

Tipping the Balance on Winter Deicing Impacts: Education is the Key



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CEHA Fall Chloride Workshop

November 14, 2018

The problem

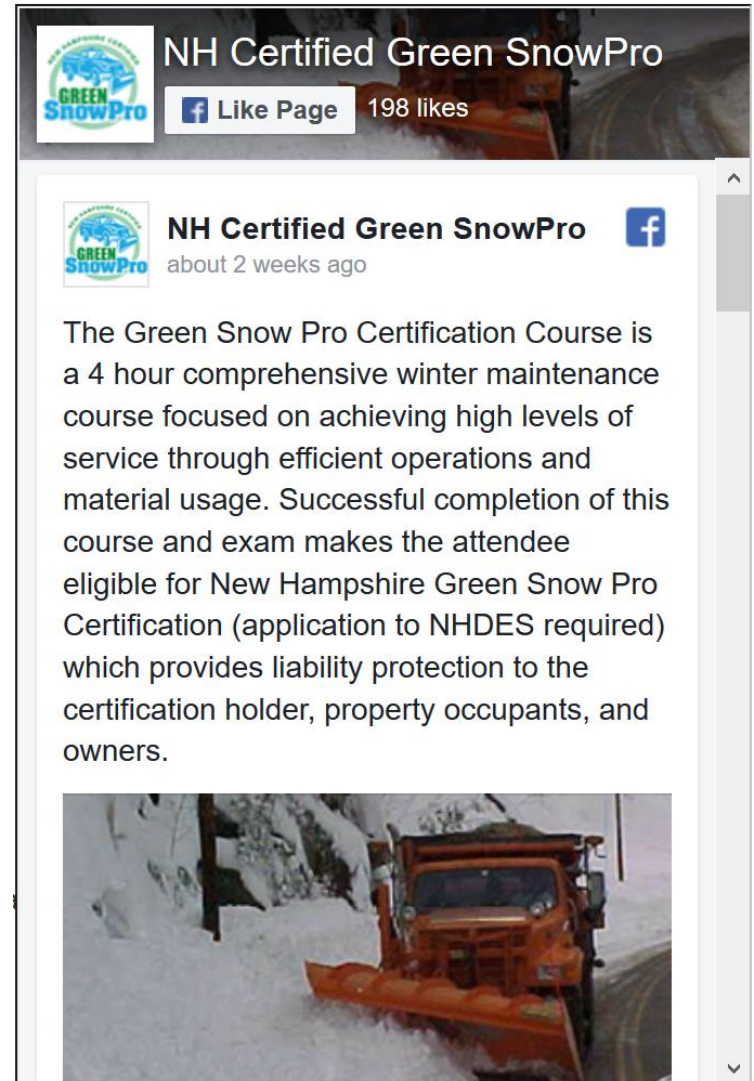


Impacts of road salts

- Chloride extremely mobile
- Research documenting increased groundwater and surface water concentrations
 - Drinking water
- Aquatic life impacts

