# Perspectives on Nutrient Assessment Reduction Plans

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Geosyntec consultants

ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY

*A presentation for the 2022 NLRS Partnership Workshop*

# Agenda

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- Background
- NARP Overview
- NARP Case Studies
  - Fox River Study Group
  - Chicago Area Waterways
  - City of Princeton
  - Lower Sangamon NARPs
  - Kankakee River NARPs
- Summary & Takeaways

# Background

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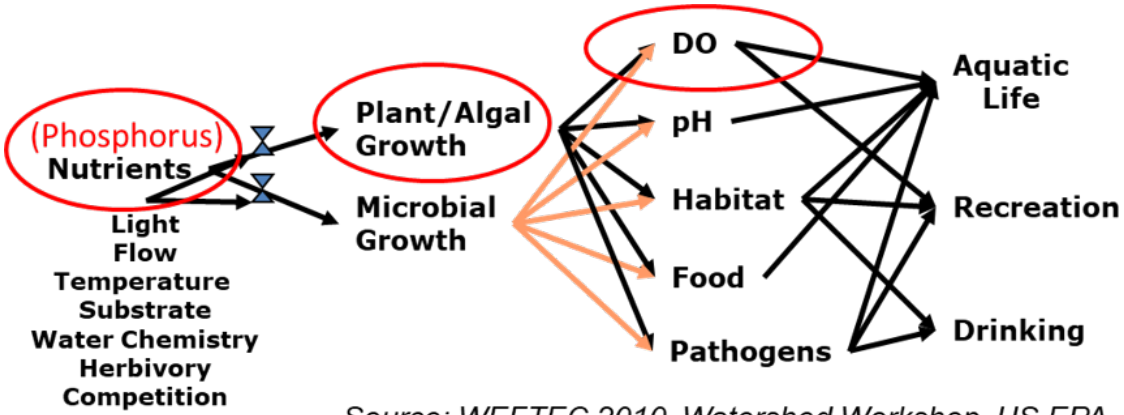
- Efforts to reduce nutrient-related pollution are ongoing in several states
- US EPA push for states to develop numeric nutrient criteria (NNC)
  - NNC must protect designated use, but the relationship is not linear




*Source: WEFTEC 2010, Watershed Workshop. US EPA.*

# Illinois Nutrient Strategy

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- Goal to reduce total phosphorus (TP) and nitrogen (TN) loads by 45% by 2045
- Illinois Nutrient Science Advisory Committee developed the instream NNC
  - Standards were not adopted by Illinois Pollution Control Board
- Environmental groups wanted 0.1 mg/L TP in POTW permits

ILLINOIS
NUTRIENT LOSS
REDUCTION STRATEGY

Improving our water resources with collaboration and innovation

# NARP Overview

# What's a NARP?

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- 2018 Agreement between Illinois Association of Wastewater Agencies, Illinois EPA, & environmental groups
  - Major WWTPs at 0.5 mg/L TP by 2030
- Special conditions in NPDES permits to address of P-related impairments
  - Dissolved oxygen (DO)
  - Nuisance algae
- Municipal separate storm sewer system (MS4) permits require meeting TMDL (or alternative) requirements
- Flexibility to develop watershed-specific targets

Lower Des Plaines River. Photo by Cynthia Skrukrud.

# When is a NARP Required?

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Based on instream sampling by Illinois EPA

**PHOSPHORUS RELATED IMPAIRMENT**

Listed on 303(d) list for:

- DO
- Offensive condition (algae and/or aquatic plant growth)

**RISK OF EUTROPHICATION**

Information that plant, algal, or cyanobacterial growth is causing or will cause violations of water quality standards

