

Nitrate Pollution in Iowa A Water Utility Perspective

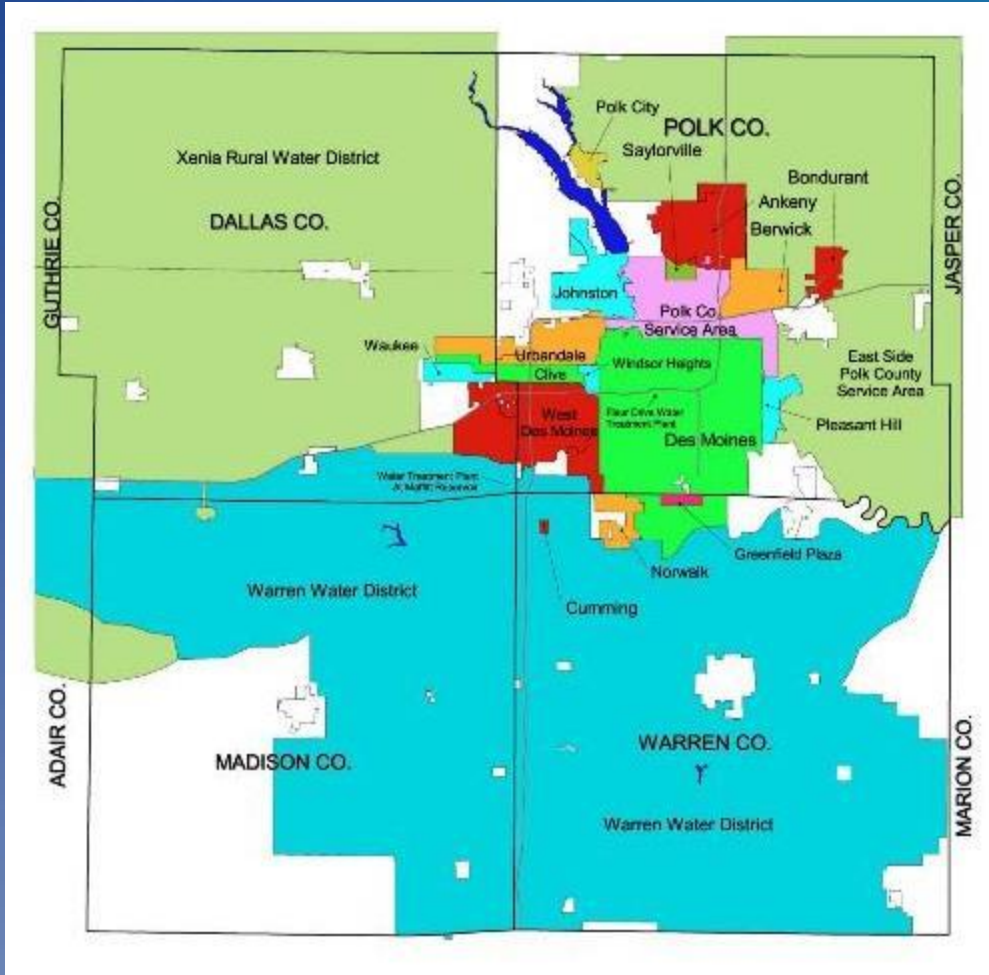
July 28, 2023

Izaak Walton League of America

Ted Corrigan, CEO & General Manager

Corrigan@dmww.com

DMWW Service Area

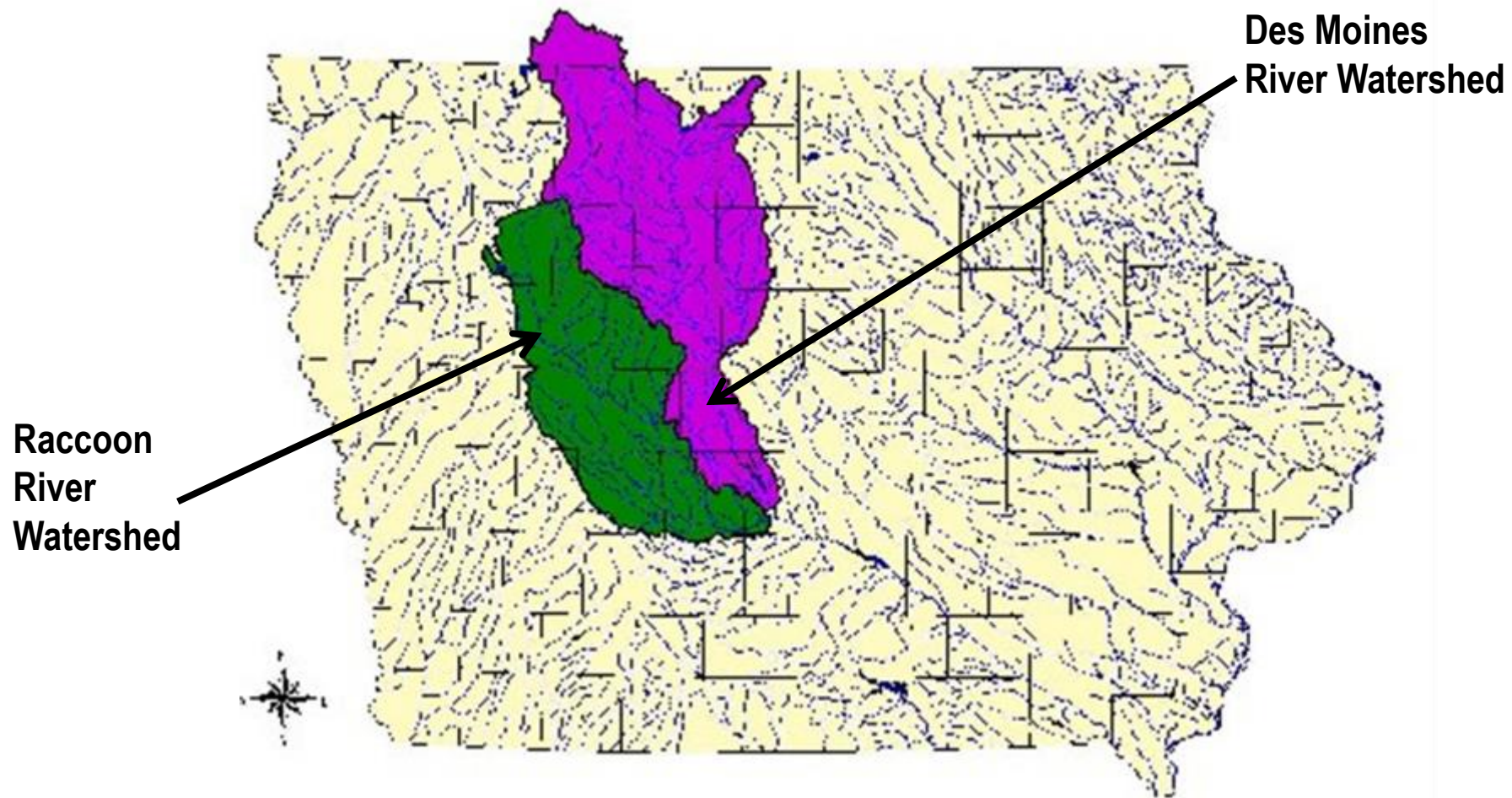


- Largest drinking water utility in Iowa
- 600,000 customers / one-fifth of Iowa's population
- Urban
- Suburban
- Rural
- Serves six of the 10 fastest-growing cities in Iowa

We are Unique.

- **Fleur Drive**
 - Infiltration Gallery
 - Raccoon River
 - Des Moines River
- **McMullen**
 - Raccoon River Alluvial Wells
 - Maffitt Reservoir
 - Off River Storage
- **Saylorville**
 - Des Moines River Alluvial Wells

