

# Winning the Race Against Competing Risks: Optimizing Drinking Water Disinfection to Minimize Opportunistic Pathogen & DBP Risk

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# Project Goal

Our project goal is to better understand and predict occurrence of disinfection byproducts, opportunistic pathogens, and the associated health risk tradeoffs posed by them in DWDS across the continental U.S.





# Objectives

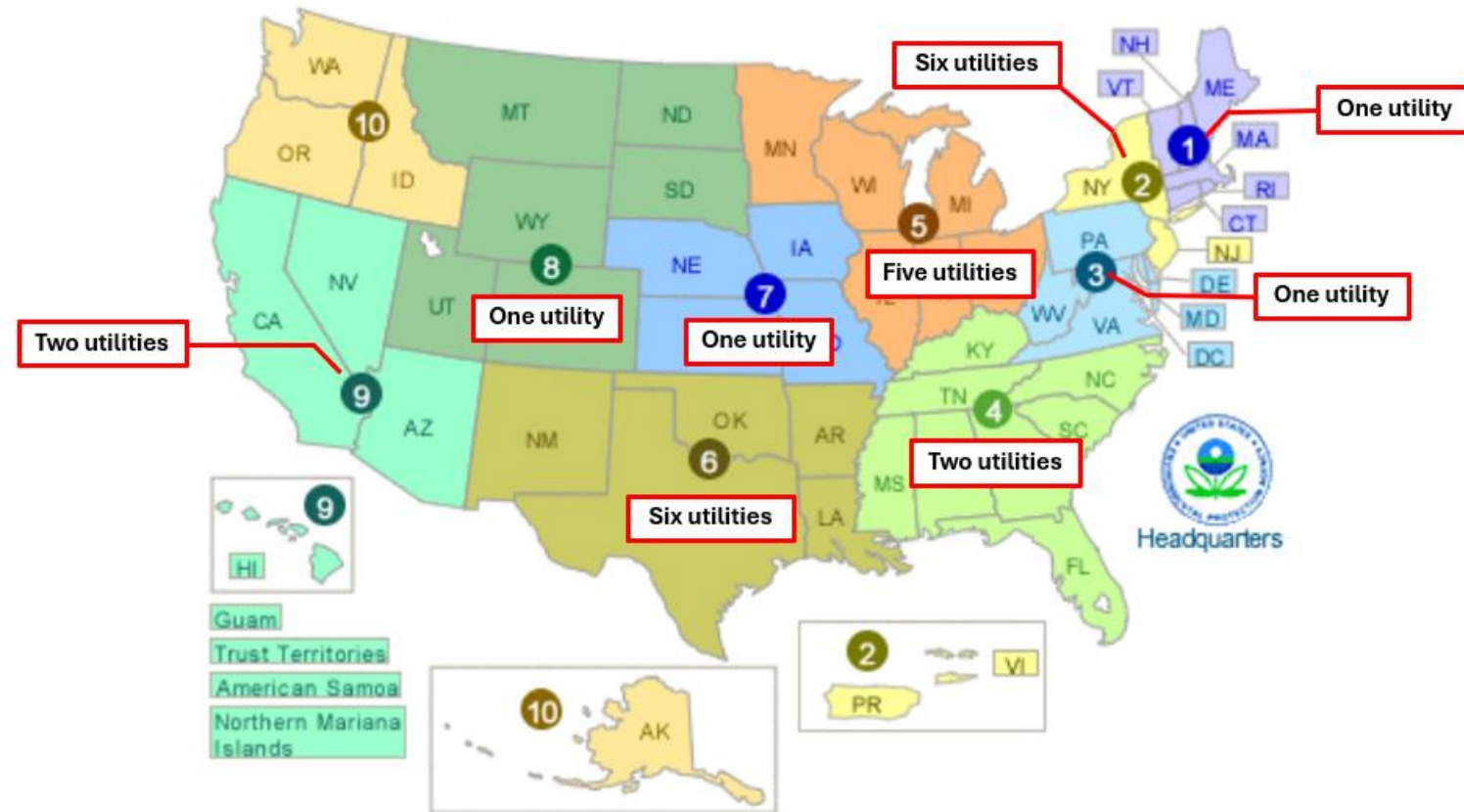
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**Objective 1:** Develop a strategic sampling program based on health data and system characteristics.

