

The effects of road-salting on the natural environment after Snowpocalypse 2011

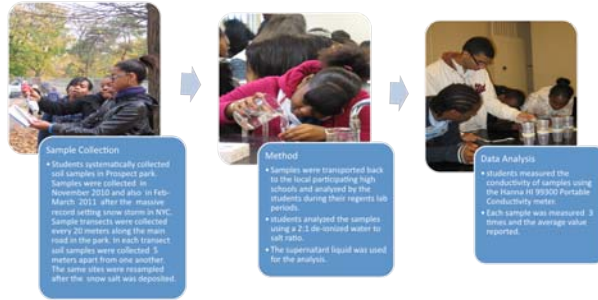
Sean Bowen, Shanice Stephenson, Kareema Grant, Daja Waters, Aaron Shaw, Lauren Washington, Celeste Puac, Sazin Rahim, Ramon Collins, and Janay Carver. *Science, Technology, and Research Early College High School at Erasmus Hall (S.T.A.R.), Brooklyn, NY*



Abstract

Prospect Park, in the heart of Brooklyn, is home to a variety of trees and wildlife that are very sensitive to ecological change. Constant human activity in the park may be contributing to the gradual deterioration of the natural habitat. This winter, Brooklyn received record amounts of snow, requiring tremendous amounts of road salt to be applied to public roads to ensure safety. Every year, this salt is left in the soil and lake at Prospect Park, and does major damage to the local ecosystem. In this study, we collected soil samples at various distances from the road running through the park, and at different times of year, to see how road salt affects our natural forest. We hypothesized that the highest accumulations of road salt would be near the road, and that concentrations would be higher after the winter. Our preliminary results confirm our hypothesis, and suggest that the use of road salt in Prospect Park may have negative effects on the local environment.

Methods

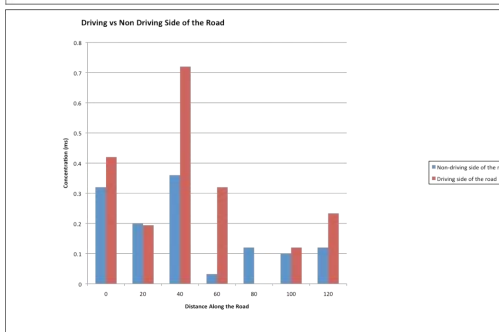
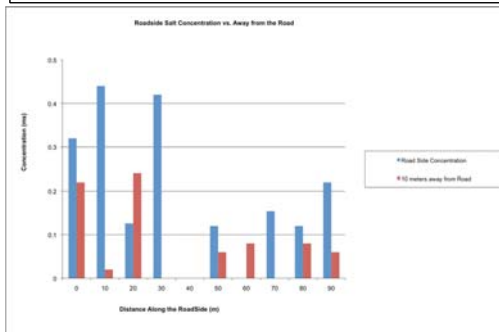
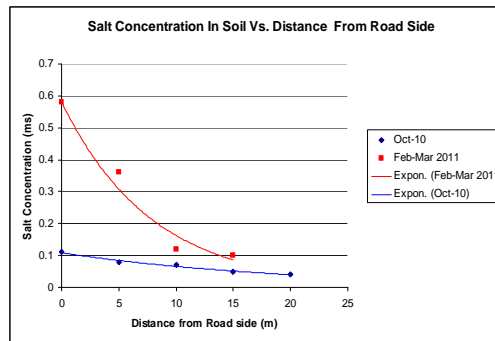
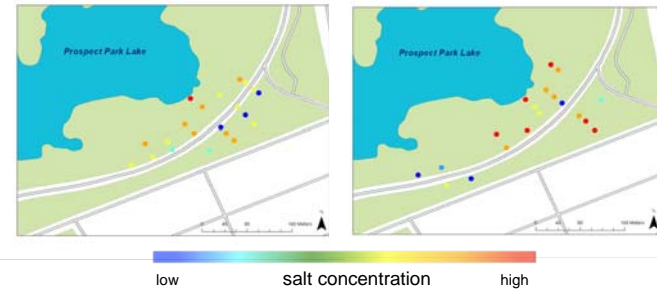


Results

Over a period of time (late fall-late winter) our group at Science, Technology, and Research Early College High School (S.T.A.R.) collected soil samples from the roads of Prospect Park to test the concentration of salt in the soil. In November, the average salt concentration adjacent to the road equaled 0.1ms. After the two snowstorms that pummeled New York City in December, our group returned to Prospect Park and once again took samples. The average salt concentration adjacent to the road in March equaled 0.3ms. We figured that on the side of the road where cars drive the amount of salt concentration averaged 0.35ms while on the non-driving side of the road, the salt concentration averaged 0.25ms.

November 2010

March 2011



Discussion

- Soil samples adjacent to the road had significantly higher salt concentrations than the samples further from the road.
- Approximately 20 m away from the road side conductivity measurements were essentially down to background concentrations.
- Salt concentration does increase in the soil as a side effect of road salting.
- High volume of vehicular traffic elevates salt pollution in neighboring soil by pushing the salt slush off of the road.

References

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Acknowledgements

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Far left: Brooklyn
Left: Prospect Park
Below: STAR students in collection area.



History of Prospect Park

Prospect Park is home to a variety of trees and wildlife, and some of the most beautiful flowers. A soothing lake and houses creatures from every walk of life. Built in the 1860's, it is known to be 'The Last Forest' in Brooklyn, both natural and partially man-made, by an architect name Frederick Law Olmsted and Calvert Vaux. As a public park, it is an urban oasis of approximately 585 acre (2.37 km), and is located in the heart of the borough of Brooklyn, between Park Slope and Flatbush Avenue. Prospect Park borders diverse neighborhoods and attracts locals and tourist. The park contains an educational historic house and a wealth of exciting activities to add action to trips taken into the park. The park also boasts a stunning variety of natural and geological features including a 90-acre Long meadow, a 60-acre lake and a wonderful zoo, to make anyone feel like home. Prospect Park is a unique part of living history and stories will always be heard about our beautiful park.