DMWW Source Watersheds



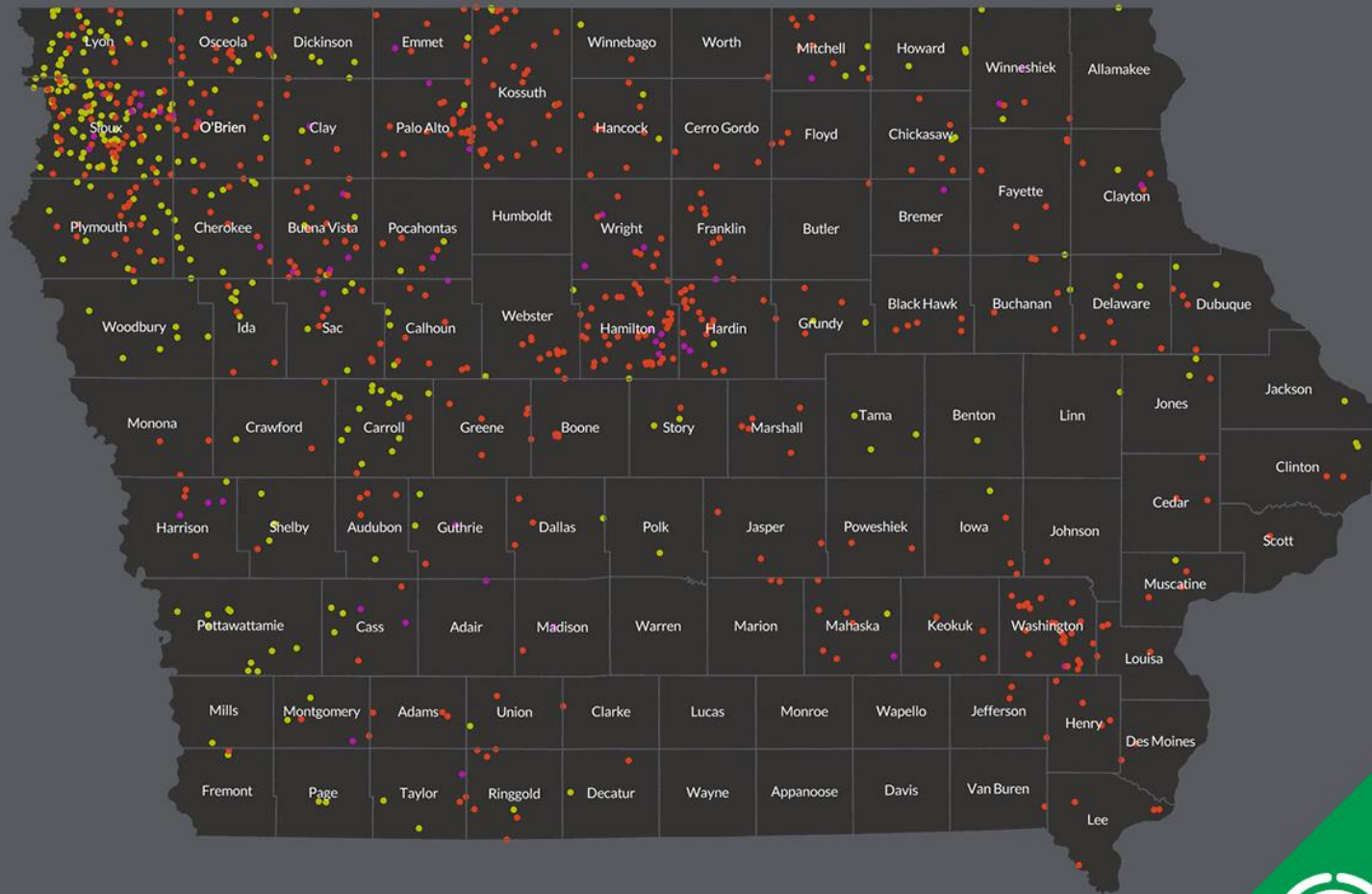
IOWA IS AN AGRICULTURAL STATE



CHEMICAL APPLICATION



1990



■ Beef-Dairy ■ Poultry ■ Swine



