

# Sengekontacket 2019

M.V.C. SAMPLING SUMMARY

## Nature of the Pond

Sengekontacket Pond is a complex estuary located within the towns of Oak Bluffs and Edgartown. Two permanent, constructed inlets connect Sengekontacket Pond to the adjacent Vineyard/Nantucket sound allowing for tidal exchange. Sengekontacket Pond has two embayments that don't fully flush because of their distance from the inlets and restricted channels: Trapp's Pond, and Major's Cove. Sengekontacket supports a thriving commercial and recreational shellfishery, town aquaculture projects as well as recreational swimming, and boating.

## Summary for 2019

Water quality in the main basin of Sengekontacket Pond has improved. However, some stations furthest from the inlets, like SKT-4 in Major's Cove and SKT-9 in Trapp's Pond, continue to have high nutrient levels. This is due to excess nutrient input and limited flushing, which makes these stations more impaired than the sites in the main basin. Commercial and Recreational shellfishing in the main basin is supported and was successful this summer. Eelgrass is typically associated with the highest quality waters and estuarine habitat and is found in several areas of Sengekontacket, but with nitrogen levels higher than the threshold of 0.35 mg/L we have seen the eelgrass show signs of decline and stress.

## 2019 Sampling Dates

July 8  
July 30  
August 5  
August 22

## Fun Fact

Senge supports Oak Bluffs and Edgartown aquaculture projects!



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Sengekontacket Pond System has high quality waters throughout the main basin and lower quality waters in its tributary basins of Major's Cove and Trapp's Pond due to limited flushing.



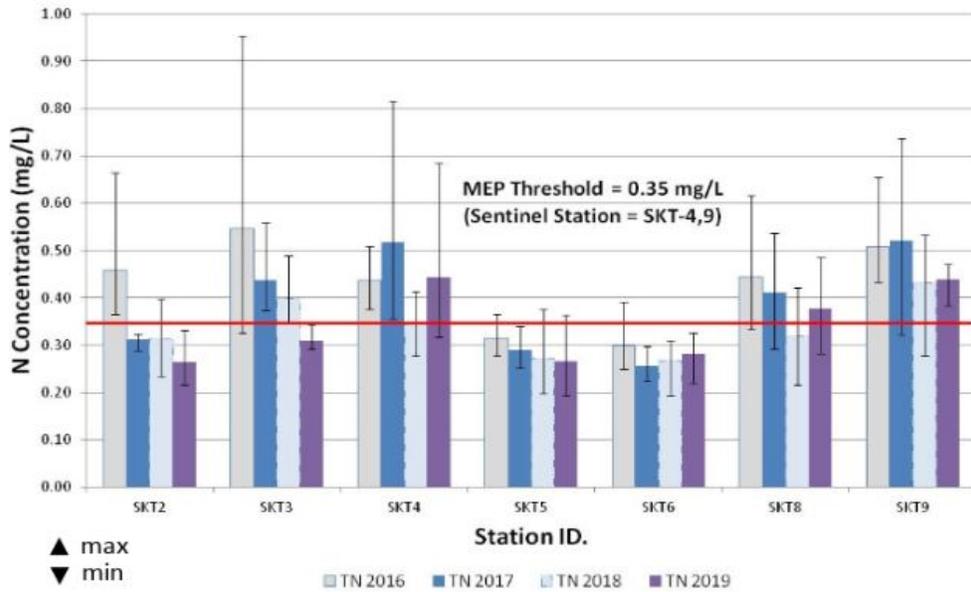
## Water Quality Index

The water quality index score can range from low to high and is based on parameters that are consistently monitored on Sengekontacket Pond. Water quality on Sengekontacket is of moderate to high quality. Nutrient levels have decreased in the main basin, but remain high in the less flushed coves, and pigment has risen in recent year, suggesting more algal blooms. It is important to continue consistent monitoring of the pond to track further water quality trends and changes.

