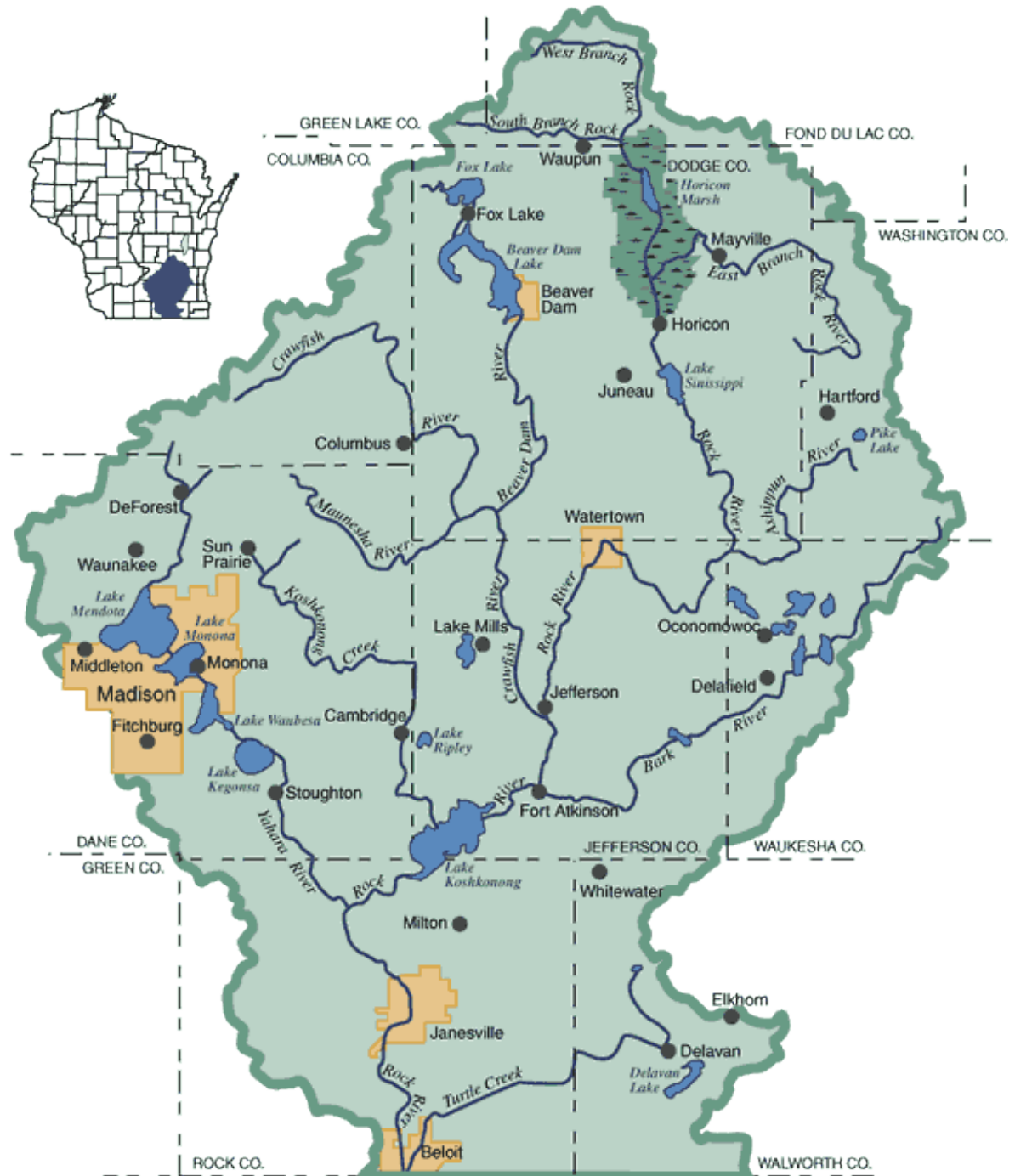


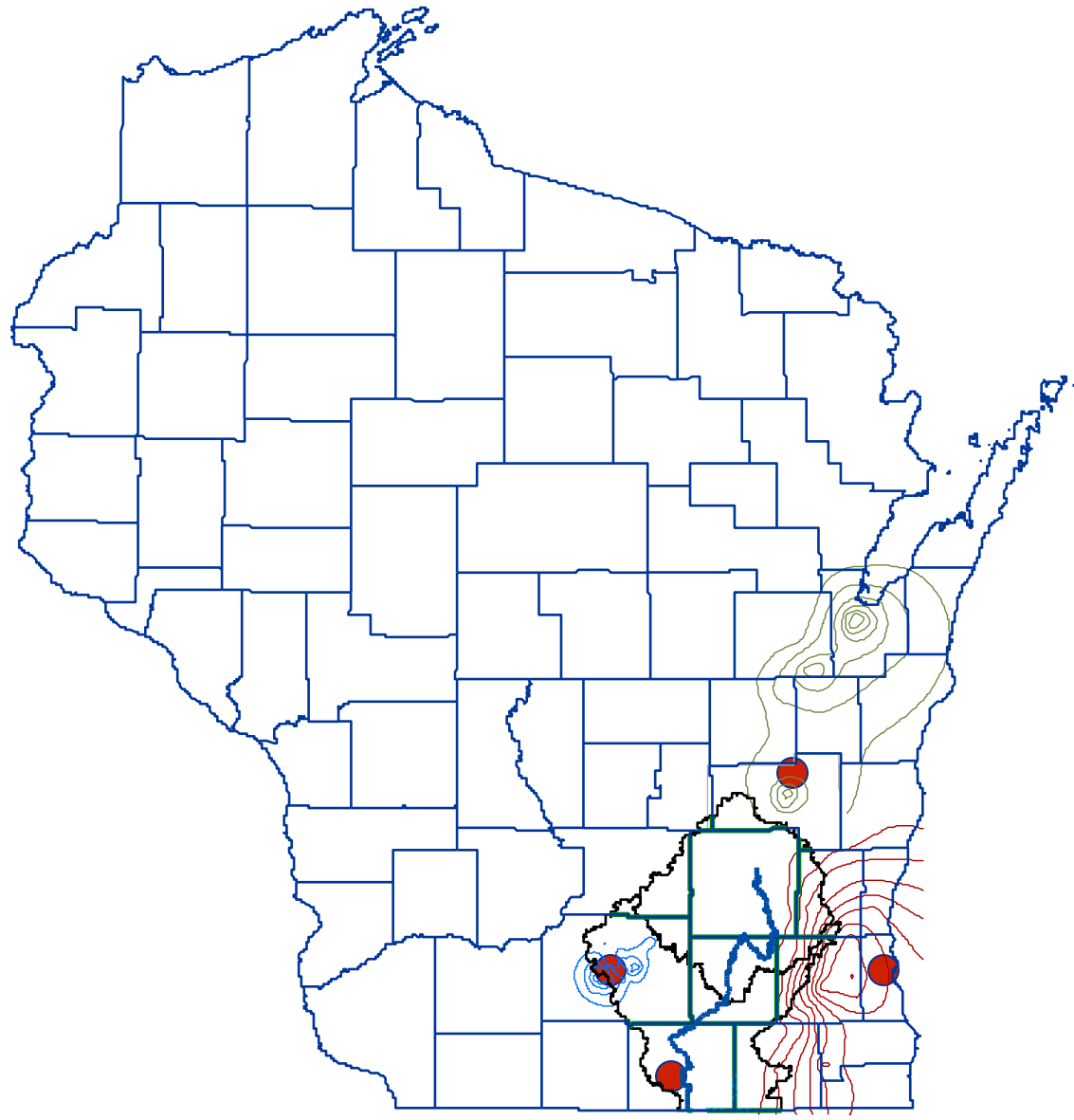
A circular frame containing a photograph of a farm. In the background, there is a white barn with a red roof and several tall, cylindrical silos. A rainbow is visible in the sky above the farm. The foreground is a large, flat field of brown, harvested crops, possibly corn. The overall scene is rural and agricultural.

