



## Status of the Chloride Impact Study for the Southeastern Wisconsin Region

March 29, 2019

Quad States MPO Meeting

#247553

*Serving the Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha*



# Schedule and Funding Partners

- Four Year study (2018-2022)
- Two Year monitoring (2018-2020)





## Study Scope

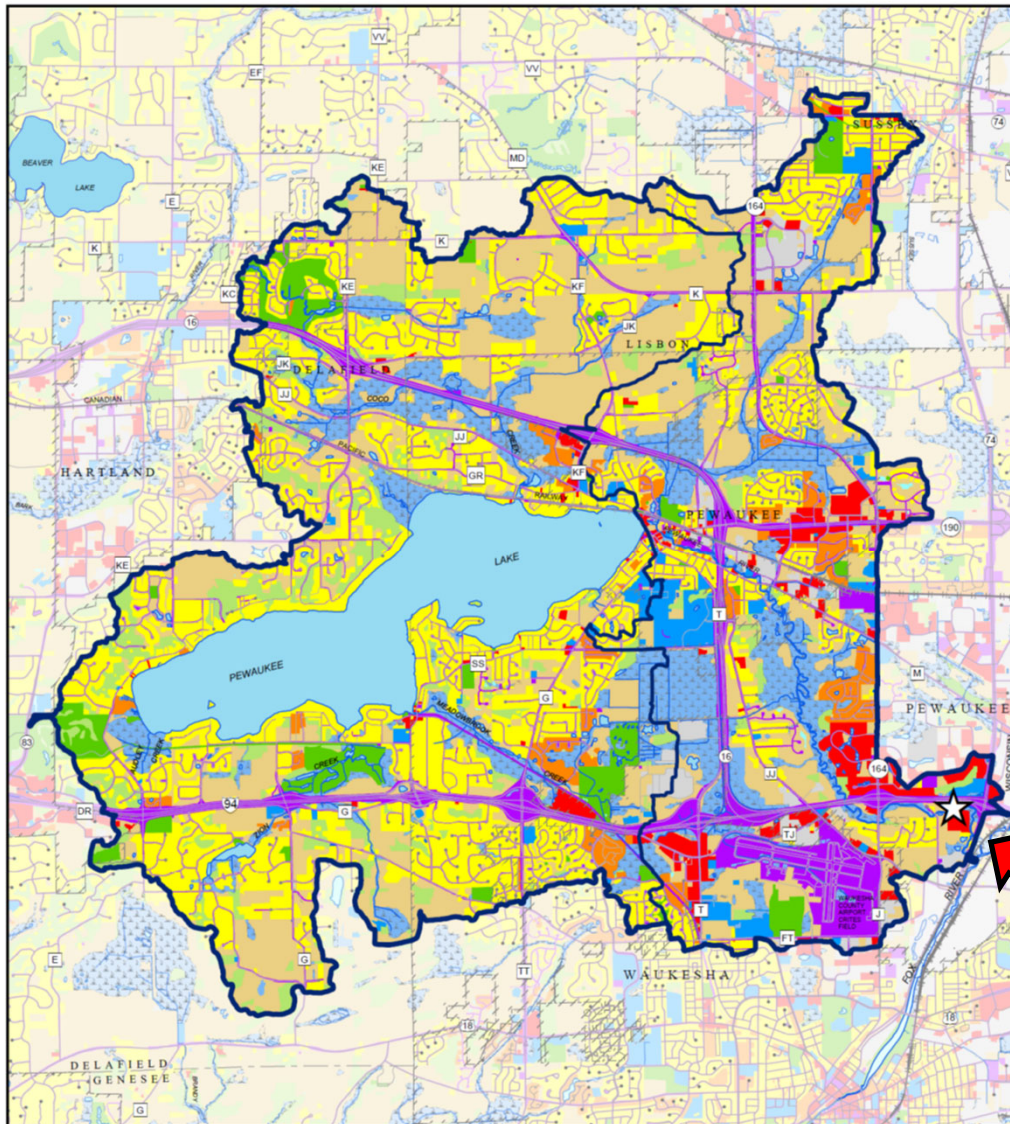
- Chloride loading analyses and forecasts
  - Existing and planned 2050 conditions
  - Evaluate potential effect of climate change on winter road maintenance operations under planned 2050 land use conditions
- Review State-of-the-Art
  - Identify and evaluate best practices and technology
  - Explore legal and policy aspects
  - Develop performance and cost information for practices
- Develop alternate chloride management scenarios
  - Meet public safety objectives
  - Minimize harm to the environment
  - Cost effective







