



NORTH CENTRAL REGION
WATER NETWORK

Welcome to *The Current*, the North Central Region Water Network's Speed Networking Webinar Series

One Water Partnerships: Innovative, inclusive and integrated approaches to water resource management: 2PM CT

1. Submit your questions for presenters via the chat box. The chat box is accessible via the purple collaborate panel in the lower right corner of the webinar screen.
2. There will be a dedicated Q & A session following the last presentation.
3. A phone-in option can be accessed by opening the Session menu in the upper left area of the webinar screen and selecting "Use your phone for audio".

This session will be recorded and available at northcentralwater.org and learn.extension.org.



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northcentralwater.org



Today's Presenters:

- **Lorraine Winters Krzyzewski**, Watershed Manager, Department of Public Utilities, City of Columbus
- **Michael Kuntz**, Utilities Environmental Manager, City of Cedar Rapids
- **Deborah Bathke**, Research Associate Professor, University of Nebraska-Lincoln National Drought Mitigation Center & School of Natural Resources

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Lorraine Winters Krzyzewski



Lorraine Krzyzewski is the Watershed Manager for the Columbus Division of Water, Watershed Management Section, where her responsibilities include management of the city's four drinking water reservoirs, and watershed protection efforts extending over a 13-county area. Lorraine has over 20 years of experience working to safeguard Columbus' water supply. She holds an undergraduate degree in environmental science with a focus on water quality, and a master of education in STEM Education both from The Ohio State University.



Agricultural Partnerships: Successful Strategies Protect Central Ohio's Drinking Water



THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

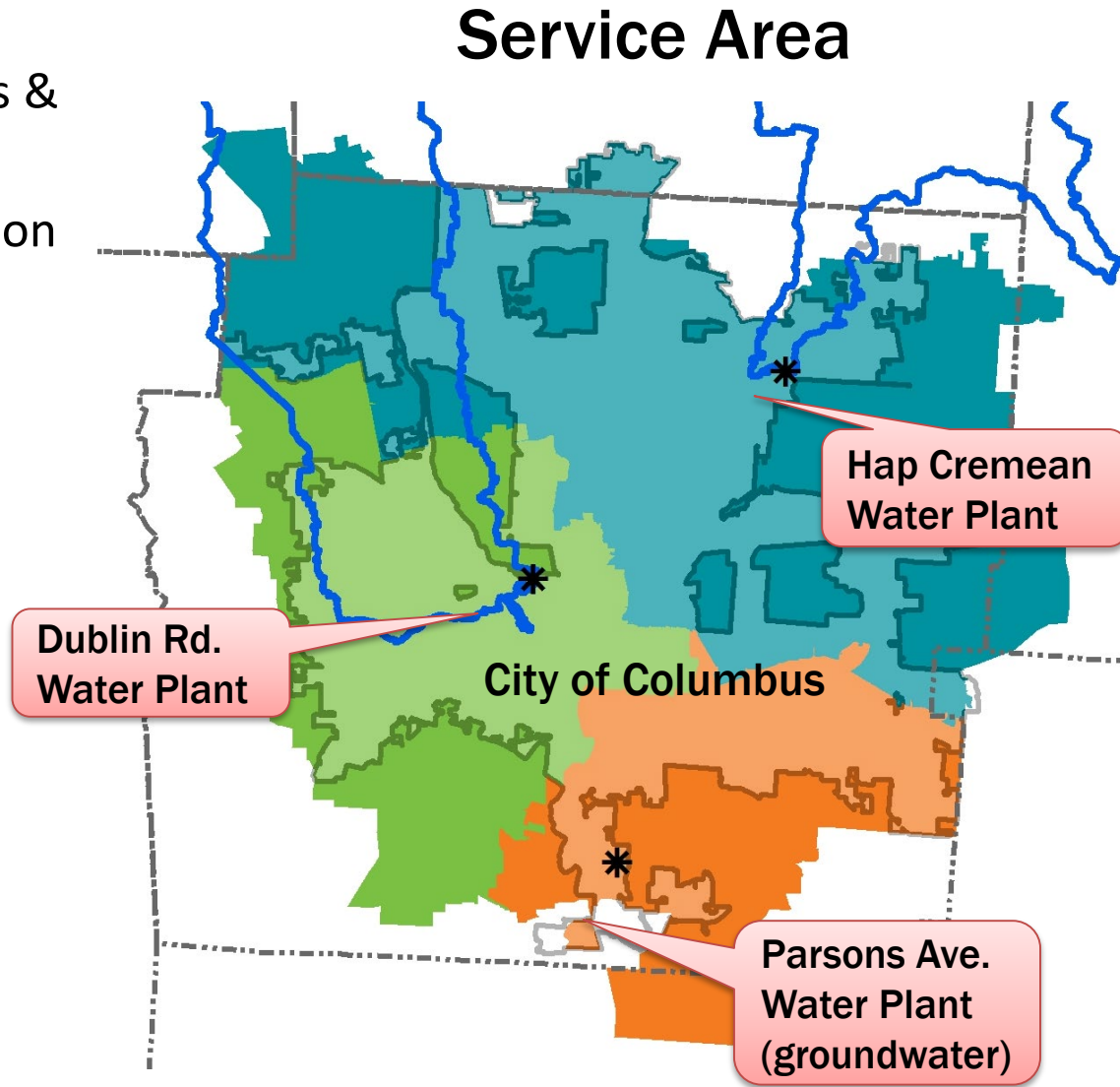
DEPARTMENT OF
PUBLIC UTILITIES

Lorraine W. Krzyzewski, Watershed Manager
Columbus Division of Water

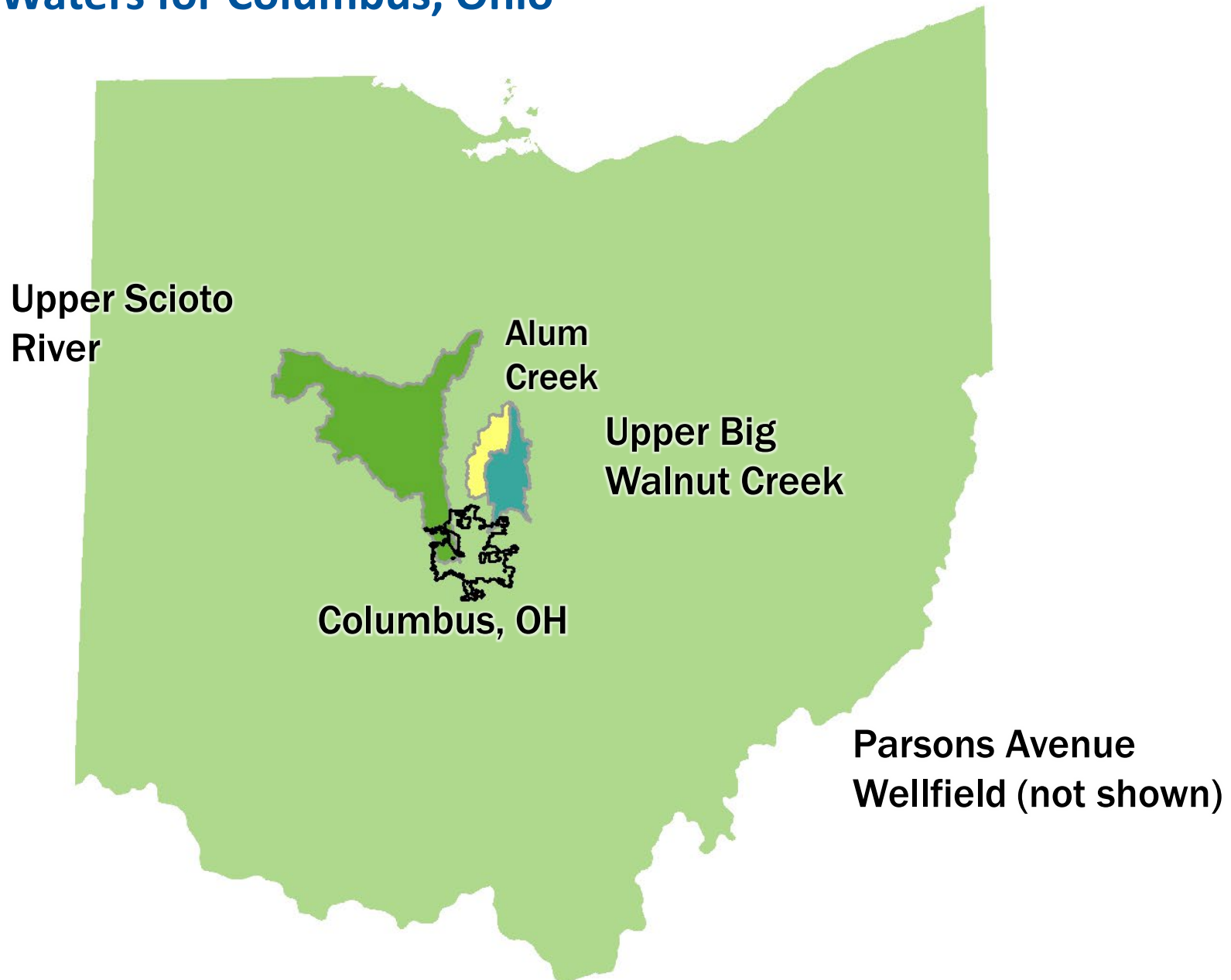
Prepared for North Central Region Water Network Webinar
August 21, 2019

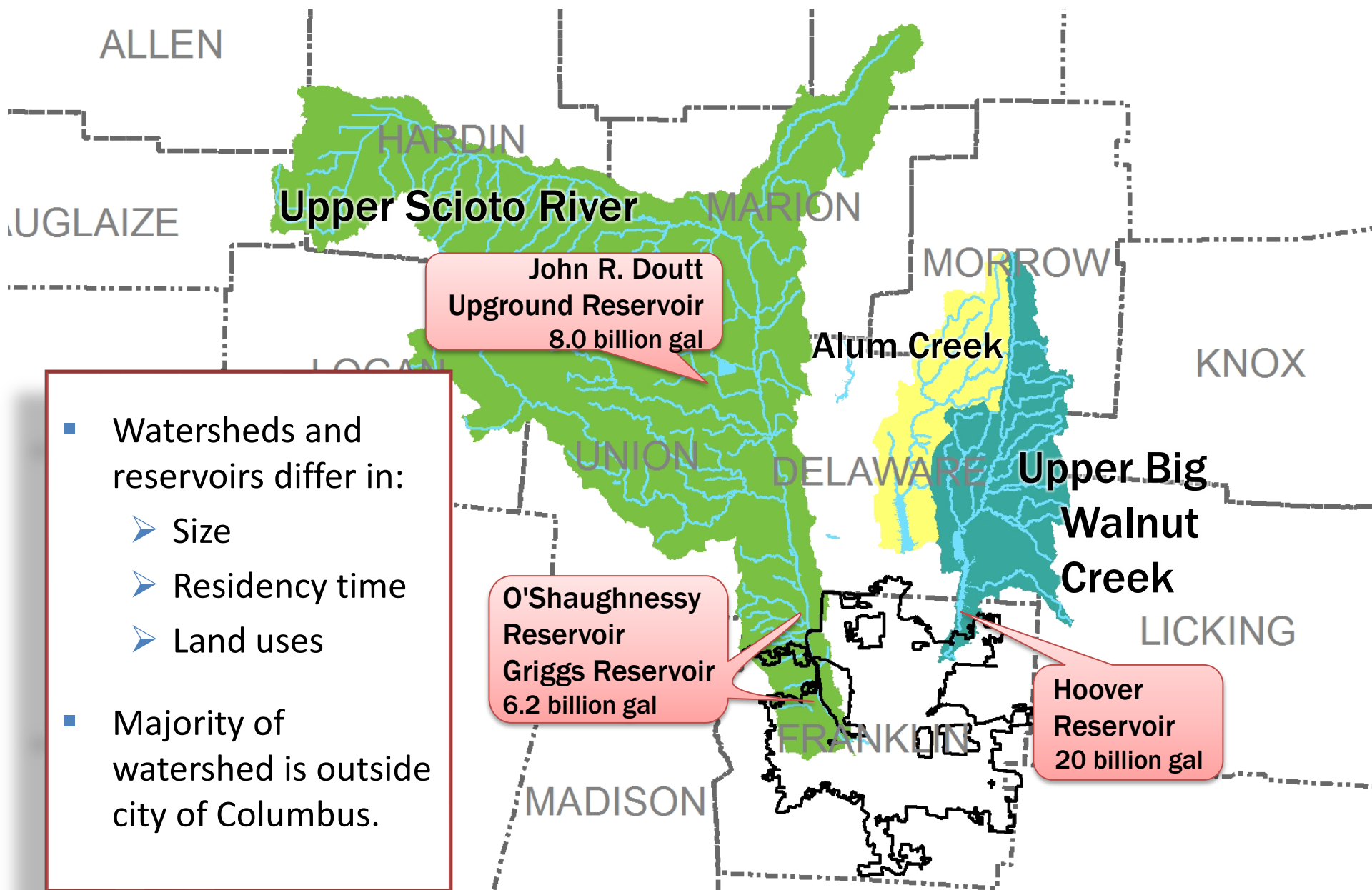
City of Columbus Division of Water

- Clean, safe, reliable drinking water to residents, businesses & industry
- Service population of 1.2 million in Greater Columbus Area
- 48.8 billion gallons in 2018
- 133.7 million gallons/day
- 3 water treatment plants

