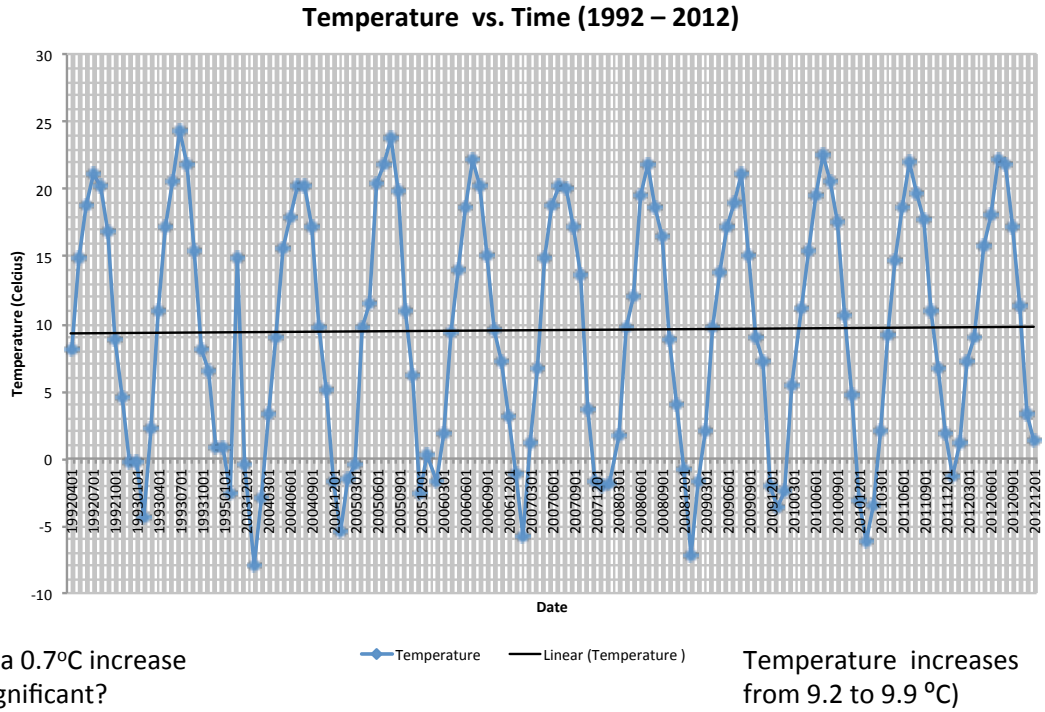
ABSTRACT

Research was done by students at Mahopac High School in Mahopac, New York to determine if climate change was affecting the water quality in our area. Students obtained data from NYC DEP and compared to the data they collected. The two sites studied were the stream in front of Mahopac High school, and the Muscoot River into which it feeds. The Muscoot River is a tributary to the NYC reservoir system. The parameters tested where dissolved oxygen, water temperature, pH, alkalinity, Nitrates, phosphates, conductivity, chlorides, and salinity. Students were able to conclude that the two water bodies showed similar changes, and that the water quality is being affected.

MAHOPAC HIGH SCHOOL STUDENT REPORT FOR 2013 GLOBE VIRTUAL STUDENT CONFERENCE

Research Question: How is climate change affecting the water quality of the streams (tributaries) of the Croton Watershed, a drinking water supply for New York City?

NOAA Air Temp. Data from Carmel, N.Y.