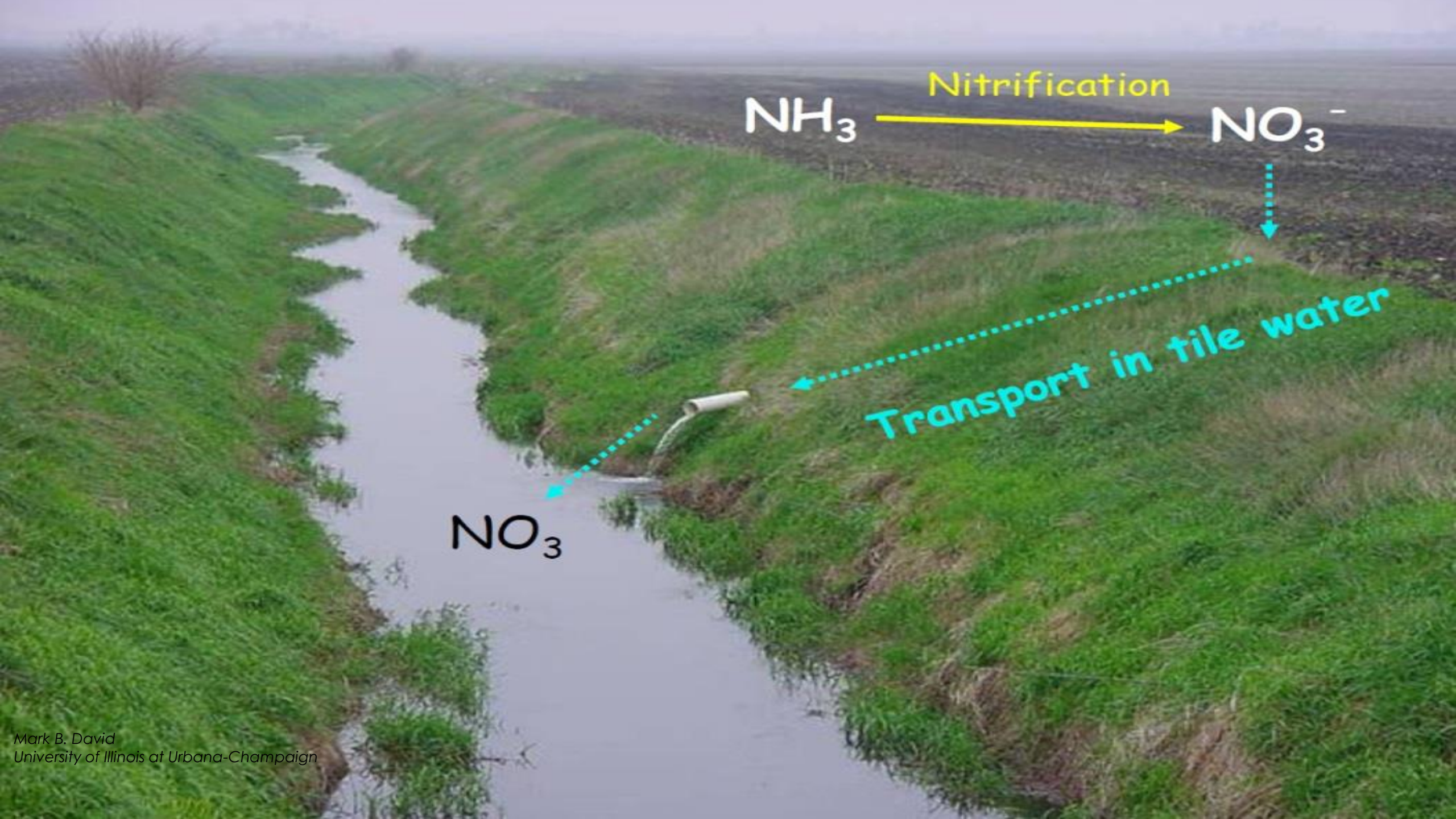
Confined Animal Feeding Operations Have Large Impact

MANURE APPLICATION

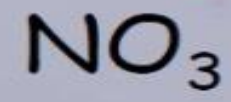