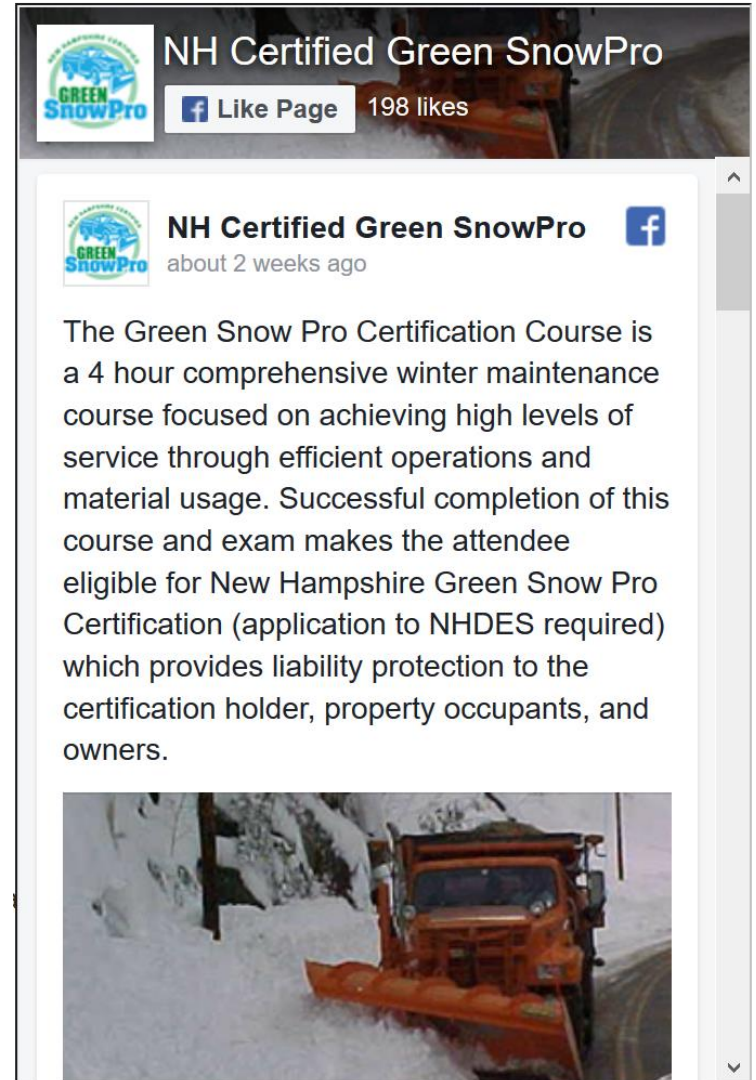
New Hampshire's Green SnowPro Program


- Training (4 hour) and certification on winter deicing practices focused on “achieving high levels of service through efficient operations and material usage.”
- Class covers:
 - Science of salt
 - Environmental impacts of salt
 - Equipment calibration
 - Targeted spreading using weather and calibration data




New Hampshire's Green SnowPro Program

- Liability protection for certificate holders
- <https://t2.unh.edu/green-snowpro-and-salt>



NH Certified Green SnowPro 

 **NH Certified Green SnowPro** 

about 2 weeks ago

The Green Snow Pro Certification Course is a 4 hour comprehensive winter maintenance course focused on achieving high levels of service through efficient operations and material usage. Successful completion of this course and exam makes the attendee eligible for New Hampshire Green Snow Pro Certification (application to NHDES required) which provides liability protection to the certification holder, property occupants, and owners.



CT Efforts

- UConn's T2 office coordinating Green SnowPro implementation in CT
 - DOT, CLEAR, DEEP, DPH
- Statewide pilot session this fall



Training and Events

Green Snow Pro: Sustainable Winter Operations

A CT Road Scholar Program *ELECTIVE Workshop*

Sustainability in Winter Operations is more important than ever. With environmental impacts increasing and budgets continuing to decline, towns must employ best practices to minimize salt use and maximize their operations for both fiscal and environmental stewardship. This class focuses on those best practices for salt application and maintenance of public works facilities and equipment and uses demonstrations and case studies to illustrate the positive impact these strategies can have on your community and operations.

Who Should Attend

This course is designed for those responsible for overseeing winter operations in their public works departments.



Dates & Locations

November 7, 2018
South Windsor, CT

November 9, 2018
Durham, CT

Session is 8:30am—2:00pm
(Registration begins at 8:00am)
Lunch will be provided

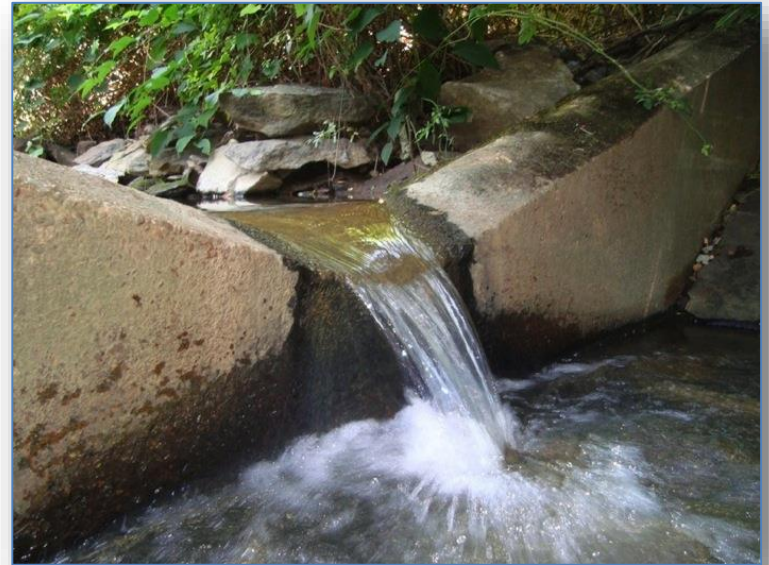
<https://www.t2center.uconn.edu/>

Piloted at UConn last fall

- T2 staff worked with UConn facilities manager and staff
- Did classroom and calibration training