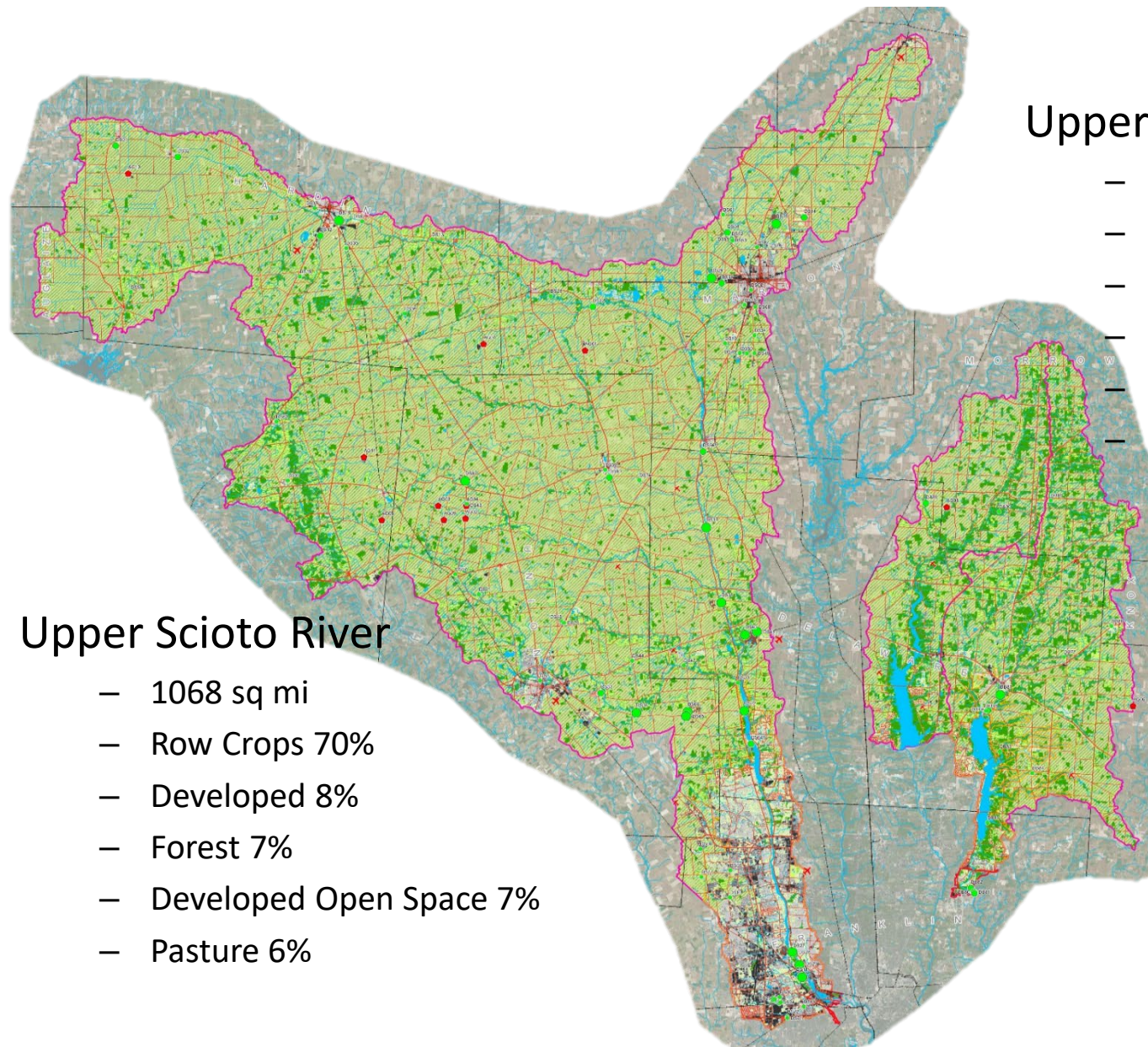


Source Waters for Columbus, Ohio





Watershed Land Use Influences:



Upper Scioto River

- 1068 sq mi
- Row Crops 70%
- Developed 8%
- Forest 7%
- Developed Open Space 7%
- Pasture 6%

Upper Big Walnut Creek

- 195 sq mi
- Row Crops 47%
- Forest 25%
- Hay/Pasture 13%
- Developed Open Space 8%
- Developed 3%

NLCD 2011 Land Cover Classifications

- Developed, High Intensity
- Developed, Medium Intensity
- Developed, Low Intensity
- Developed, Open Space
- Barren Land
- Cultivated Crops
- Hay/Pasture
- Herbaceous
- Evergreen Forest
- Deciduous Forest
- Mixed Forest
- Shrub/Scrub
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Open Water

Recent Challenges to Reservoir Health and Source Water Quality:

Nitrogen/Phosphorus

- Nitrate advisories issued in 2015 and 2016
- Excess algae growth
 - taste & odor complaints
 - microcystin detected in raw water

Sediment/Erosion

- Reduced reservoir volume



Nitrate Drinking Water Advisory for
Certain Populations in the Columbus
Dublin Road Water Plant Service Area
Cols Dept. of Public Utilities, 2016 News Release



