



Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE



# Northwest Illinois/11-County Water Study Kickoff Meetings

IAGP @ Kishwaukee College | April 14, 2018 @ 12:30 p.m.



# Regional Water Supply Planning - IDNR

**Wes Cattoor, P.E., CFM**

Office of Water Resources

Illinois Department of Natural Resources (IDNR)

# IDNR Presentation

Why do water supply planning?

- **Water is essential for:**
  - Residents
  - Businesses
  - Industries
  - Navigation
  - Aquatic Ecosystems
  - Recreation
- **The state seeks to plan for the sustainable management of this valuable resource**

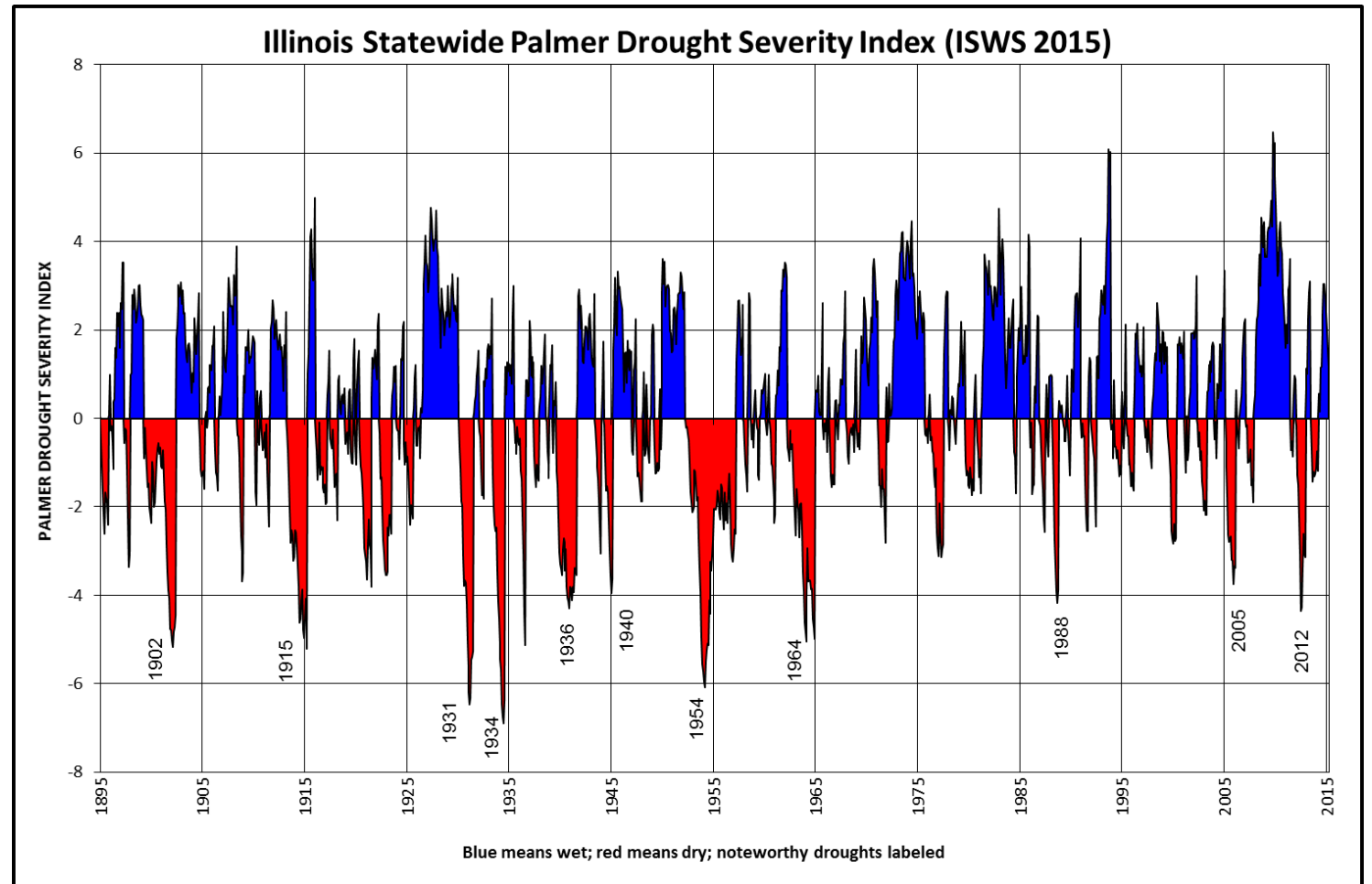
# IDNR Presentation

## Why do water supply planning?

Isn't Illinois a water rich state?