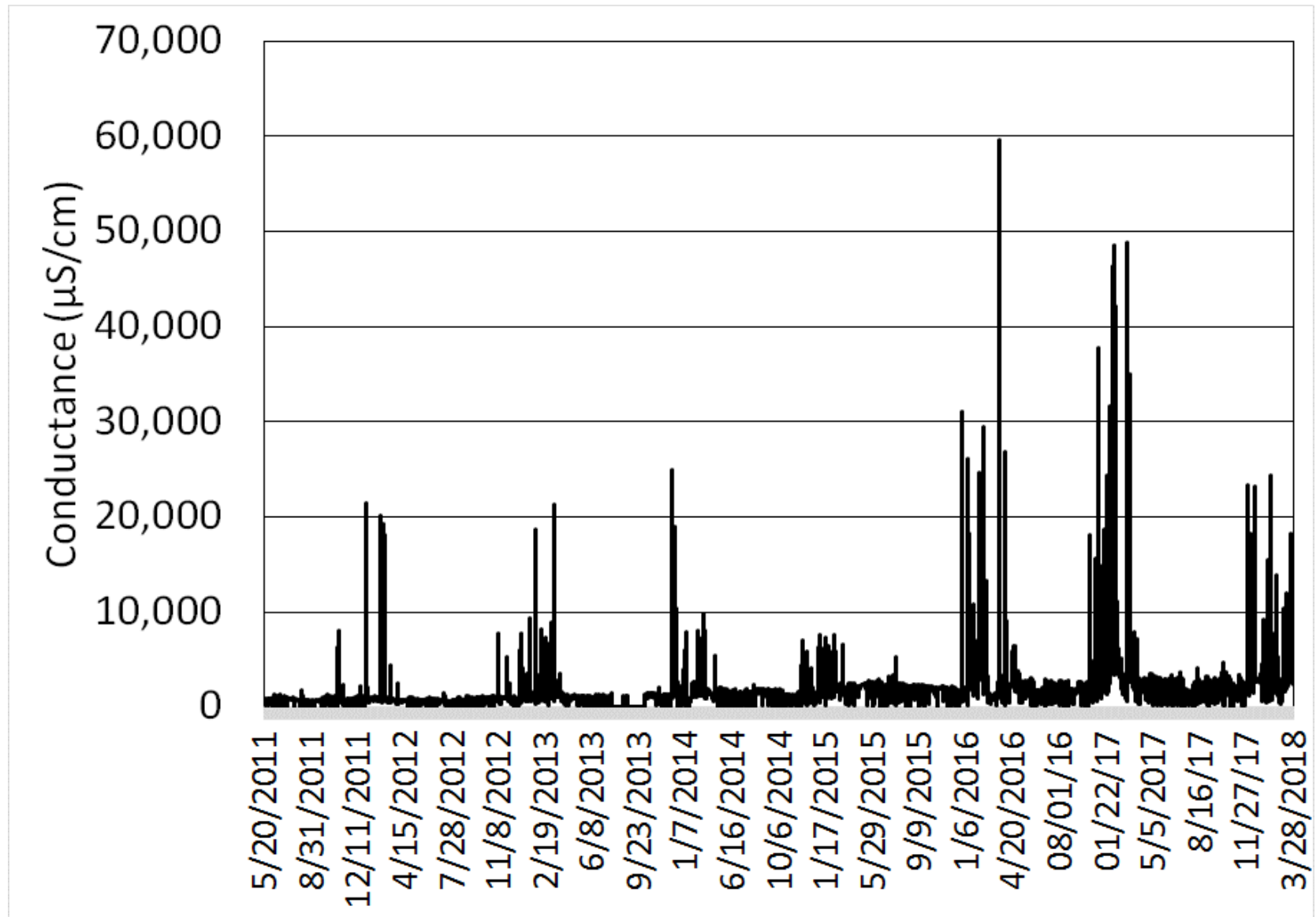
Real-time data collection on Eagleville Brook at UConn

- Collaborative effort with Jack Clausen in Natural Resources and the Environment Dept. at UConn
- 8 year record of discharge, 7 year record of conductivity

