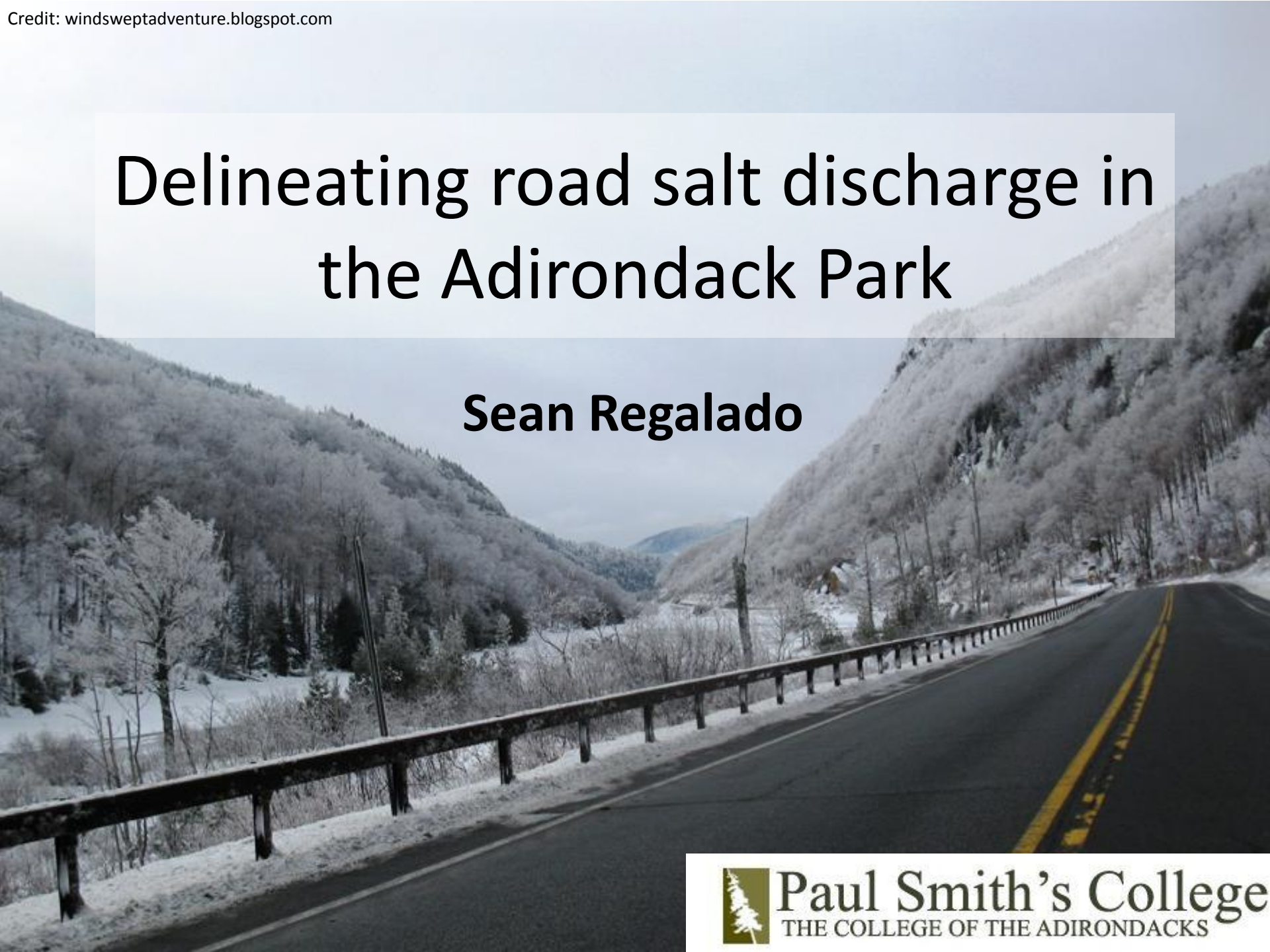


Delineating road salt discharge in the Adirondack Park

Sean Regalado

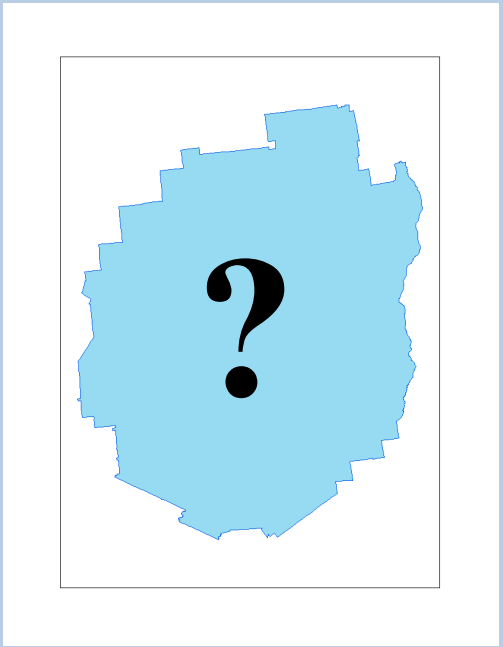
Paul Smith's College
THE COLLEGE OF THE ADIRONDACKS

