Salt Reduction Strategy Update

Elaine Panuccio,
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Water Quality Advisory Committee Meeting

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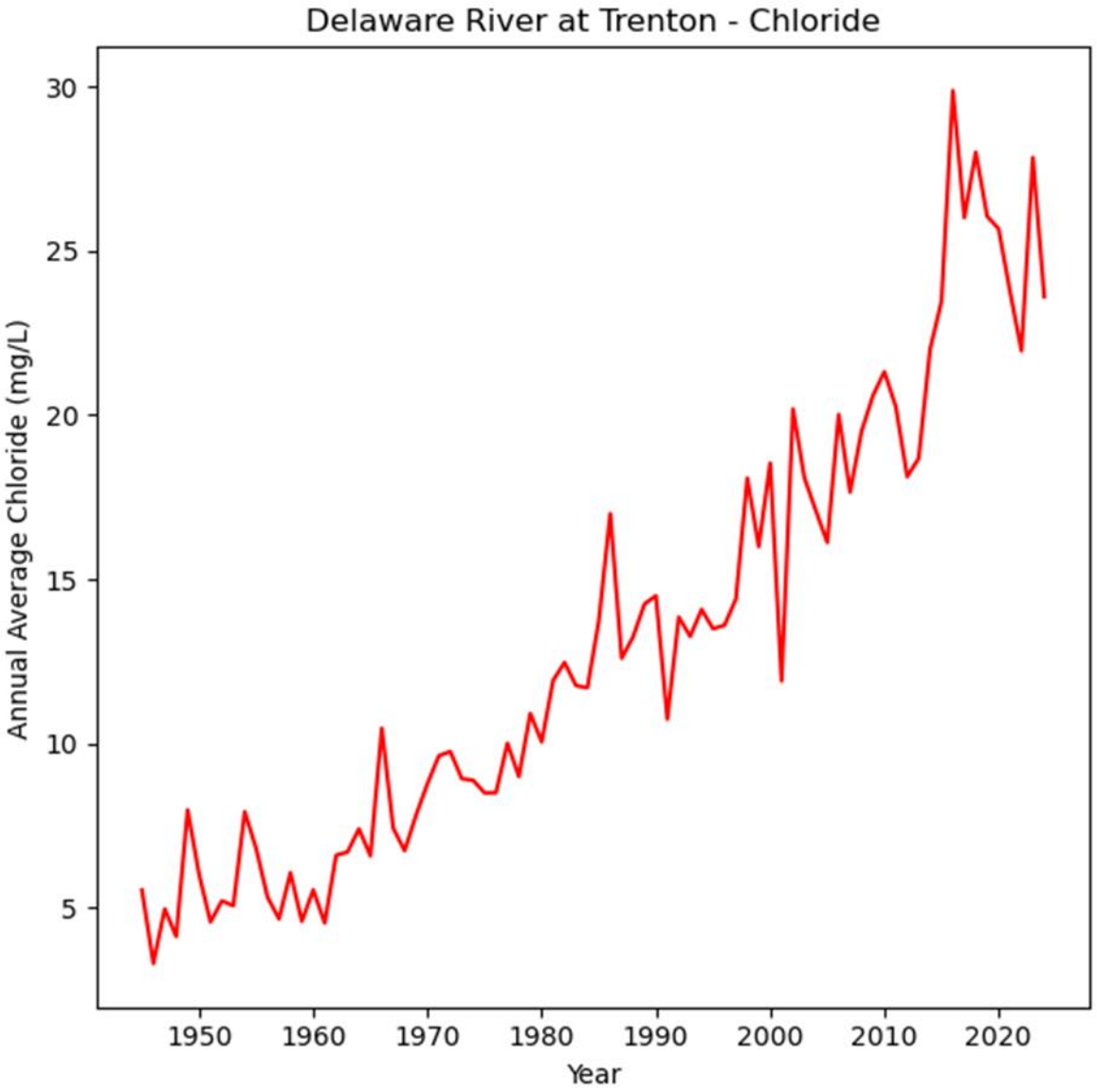
Delaware River chloride trends