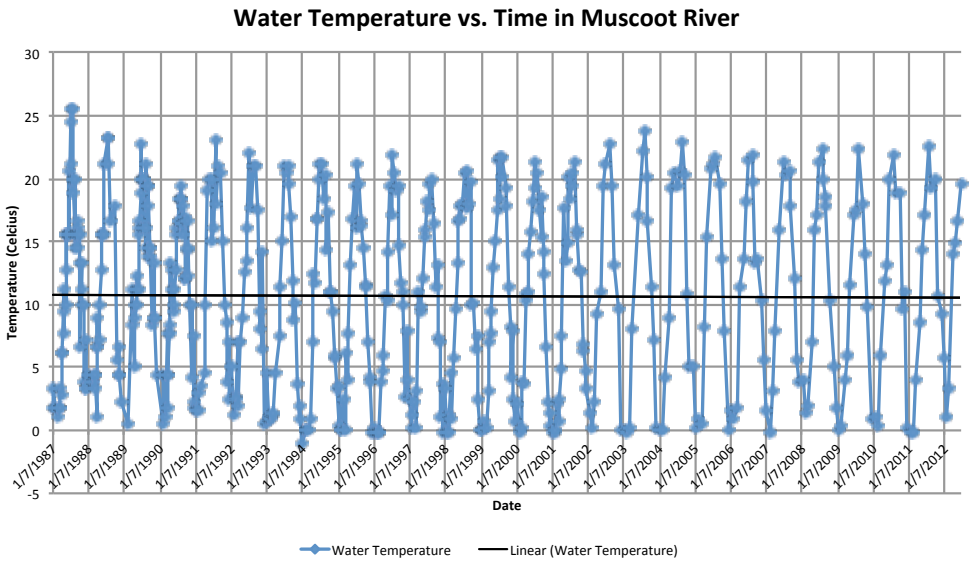


Is a 0.7°C increase significant?

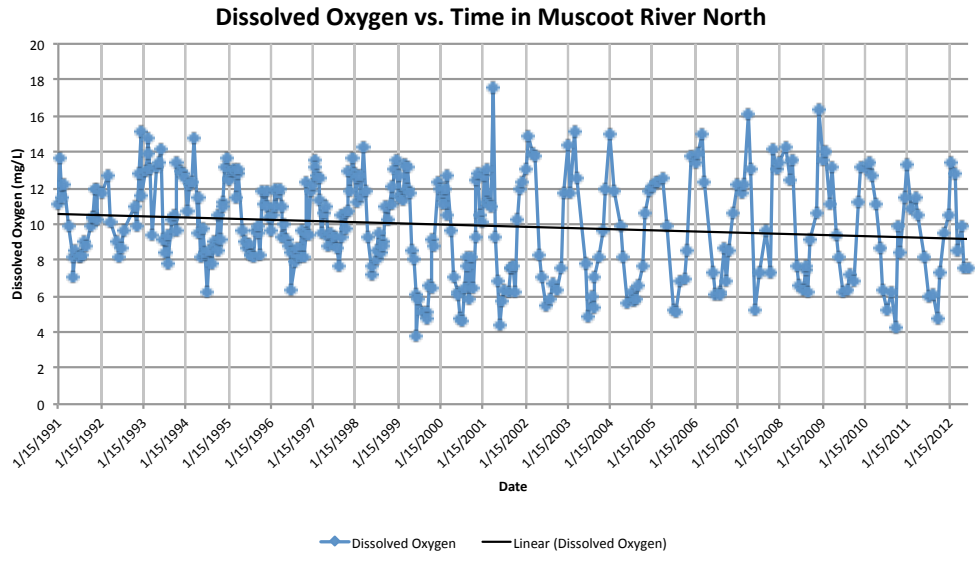
Temperature increases from 9.2 to 9.9 °C)

The following data is from the NY City Department of Environmental Protection. Data was graphed in Excel.