TILE DRAINAGE





Transport in tile water



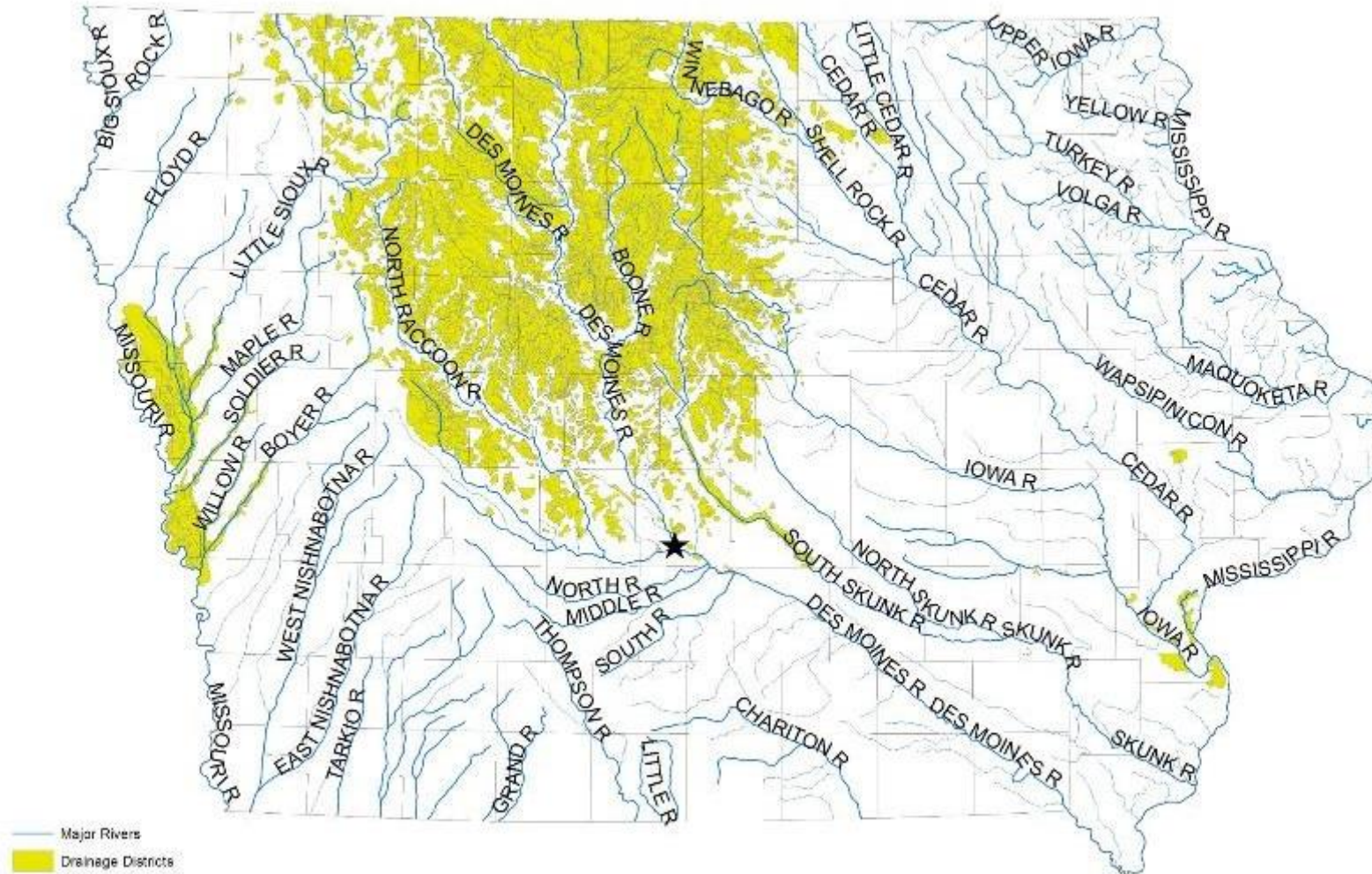
Intensive Ag Tile Drainage in Upper Midwest