- pH
- DO
- Chlorophyll-a

# Illinois EPA NARP Mapper

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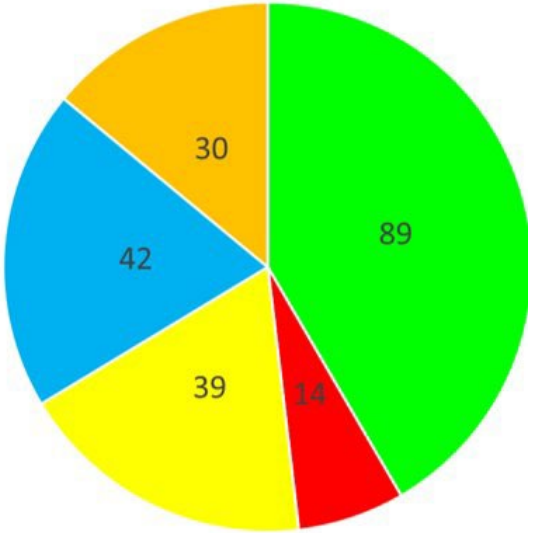
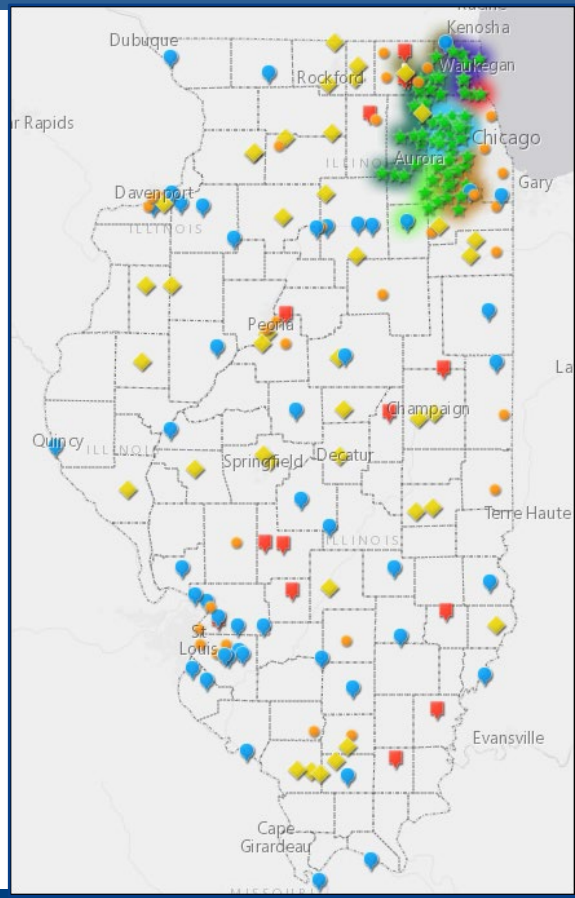



NARP

- Non-NARP
- NARP - Risk
- NARP - Impairment
- Watershed Group
- To Be Determined




Nutrient Assessment Reduction Plan (arcgis.com)