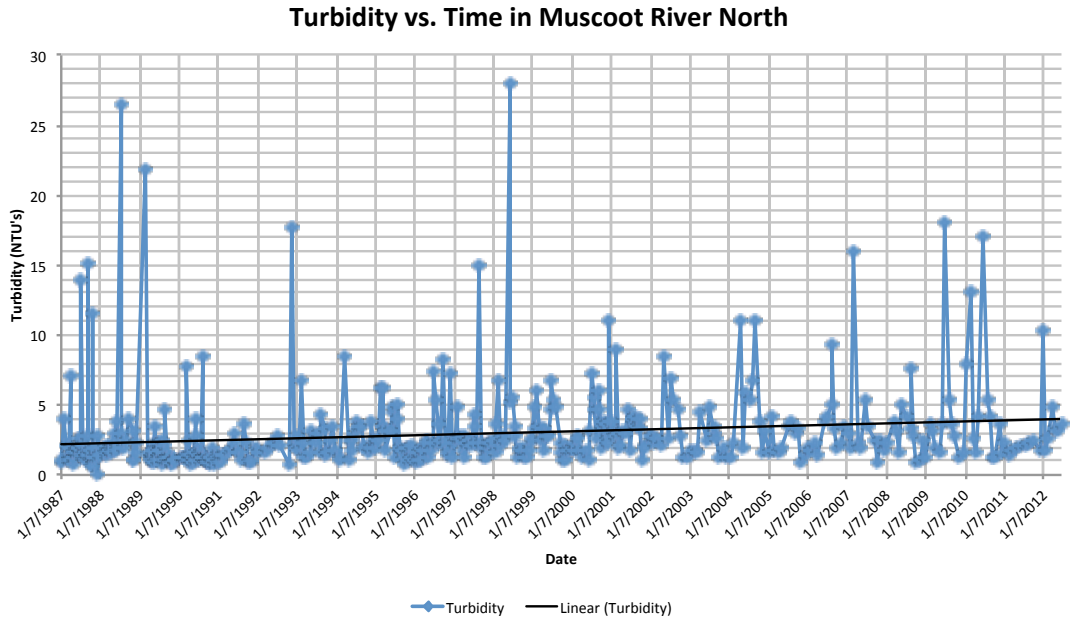
Muscoot Water Temperature



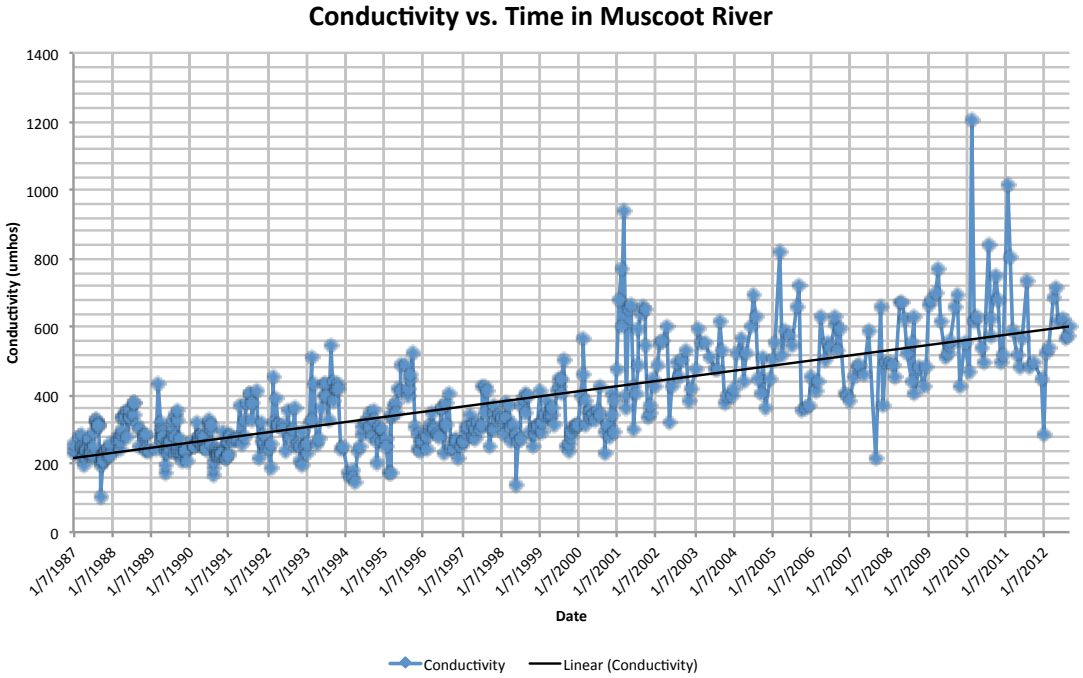
Muscoot River D.O.