Subsurface “tile” drainage is concentrated in the Midwest.

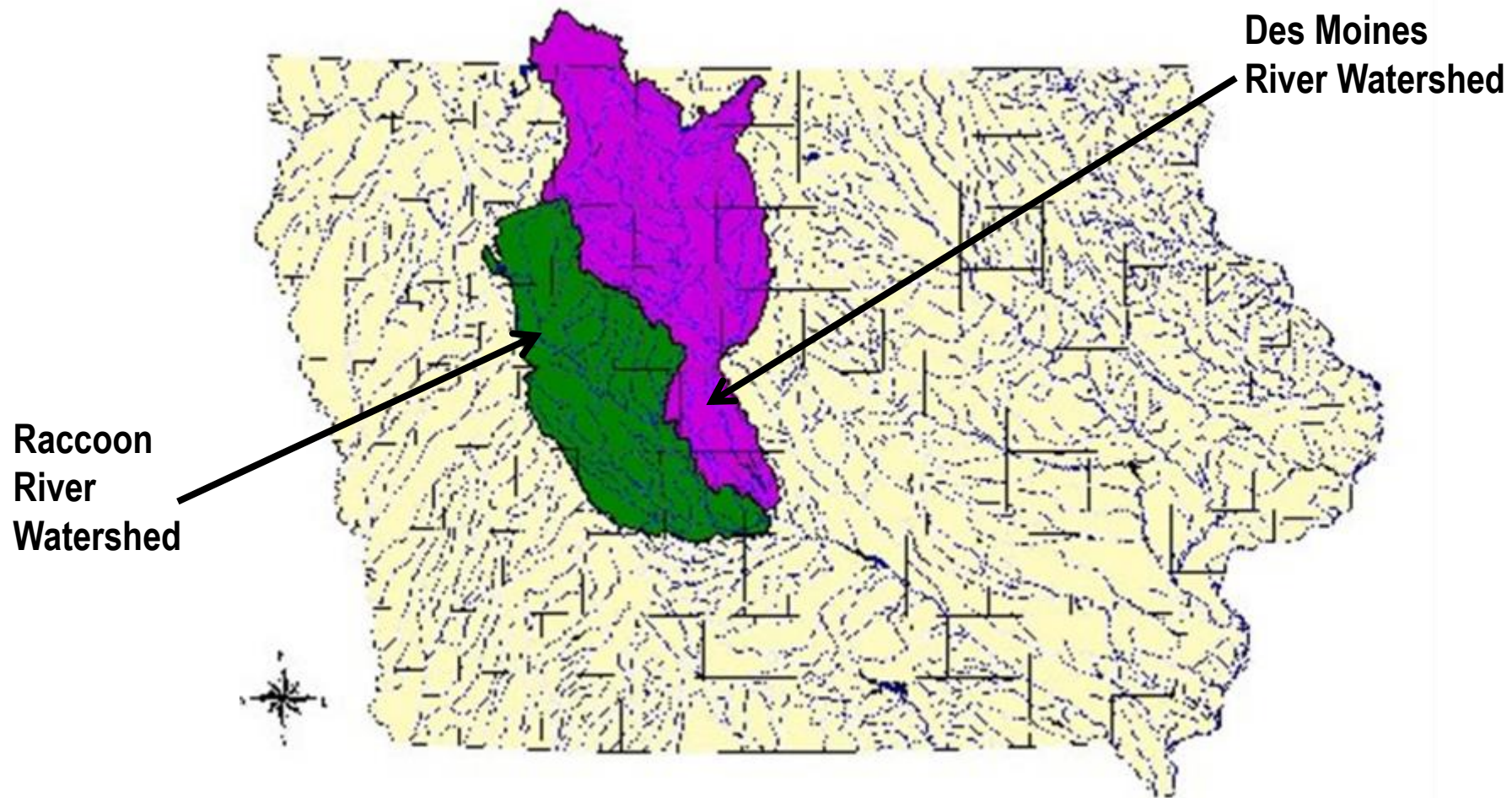


Source: World Resource Institute

Iowa Drainage Districts



DMWW Source Watersheds



Drainage on an Industrial Scale

A wide, straight drainage ditch runs through a flat, agricultural landscape. The ditch is filled with water and is flanked by steep, eroded banks of dark brown soil. Several large, white, cylindrical pipes are visible, discharging water into the ditch from both sides. The pipes are spaced out along the length of the ditch. The background shows a flat expanse of land under a clear sky, with some distant trees and structures visible on the horizon.

Hardin County, Iowa



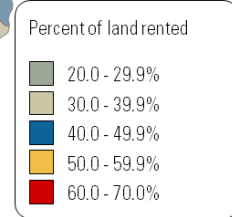
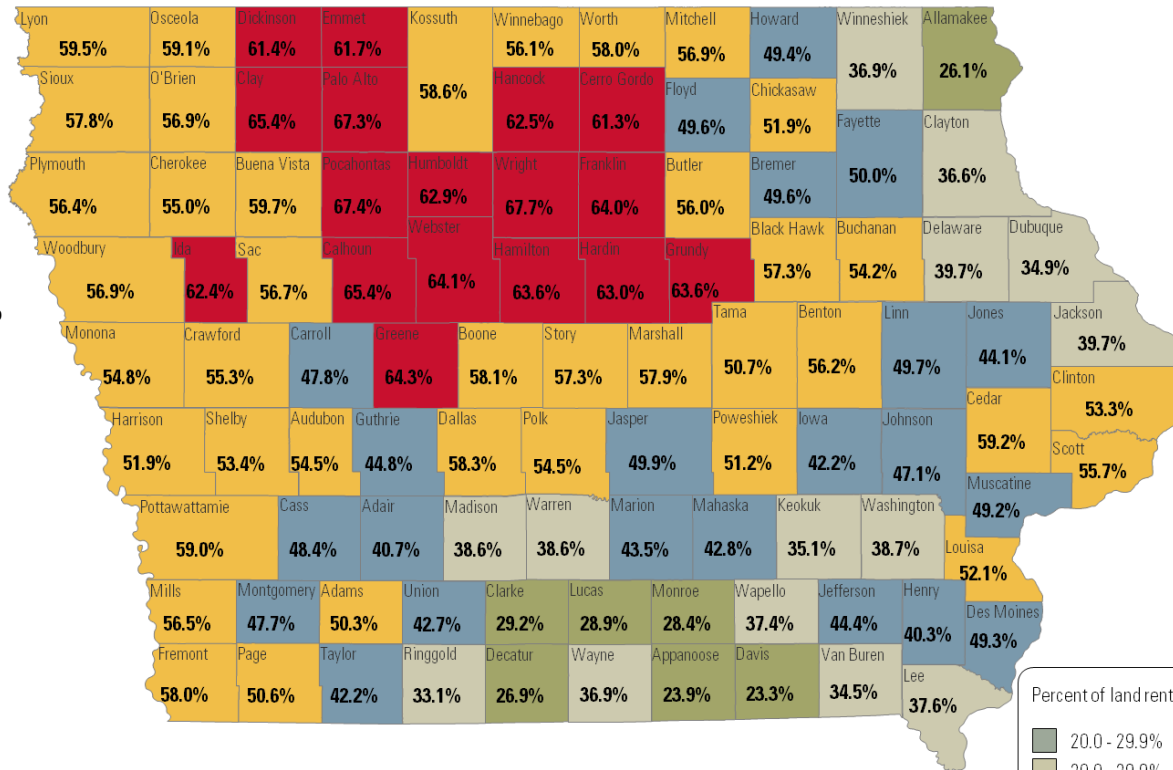
Drainage on an Industrial Scale