# Pilot Site – Pewaukee River Subwatershed

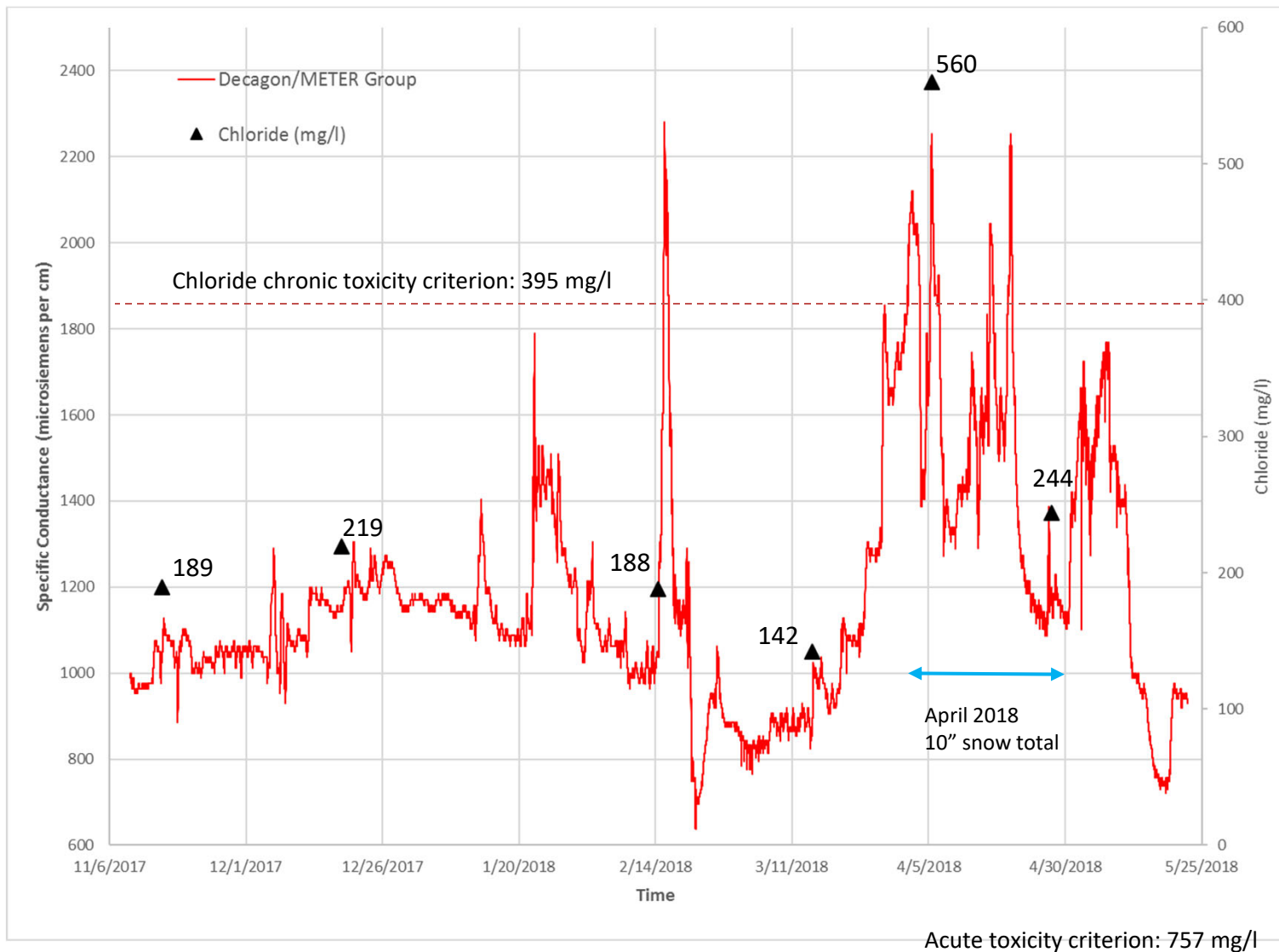
EXISTING LAND USE WITHIN THE PEWAUKEE RIVER WATERSHED: 2010



-  SINGLE-FAMILY RESIDENTIAL
-  MULTI-FAMILY RESIDENTIAL
-  COMMERCIAL
-  INDUSTRIAL
-  TRANSPORTATION, COMMUNICATIONS, AND UTILITIES
-  GOVERNMENT AND INSTITUTIONAL
-  RECREATION
-  WETLANDS
-  WOODLANDS
-  SURFACE WATER
-  AGRICULTURAL, UNUSED, AND OTHER OPEN LANDS
-  EXTRACTIVE AND LANDFILL



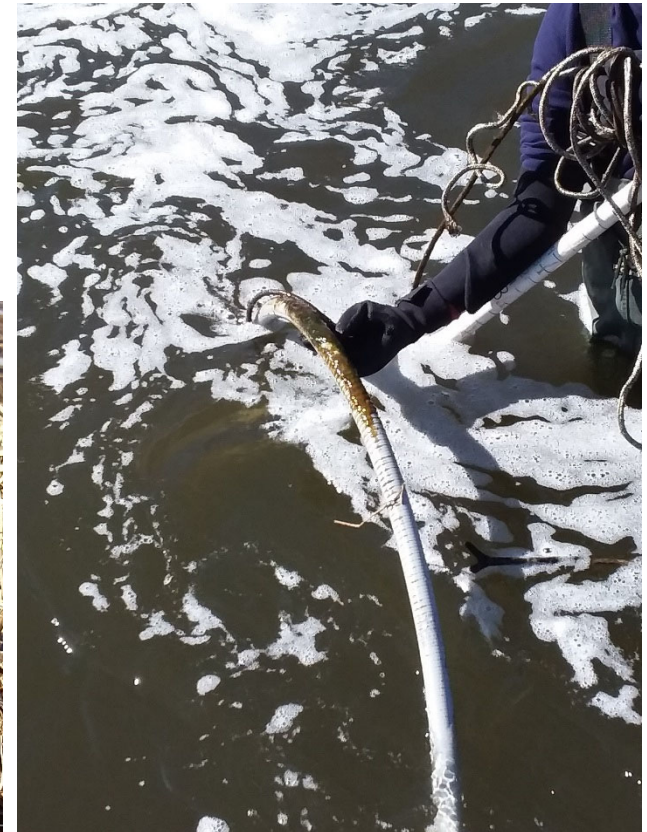
# Pilot Site – Monitoring Data Extended





## Pilot Testing - Fouling

- March 14, 2018 field visit after 4 months of winter operation:
  - Sediment and biofilm accumulation





## Pilot Testing - Fouling

- June 1, 2018 field visit after 2.5 months of spring operation:
  - More biofilm accumulation on sensor housings with some caddisfly and stonefly larvae attaching to sensors
  - Sediment/debris still main fouling concern
  - METER Group device again seemed to have least amount of fouling impeding sensor function