Freshwater salinization workgroup lessons

Management focus and options

Pilot study approach

Chloride steadily increasing over time



Data obtained from the Water Quality Portal

- Downstream catchment of the non-tidal Special Protection Waters Program area
  - Anti-degradation program
  - Regulation of point-sources
  - Goal: “keep the clean water clean”

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Assessment of Measurable Changes

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Summary Matrix of Water Quality Changes at Lower Delaware Control Points: 2000-2004 Baseline vs. 2009-2011 Assessment Round 1

Site Color Key: Dark Blue = Interstate Control Point (ICP); Dark Red = Pennsylvania Tributary Boundary Control Point (BCP); Dark Green = New Jersey Tributary Boundary Control Point (BCP)

	Parameter / Site-->	Del. River at Trenton	Del. River at Washngtn Crossing	Pidcock Creek, PA	Delaware River at Lambrtvlle	Wicke-cheoke Creek, NJ	Lockatong Creek, NJ	Delaware River at Bulls Island	Pauna-cussing Creek, PA	Tohickon Creek, PA	Tinicum Creek, PA	Nishi-sakawick Creek, NJ	Del. River at Milford	Cooks Creek, PA	Musco-netcong River, NJ	Del. River at Rieglsvll	Pohat-cong Creek, NJ	Lehigh River, PA	Del. River at Easton	Bushkill Creek, PA	Martins Creek, PA	Pequest River, NJ	Del. River at Belvidere	Paulins Kill River, NJ	Del. River at Portland
	Site Number-->	1343 ICP	1418 ICP	1463 BCP	1487 ICP	1525 BCP	1540 BCP	1554 ICP	1556 BCP	1570 BCP	1616 BCP	1641 BCP	1677 ICP	1737 BCP	1746 BCP	1748 ICP	1774 BCP	1837 BCP	1838 ICP	1841 BCP	1907 BCP	1978 BCP	1978 ICP	2070 BCP	2074 ICP
Field	Dissolved Oxygen (DO) mg/l											~													
	Dissolved Oxygen Saturation %											~													
	pH, units																								
	Water Temperature, degrees C																								
Nutrients	Ammonia Nitrogen as N, Total mg/l																								
	Nitrate + Nitrite as N, Total mg/l																**								
	Nitrogen as N, Total (TN) mg/l																**								
	Nitrogen, Kjeldahl, Total (TKN) mg/l																								
	Orthophosphate as P, Total mg/l																								
	Phosphorus as P, Total (TP) mg/l																								
Bacteria	Enterococcus colonies/100 ml	~			~																				
	Escherichia coli colonies/100 ml	**	**	**	**	**	**			**	**	**													
	Fecal coliform colonies/100 ml																								
Conventionals	Alkalinity as CaCO3, Total mg/l																								
	Hardness as CaCO3, Total mg/l											~													
	Chloride, Total mg/l			**		**	**	**	**	**		**	**	**	**	**	**	**	~	**	**	**	**		**
	Specific Conductance µmho/cm			**		**	**	~	**	**	**	**	**	**	**	~	**	**	~	~	~	**	~		
	Total Dissolved Solids (TDS) mg/l																								
	Total Suspended Solids (TSS) mg/l																								
	Turbidity NTU																								

KEY: (blank) = No indication of measurable change to EWQ; ** = Indication of measurable water quality change toward more degraded status; ~ = Weak indication of measurable water quality change toward more degraded status

The Basin is located within the “Salt Belt”

