

Welcome from the Center for Computational Toxicology and Exposure



**Tribal Science Council
December 6, 2022**

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Director
Center for Computational Toxicology and Exposure**

Welcome to EPA's Research Triangle Campus



Who Are We?

Mission

Provide solutions-driven research to rapidly evaluate the potential human health and environmental risks due to exposures to environmental stressors and ensure the integrity of the freshwater environment and its capacity to support human well-being.

Unofficial Vision

We are the Google of toxicology, exposure, and freshwater ecology research.

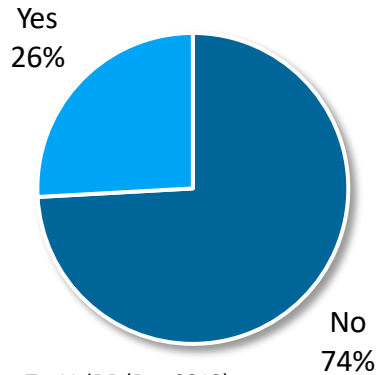
Goals

- Reduce the time required to thoroughly test chemicals and other emerging materials for human health and ecological toxicity from years to months.
- Expand our understanding of quantitative human and ecological exposures for thousands of chemical substances and emerging materials.
- Develop comprehensive information systems that contains relevant actionable chemical safety and ecological data with the software tools to integrate them for a range of human health and environmental decisions.
- Reduce the time required to characterize freshwater ecosystems and project the future state of ecological condition and ecosystem services from decades to years.

Why Is This Important?

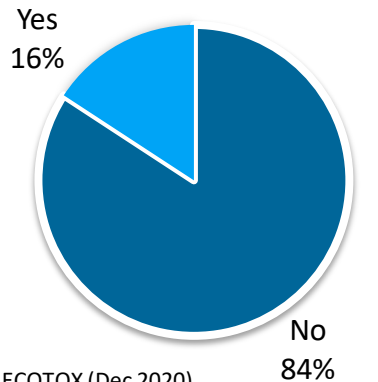
Hazard

Percentage of Active TSCA Inventory with
Human Health Toxicology Studies



Data from ToxValDB (Dec 2019)

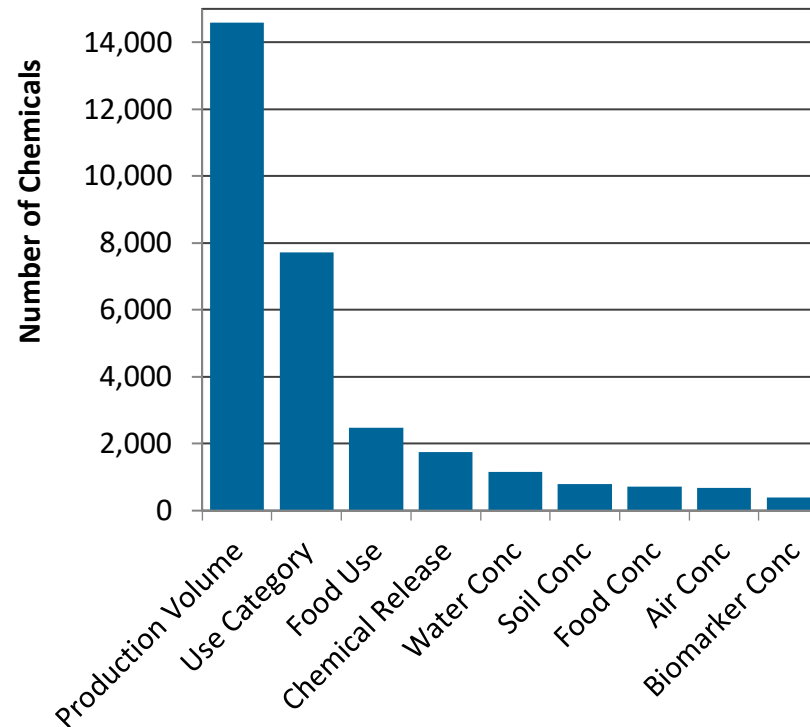
Percentage of Active TSCA Inventory with
Ecotoxicology Studies



Data from ECOTOX (Dec 2020)