Sac County, Iowa

Conservation Adoption

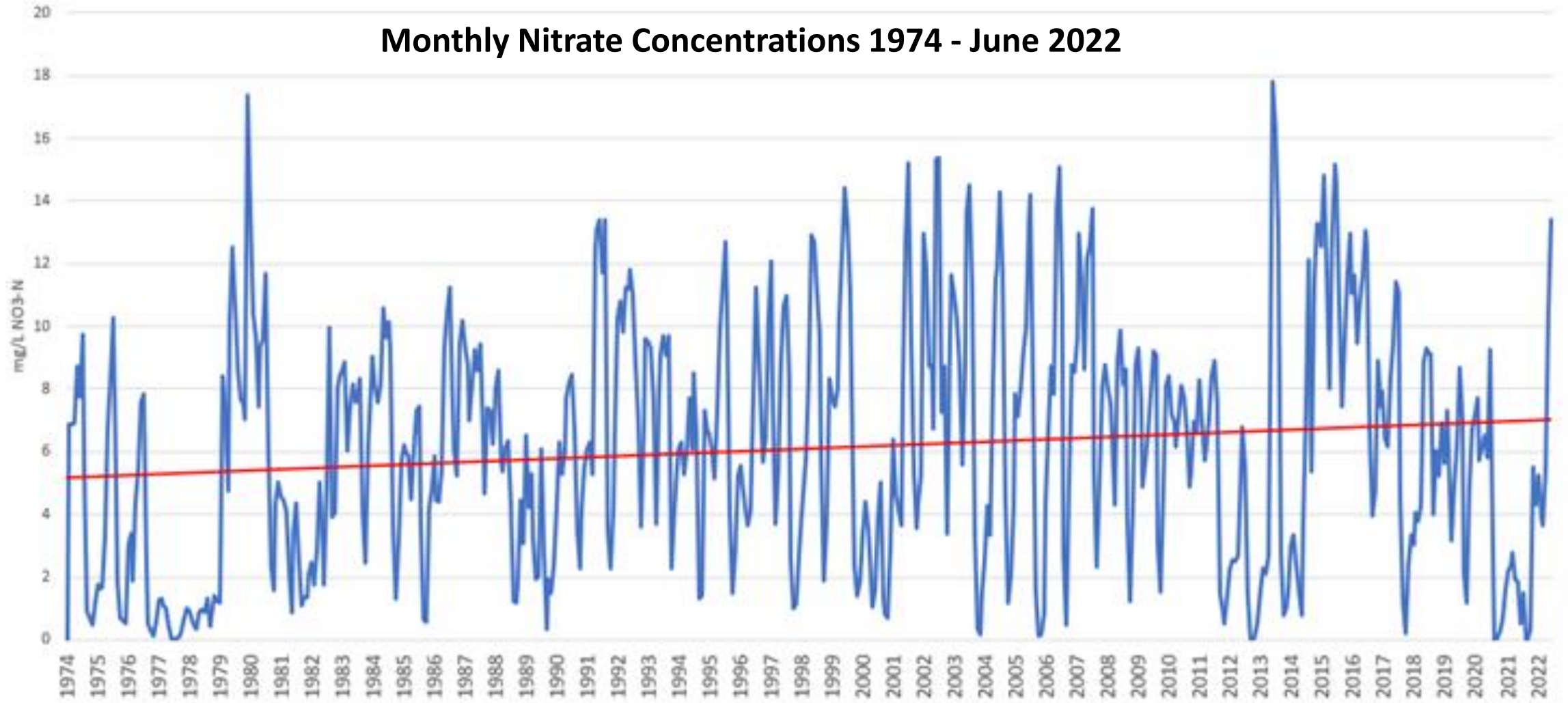
Percent of land in farms rented, 2017

Statewide = 51%



Source: 2017 USDA Census of Agriculture

Monthly Nitrate Concentrations 1974 - June 2022





Saylorville Lake Marina

November 21 · 🌐

Where we rather be, all day, everyday! Fleetwood at Saylorville
#saylorvillelakemarina #lakelife #marina #lifeatthelake #polkcity #iowa #missing
#suntexmarinas