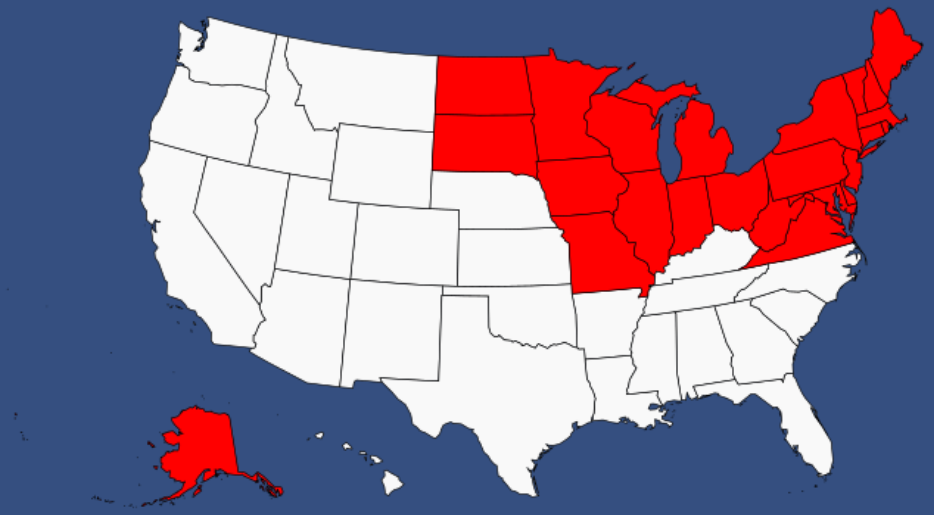

Image: by Randommapmaker, Wikimedia Commons, CC BY-SA 4.0