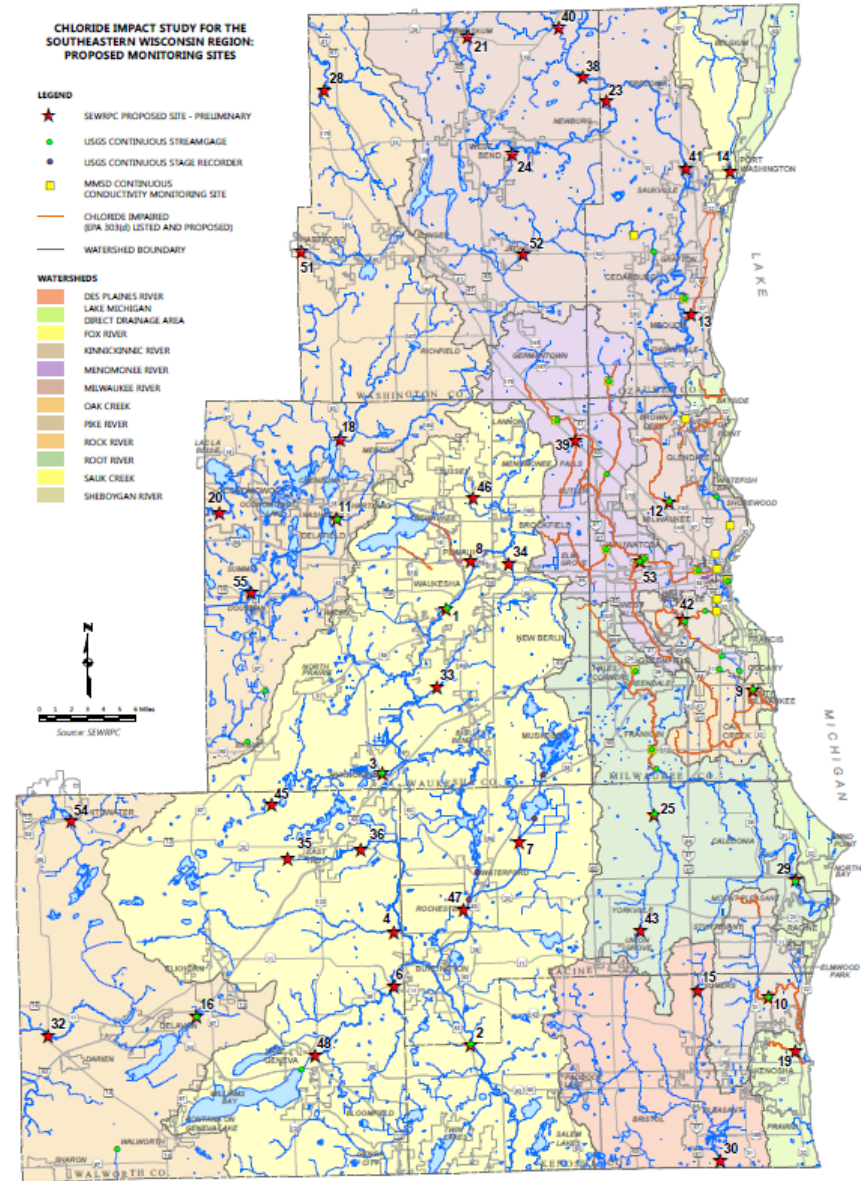




# Monitoring Locations

## ■ Site Selection Considerations

- Distribution throughout the Region and among the major watersheds
- Existing streamflow gage locations
- Existing and historical conductance/chloride monitoring locations
- Contributing area land use
- Wastewater treatment plants
- Chloride-impaired waters 303(d)
- Public lands and ease of access