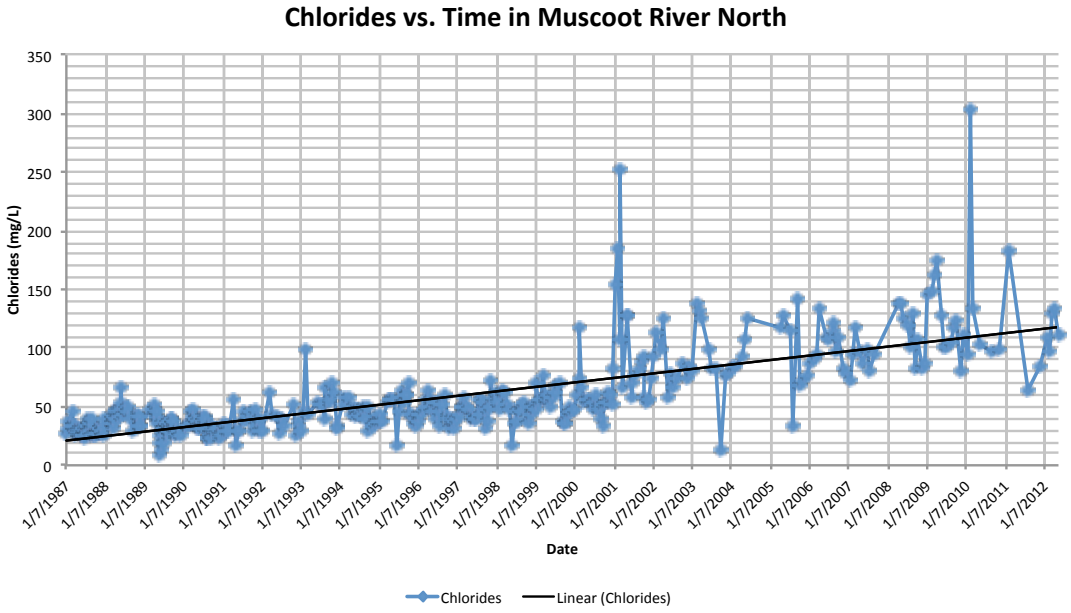
Muscoot River Turbidity



Muscoot Conductivity



Muscoot River Chlorides

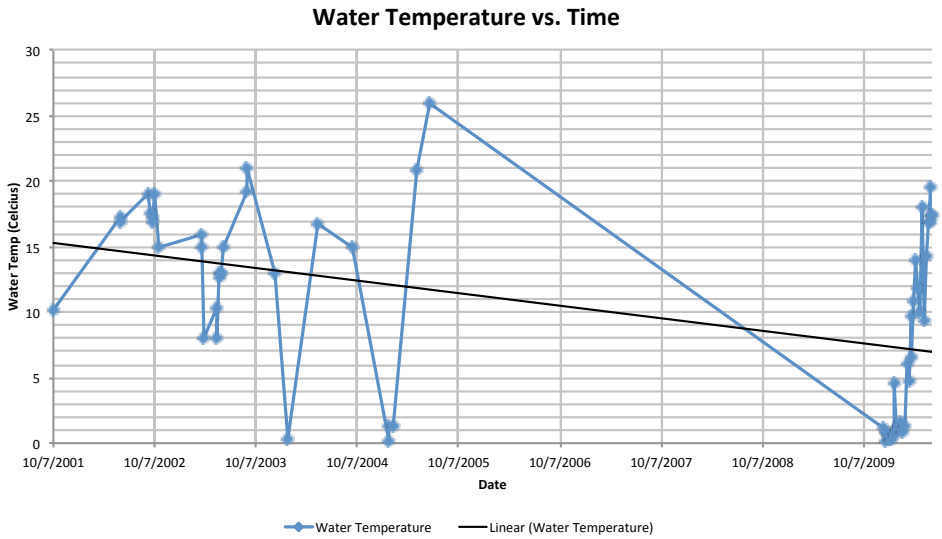


Analysis of DEP data shows the following:

- Average Air Temperature:
  Increase of 0.7°C
- Water Temperature:
  Decrease of 0.5°C
- Dissolved Oxygen:
  Decrease of 1.3 ppm
- Turbidity:
  Increase of 1 NTU
- Conductivity:
  Increase of 385 uS
- Chlorides:
  Increase of 154 ppm

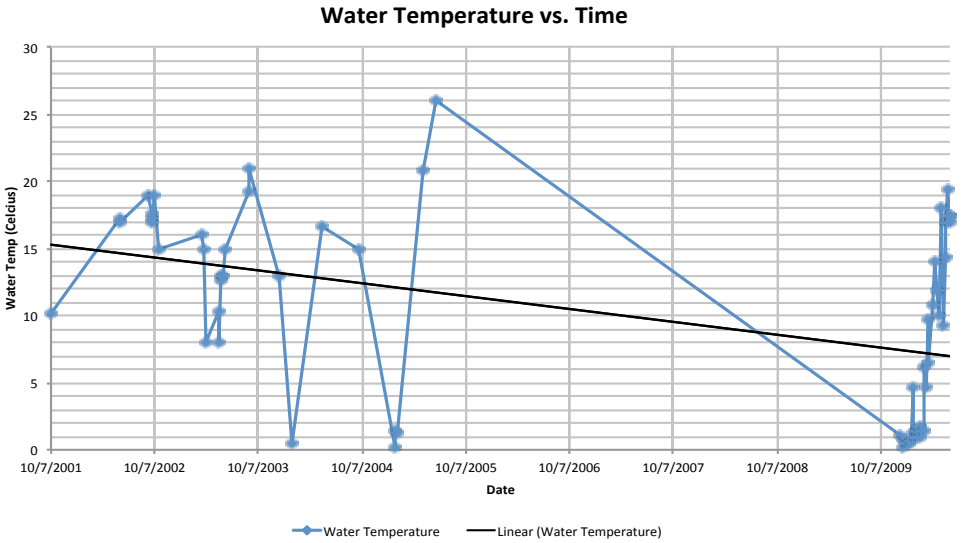
The following data is from the student research on SEAC creek in front of Mahopac High School. Data was graphed in Excel.