**Objective 2:** Elucidate the locations and conditions leading to the occurrence and co-occurrence of DBPs and OPs in actual DWDS through field sampling, modeling, and analysis.

**Objective 3:** Characterize risks associated with DBP and OP occurrence and concentrations, as well as risk tradeoffs between them for sub-populations.

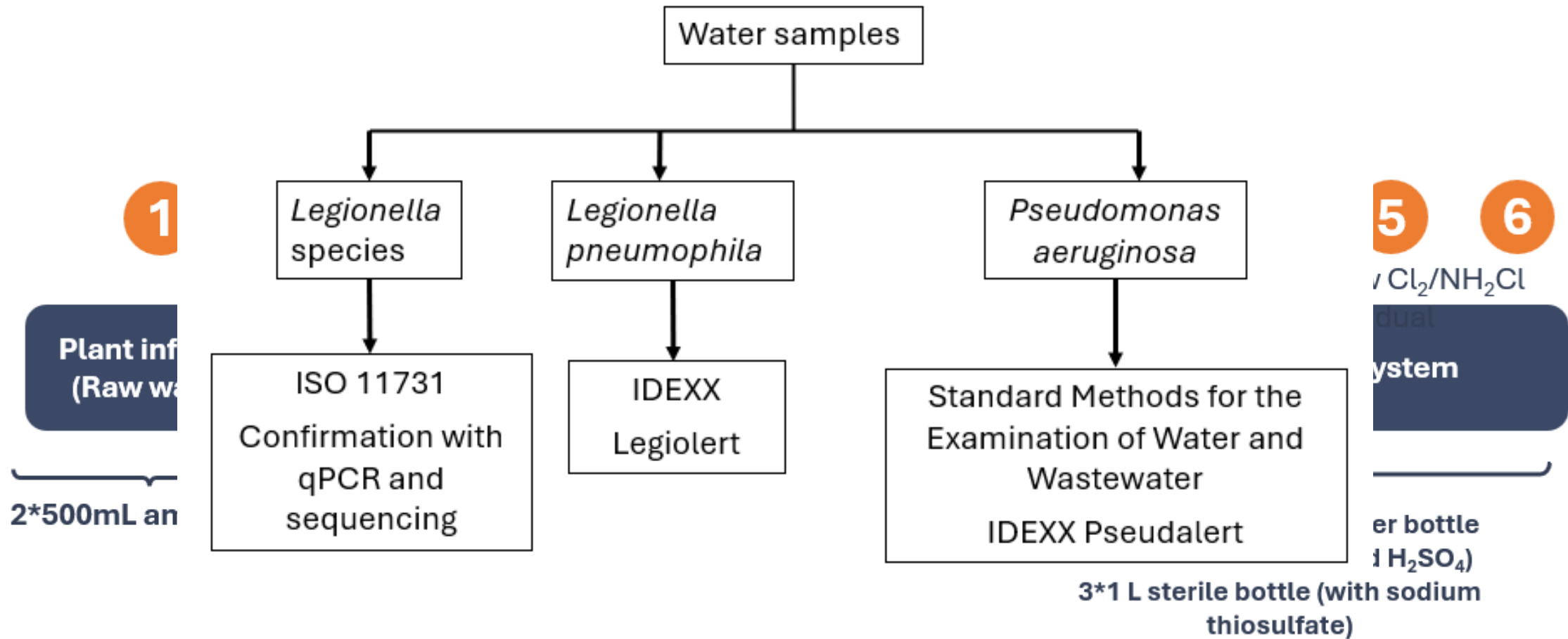
# Current Work



EPA Regions. U.S. EPA 2023.

- Strategic sampling plans for 25 utility partners (Obj. 1)
  - Interviews with each
- Pilot sampling and full-scale summer sampling (Obj. 2)
- Modeling approaches to relate water quality parameters with DBP/OPP occurrence and risk trade-offs (Obj. 3)
  - Legionellosis and water quality
  - Toxicity endpoints for unregulated DBPs

# Summer Sampling



Dissolved Nitrogen (DN)	mg/L	Temperature Combustion	
I <sup>-</sup>	µg/L	N/A	
Cl <sup>-</sup> , Br <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup>	µg/L	EPA method 300	