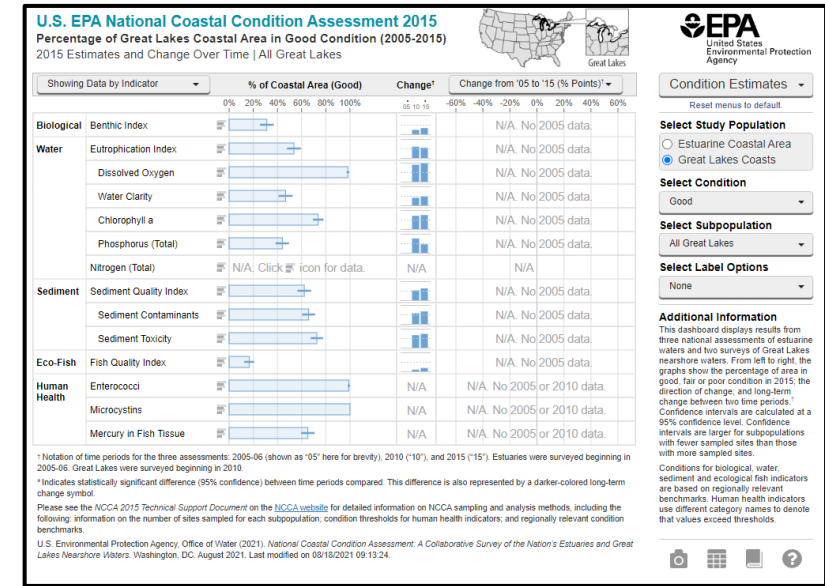
Center for Computational
Toxicology & Exposure