# The GFLOW Model in the Rock River Basin

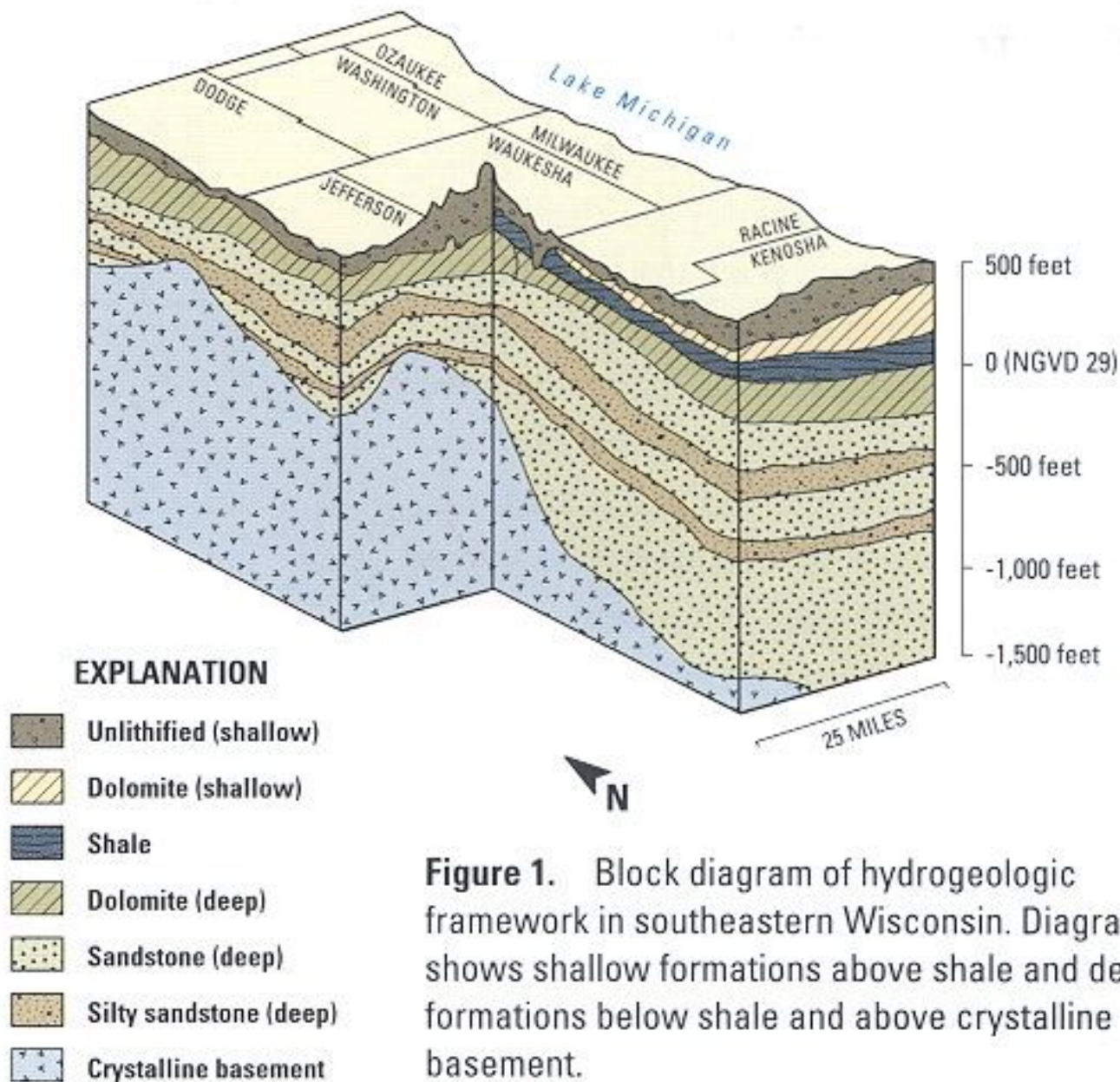
The concerns and our progress

# Rock River Basin



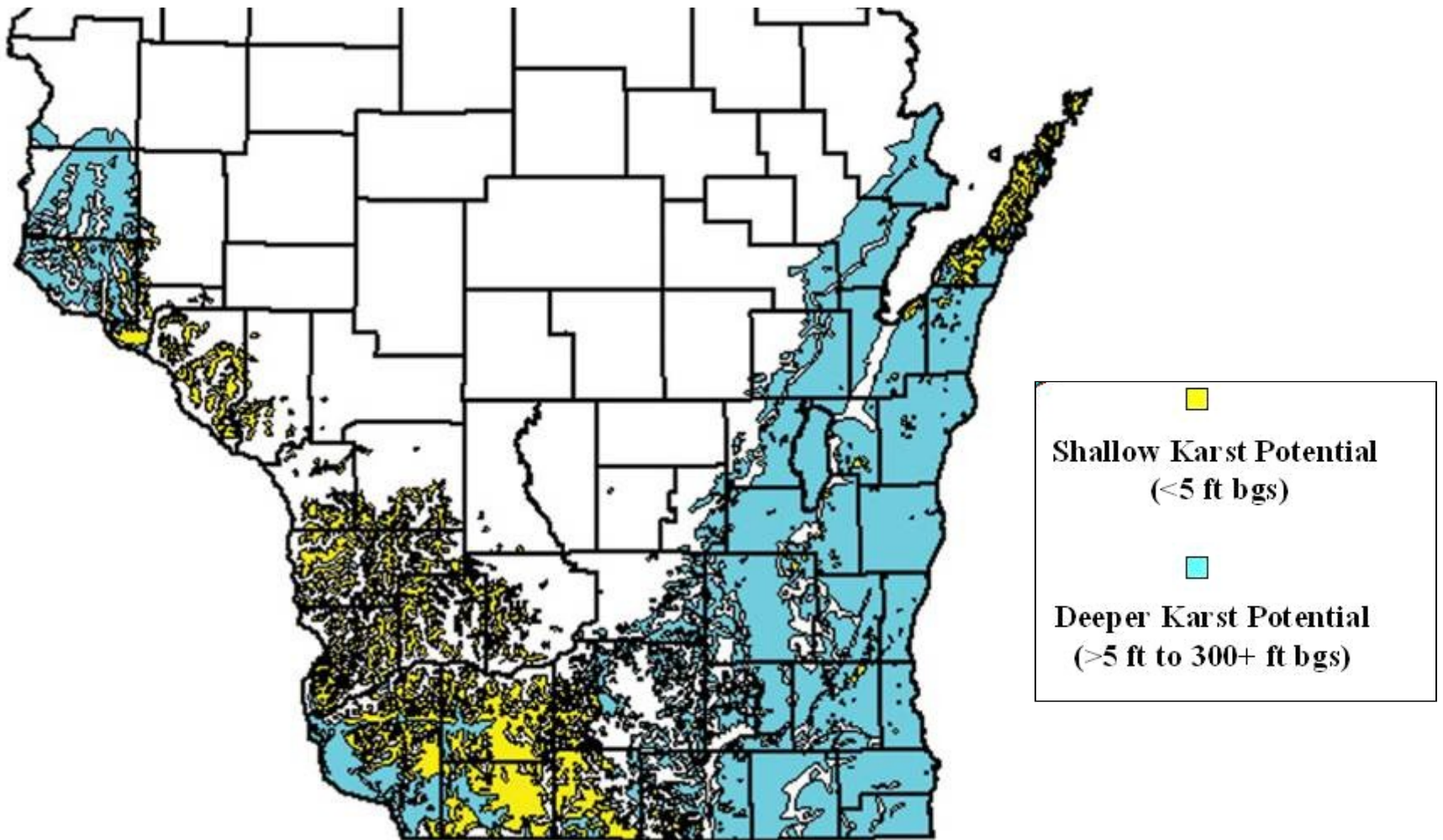


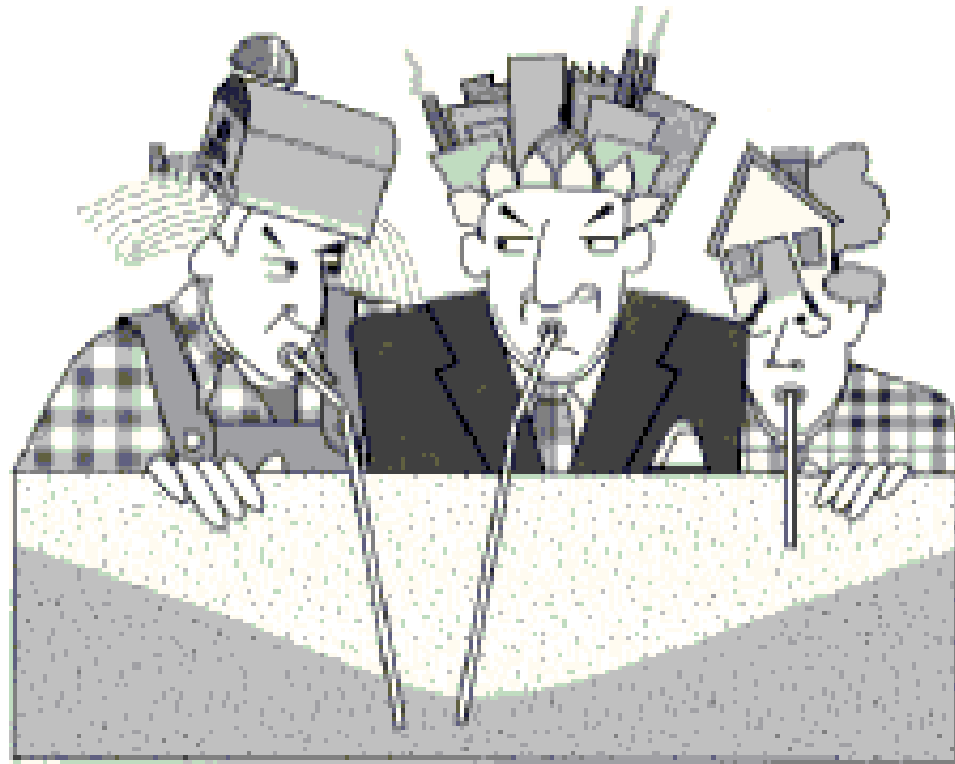