# How is a NARP developed?

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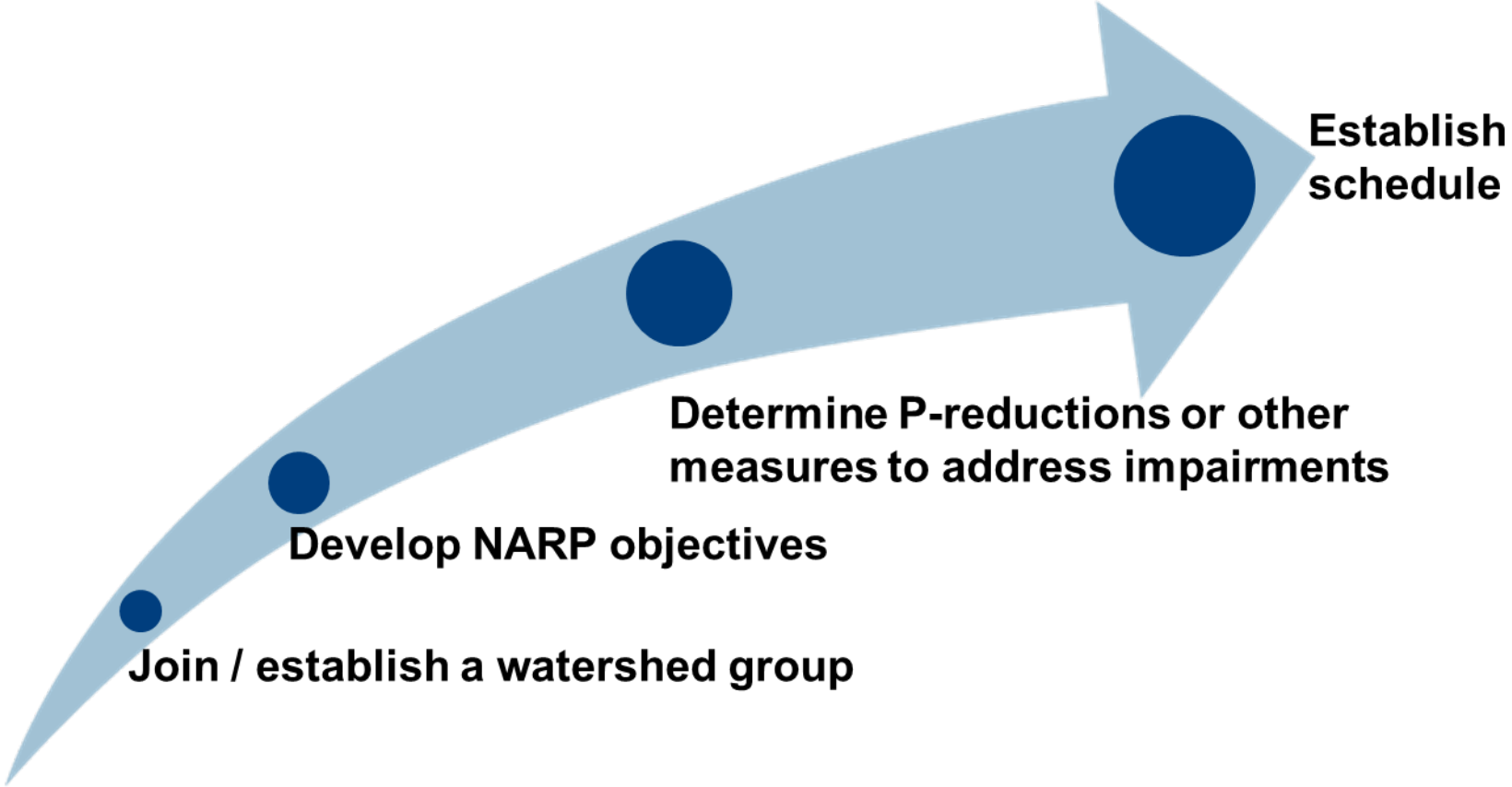

# Potential Outcomes

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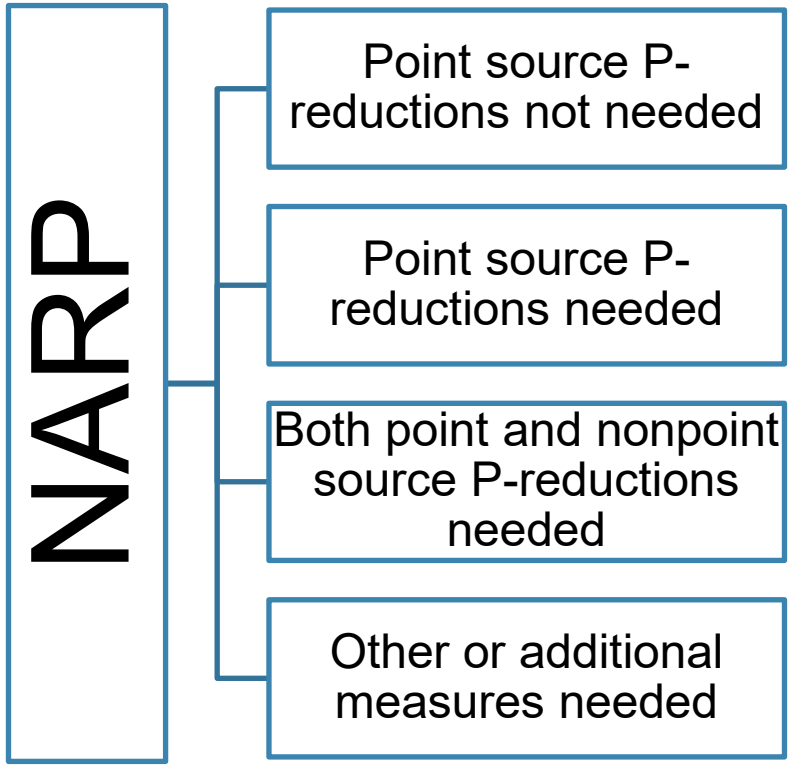