## 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.

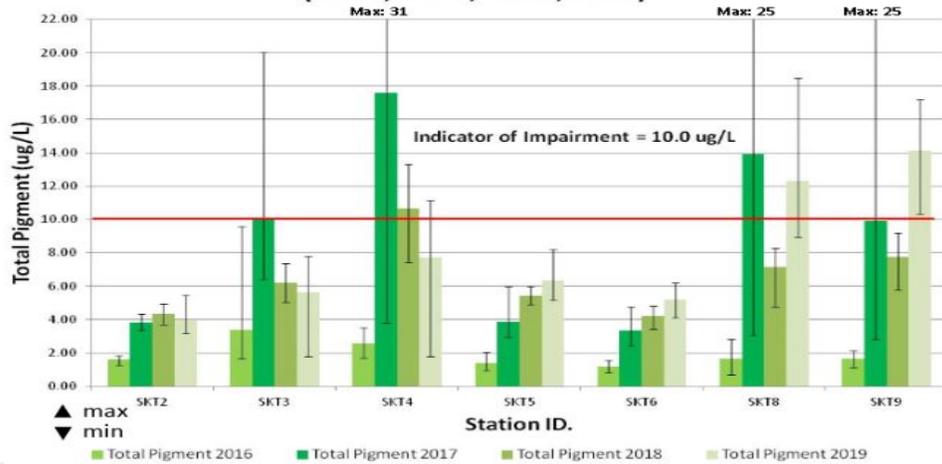
## Sengekontacket Pond: Total N Gradient (2016, 2017, 2018, 2019)



Nitrogen is a limiting nutrient and is necessary for plant, phytoplankton, and algae growth but in excess can be harmful. SKT-4 and SKT-9 have the highest total nitrogen levels. All other stations in the main basin have levels near or below the threshold.

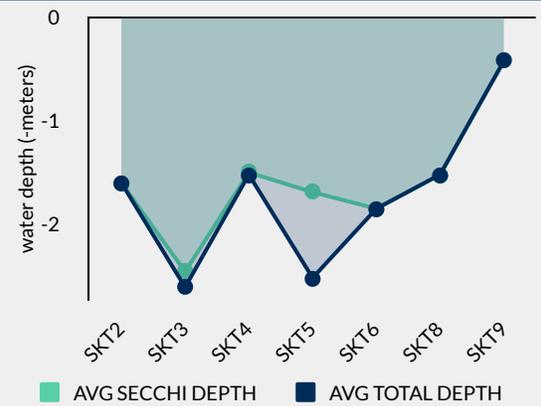


## Sengekontacket Pond: Total Pigment Gradient (2016, 2017, 2018, 2019)



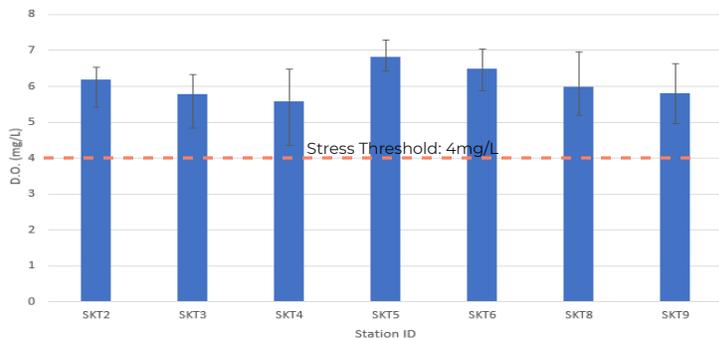
Total Pigment indicates the level of microscopic plant life in the water, which can be influenced by nitrogen levels. Sites SKT-8 and SKT-9 have high pigment levels since they are located in areas that do not flush well. At several stations, pigment has risen as a trend over recent years and should be monitored.

## Water Clarity



In 2019, water clarity throughout the pond was high. Water clarity is affected by flushing and pigment levels but when the sites are shallow it is not a good indicator of water quality.

## Sengekontacket Dissolved Oxygen 2019



## Dissolved Oxygen

Dissolved Oxygen (DO) levels in Sengekontacket Pond are relatively good. DO levels are above the extreme stress threshold of 4 mg/L. Levels above 6 mg/L indicate good water quality and a sustainable benthic community in the pond. DO concentrations shown here are a snapshot of conditions at the time the sample was taken. DO levels can widely fluctuate with photosynthesis and respiration of plants throughout the day and night.