# Workshop 1

## Who?

- Project team, public health agencies, water utilities, stakeholders

## What?

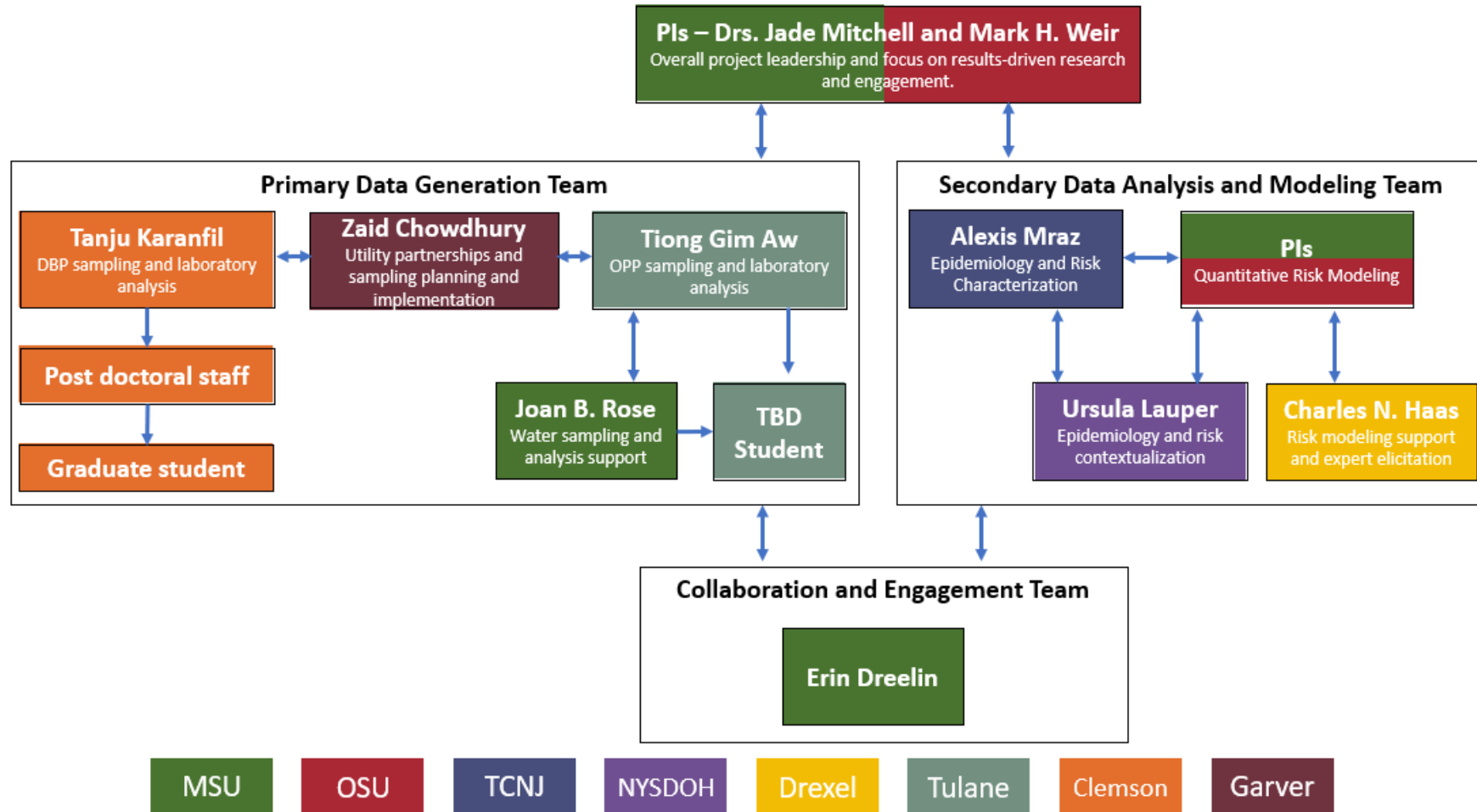
- Understand water utilities' operations, treatment processes, and water distribution system
- Confirm sampling sites

## Where/when?

- **Kellogg Center at Michigan State University, East Lansing, MI**
- **Monday, June 3 to Tuesday, June 4**

**We still have space and  
are welcoming additional utility partners!**

# Thank You!



**Contact us:** [bae.drinkingwater@msu.edu](mailto:bae.drinkingwater@msu.edu)