Exposure

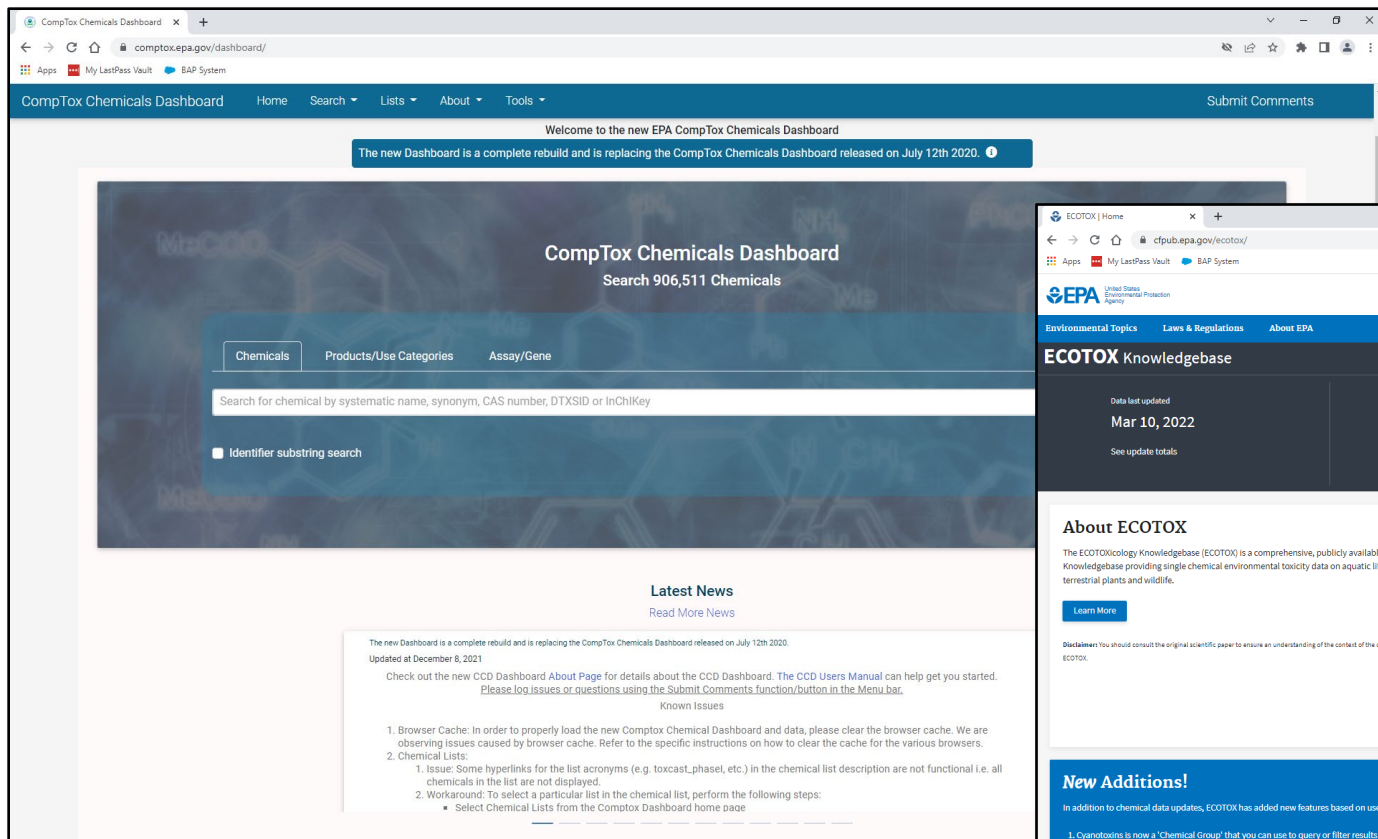


Egeghy et al., Science of the Total Environment, 2012

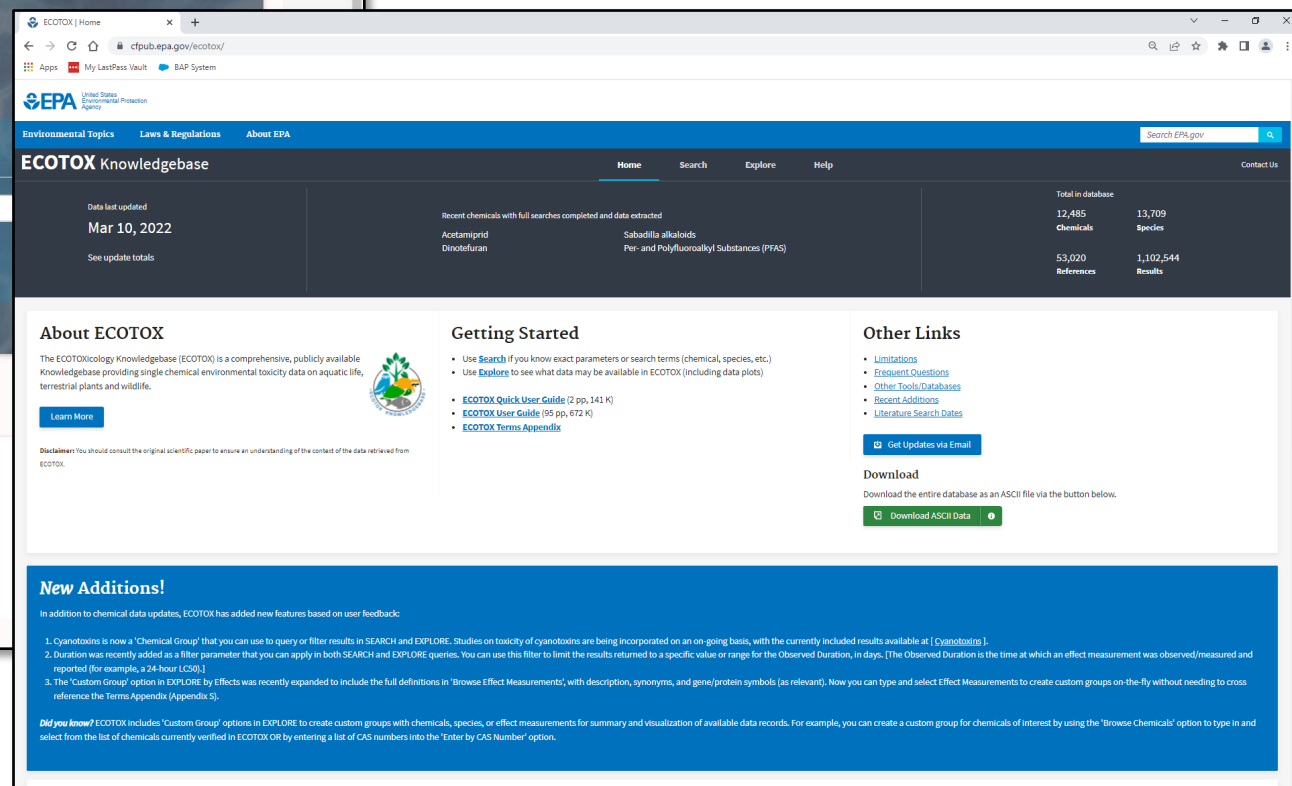
Freshwater Ecology



Example Center Activities



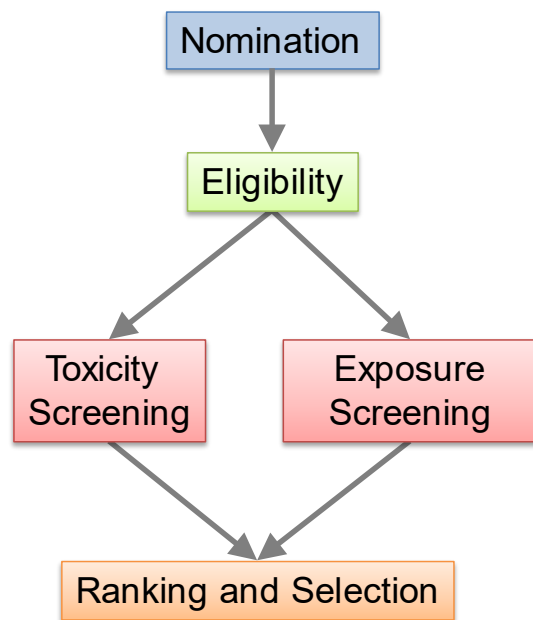