# NARP Case studies

# Fox River Study Group FRIP

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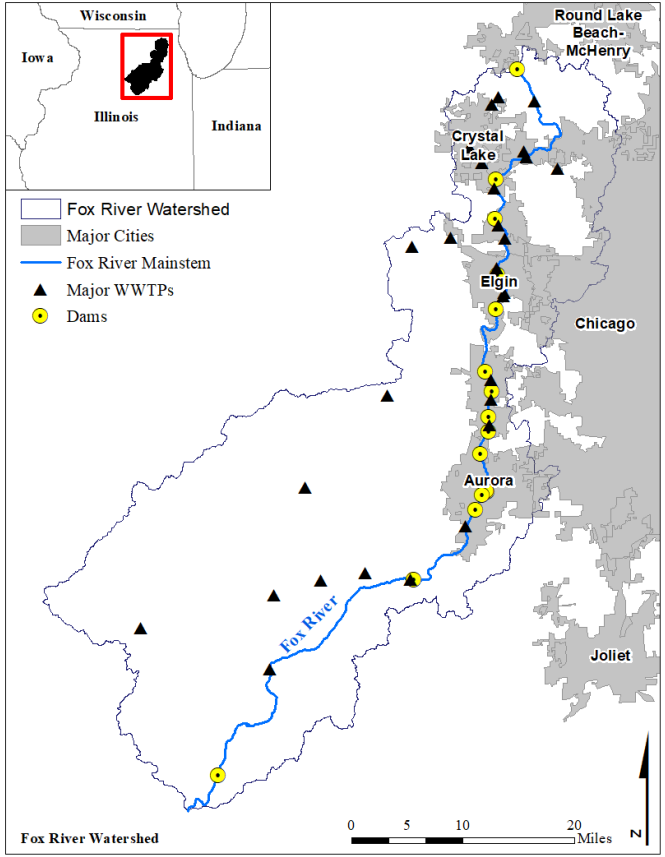
- Overview
  - Mainstem Fox River
  - Mainstem major WWTPs: 16
  - Dams: 13
- Methodology
  - Extensive water quality data collection and trends
  - Instream and watershed modeling
- NARP findings
  - Dam removals substantially improve water quality in the river
  - River water quality will be best improved using a combination of upstream, WWTP effluent limit reduction to 0.5 mg/L, and dam removal



# Chicago Area Waterways (CAWS) PARP

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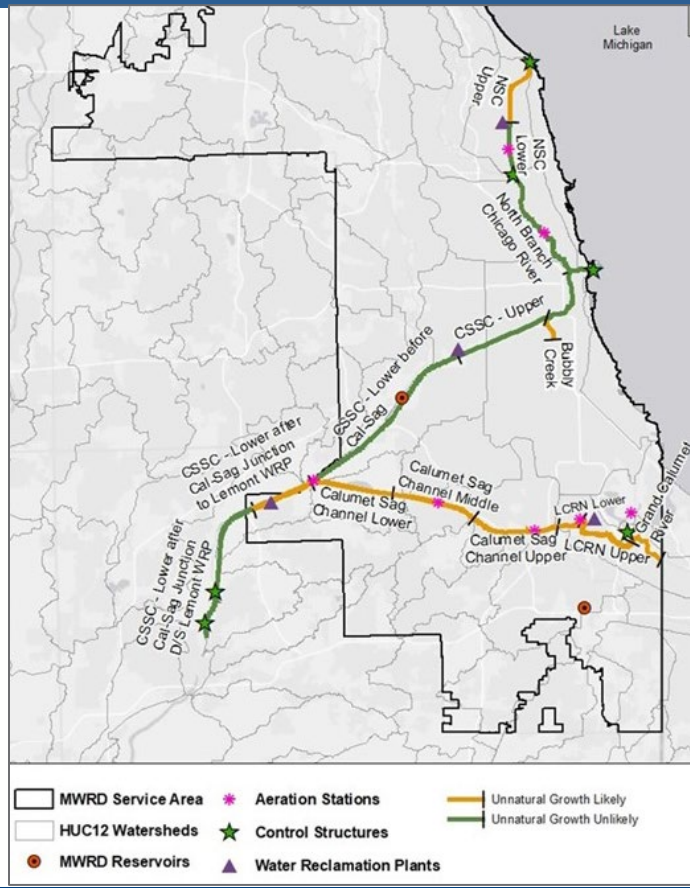
- Overview
  - Chicago Area Waterways
  - Four major WWTPs
  - One of the largest WWTPs in the world
- Methodology
  - Existing data review
  - Data collection
  - Modeling
- NARP findings
  - Will be discussed in detail in the next presentation