NITRATE ADVISORY AREA

Columbus issues nitrate water
advisory— OSU Lantern

City of Columbus issues nitrate warning
for tap water— Columbus Dispatch

Nitrate Levels Increase At Dublin
Water Plant — 10TV.com

BLAIR

THE COLUMBIAN DISPATCH
COLUMBIANONLINE.COM

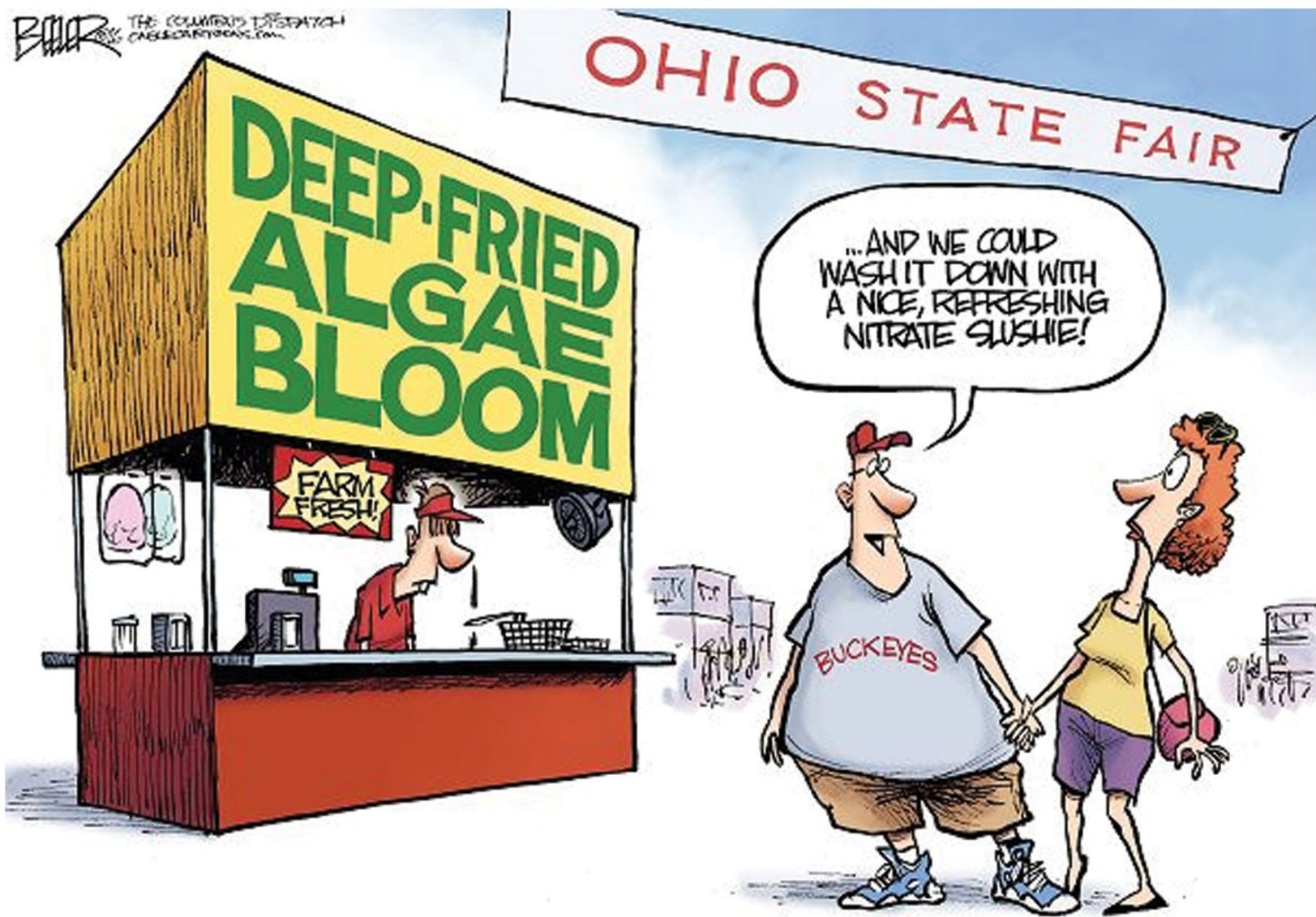
OHIO STATE FAIR

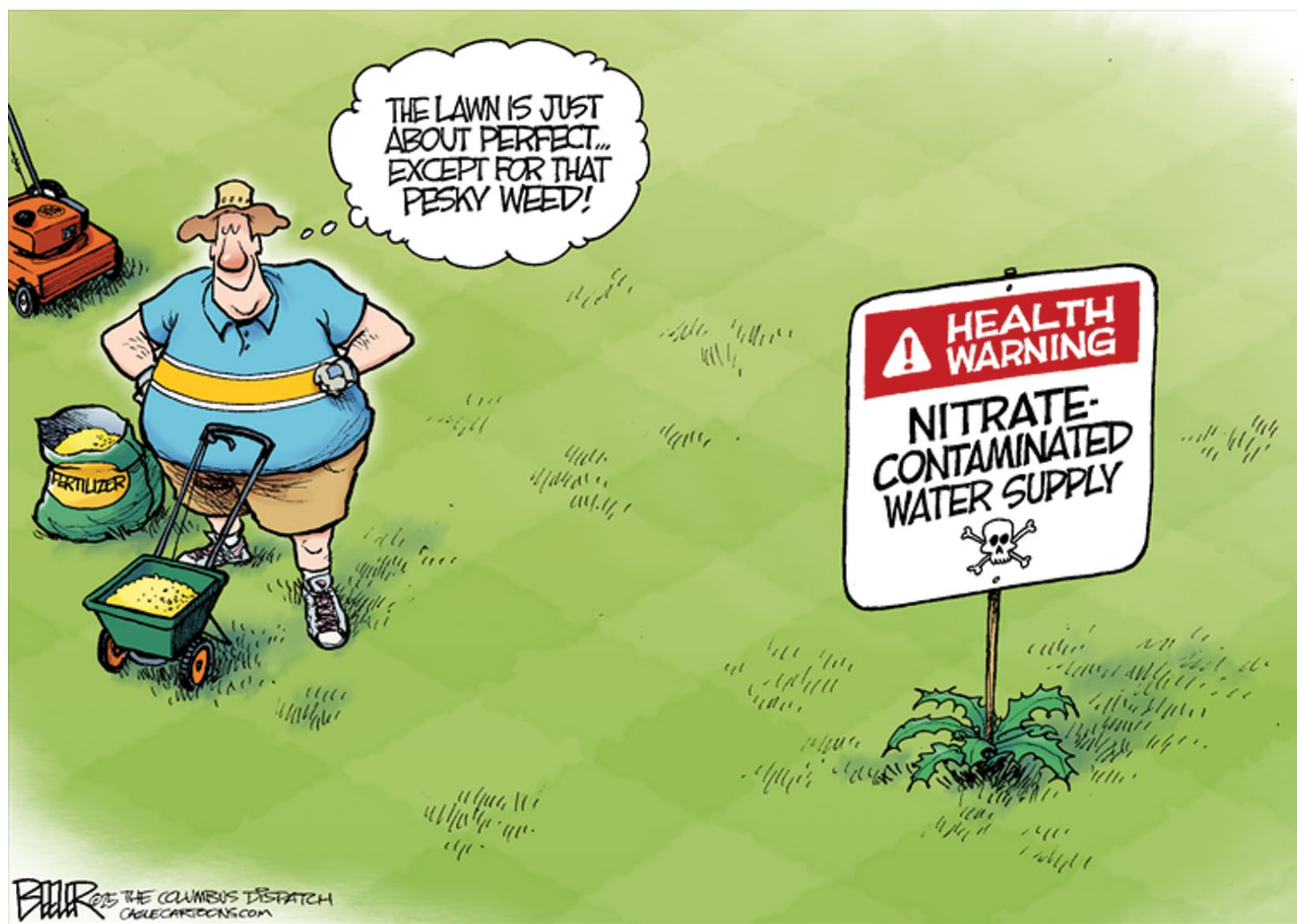
DEEP-FRIED
ALGAE
BLOOM

FARM
FRESH!

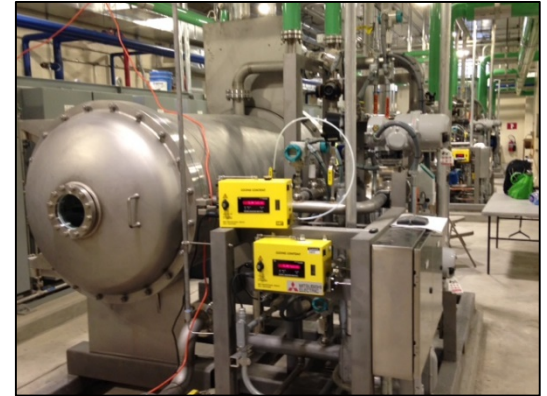
...AND WE COULD
WASH IT DOWN WITH
A NICE, REFRESHING
NITRATE SLUSHIE!

BUCKEYES





Combining Approaches to Address the Challenges



Technology-Enhanced Treatment at Water Plants



Watershed-Focused Protection



Routine and Real-time Source Water Monitoring

Primary Goals of Water Treatment:

- Kill disease causing organisms
- Remove unwanted chemicals
- Remove sediment
- Produce water that has a pleasant appearance and taste
- Meet USEPA Drinking Water Regulations and Ohio EPA (OEPA) Drinking Water Rules

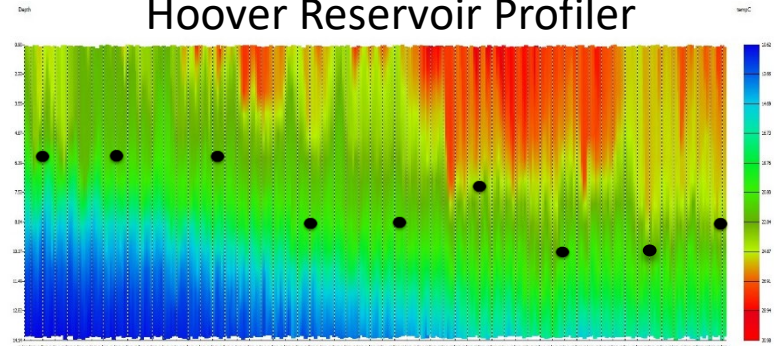


Research and Source Water Monitoring at the DOW- Water Quality Assurance Lab (WQAL)

- EPA certified lab for drinking water compliance testing
- Watershed/treatment/distribution monitoring
- Four sections (Micro, WQR, WTR, Special Projects)
- Types of monitoring techniques
 - Remote Monitoring
 - Grab Sampling
 - Limnology