<https://comptox.epa.gov/dashboard/>



<https://cfpub.epa.gov/ecotox/>

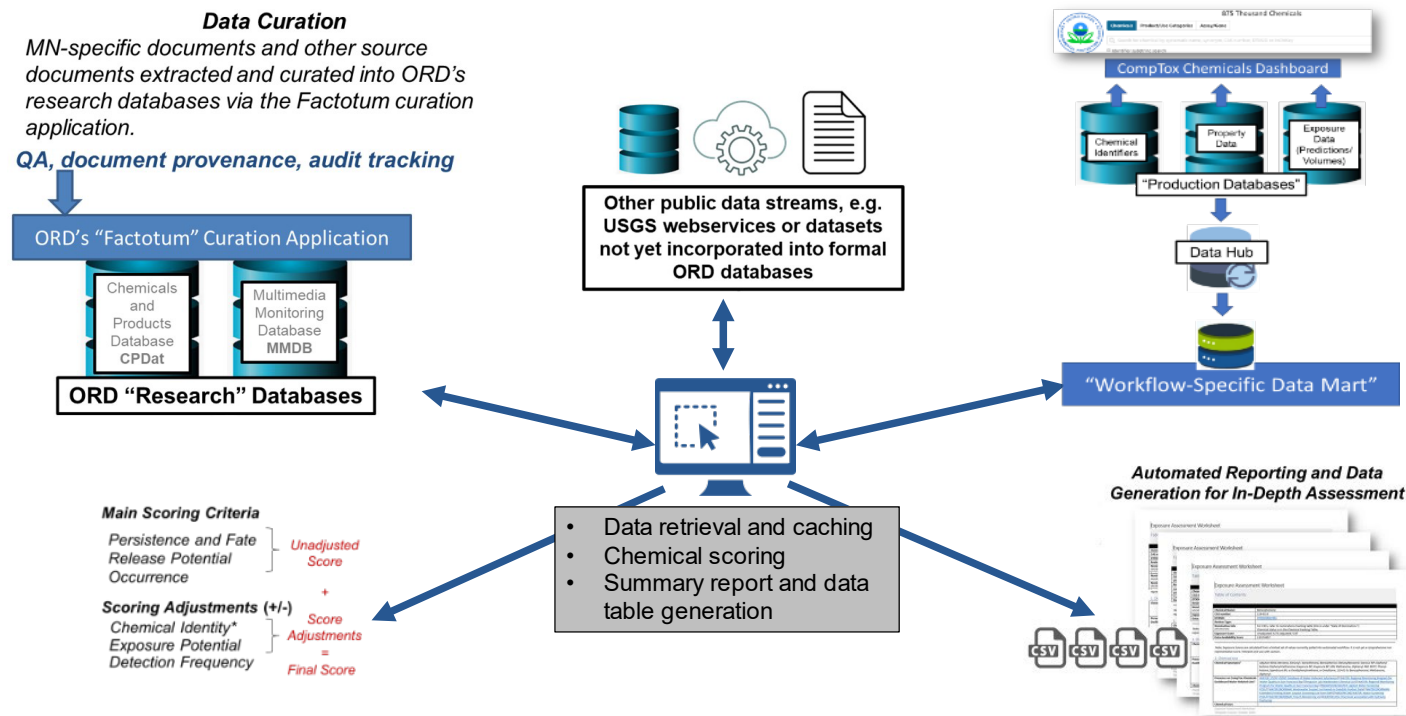
Example Center Activities

MN DOH Contaminants of Emerging Concern Screening Process



- Manual data retrieval and scoring process
- Labor intensive (~1 week/chem)