**Figure 1.** Block diagram of hydrogeologic framework in southeastern Wisconsin. Diagram shows shallow formations above shale and deep formations below shale and above crystalline basement.

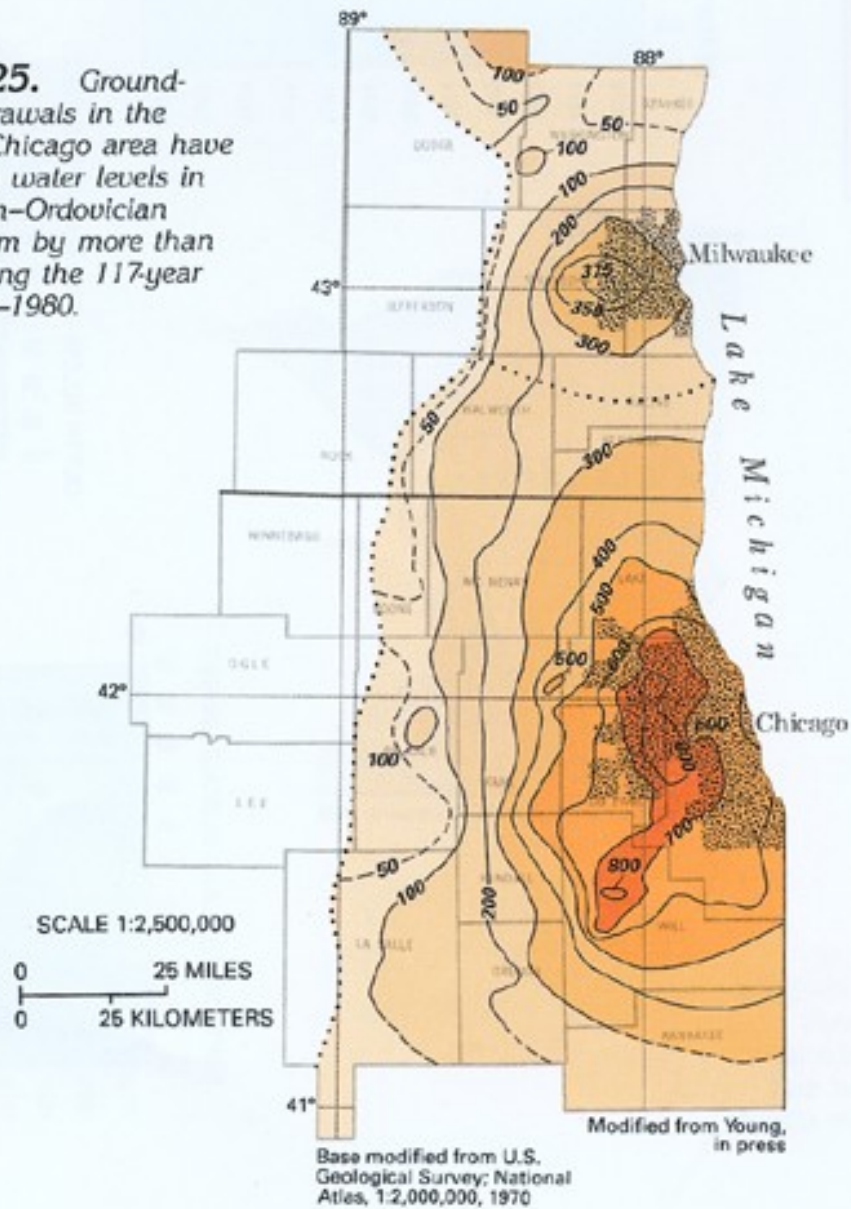
# Wisconsin's Shallow Karst Potential (Dolomite Bedrock)