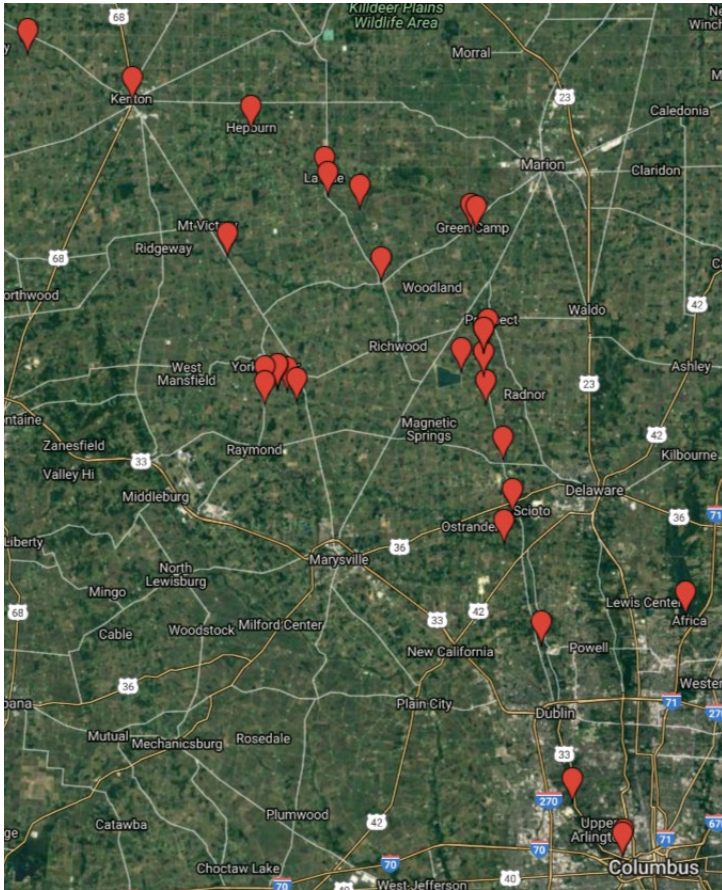


Hoover Reservoir Profiler

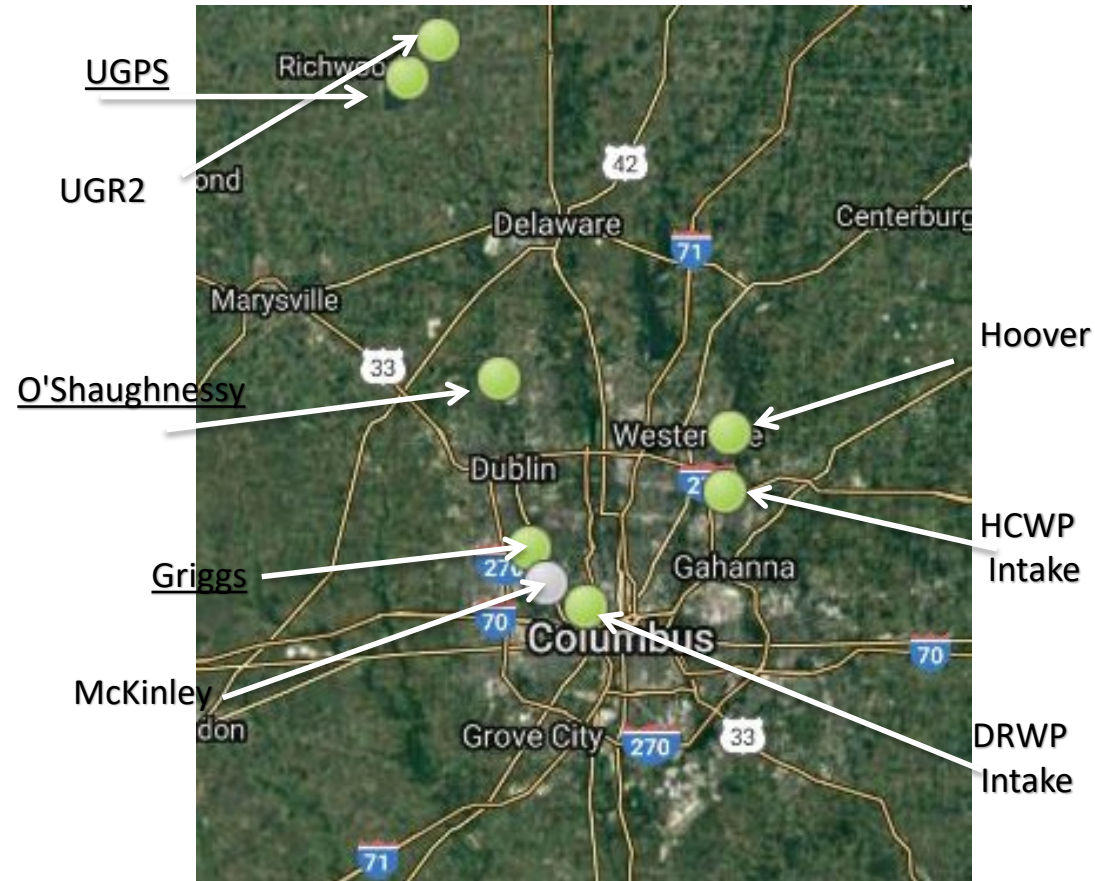


- Calculated Thermocline

Monthly Sampling Locations



Remote Water Quality Monitoring Stations



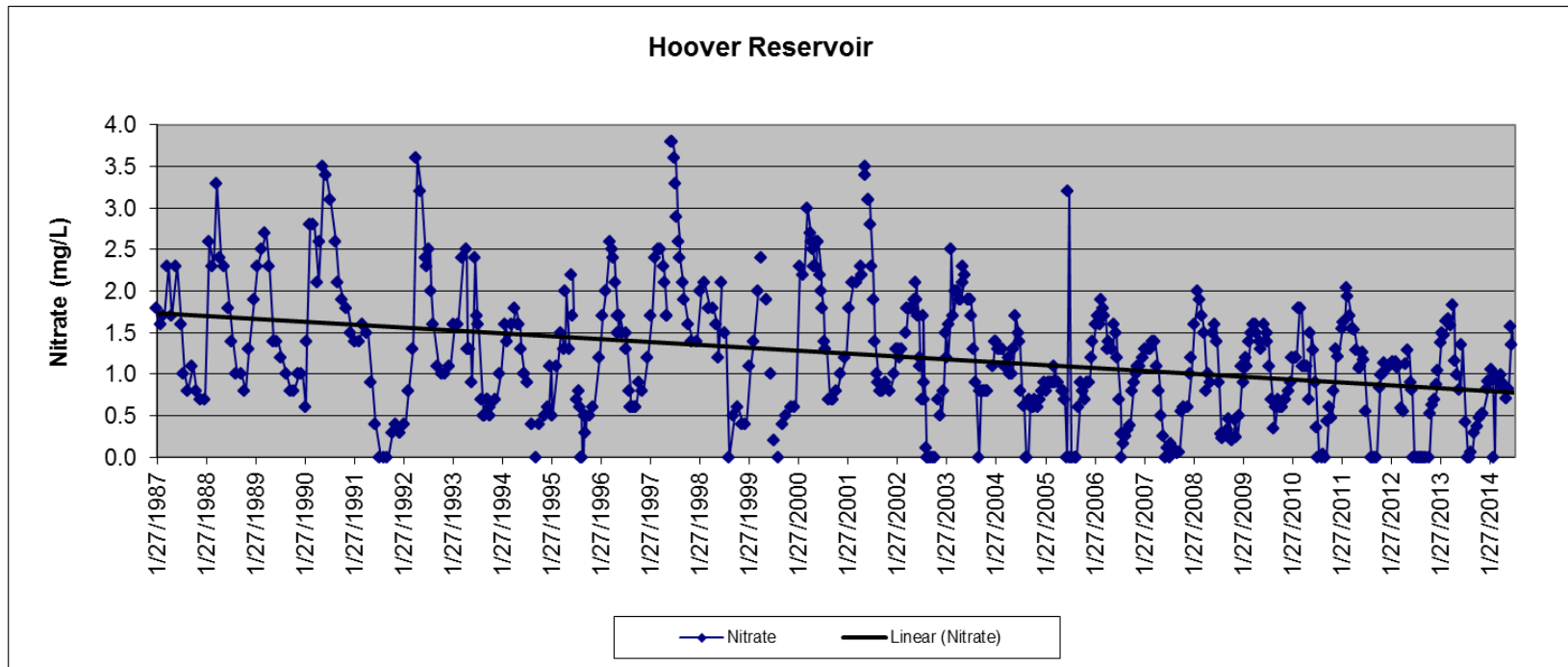
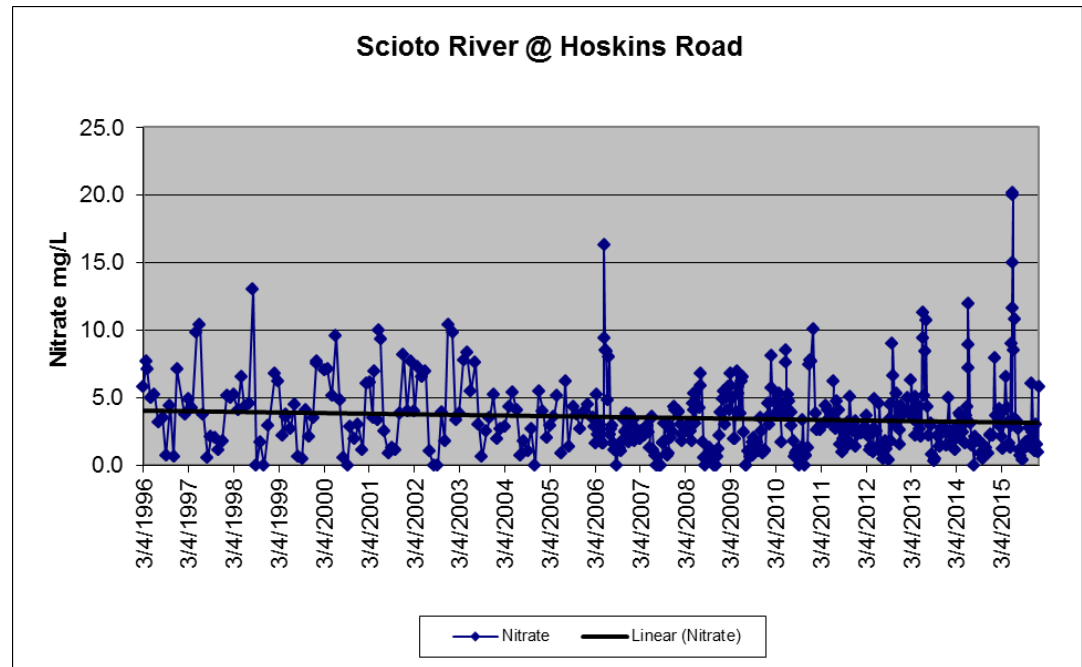
Importance:
administrators

Advanced warning of potential issues and trends
Valuable insight for plant operators, lab, and

avoid/minimize problems

“Heads-up” for operational changes to

Watershed Nitrate Trends:



DRIVERS	OPPORTUNITIES
Changes in Drinking Water Treatment and Regulations	Installation and Operation is Expensive, Source Water Protection Reduces Costs
Harmful Algal Bloom Monitoring, Taste & Odor Concerns in Finished Water	Increased Public Awareness of Water Quality Drivers and Sense of Urgency
Watershed Development & Increases In Impervious Surfaces	Regulatory Drivers to Reduce Runoff May Present Mitigation Options
Climate Change and Precipitation	Awareness of Need for Long-Term Planning and Holistic Solutions
“One Watershed”, Focused Approach to Managing Water Quality	Systems Thinking Encourages Regional Approaches and Collaborative Solutions

Working in the Watershed

Since 1996, the City has worked to provide financial and in-kind support to fund BMP's and education in our watersheds:



Programs:

- Upper Big Walnut and Scioto Conservation Reserve Enhancement Programs (CREP)
- Several Environmental Quality Incentive Programs (EQIP)
- Data sharing to support research and research grants
- Current partner in Resource Conservation Partnership Program (RCPP) with Delaware Soil & Water and OSU (Bioreactor and BMP Education)
- Conservation easement and land purchases (Clean Ohio and WRRSP)
- Building Capacity for Watershed Leadership Project
- Utility Participation in State/Regional Boards

Partners:

Local farmers, Franklin & Delaware SWCD's, OSU, NRCS, ODA, ODNR

Benefits of Utility & Agriculture Collaborations

Resource Sustainability

Cost-sharing and Grant Eligibility

Shared Water Quality
Monitoring Data

Historical Data to Inform
Decisions

Education Across the Table

Build Trust and Mutual Support



Leaders of USDA, ODNr, ODA, and City of Columbus announce CREP award.



Field days with the Delaware SWCD and ARS showcase edge of field monitoring.

Contact:

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Columbus Division of Water, Watershed Management
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Westerville, OH 43081

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Michael Kuntz



Mike is currently serving as Utilities Environmental Manager for the City of Cedar Rapids, Iowa. Mike has a B.A. in Biology from Coe College and several State of Iowa Operators licenses. He has a Grade 4 Voluntary Collection System, Grade 2 Wastewater and Grade 1 Water Treatment and Distribution license.

Mike began his career as a Lab Analyst at Cedar Rapids Water Pollution Control Facility in 1988 and worked in the lab for 11 years. He then became Industrial Pretreatment Coordinator, responsible for writing and enforcing wastewater discharge permits for 30 Industrial Users. Mike served in this role for 7 years and then took a position with Cedar Rapids Public Works Department as Sewer Superintendent, where he led a team of 23 people responsible for cleaning, inspecting, maintaining and constructing sanitary and storm sewers.



One Water Partnership: MCP

(Middle Cedar Partnership Program)

Wednesday, August 21, 2019

Presented by:

Mike Kuntz

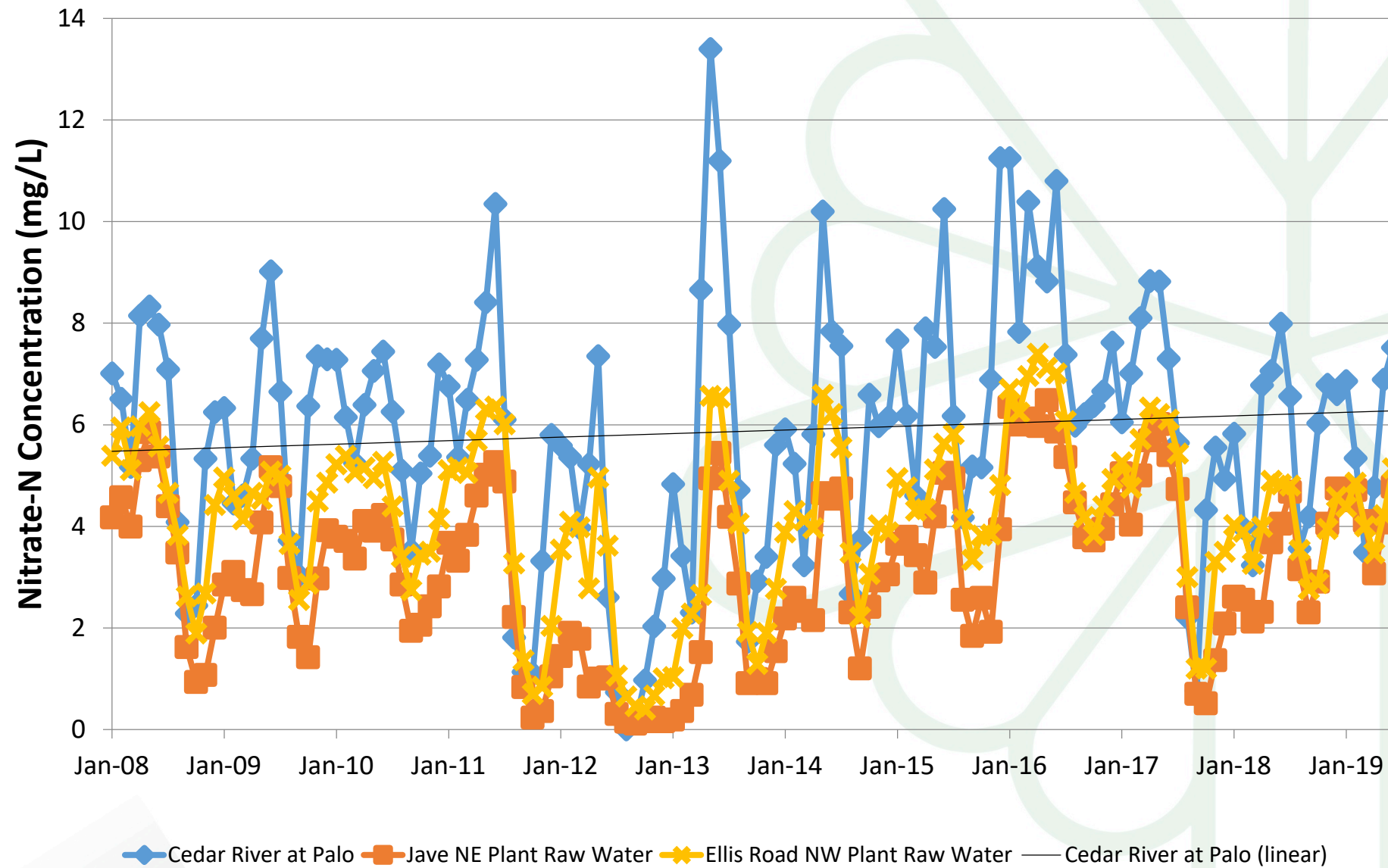
Utilities Environmental Manager

Mikek2@cedar-rapids.org

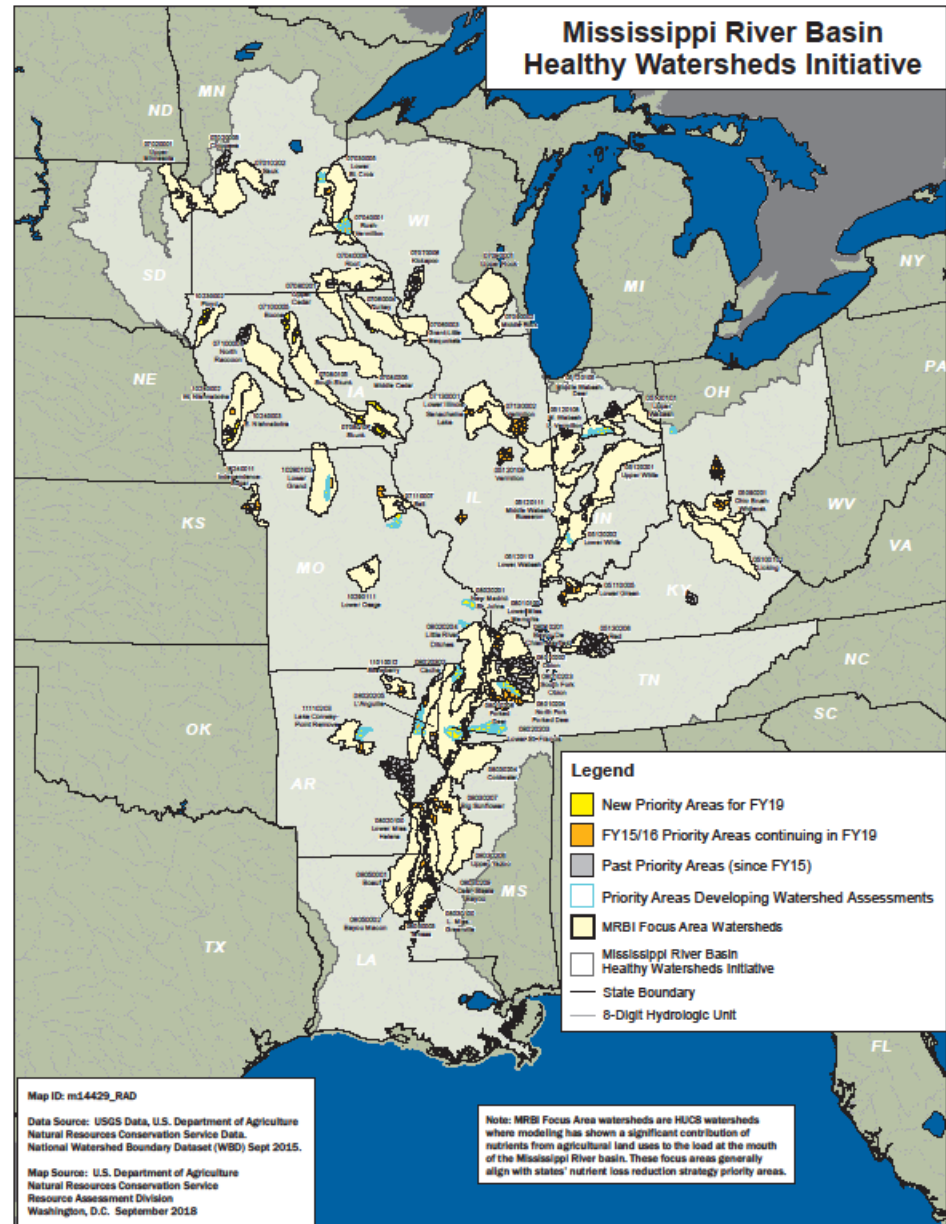




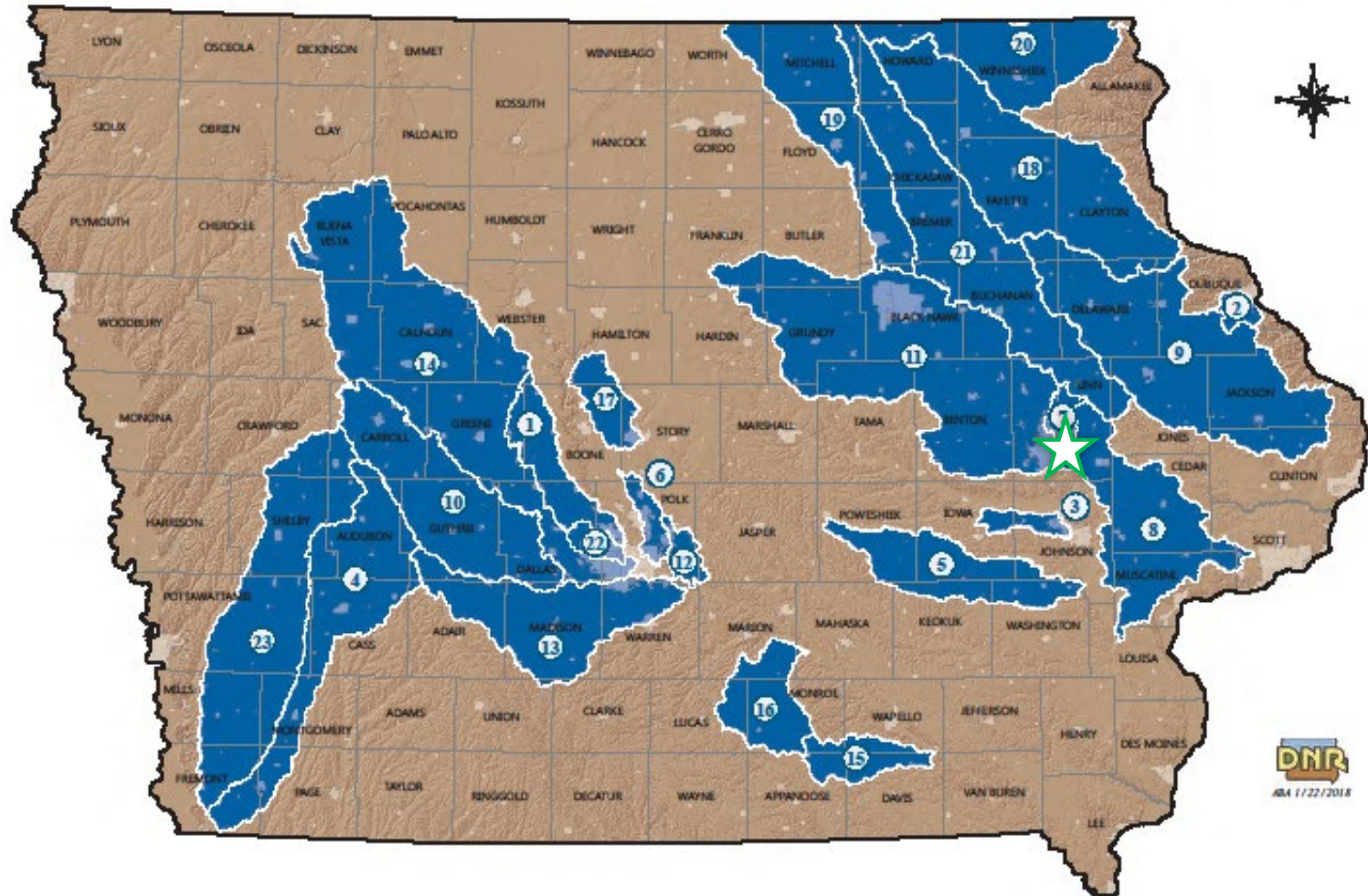
Cedar River at Palo and Raw Water Monthly Average Nitrate Comparison



Watershed-scale Thinking & Action

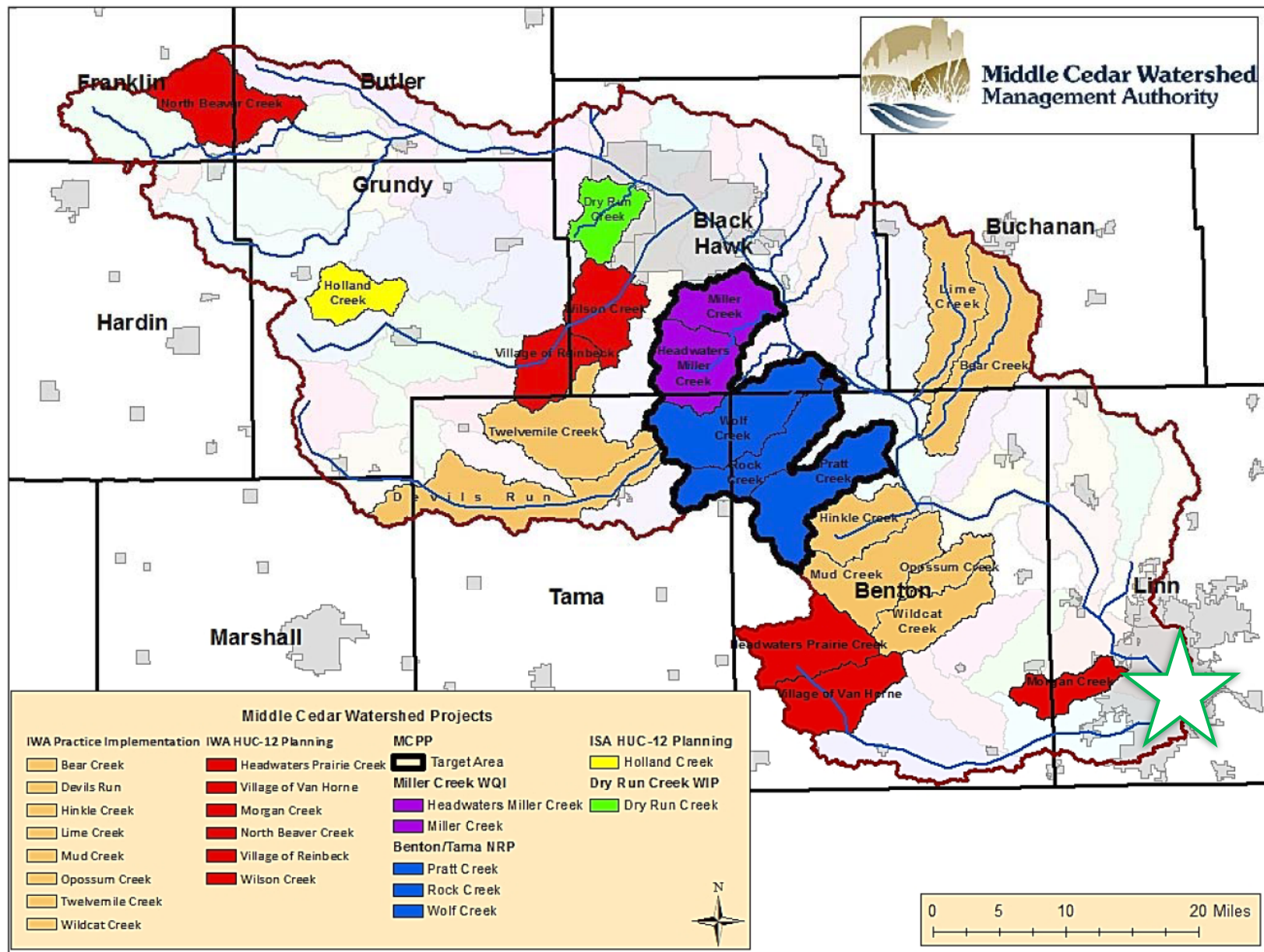


Iowa's Watershed Management Authorities

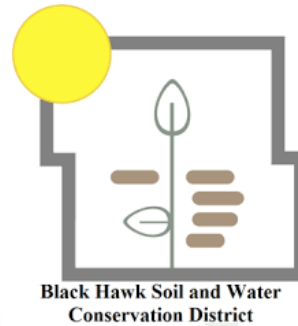


- | | | | |
|---|--|--|--|
| 1. Beaver Creek WMA | 7. Indian Creek WMA | 13. North & Middle Rivers WMA | 19. Upper Cedar River WMA |
| 2. Catfish Creek WMA | 8. Lower Cedar WMA | 14. North Raccoon River Watershed Management Coalition | 20. Upper Iowa WMA |
| 3. Clear Creek Watershed Coalition | 9. Maquoketa River WMA | 15. Soap Creek Watershed Board | 21. Upper Wapsipinicon River WMA |
| 4. East Nishnabotna Watershed Coalition | 10. Middle-South Raccoon WMA | 16. South Central Iowa Cedar Creek WMA | 22. Walnut Creek WMA |
| 5. English River WMA | 11. Middle Cedar WMA | 17. Squaw Creek WMA | 23. West Nishnabotna Watershed Coalition |
| 6. Fourmile Creek WMA | 12. Mud Creek, Spring Creek & Camp Creek WMA | 18. Turkey River WMA | |