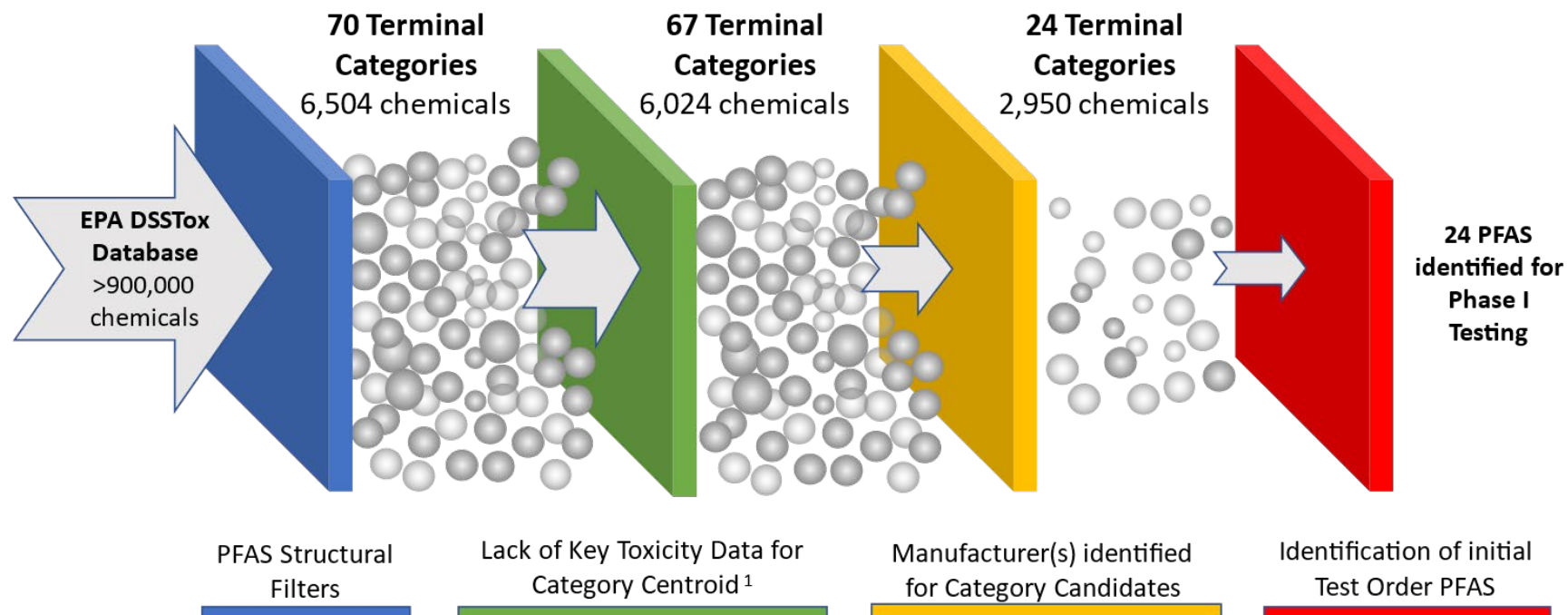
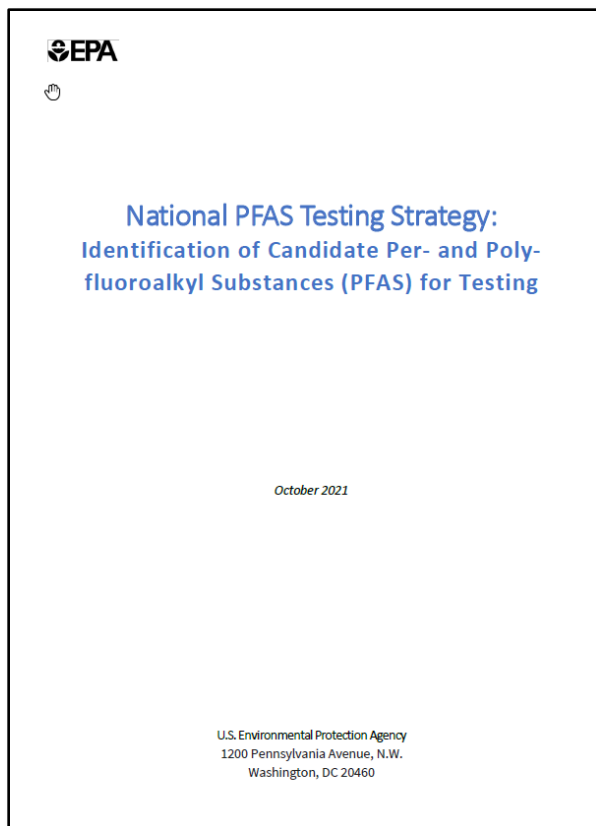
MN-EPA Collaborative Research and Development Agreement Workflow