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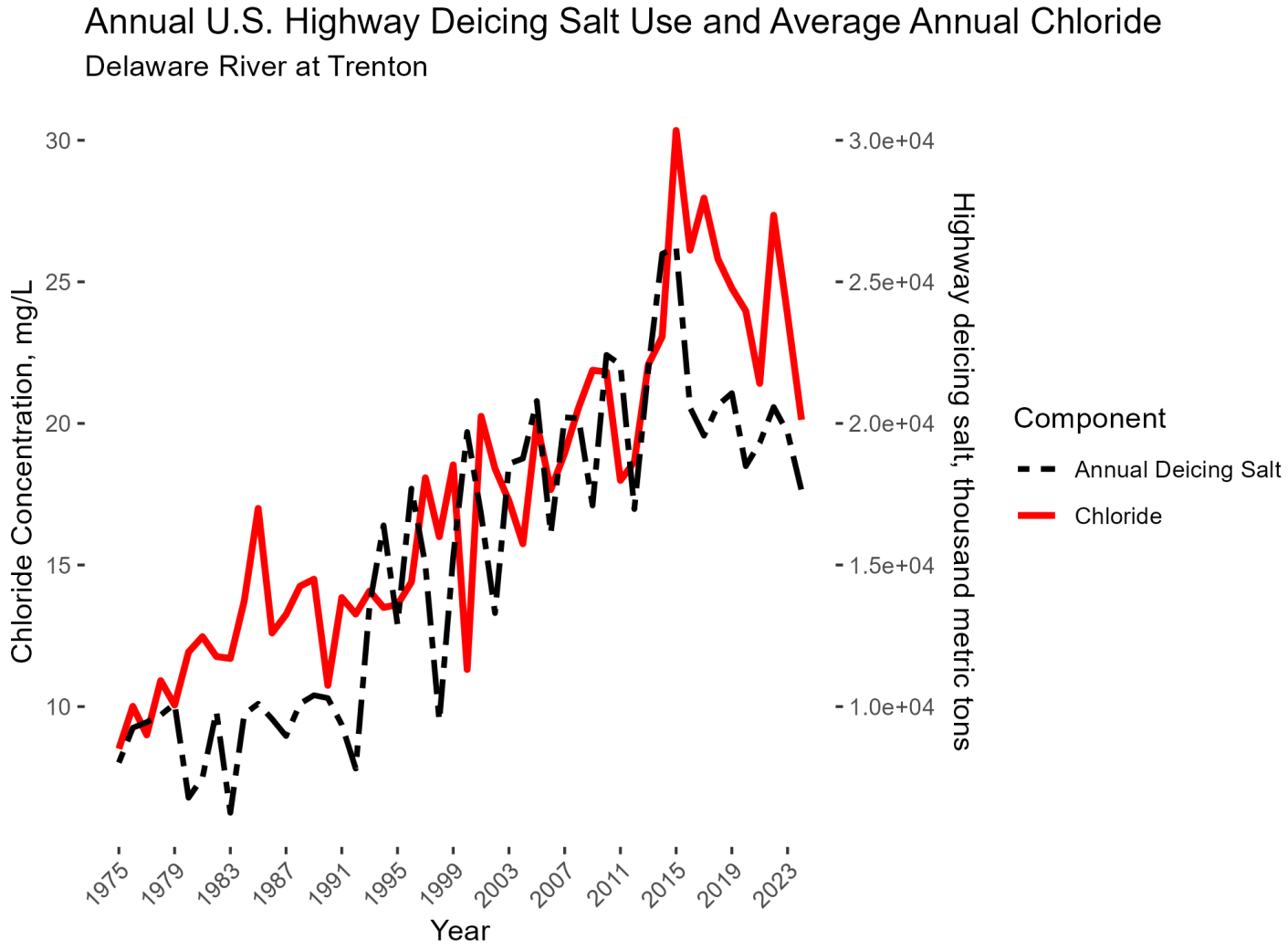
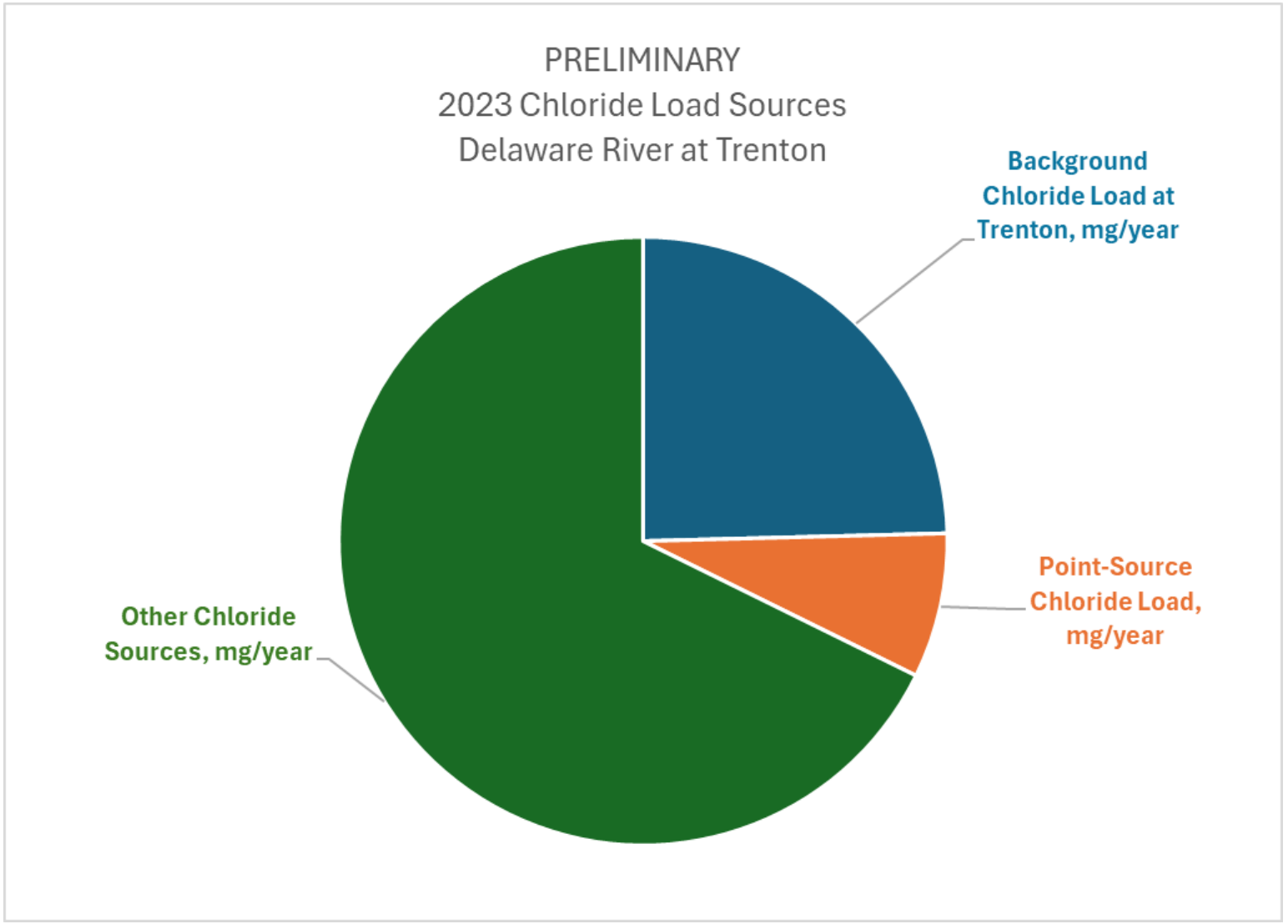