Background

The ecological impacts of road salt applications are well known

but the **spatial extent** of these impacts are largely unknown

Credit: iStockphoto/Christine Tripp



Goals of my park wide study

a) Quantify the total area of terrestrial land impacted by salted overland flow

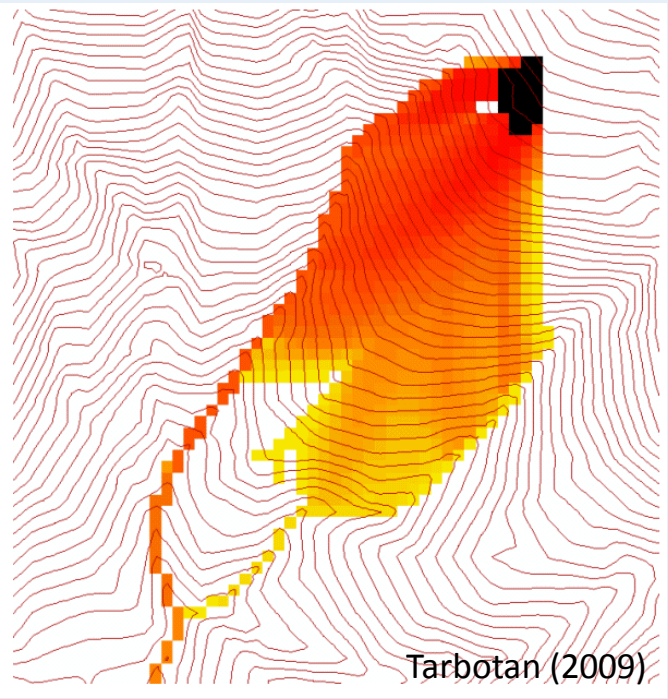
b) Identify the water bodies intersected by salted flow and calculate their total surface area

c) Quantify the total length of rivers and streams impacted by salted flow

Methods

Models are based on a mosaicked 10m USGS DEM of the entire 2.4 million hectare Adirondack Park.

A modified **flow accumulation** tool developed by Dr. David Tarbotan from Utah State University



Tarbotan (2009)

TauDEM 5.1.1

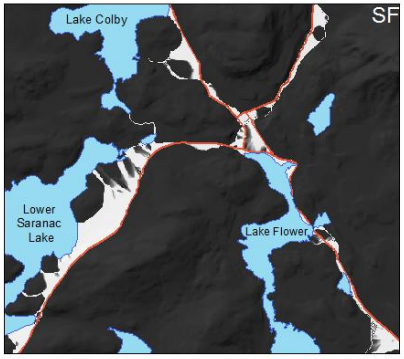
Hydrology Research Group

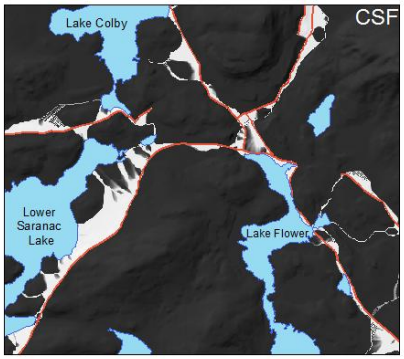
David Tarboton

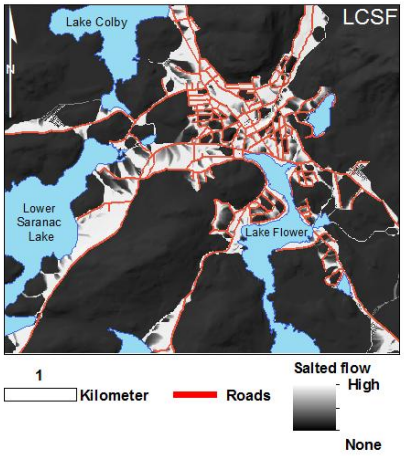
Results

Road salt impact delineation for state and federal roads (SF), county, state, and federal roads (CSF), and local, county, state, and federal roads (LCSF) in the Adirondack park

	SF	CSF	LCSF
Total salt impacted terrestrial area (Ha)	54,500 **2%**	82,663 **4%**	241,533 **10%**
Surface area of salt impacted water bodies (Ha)	76,117 **72%**	81,240 **76%**	91,424 **86%**
Total length of salt impacted rivers and streams (km)	2,795	3,954	5,934







Implications

- Study designs
- Management decisions
- Modeling ecological impacts