**Figure 125.** Ground-water withdrawals in the Milwaukee–Chicago area have drawn down water levels in the Cambrian–Ordovician aquifer system by more than 800 feet during the 117-year period, 1864–1980.



### EXPLANATION

Water-level decline in Cambrian–Ordovician aquifer system, in feet



- 300 — Line of equal water-level decline—  
Dashed where approximately located. Intervals 50 and 100 feet
- ..... Ground-water divide

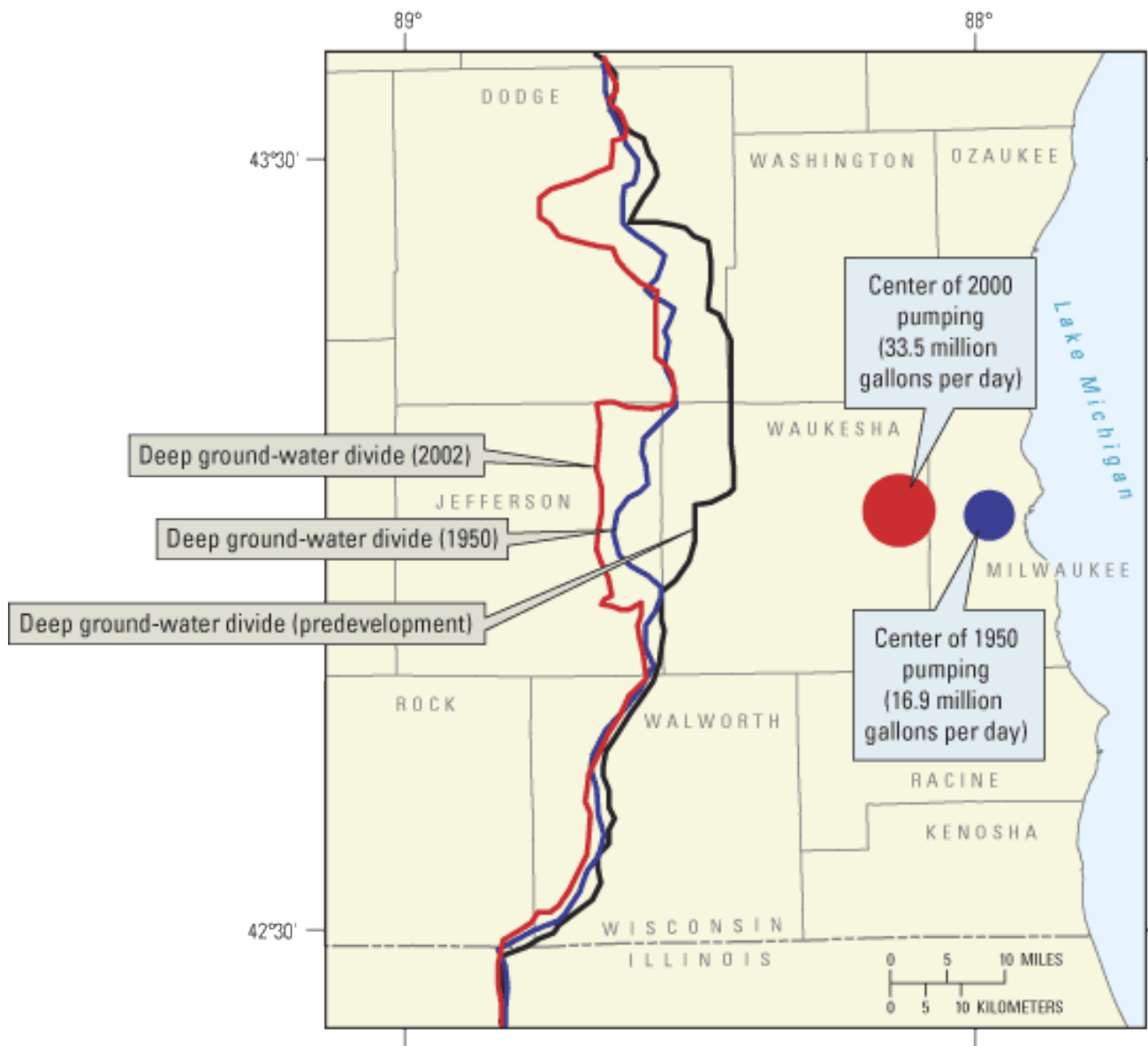


Lake Michigan

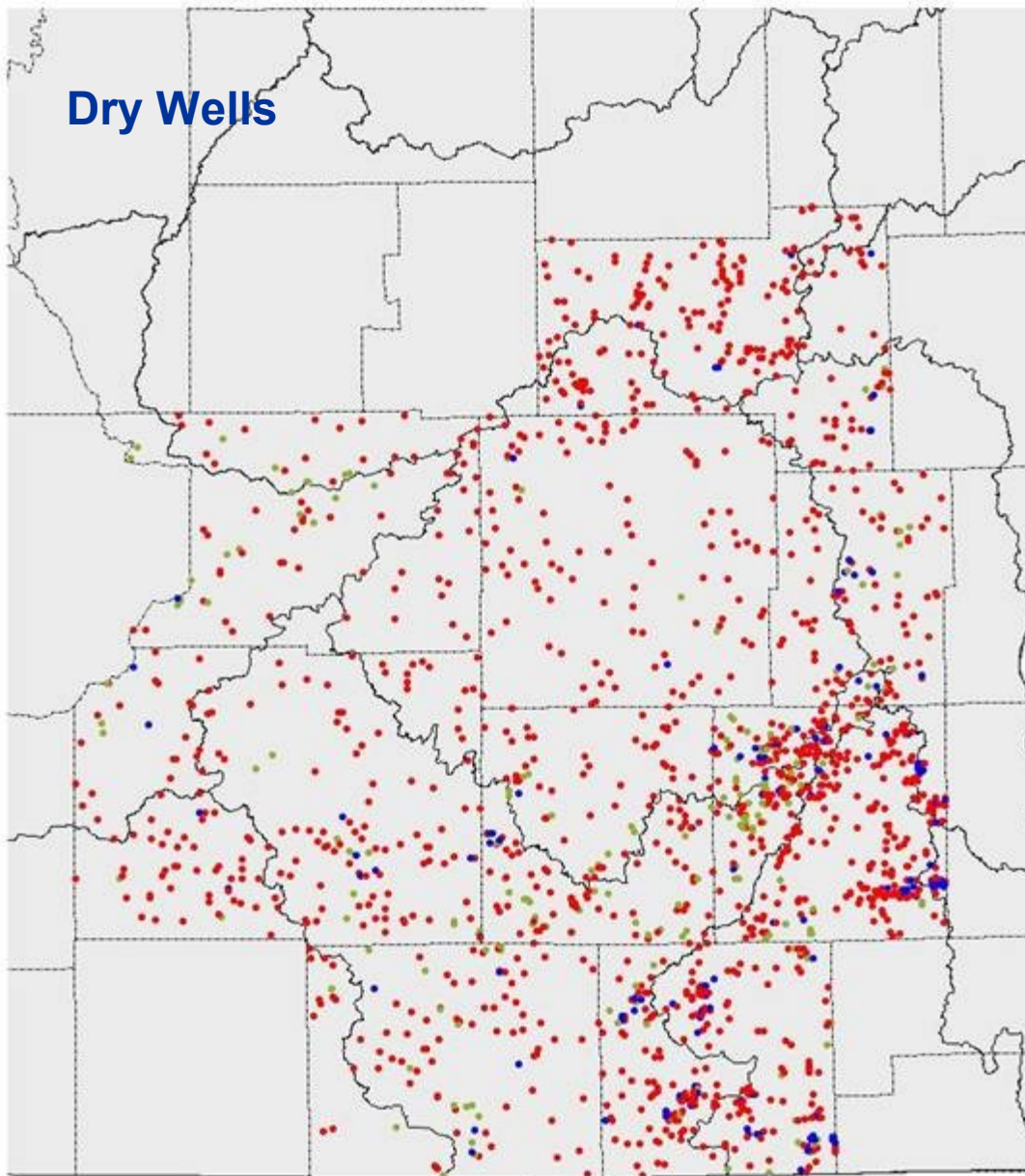


subcontinental divide