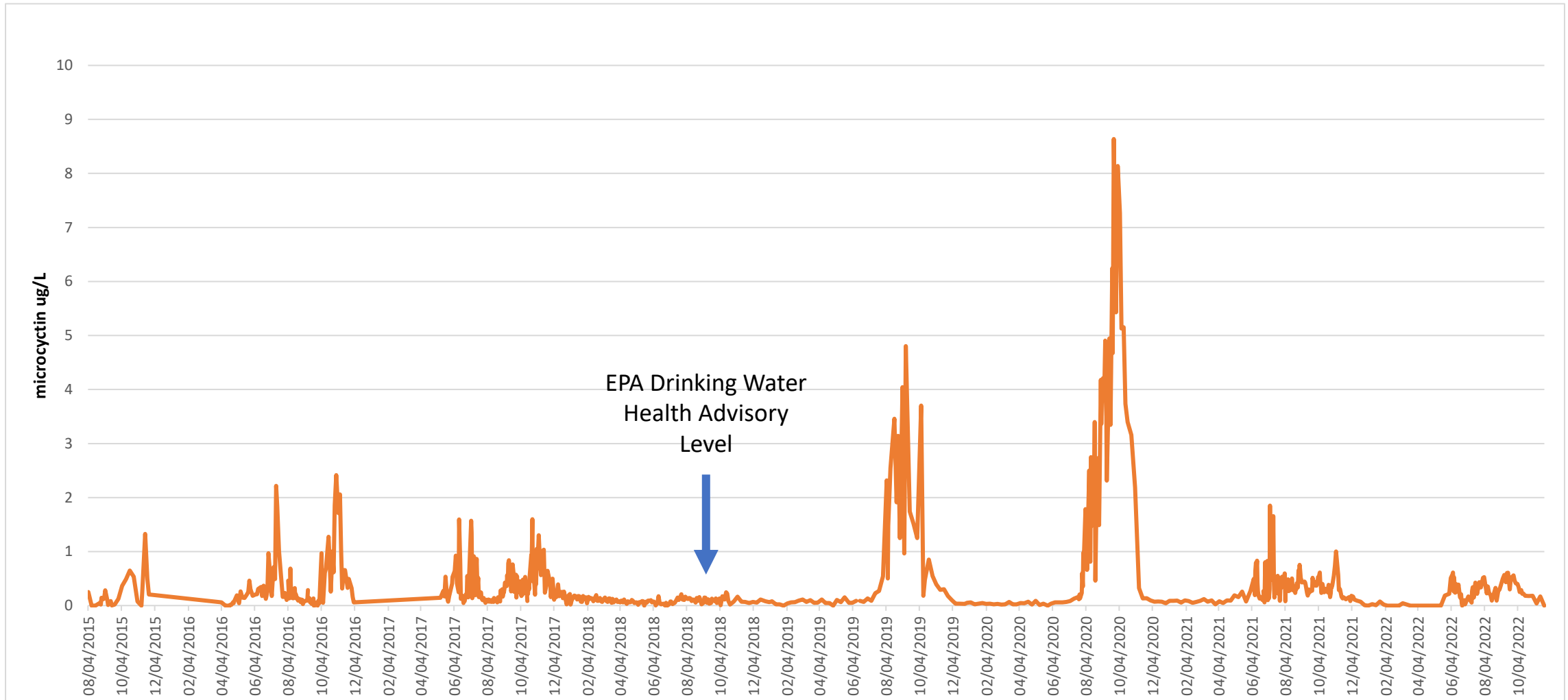
👍 😄 85

➦ Share



Saylorville Reservoir Upstream on the Des Moines River

Des Moines River Microcystin 2015-2022



Nitrate has been the Storm Cloud on the Horizon for Decades

1972: Gulf Hypoxia Zone Recognized

1975: Drinking water regulatory standard for nitrate established

1980s - DMWW exceeds regulatory standard for nitrate

1992 – DMWW builds largest nitrate removal facility in the world in order to meet regulatory standard

2000s – Harmful Algal Blooms (HABs) are common-place in U.S. coastal waters, and blooms begin to appear in inland rivers

2014 – Toledo water utility issues a Do Not Drink advisory for toxic microcystin from HABs

2016 – DMWW discovers microcystin in finished drinking water for the first time

2019 – DMWW unable to use Des Moines River for 110 consecutive days because of microcystin levels

2020 - 2nd year in a row: DMWW unable to use Des Moines River for 110 consecutive days because of microcystin levels



We Continue to Build

- Nitrate Removal Facility
- Off-River Storage
- Des Moines River Well Field



WATERSHED PARTNERSHIPS



Thank you for your time today.

Questions?