# City of Princeton NARP

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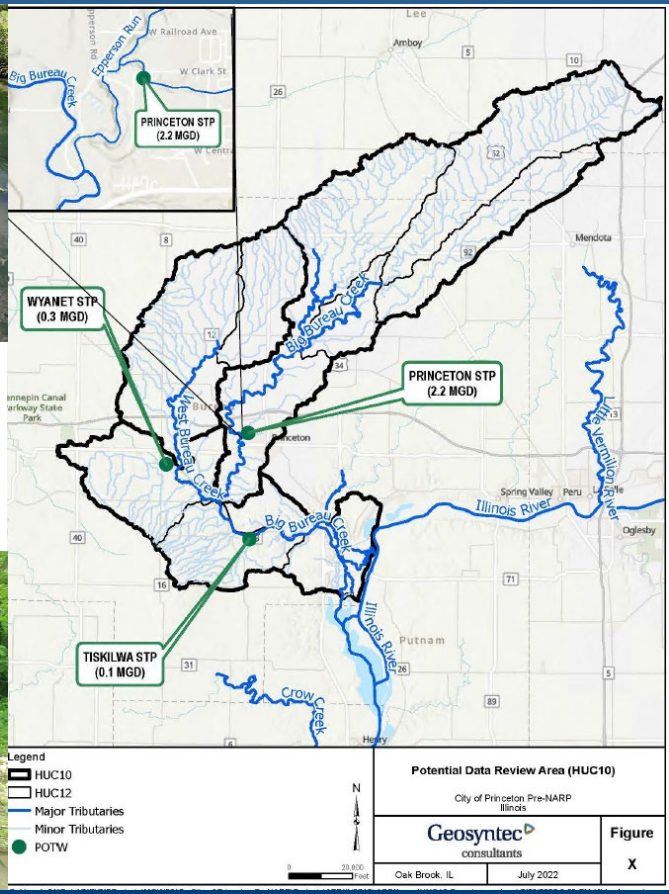
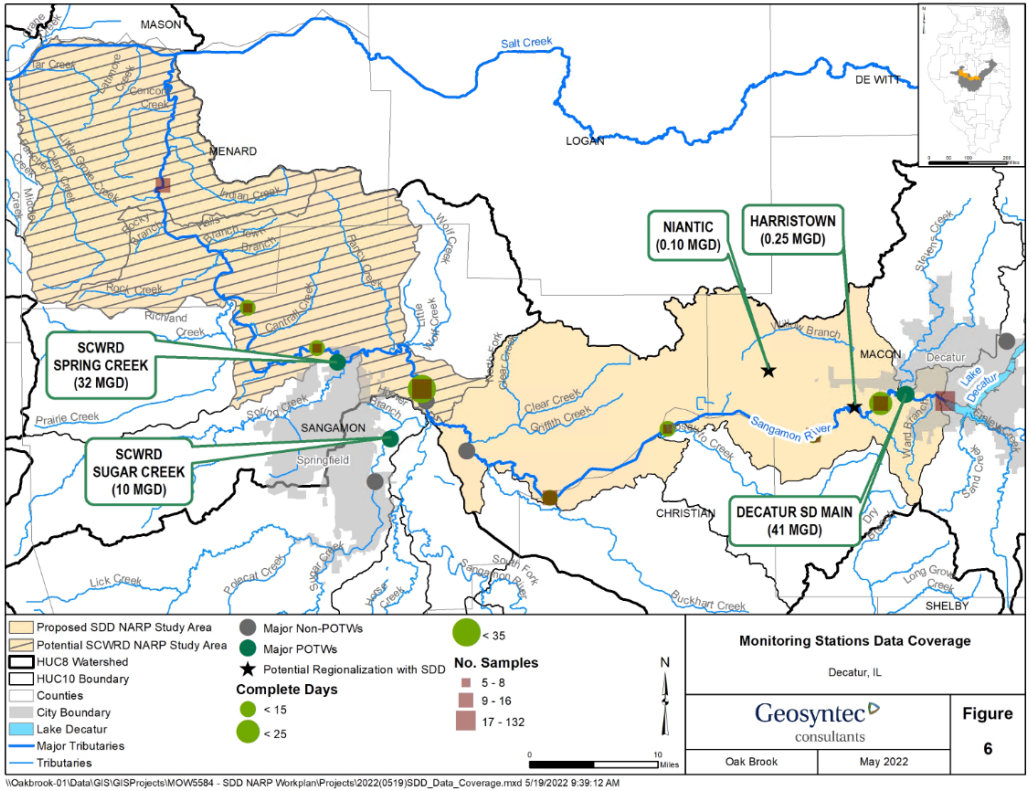
- Overview
  - Epperson Run and Big Bureau Creek
  - One Major WWTP
- Methodology
  - Existing data review
- NARP findings
  - Dissolved oxygen impairment might not be phosphorus-related (potentially, aquatic plants activities)