U.S. Highway Deicing Salt Data Source: USGS Mineral Commodity Summaries (1975 – 2024)

Estimated Point-Source Chloride Load (Preliminary)



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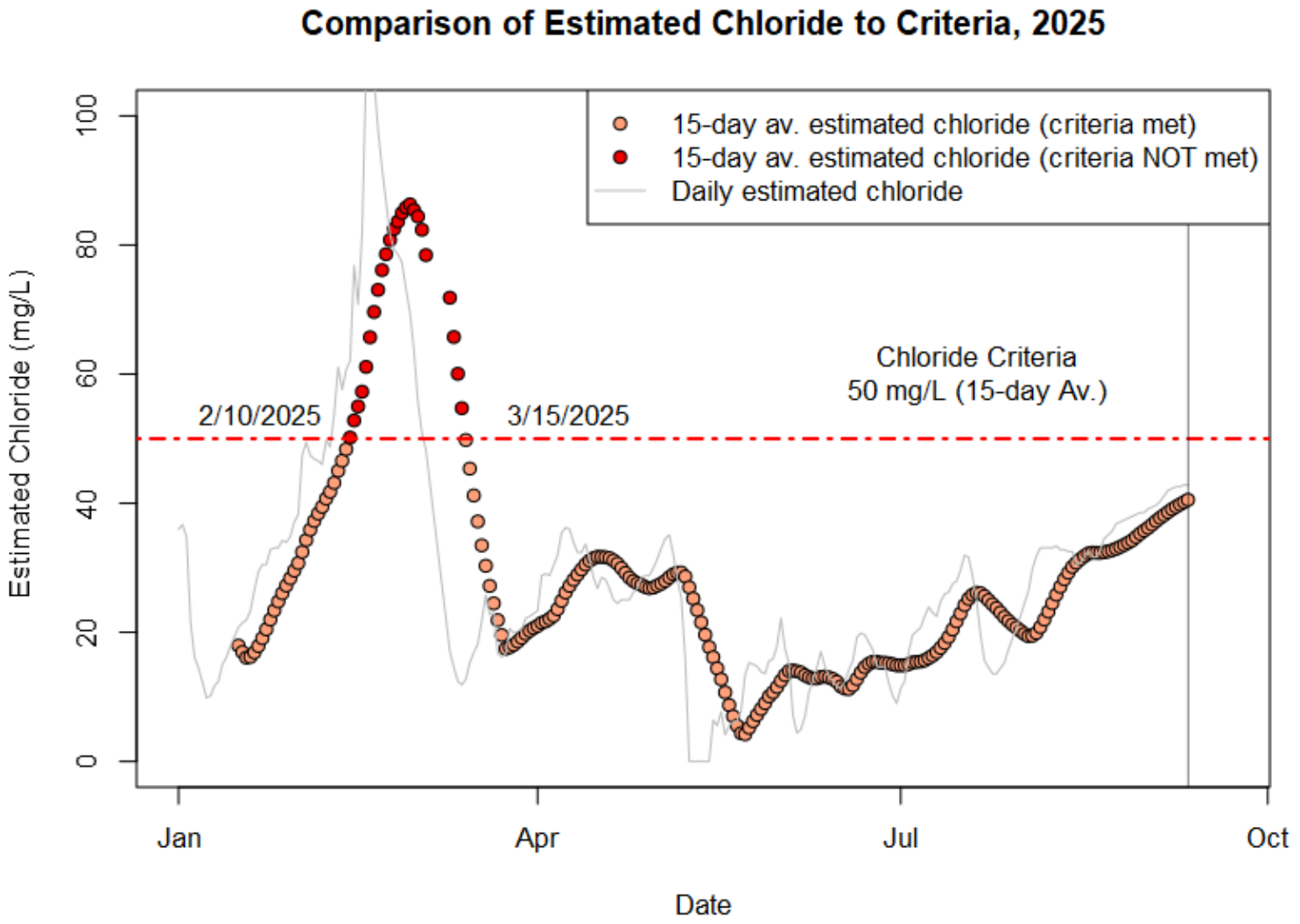
Estimated chloride in Zone 2