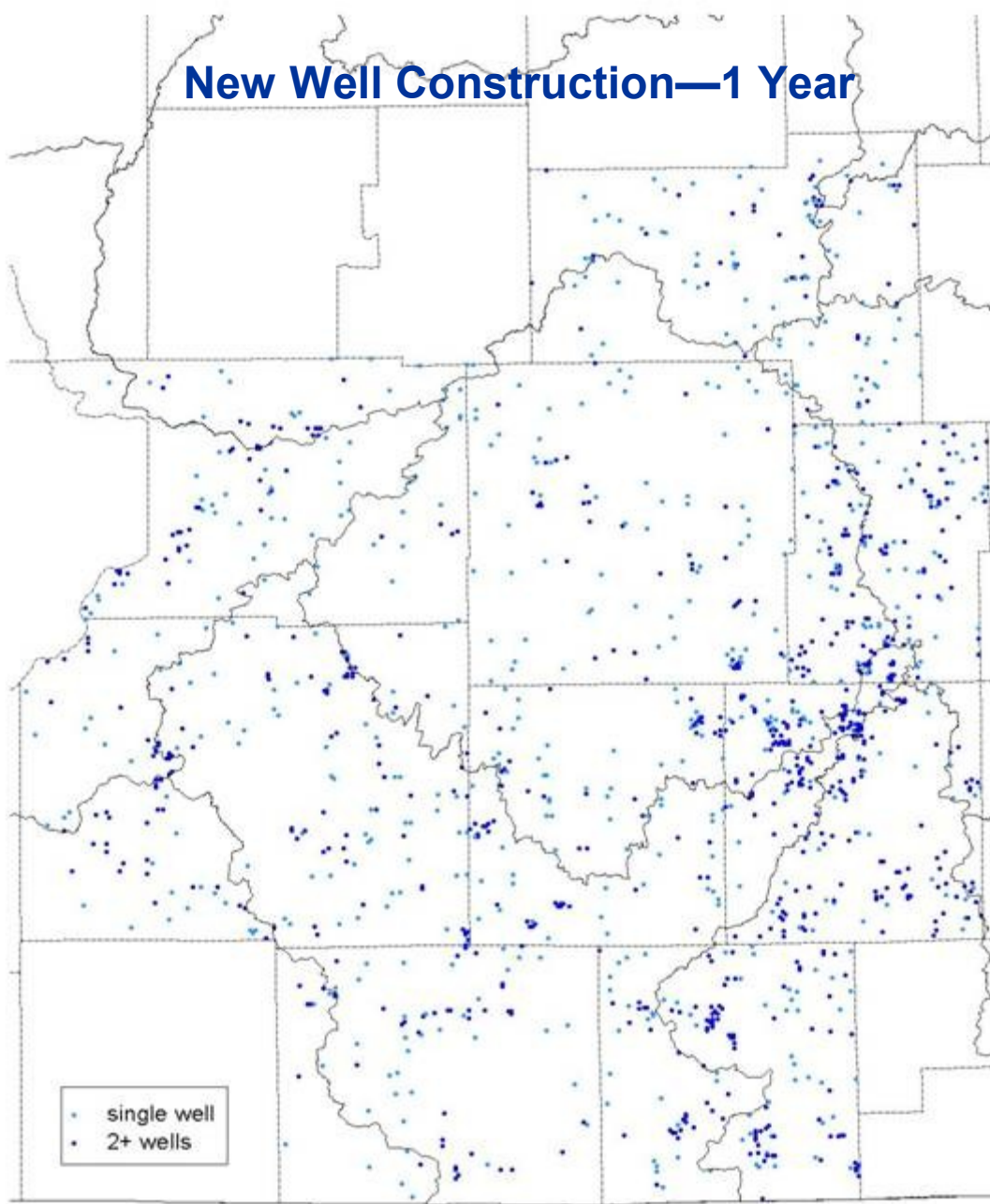
## Dry Wells



- 2+ wells drilled
- point

Source: DNR Well Construction Reports

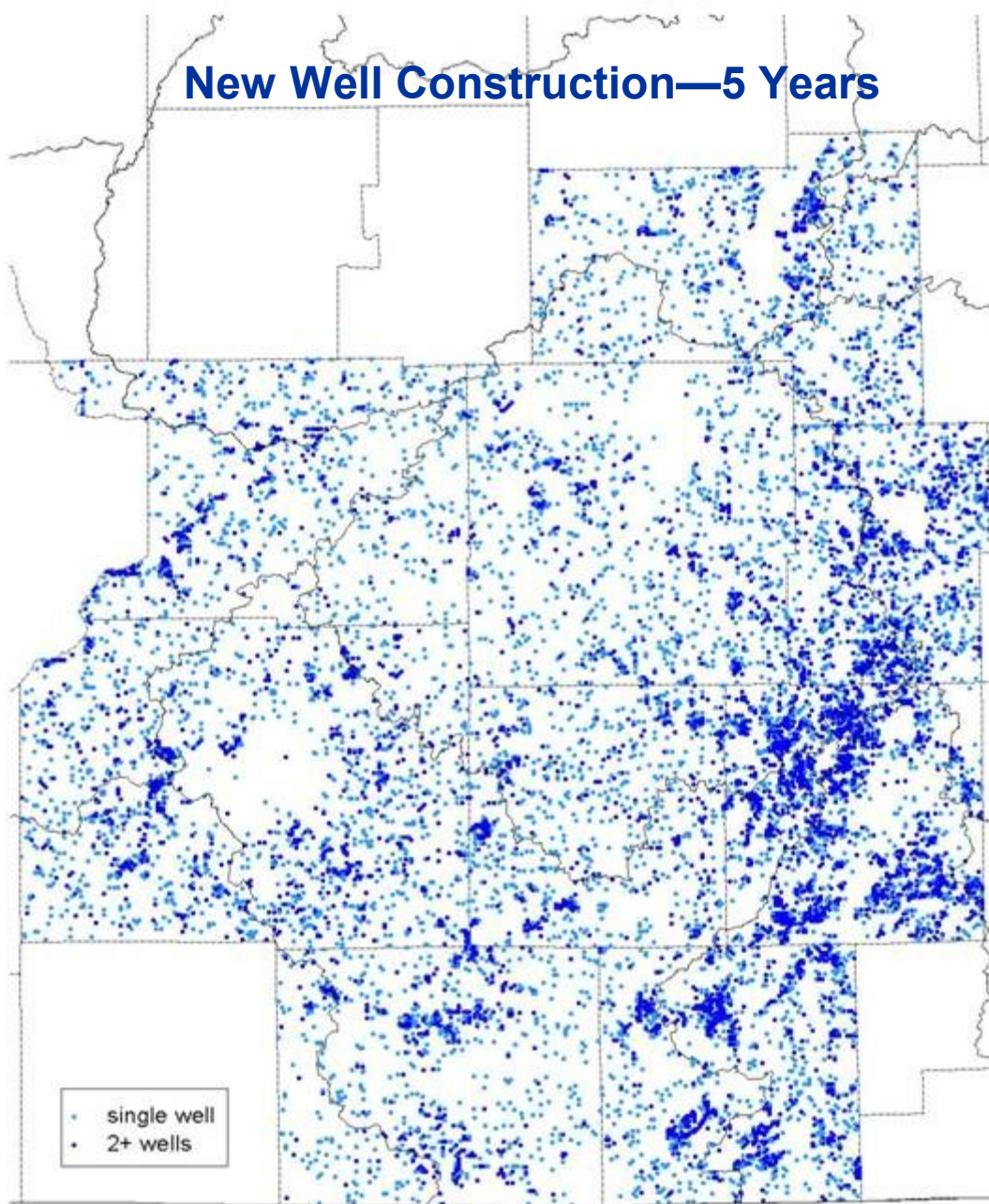
# New Well Construction—1 Year



Source: DNR Well Construction Reports



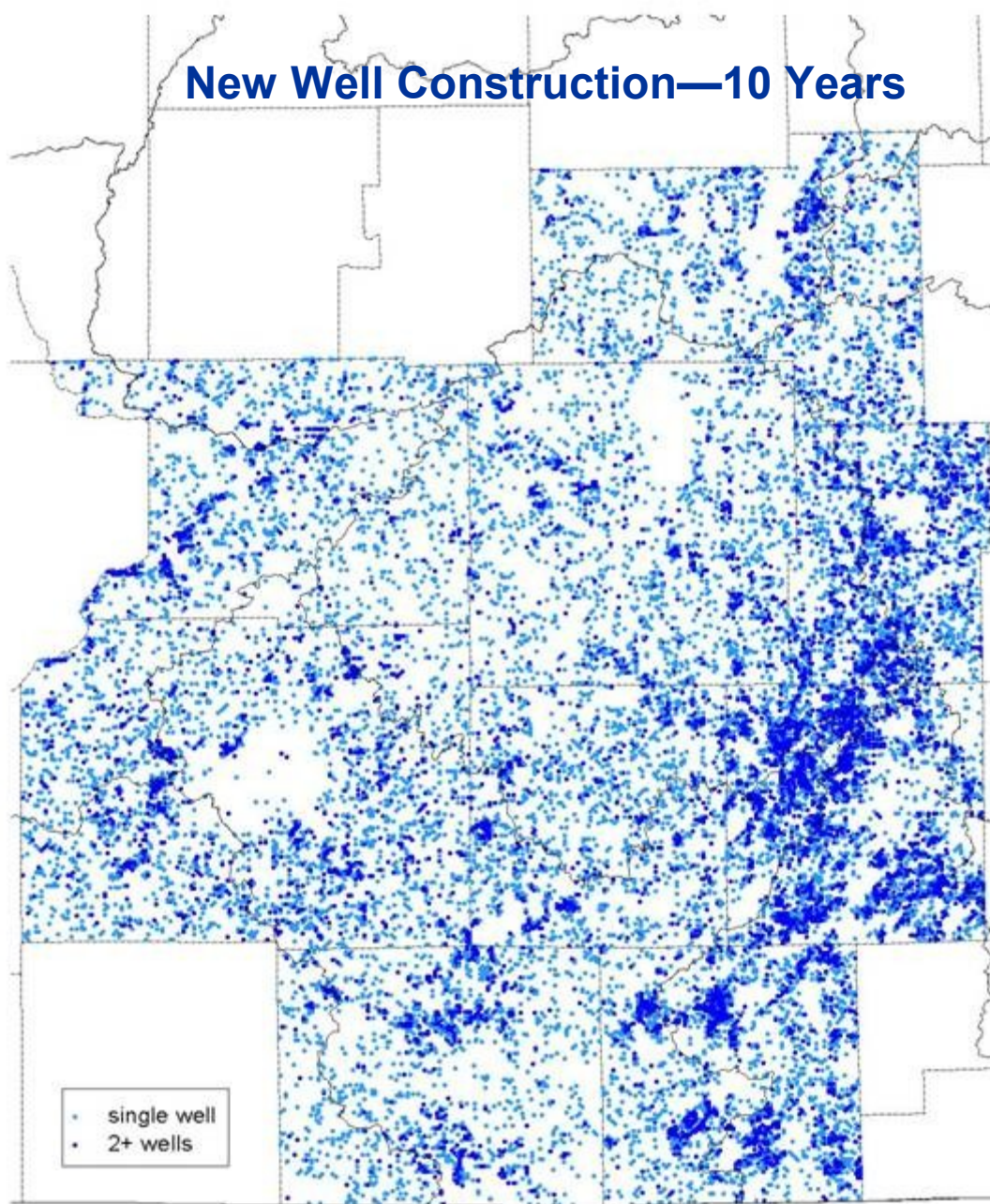