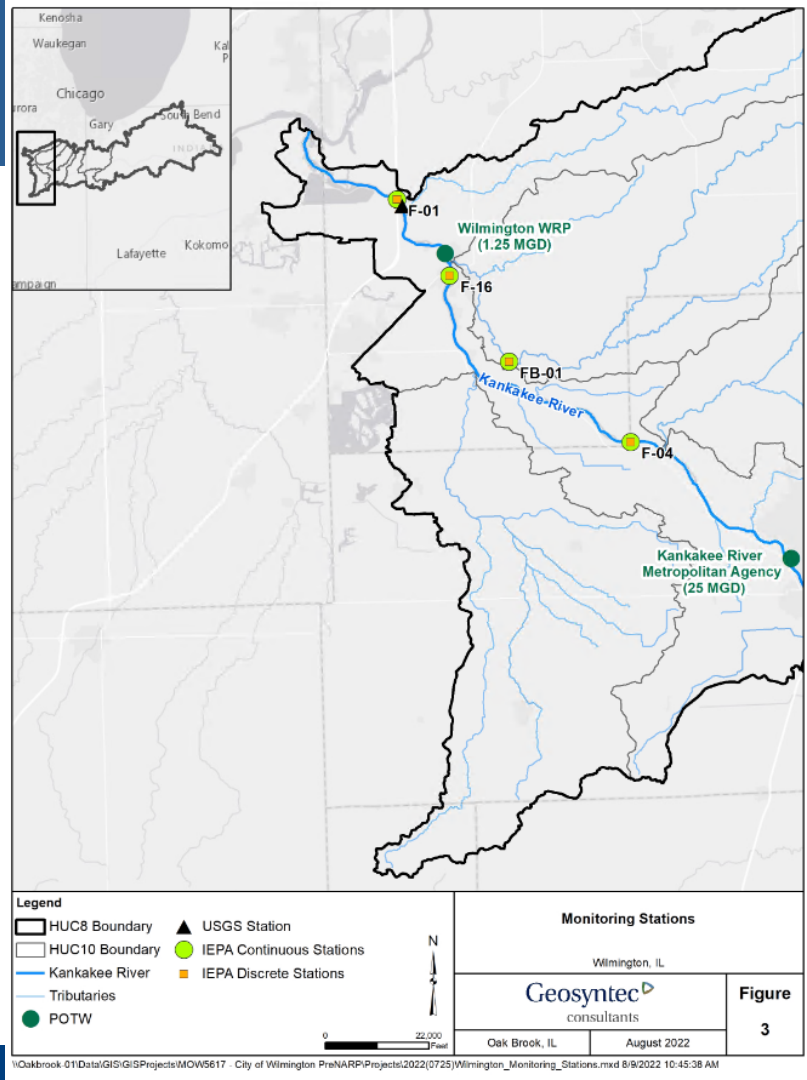
# Lower Sangamon River NARPs

- Overview
  - Sanitary District of Decatur (SDD)
  - Sangamon County Water Reclamation District (SCWRD)
- Methodology
  - Existing data review
  - Data collection
  - Modeling
- Initial NARP findings
  - SDD NARP might overlap with SCWRD
  - SDD serves as the upstream boundary for SCWRD NARP
  - Collaboration regarding data collection and modeling



# Kankakee River NARPs

- Overview
  - Kankakee River Metropolitan Agency (KRMA)
  - City of Wilmington
- Methodology
  - Existing data review (Wilmington)
- Initial NARP findings
  - KRMA NARP might overlap with the City of Wilmington
