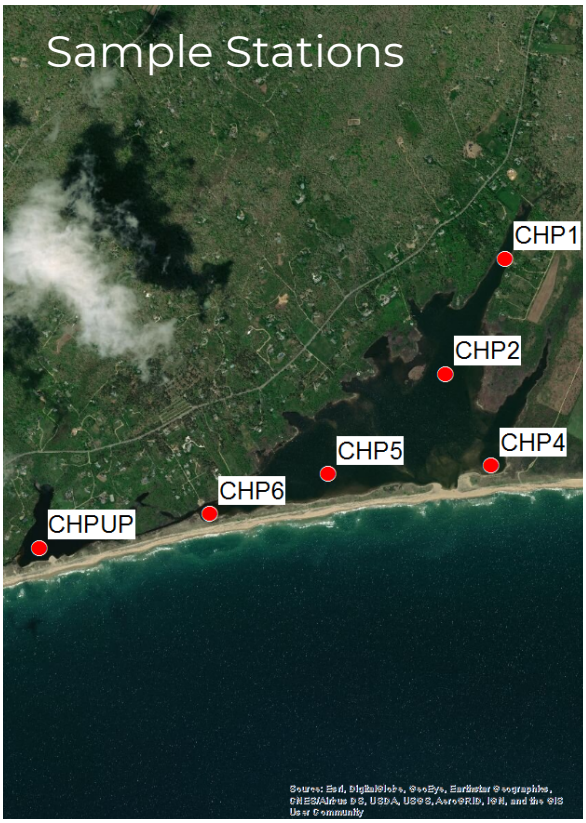


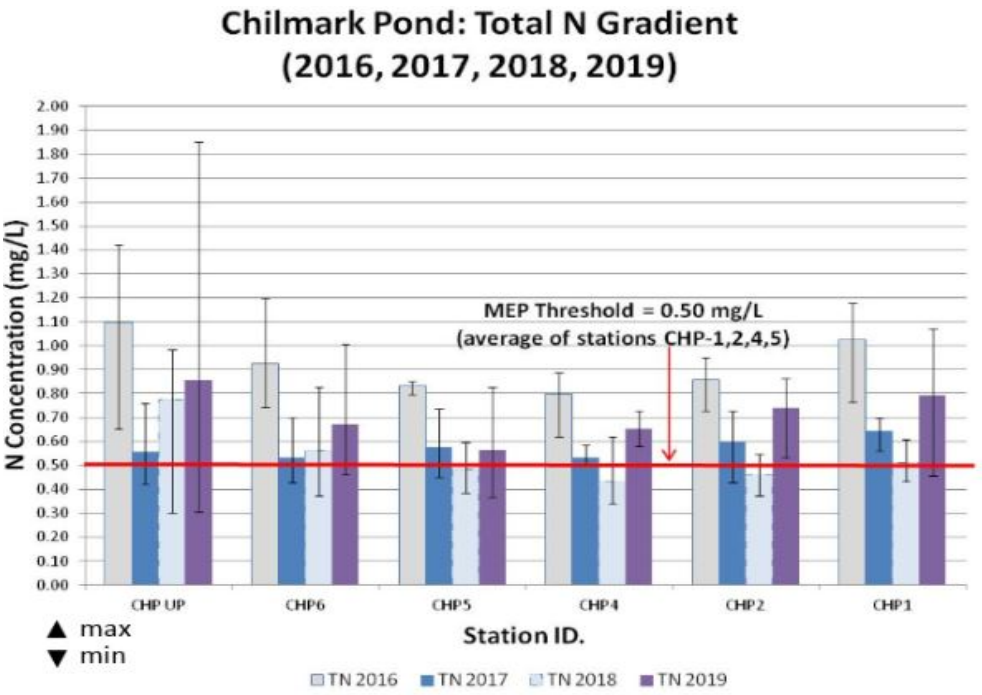
Water Quality Index

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. Chilmark Pond has moderate to poor water quality as we have seen reductions in harmful nutrients, including nitrogen, in recent years but still need to see further reductions in nitrogen and total pigment levels.
CHP-1, CHP-6, and CHP-UP (see map on next page) are relatively impaired and will continue to be monitored so that trends can be established for future management decisions.