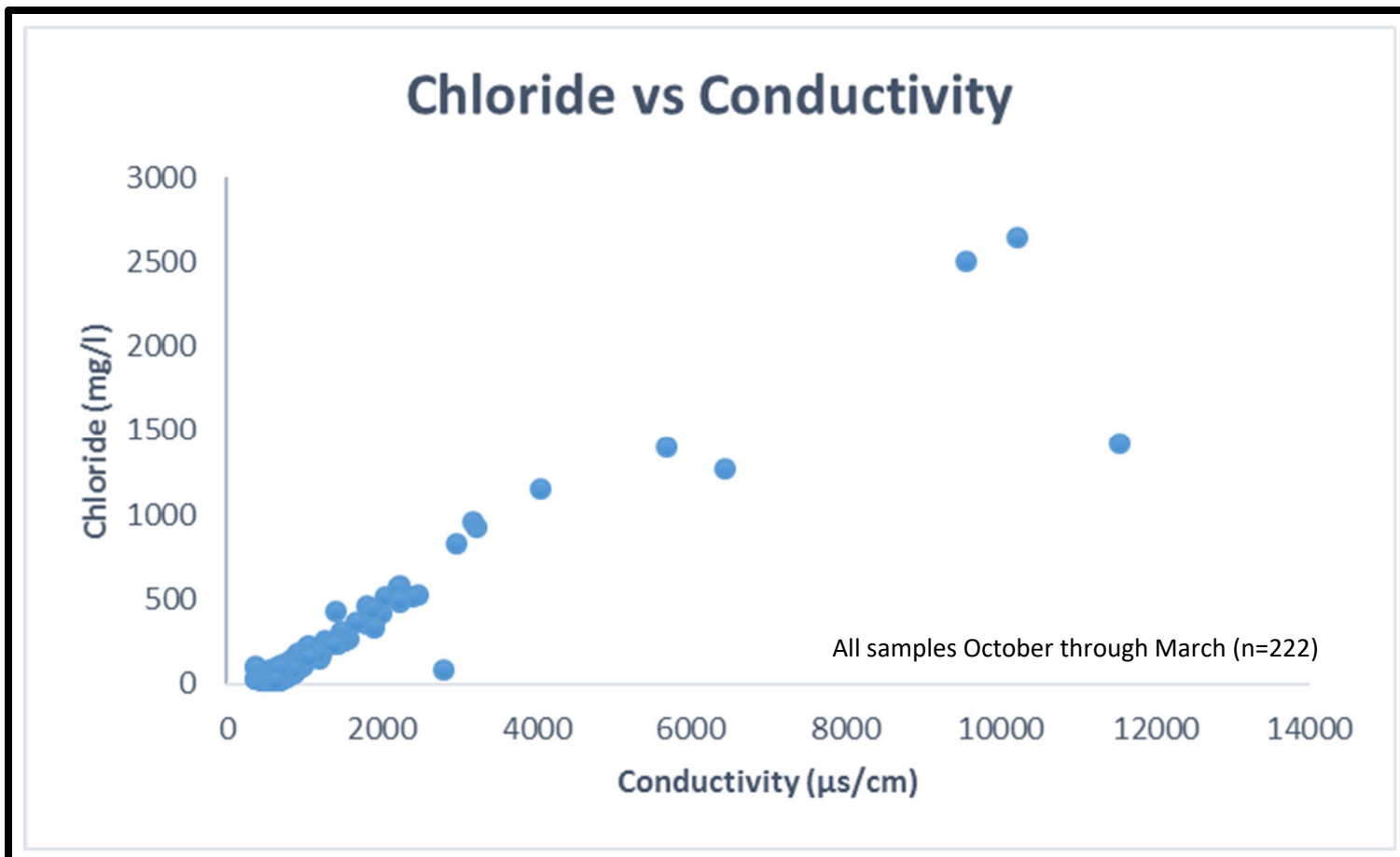


## Current Status

- 37 stream conductance sensors are collecting 5 minute data
- Monthly grab sampling began October 2018
- Event sampling was conducted winter 2019
- Three quarterly sample sets have been completed for 6 lakes in the Region (Geneva, Big Cedar, Little Muskego, Moose, Voltz, Silver (Washington Co))



## Monitoring Locations – lab data to date





## Next Steps

- Continue to troubleshoot field monitoring issues
- Collect road maintenance information from communities for winter 2018-2019
- Continue to gather study data related to chloride toxicology, state-of-the-art practices, and sources of chloride in the environment



## For More Information

- Website for the project

- <http://www.sewrpc.org/SEWRPC/Environment/ChlorideImpactStudy.htm>

- Contacts

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