Middle Cedar Partnership Project (MCPP)



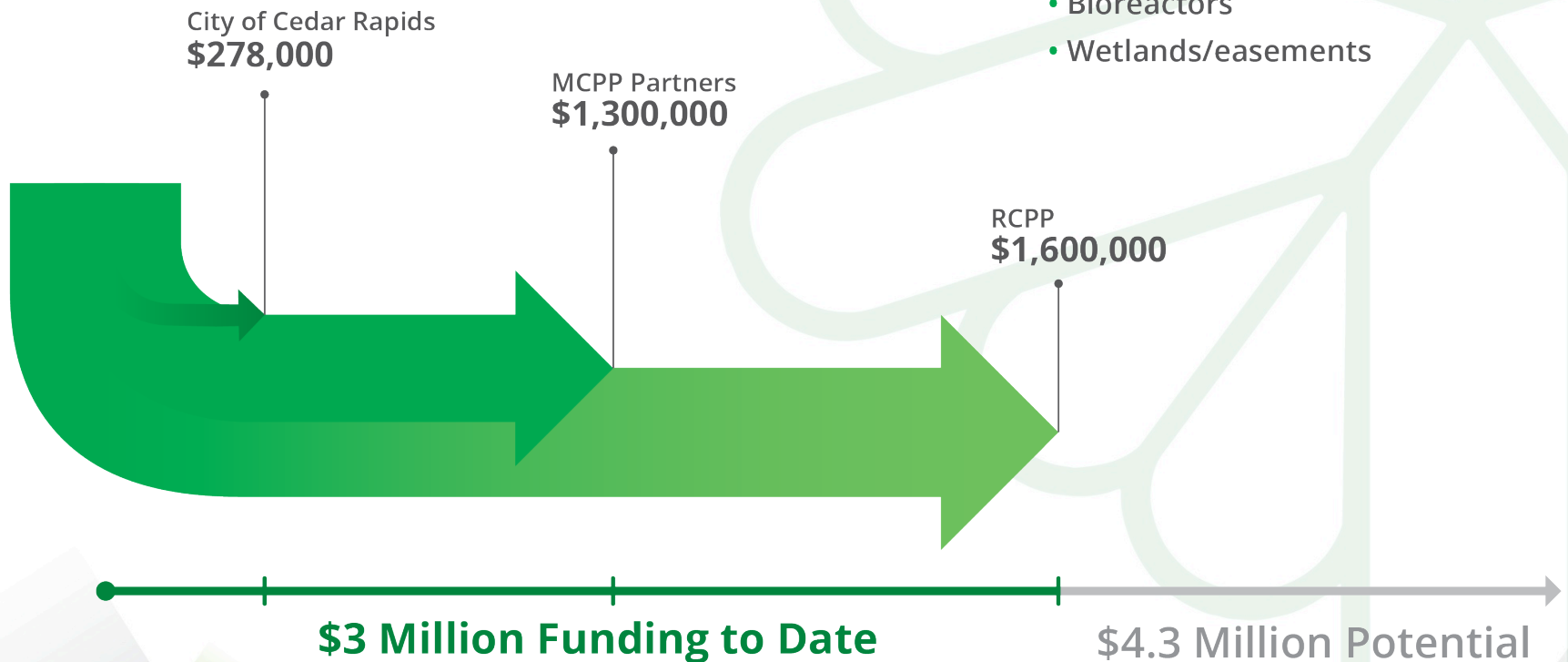
IOWA STATE UNIVERSITY
Extension and Outreach



Middle Cedar Partnership Project (MCPP)

Practices Implemented

- Nutrient management
- Cover crops
- Saturated buffers
- Bioreactors
- Wetlands/easements



Implementation

- Nutrient management
- Cover crops
- Saturated buffers
- Bioreactors
- Wetlands/easements



PRACTICE Implementation

To date, the MCPP has entered into **54 contracts** with farmers and landowners to implement soil and water conservation practices. The total USDA **funding obligated to these contracts is \$1,432,927.**

The **total acres implementing practices are 24,000** or approximately **18% of the row crop acres in the targeted watersheds.**

PRACTICES

TOTAL IMPLEMENTED FY15–FY18

Nutrient Management

357 acres

Cover Crops

17,382 acres

No-Till

800 acres

Strip-Till

210 acres

Bioreactors

2 bioreactors

Saturated Buffers

5 saturated buffers

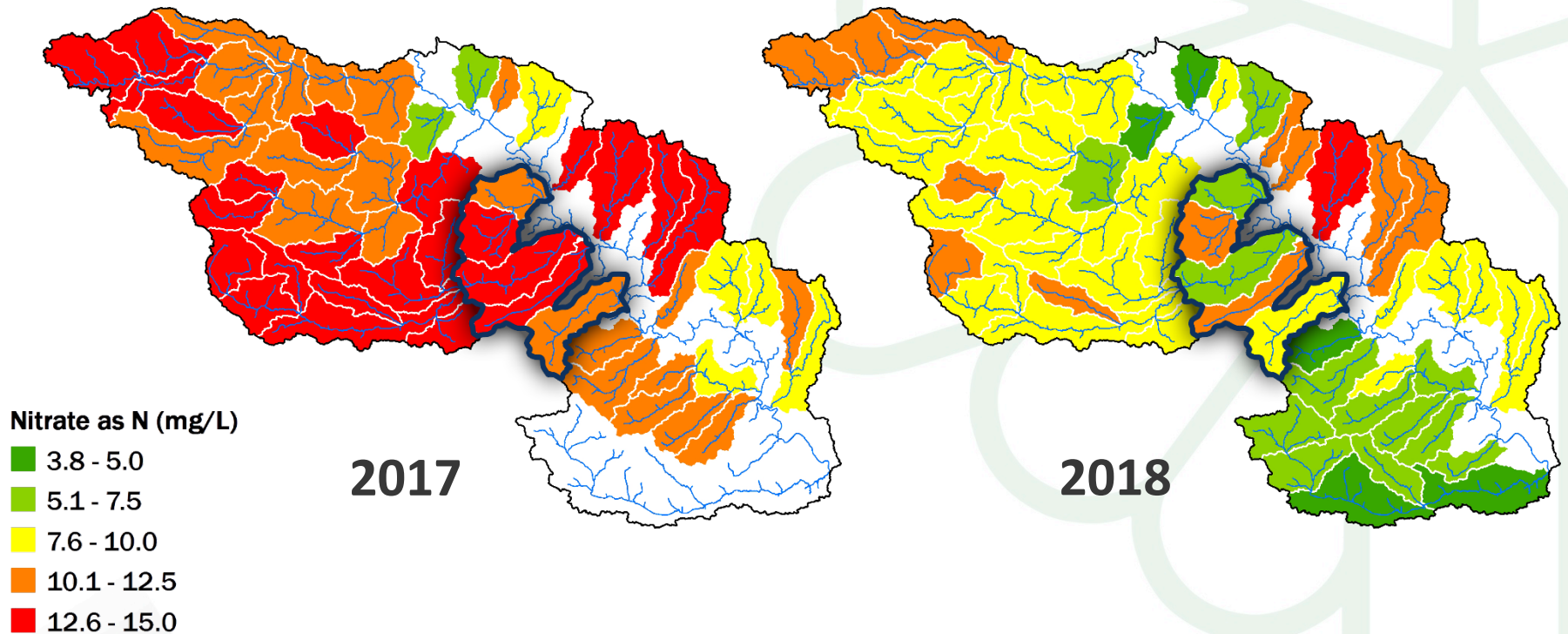
Third Party Projects

(various ~ 5,445 acres)



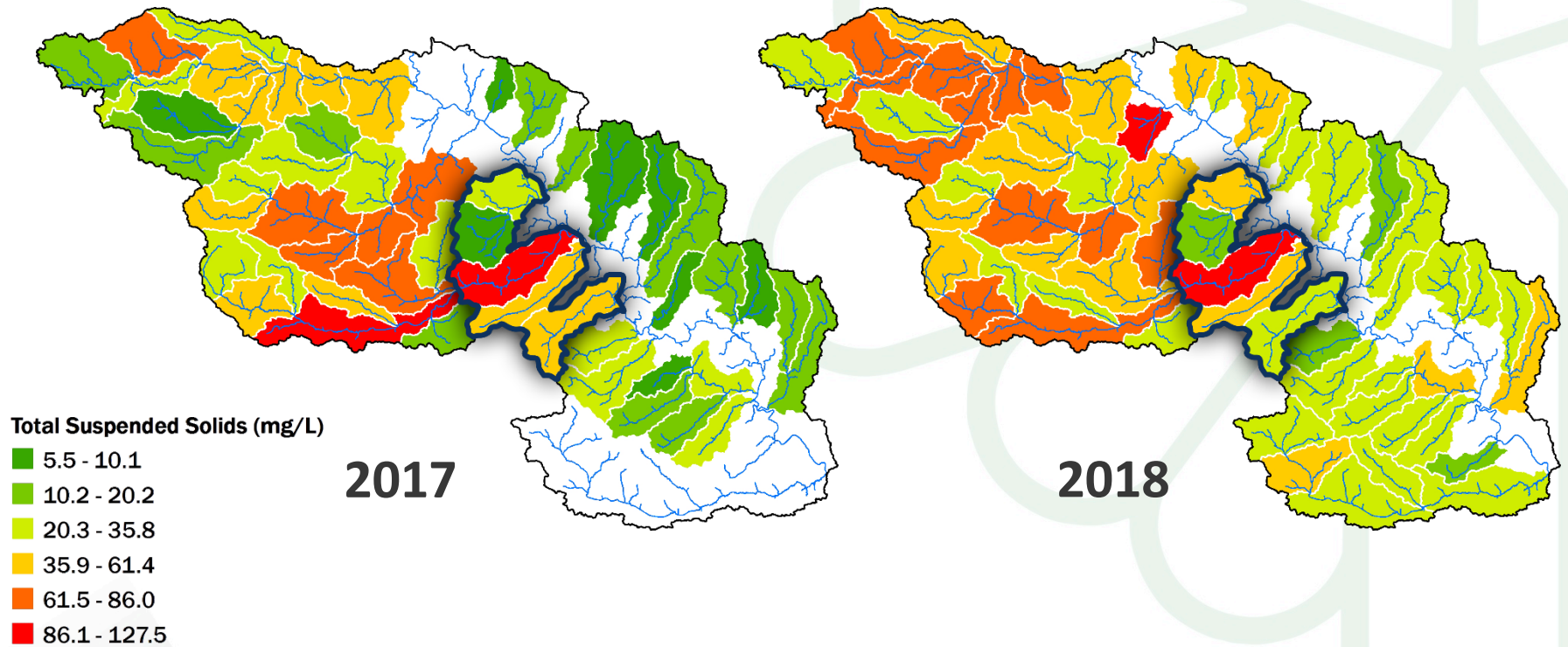
Middle Cedar Partnership Project (MCPP)

Nitrate as N



Middle Cedar Partnership Project (MCPP)