DRBC Water Quality Dashboard

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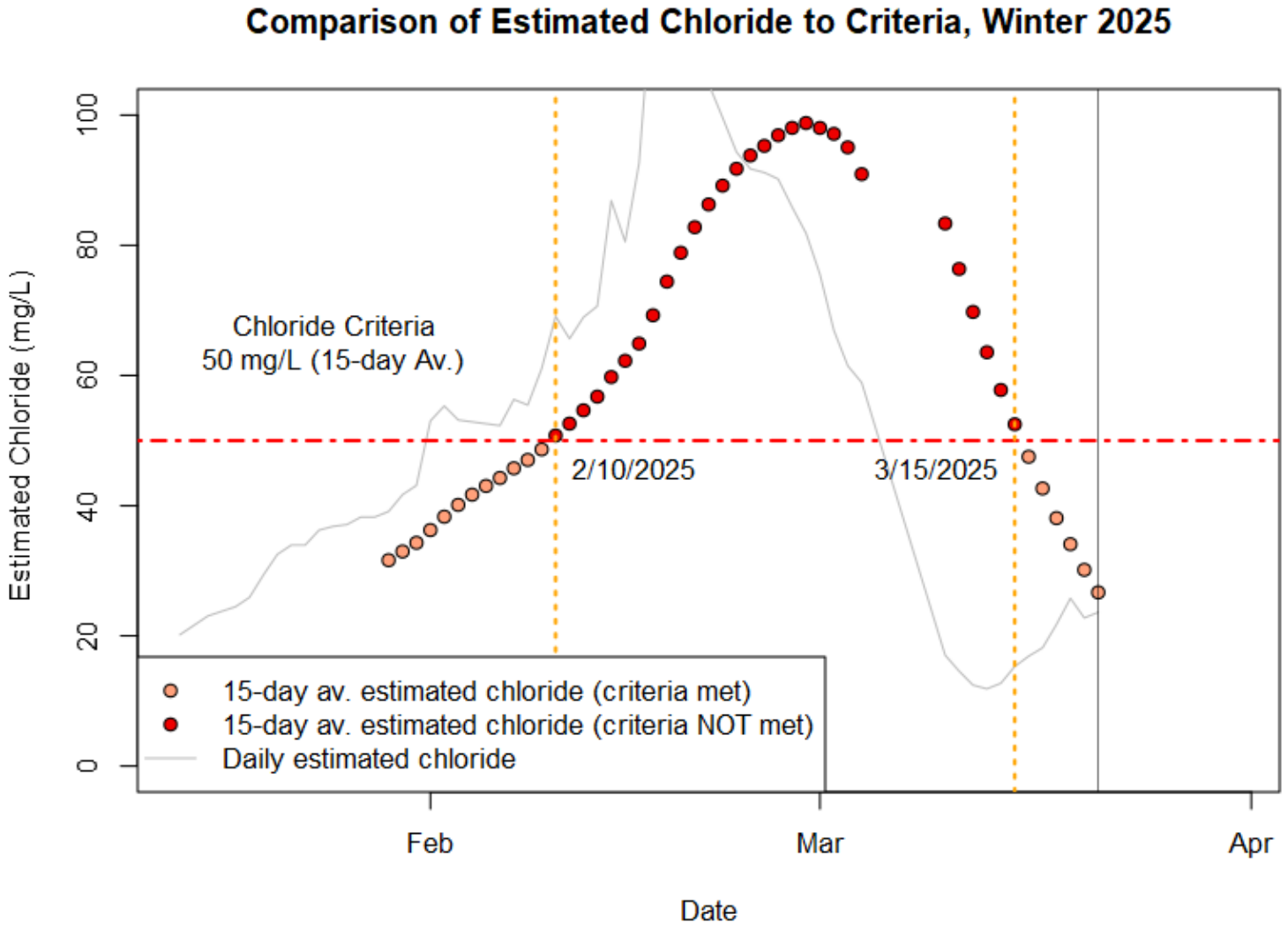
DRBC's chloride criteria exceeded for over a month