- Semi-automated process
- Thousands of chemicals
- Automated report generation
- Reproducible scoring

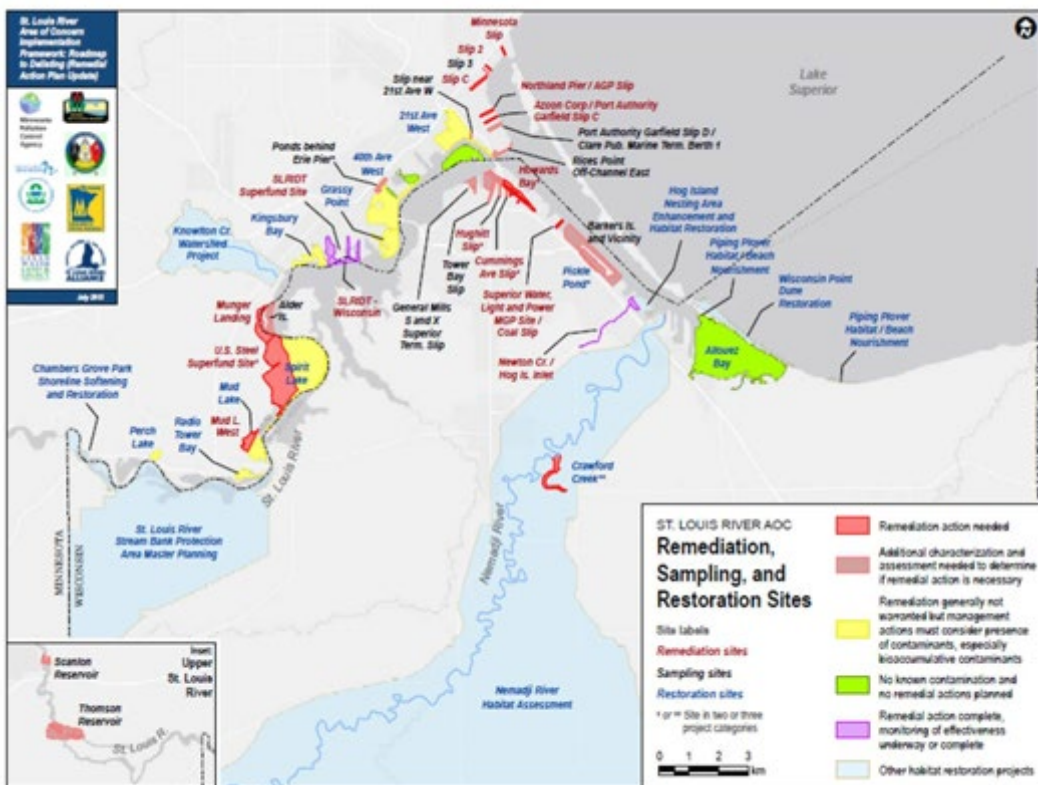
Example Center Activities

PFAS Structural Categorization and Testing Candidate Identification Process



Example Center Activities

Remediation to Restoration to Revitalization Process (R2R2R) in Kingsbury Bay and Grassy Point Restoration Project



- Utilized Health Impact Assessment process to integrate scientific data, health expertise, and public input into decision making process
- Focused on community needs and values
- Improved ecological and health outcomes

Thank You and Welcome to RTP!