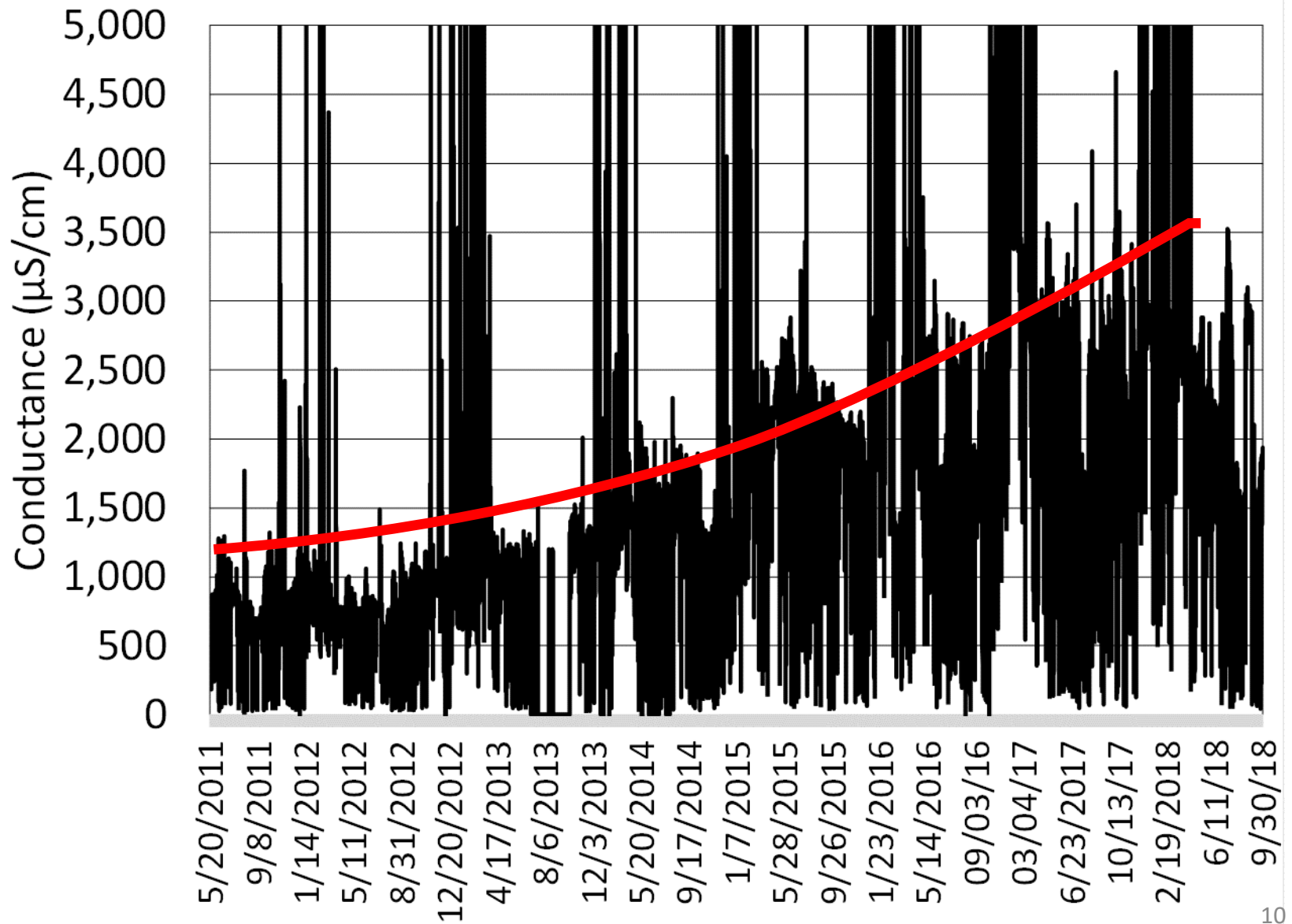


<http://clear.uconn.edu/projects/eagleville>

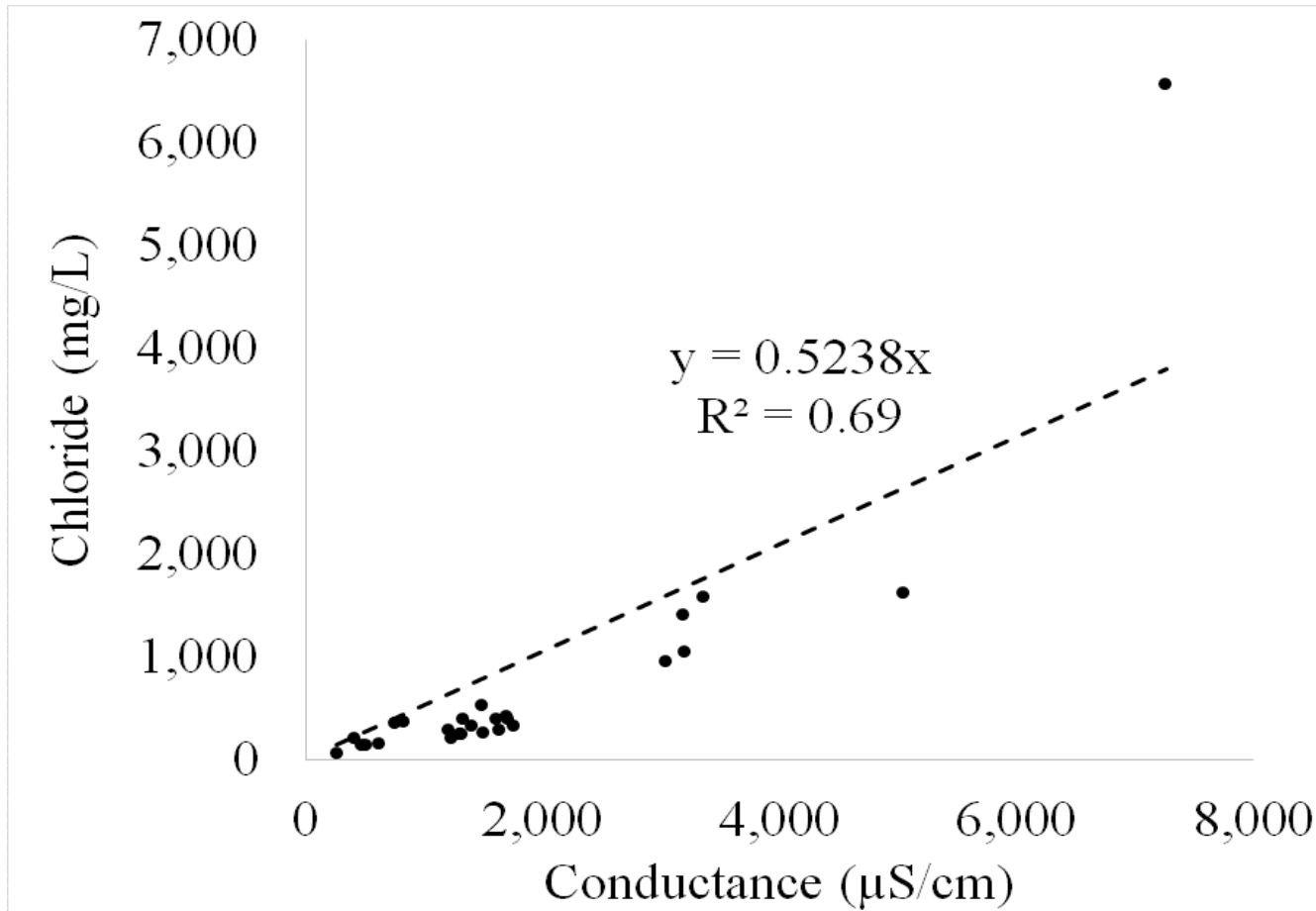
Eagleville Brook-UConn Storrs



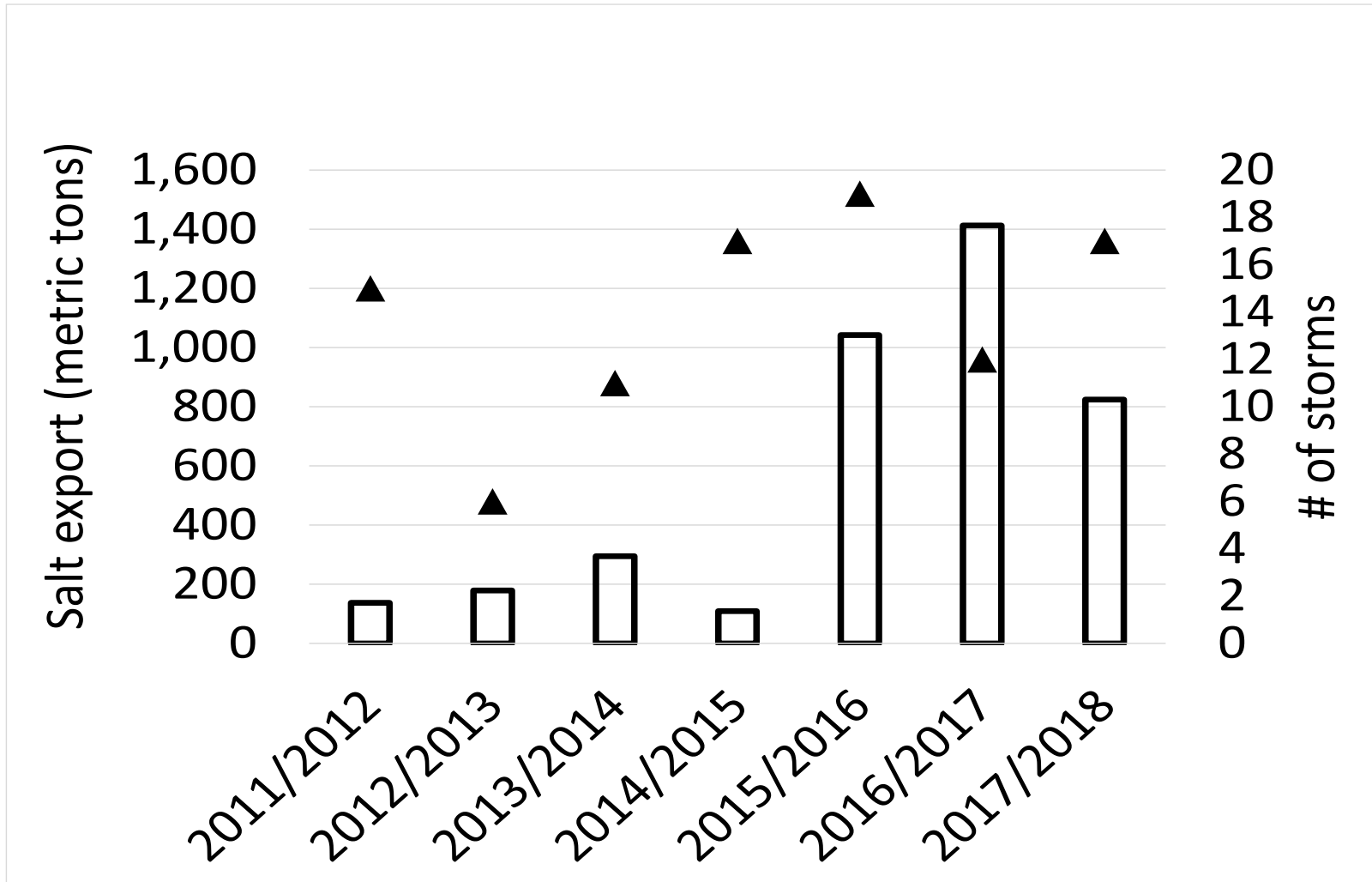
Eagleville Brook- UConn Storrs



Chloride/conductance regression



Salt export



THIS SURVEY IS COMPLETELY ANONYMOUS AND VOLUNTARY

I found the winter operations training we did last fall useful

(1=strongly disagree, 5=strongly agree) 1 2 3 4 5

Please list any other topics you are interested in for a future training

Please indicate your agreement on these questions:

| Question | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|-------------------|----------|---------|-------|----------------|