DRBC Water Quality Dashboard

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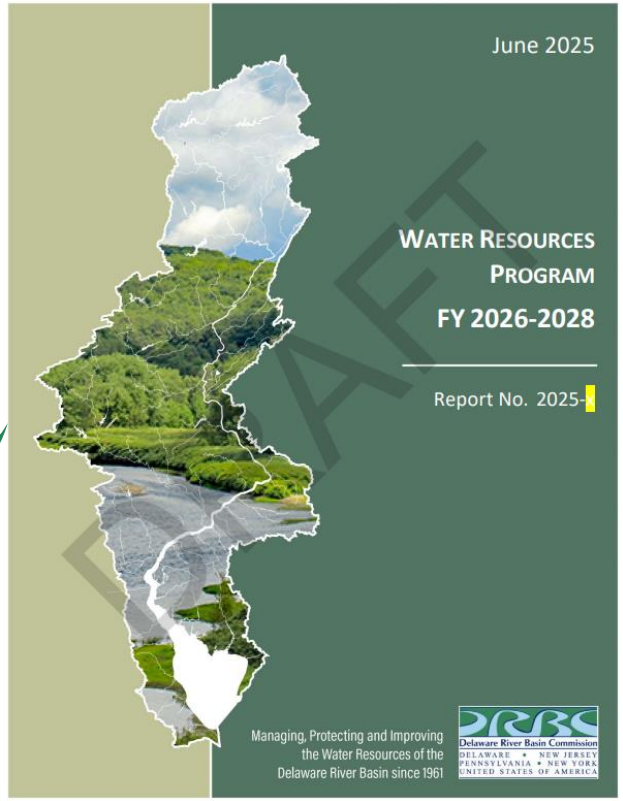
Focus on management

- DRBC formed a salinity workgroup (SIFT) to discuss management approaches
- **All** entities are struggling to identify an effective solution
- Outreach and voluntary approaches only go so far
- Finding a solution to address this issue is necessary

Integrating Chloride Priorities

- Presented issue and shift to focus on management to Commissioners at DRBC Q1 2025 Caucus
- Added “increasing chloride trends” to DRBC’s 2025 Water Resources Program

Report QR Code



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Potential Solutions to Manage Chloride

Pilot study to implement salt reduction measures

Implement regulatory action (i.e., TMDLs)

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Pilot Study Approach

- Met with Bridgeton Twp, PA, in August 2025
- Goal: to discuss current salting practices and how DRBC can assist with salt reduction efforts
- Bridgeton Twp staff highlighted that an outreach and education approach is necessary
  - Focus on local concerns vs downstream
- DRBC staff registered to attend the NJ League of Municipalities conference to coordinate on a larger scale

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In Summary

- Chloride levels in the non-tidal are steadily rising over time
- Zone 2 DRBC chloride criterion routinely exceeded during and after salt application
- Deicing salt is unregulated, and its use has also increased over time
- Formed the SIFT workgroup to collaborate on management options
- Next steps: Coordinate with local governments and salt applicators
- **If interested in participating in the SIFT workgroup or the pilot study, please reach out!**

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Feedback Request: Draft Salt Application Practices Survey

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Please submit feedback by October 30, 2025

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Questions?

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