## New Well Construction—5 Years



Source: DNR Well Construction Reports

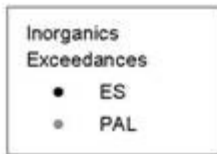
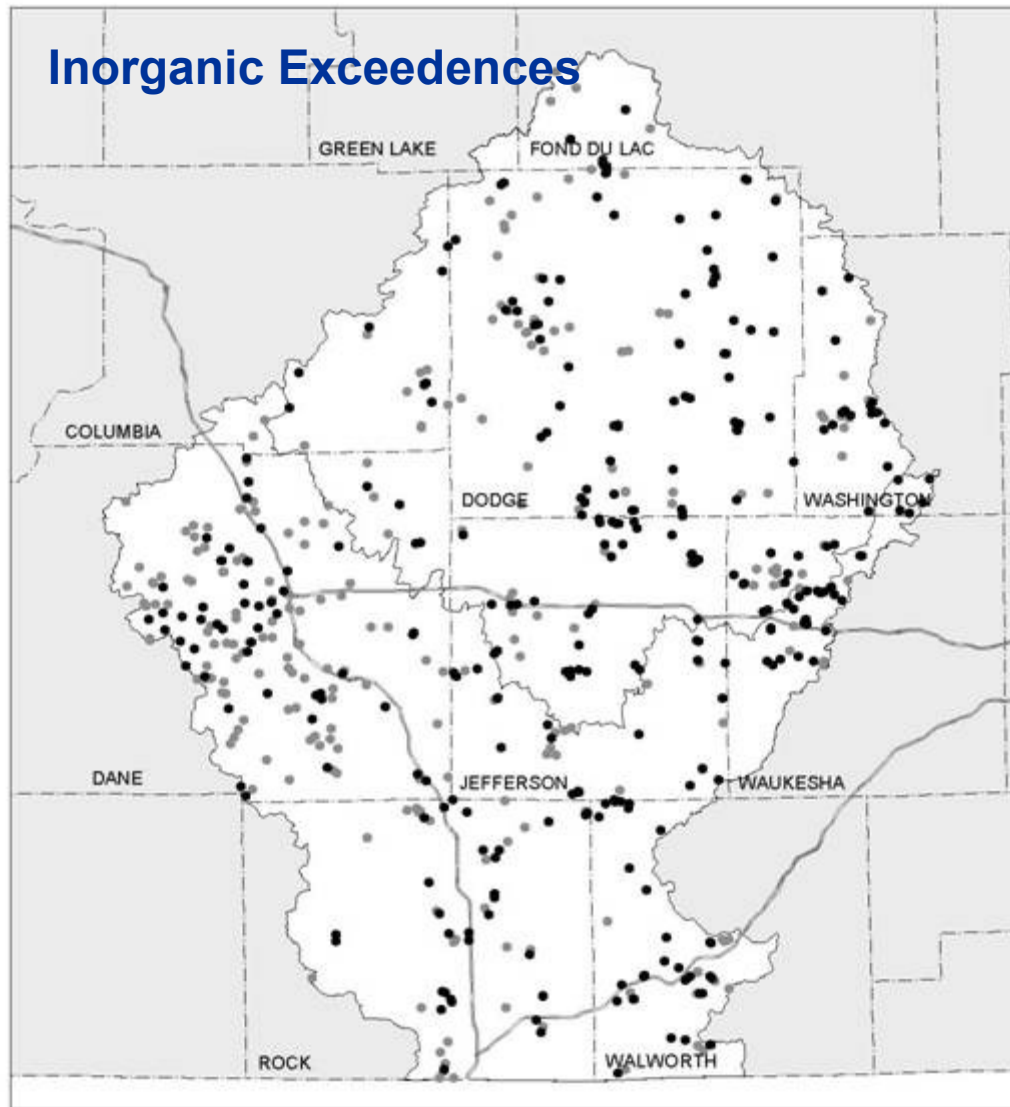


## New Well Construction—10 Years



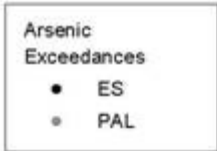
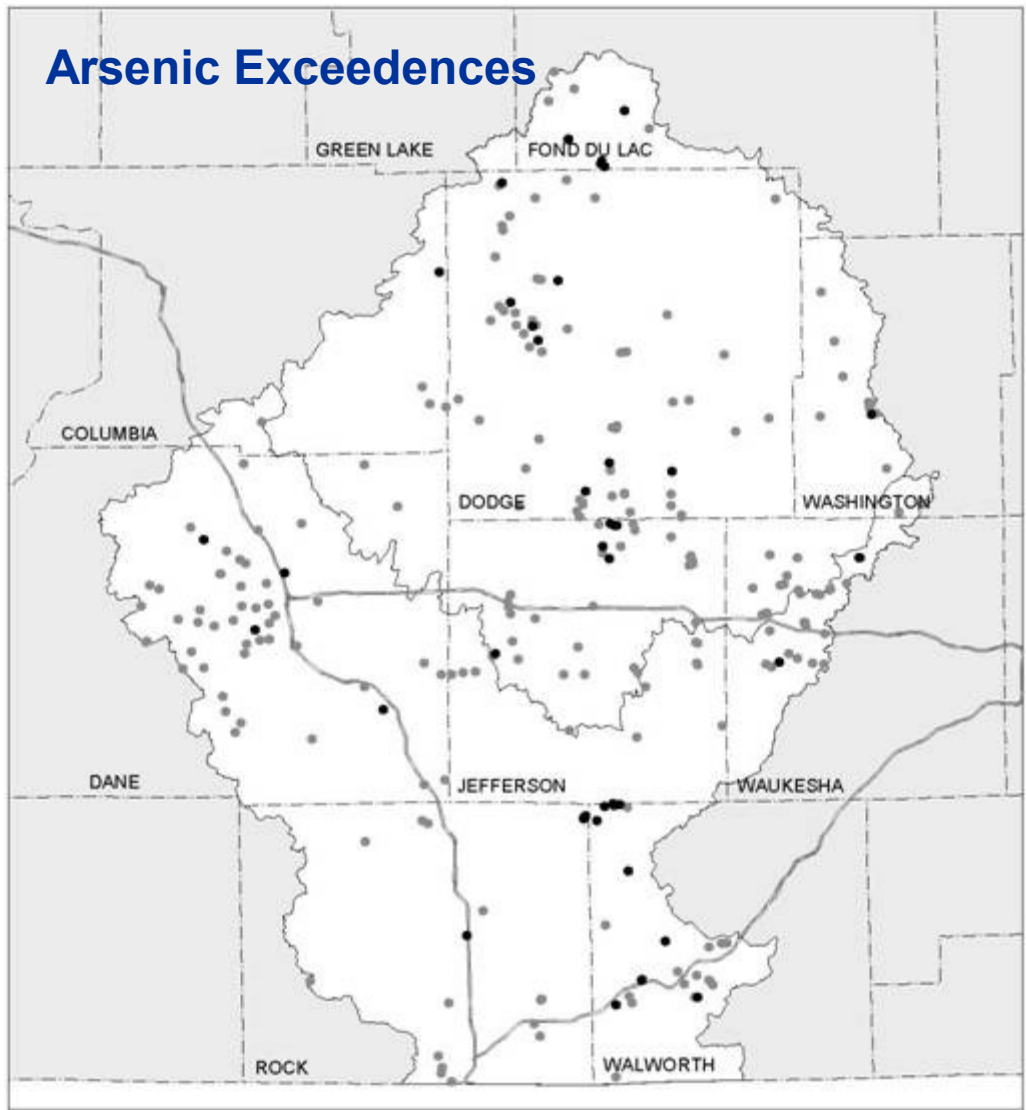
Source: DNR Well Construction Reports