| I was more aware of how much salt I was applying this season | | | | | |
| I applied less salt this season compared to past years | | | | | |
| I felt that I was able to make roads/sidewalks safe this season | | | | | |
| I plan on trying to apply less salt next season | | | | | |

Please list any other actions you took this winter that were different from previous years:

List any other thoughts/questions:

Survey results (n=25)

| # | Question | Median response |
|---|---|-----------------|
| 1 | I found the winter operations training we did last fall useful | 5 |
| 2 | I was more aware of how much salt I was applying this season | 5 |
| 3 | I applied less salt this season compared to past years | 5 |
| 4 | I felt that I was able to make roads/sidewalks safe this season | 5 |
| 5 | I plan on trying to apply less salt next season | 5 |

Predicted vs. actual salt export

- Based on previous season, expected export was 1,440 metric tons
- Actual export: 616 metric tons
- If generalized to entire campus, 2,377 metric tons were saved
- At \$132/metric ton, this saved UConn over \$300,000!

Conclusions

- Winter deicing has increased chloride concentrations in Eagleville Brook
 - Late summer low-flow, high temperature of concern
- The Green SnowPro program has been shown to reduce salt applications while still keeping roads safe
- A pilot of this program at UConn resulted in greatly reduced salt export, and over \$300,000 savings in salt costs