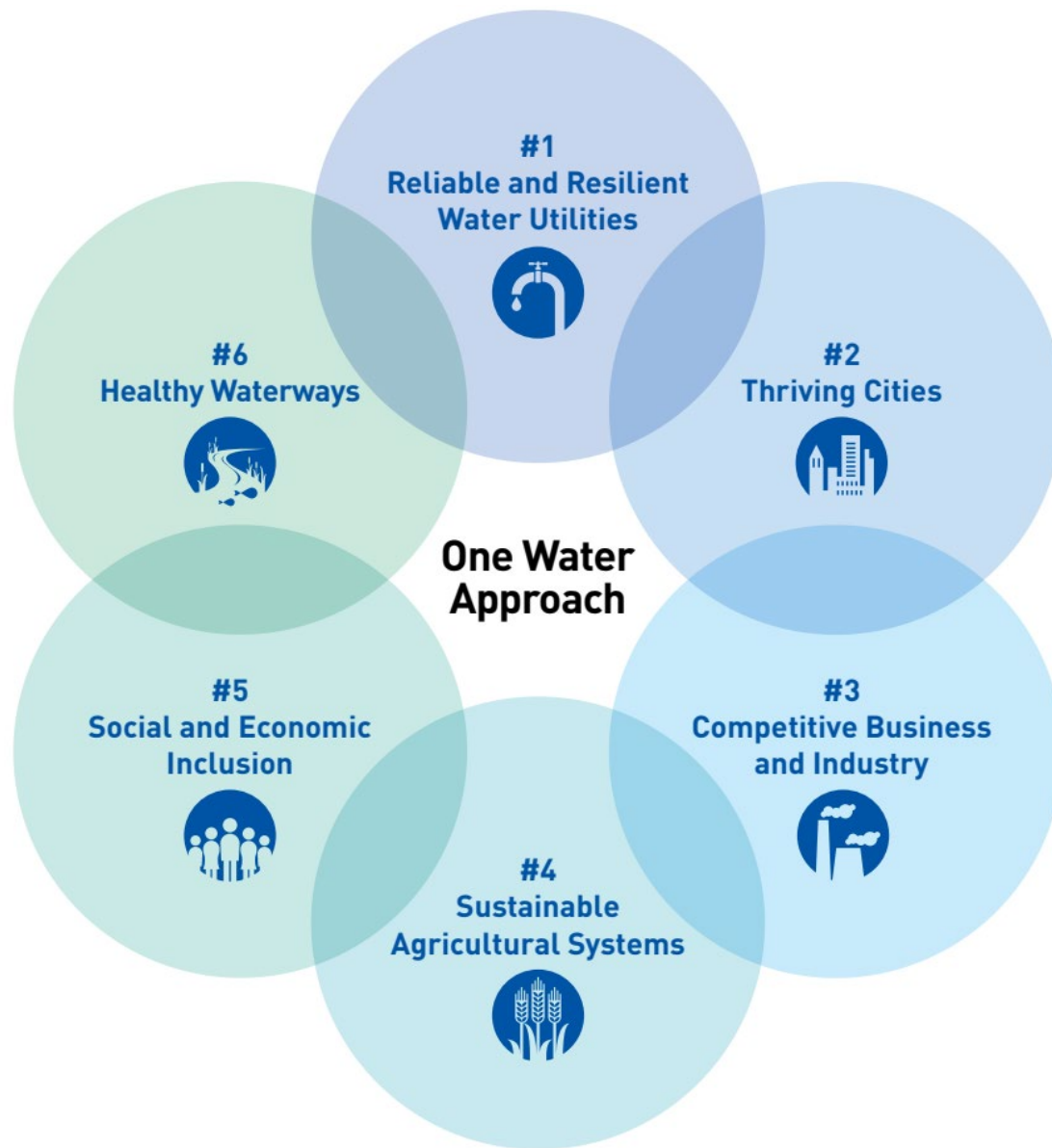
Sediment



Within Cedar Rapids

- Stormwater Master Plan
- Watershed Perspective
- Cedar River Flood Control System





Multiple Benefits

- Flood resiliency
- Water quality
- Economic vibrancy
- Collaboration
- Contributions from non-profits & foundations
- Sustainable future



Questions?

Presented by:

Mike Kuntz

Utilities Environmental Manager

Mikek2@cedar-rapids.org



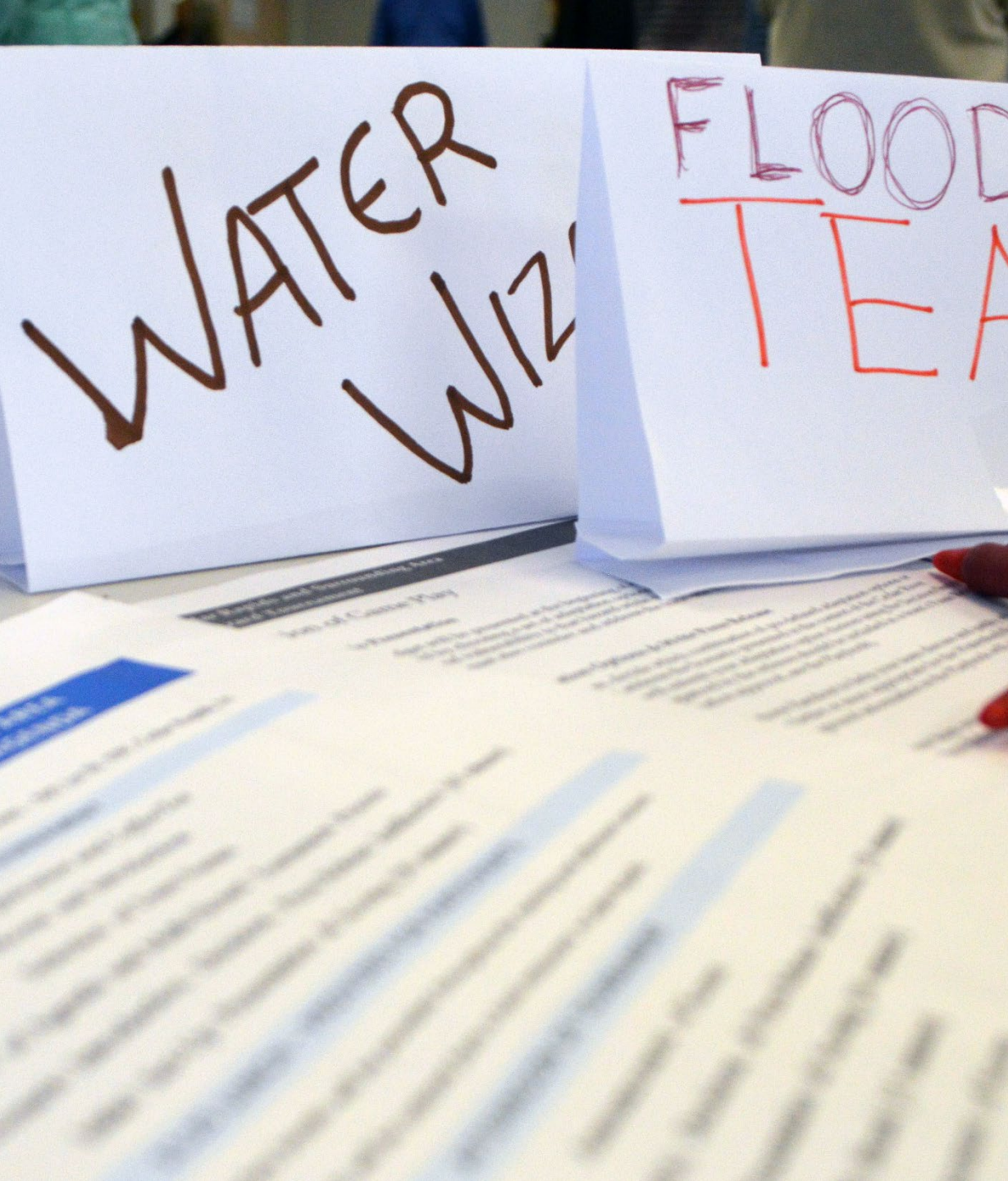


Deborah Bathke



Dr. Deborah Bathke is a Research Associate Professor in the School of Natural Resources at the University of Nebraska-Lincoln. She serves as the Education and Outreach Coordinator with the National Drought Mitigation Center and a U.S. Drought Monitor author. Her research interests include the development and evaluation of climate information and decision-support tools; public participation, education, and engagement in drought planning; and scenario planning and applied gaming for drought risk management.





Using Drought Scenario-Based Exercises to Help Communities Plan for Drought



Deborah Bathke, NDMC
August 21, 2019

NATIONAL DROUGHT MITIGATION CENTER



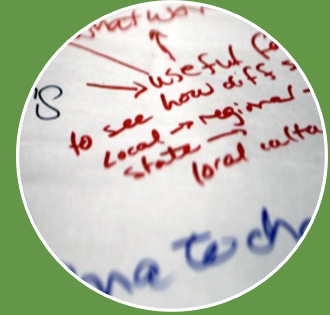
Planning

- Increases ability to cope



Monitoring

- Provides the foundation for proactive management



Communication & Education

- Helps translate science into practice



National Drought Mitigation Center

Mission is to help build drought resilience

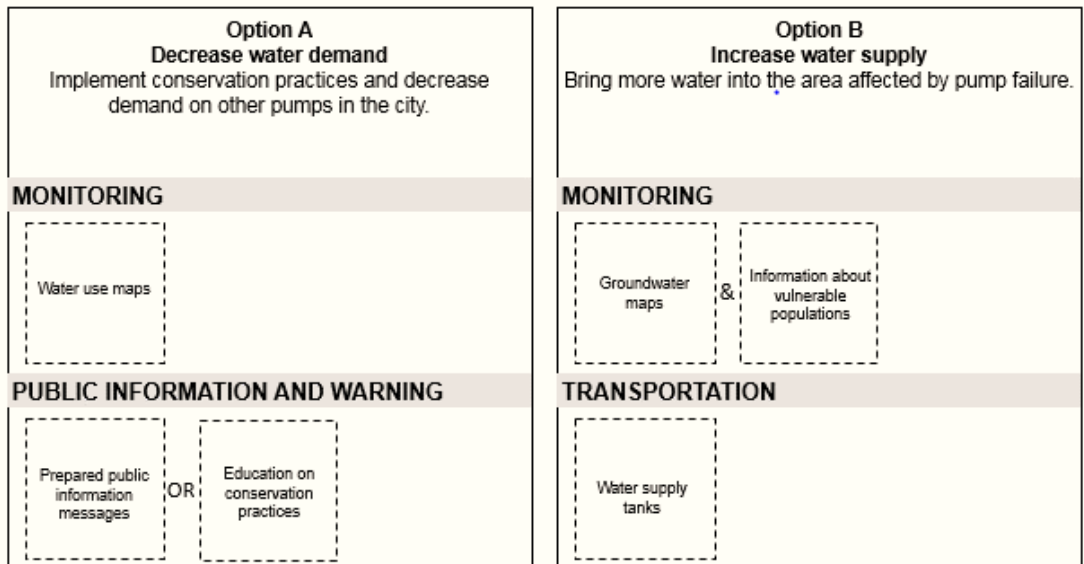
What are scenario exercises?