# Inorganic Exceedances

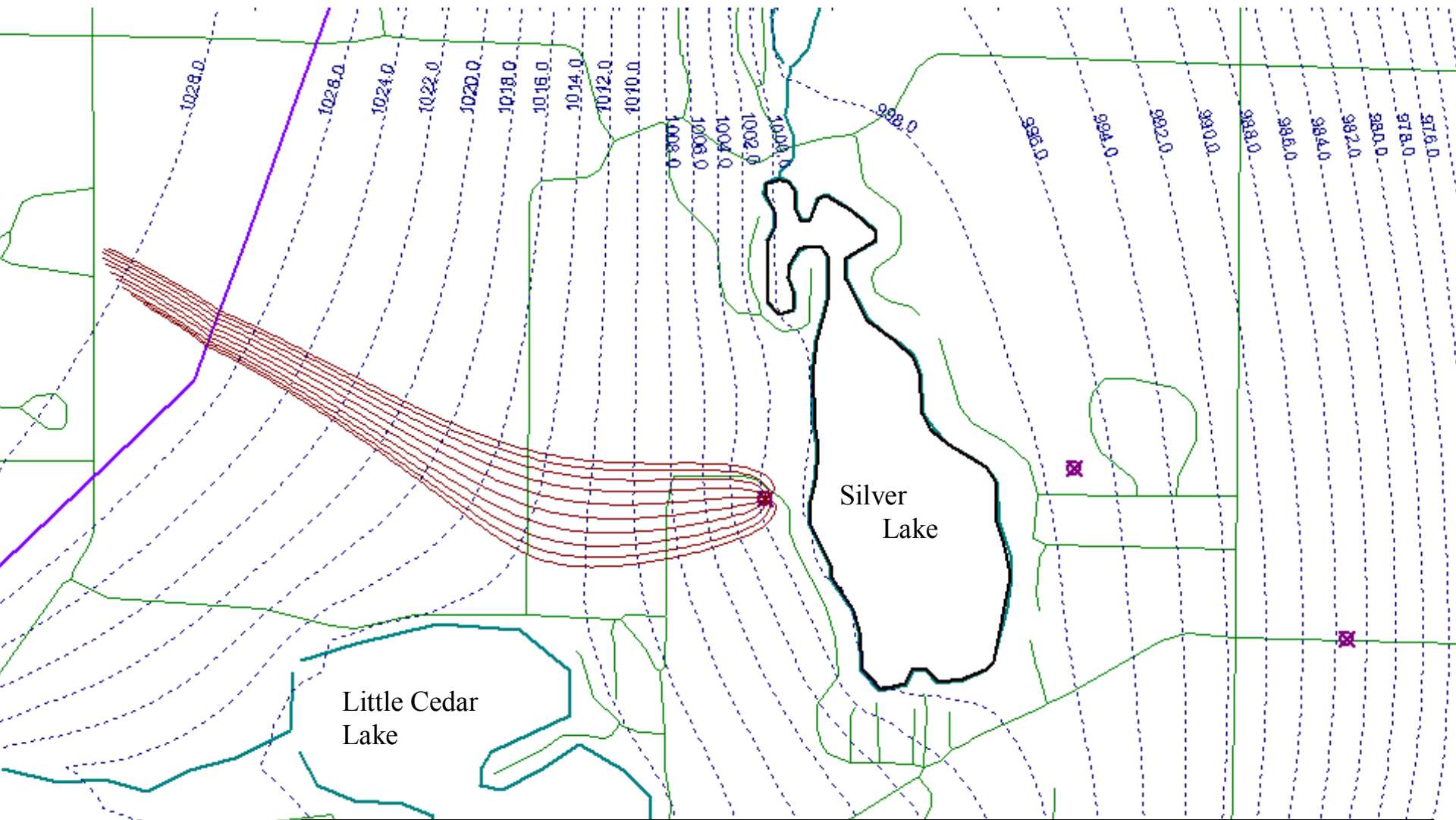


Source: DNR GRN

# Arsenic Exceedances



Source: DNR GRN



Model simulation of a single well pumping at 75 gpm

Simulated stage of Silver Lake lowered by 0.013 feet

Simulated flow from Silver Lake to Silver Creek reduced by 0.14 cubic feet per second



# RRC GFLOW Model

- Cost is \$95,000, 2/3 by Rock River Coalition 1/3 USGS
- Contributions based on population  
\$1,000 - \$6,000
- Extra funds will be used for updates – goal to have enough funds for five to ten years of maintenance

# GFLOW Sponsors

## **COUNTIES**

Dodge County  
Green Lake County  
Jefferson County  
Rock County

## **CITIES**

City of Fitchburg  
City of Janesville  
City of Lake Mills  
City of Watertown  
City of Whitewater

## **VILLAGES**

Village of Hustisford  
Village of Johnson Creek  
Village of Theresa

## **MISC. CONTRIBUTORS**

Vierbicher Associates  
Friends of Horicon Marsh  
Kunkel Engineering

## **TOWNSHIPS**

Town of Aztalan  
Town of Beaver Dam  
Town of Clyman  
Town of Emmet  
Town of Lake Mills  
Town of Portland  
Town of Shields  
Town of Sumner  
Town of Williamstown

## **LAKES DISTRICTS/ASSOC.**

Fox Lake Inland Lake Protection and  
Rehabilitation District  
Lake Sinissippi Association  
Lake Sinissippi Improvement District  
Rock Lake Improvement Assoc. Inc.

## **FEDERAL GOVERNMENT**

Us Fish and Wildlife, US Geological Service