  - KRMA serves as the upstream boundary for the City of Wilmington NARP



# Summary & Takeaways

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- NARPs allow WWTPs to work with other stakeholders to identify the measures to address nutrient-related impacts
- Organizing into watershed groups helps to pool resources to tackle the nutrient problem
  - Stakeholder engagement at the watershed level
- NARPs are focused on phosphorus-related impairments
  - Other impairments are often addressed through watershed-based plans

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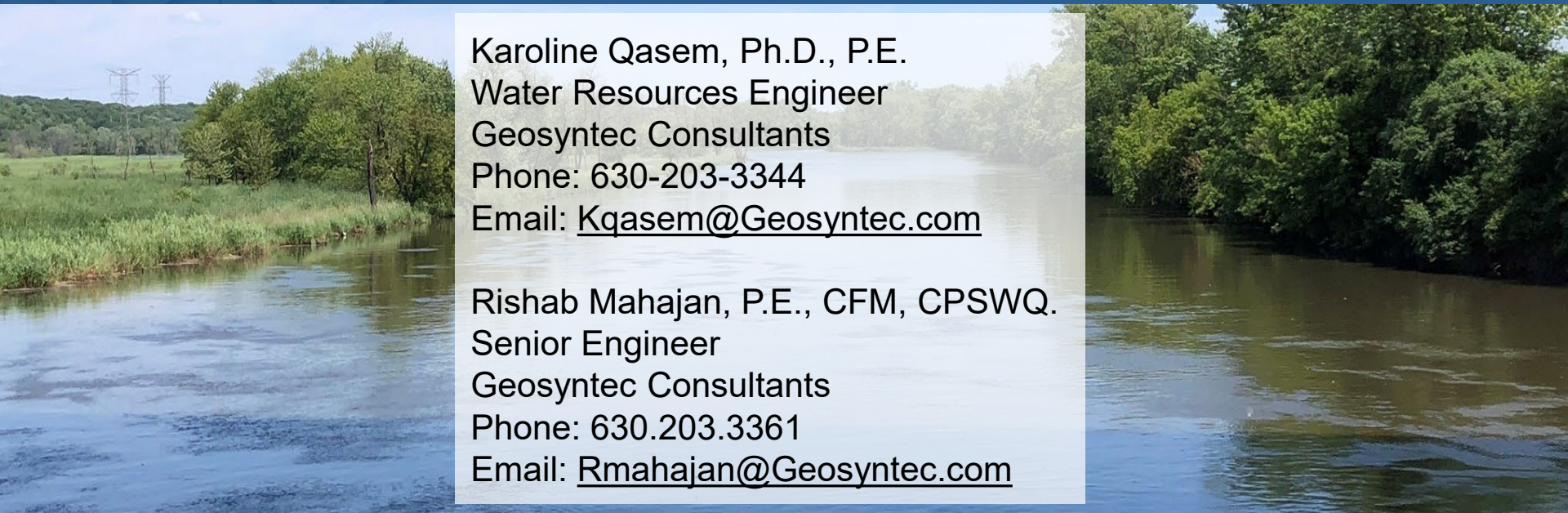
# Questions?

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