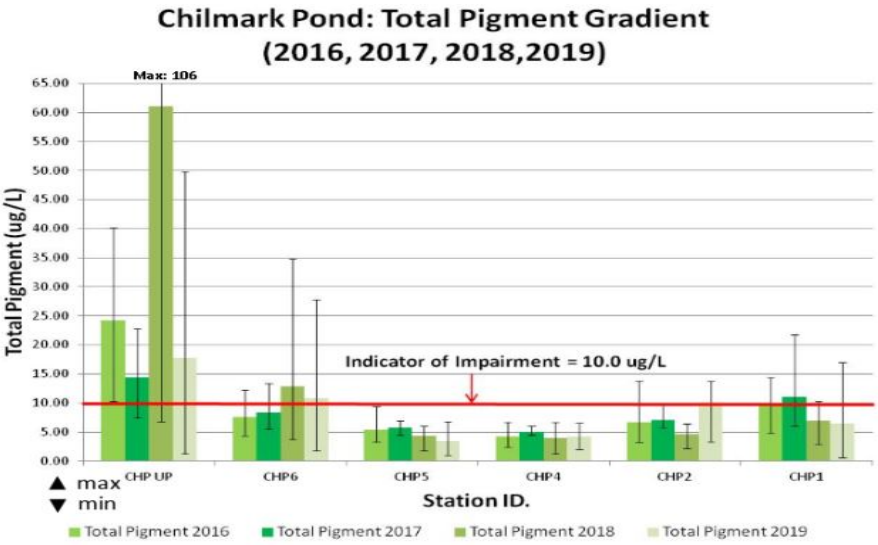
Why Sampling is Important

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.





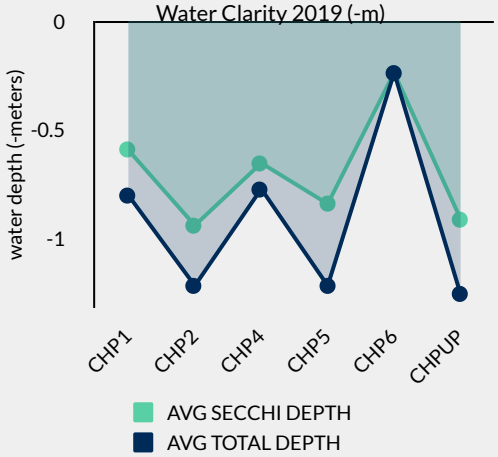
Nitrogen is a limiting nutrient and is necessary for plant, phytoplankton, and algae growth, but in excess can be harmful to the system . More frequent openings could help decrease total nitrogen; however, openings negatively impact recreational use of the pond and other remediation strategies could be considered.

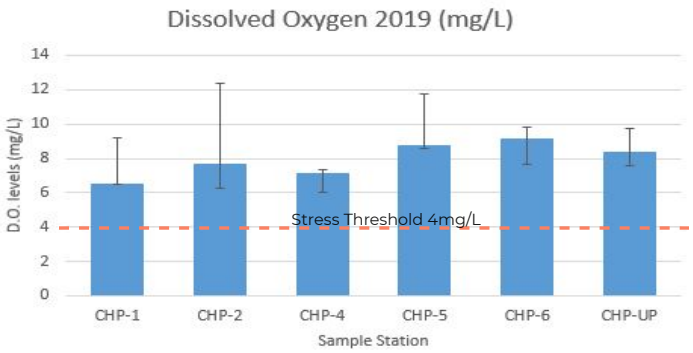


Total pigment indicates the level of microscopic plant life in the water, which can be influenced by nitrogen levels. Total pigment at CHP-UP is of particular concern as Cyanobacteria was identified at this site over the past several years. Management for both nitrogen and phosphorus loading should be considered for Upper Chilmark Pond to prevent future harmful algal blooms.

Water Clarity

Visibility in Chilmark Pond indicates very poor water clarity, particularly at CHP-1 and CHP-UP. Water clarity is especially high when the pond is open and more shallow than usual; however, water clarity in the pond is typically low.





Dissolved Oxygen

Dissolved Oxygen (DO) concentrations shown here are a snapshot of conditions at the time the sample was taken. DO in this pond is very good and remains above the stress threshold of 4 mg/L at all monitoring stations. DO above the threshold can support natural benthic communities including shellfish and fin fish in the pond. DO levels can widely fluctuate 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 and by assistance from The Chilmark Shellfish Department. 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 Bill Austin, Isaiah Scheffer, the Chilmark Pond Association and the Chilmark Conservation Commission for all of their help and knowledge. For more information on water quality on The Vineyard please visit http://www.mvcommission.org/.