SEAC Creek Temperature



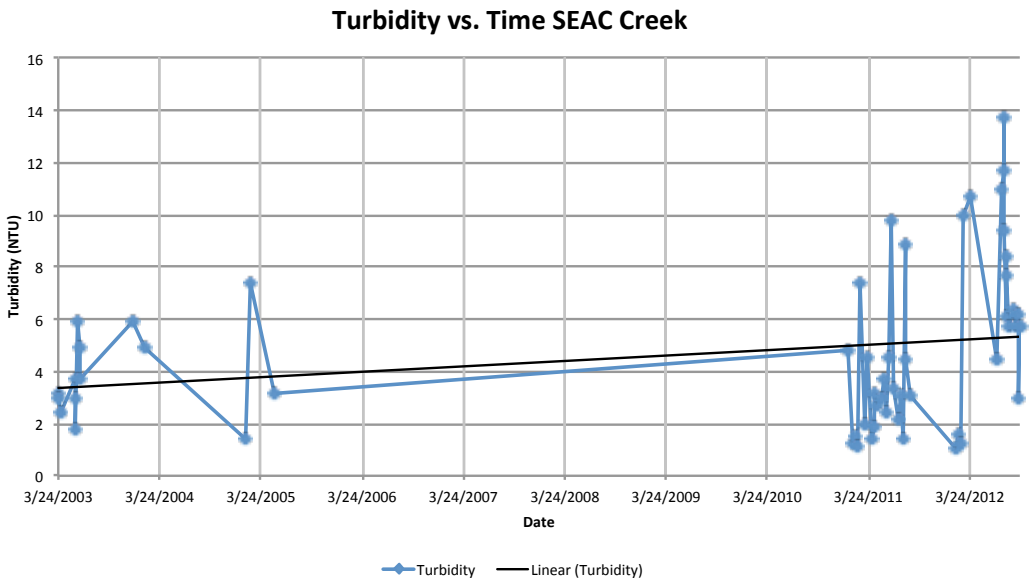
Regents class: Temperature influence of abiotic and biotic factors