Activities used to plan & manage a hypothetical disaster

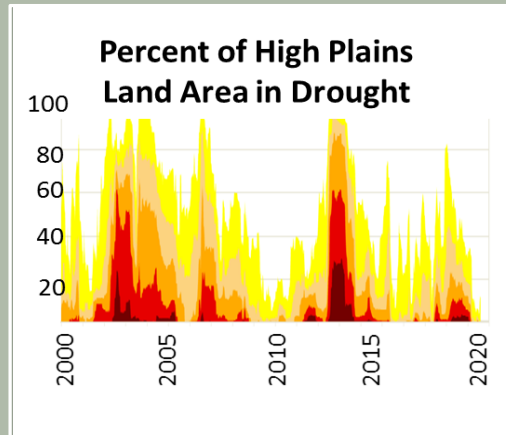


Bridgelynn

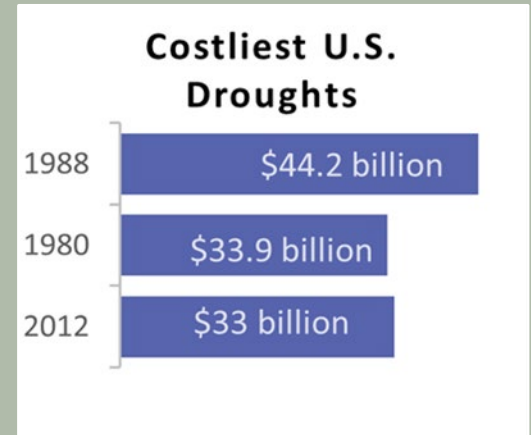
Challenge: During a drought, the demand for water is higher than usual. As the drought progresses, the water demand increases and leads to a pump failure in one of your municipal wells, which leads to a reduction of water supply to some communities. The pump repair will take 3 days. Ensure that people will have enough drinking water during those days.



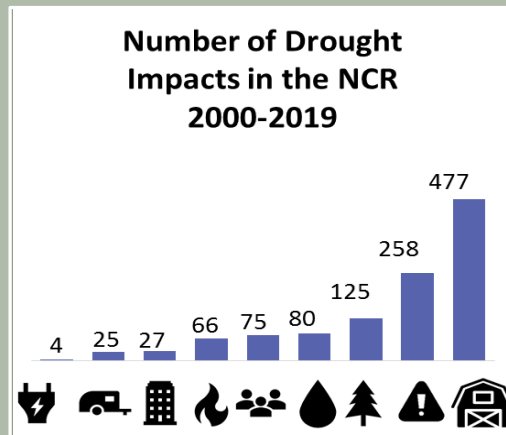
Why use a scenario exercise for drought?



Drought happens

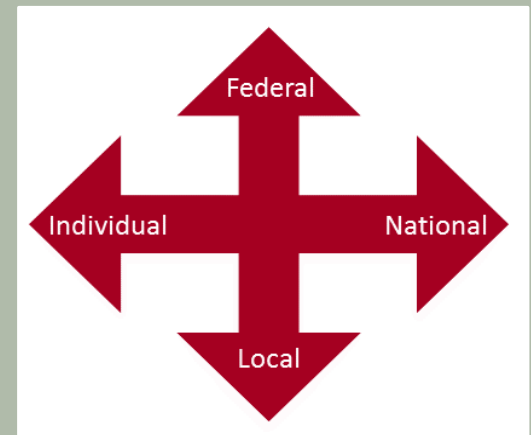


Drought is expensive



Drought affects everyone

NATIONAL DROUGHT MITIGATION CENTER



Planning is complex

Workshops



Collaborate to
create a product

Games



Compete to
achieve goals

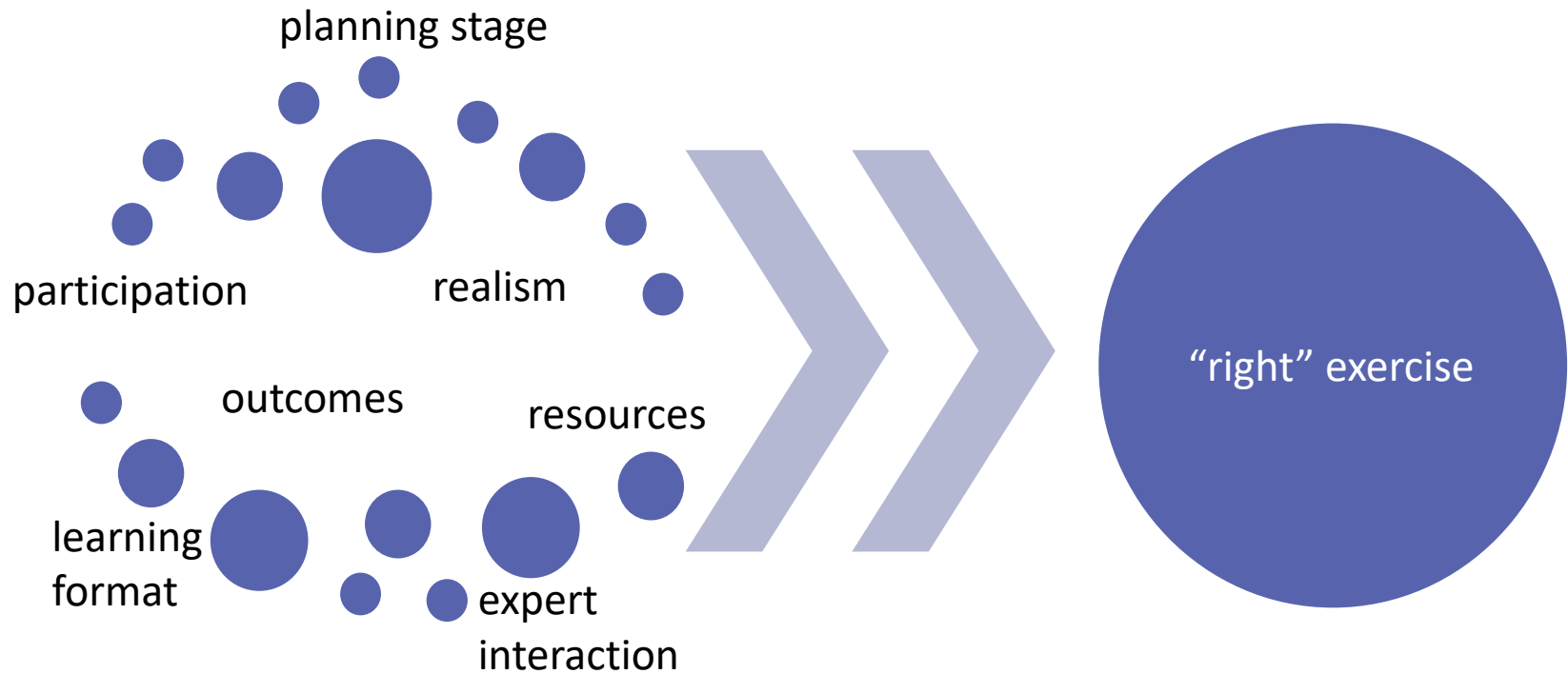
Tabletop Exercises



Discuss plan
implementation

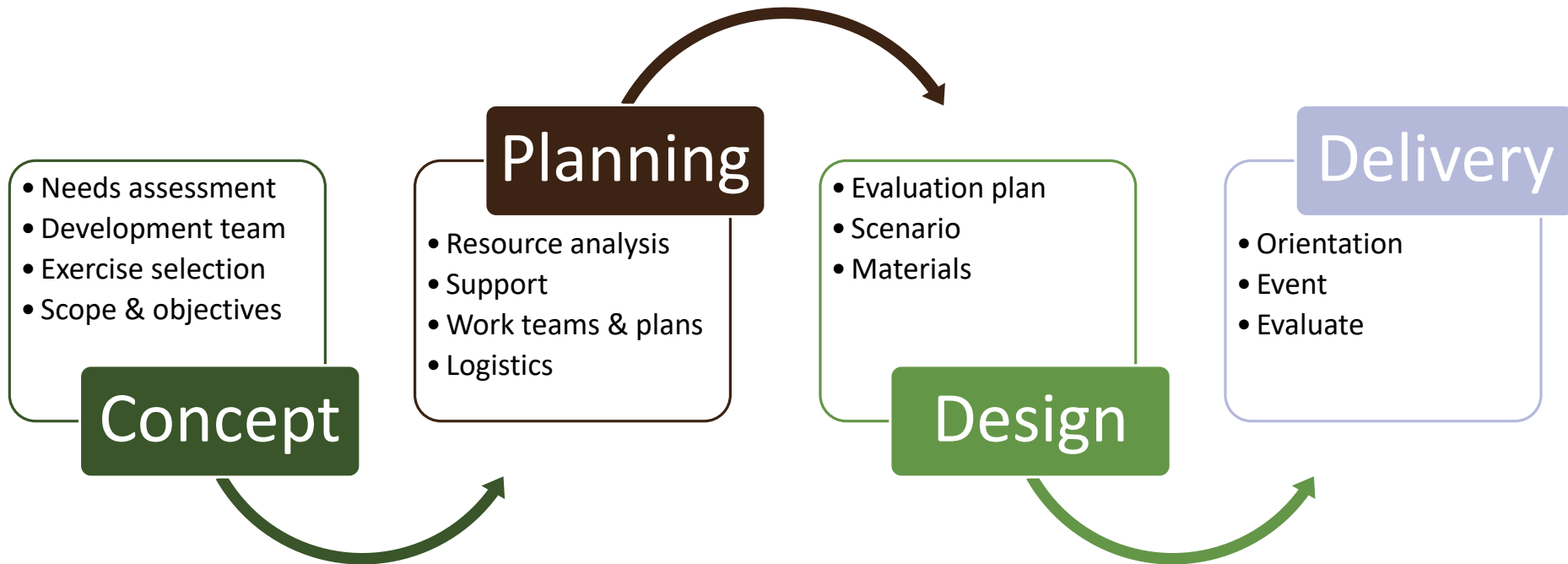
Types of exercises

Vary in approach, objectives, participants, & complexity



Selecting an exercise

Requires consideration of many factors



Developing an exercise

Requires a team and a time commitment

Available resource

2019

Drought Scenario-Based Exercises

A RESEARCH- AND EXPERIENCE-BASED REFERENCE DOCUMENT
DEBORAH BATHKE, TONYA HAIGH, TONYA BERNADT, AND NICOLE WALL

NATIONAL DROUGHT MITIGATION CENTER | University of Nebraska-Lincoln



NATIONAL DROUGHT
MITIGATION CENTER
UNIVERSITY OF NEBRASKA



2019

Drought Scenario-Based Exercises

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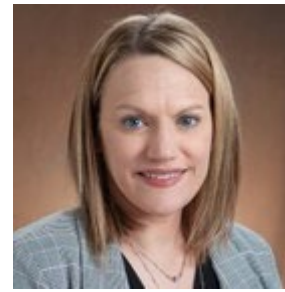
NCRWN Project

Interactive Extension guide for collaborative drought planning

NATIONAL DROUGHT MITIGATION CENTER



Mark Svoboda



Miranda Meehan



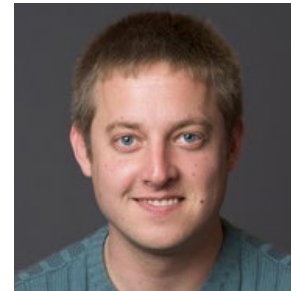
Tyler Williams



Laura Edwards



Peter Tomlinson



Hans Schmitz



Project Team - Extension
Others to participate in a workshop



DROUGHT.UNL.EDU

e | ndmc@unl.edu

f /NationalDroughtMitigationCenter

@droughtcenter

Questions? Want to participate?

Deborah Bathke

dbathke2@unl.edu





Question and Answer Session

We will draw initial questions and comments from those submitted via the chat box during the presentations.

Today's Speakers

Lorraine Winters Krzyzewski – lowinters@Columbus.gov

Michael Kuntz – mikek2@cedar-rapids.org

Deborah Bathke – dbathke2@unl.edu





NORTH CENTRAL REGION
WATER NETWORK



Thank you for participating in today's *The Current*!

Visit our website, northcentralwater.org, to access the recording and our webinar archive!

Upcoming Webinar

Adaptation Resources for Agriculture: A tool for assisting agriculture producers in adapting to climate variability and change

Monday, August 26th at 1pm CT

Register at <https://northcentralclimate.org/webinars/>

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