SEAC Creek Dissolved Oxygen

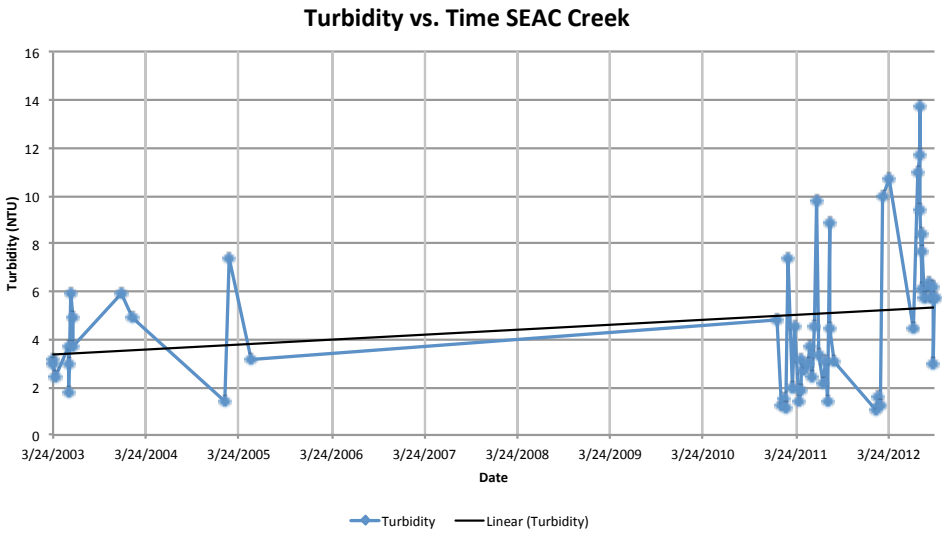


Regents class

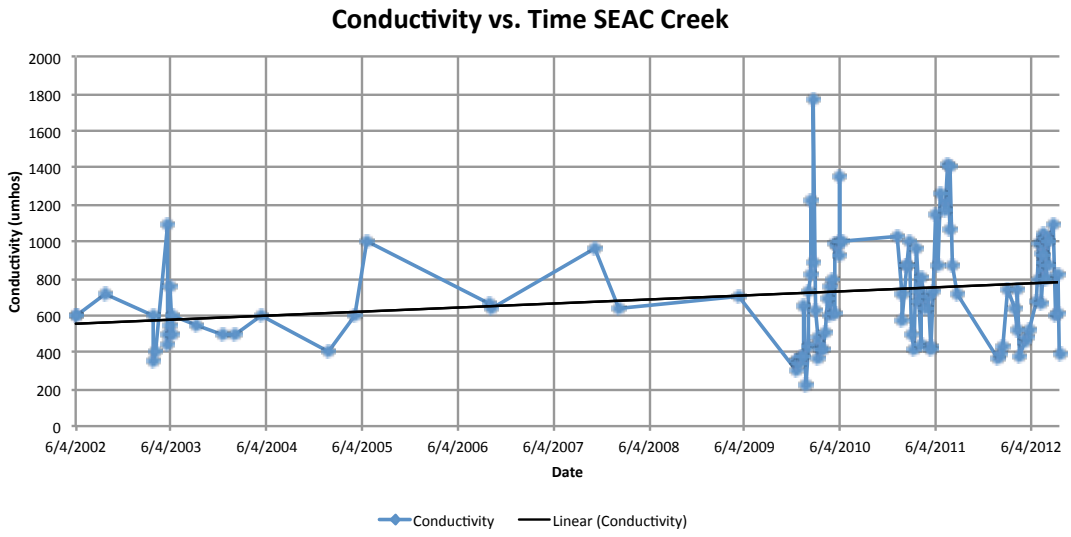
SEAC Creek Turbidity



SEAC Creek Turbidity

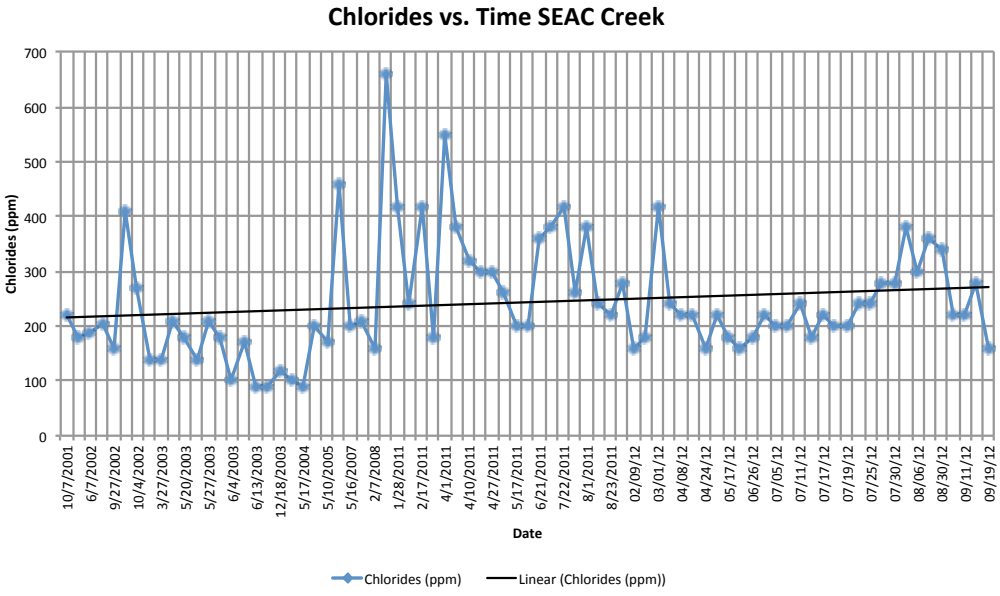


SEAC Creek Conductivity



Regents class: studying ions road salts on plants and ions in the body

SEAC Creek Chlorides



Regents class: Inorganic compound

Analysis of Student data shows the following:

- Average Air Temperature:
  Increase of 0.7^{o}C
- Water Temperature:
  Decrease of 8.2^{o}C
- Dissolved Oxygen:
  Decrease of 2.0 ppm
- Turbidity:
  Increase of 2.1 NTU
- Conductivity:
  Increase of 210 uS
- Chlorides:
  Increase of 50 ppm

Conclusion:

The Analysis of the Results showed the same changes that are taking place in the Muscoot River are taking place in SEAC Creek

The water quality of the drinking water for the New York City Reservoir System is being compromised.

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VIDEO LINK TO STUDENTS RESEARCH REPORT:
http://youtu.be/XM0V-GAiYJ0