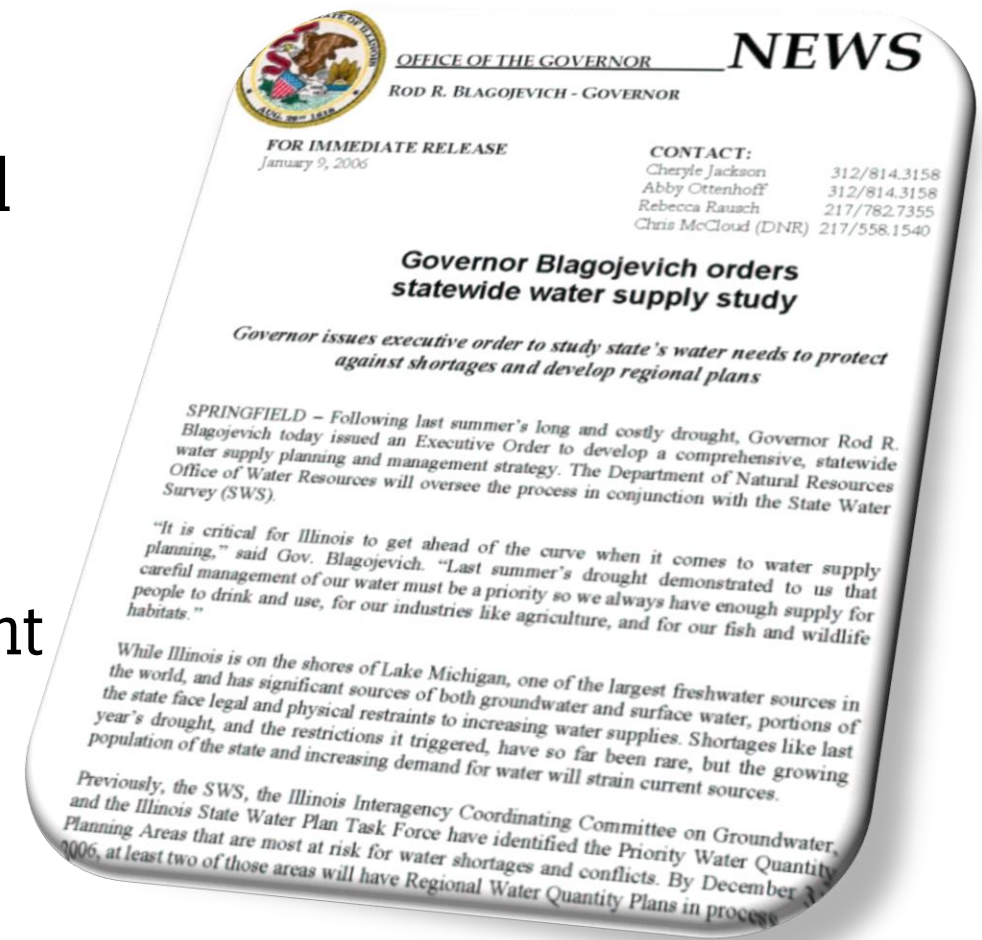
Illinois, Palmer Index, January-December (1895-2015)



# IDNR Presentation

## Water Supply Planning Background

- Governor's January 2006 Executive Order
  - A comprehensive program for state and regional water supply planning & implementation
  - Establishing a scientific basis & an administrative framework for implementation of state and regional water supply planning and management
  - Encourages creation of locally-based regional water supply planning committees

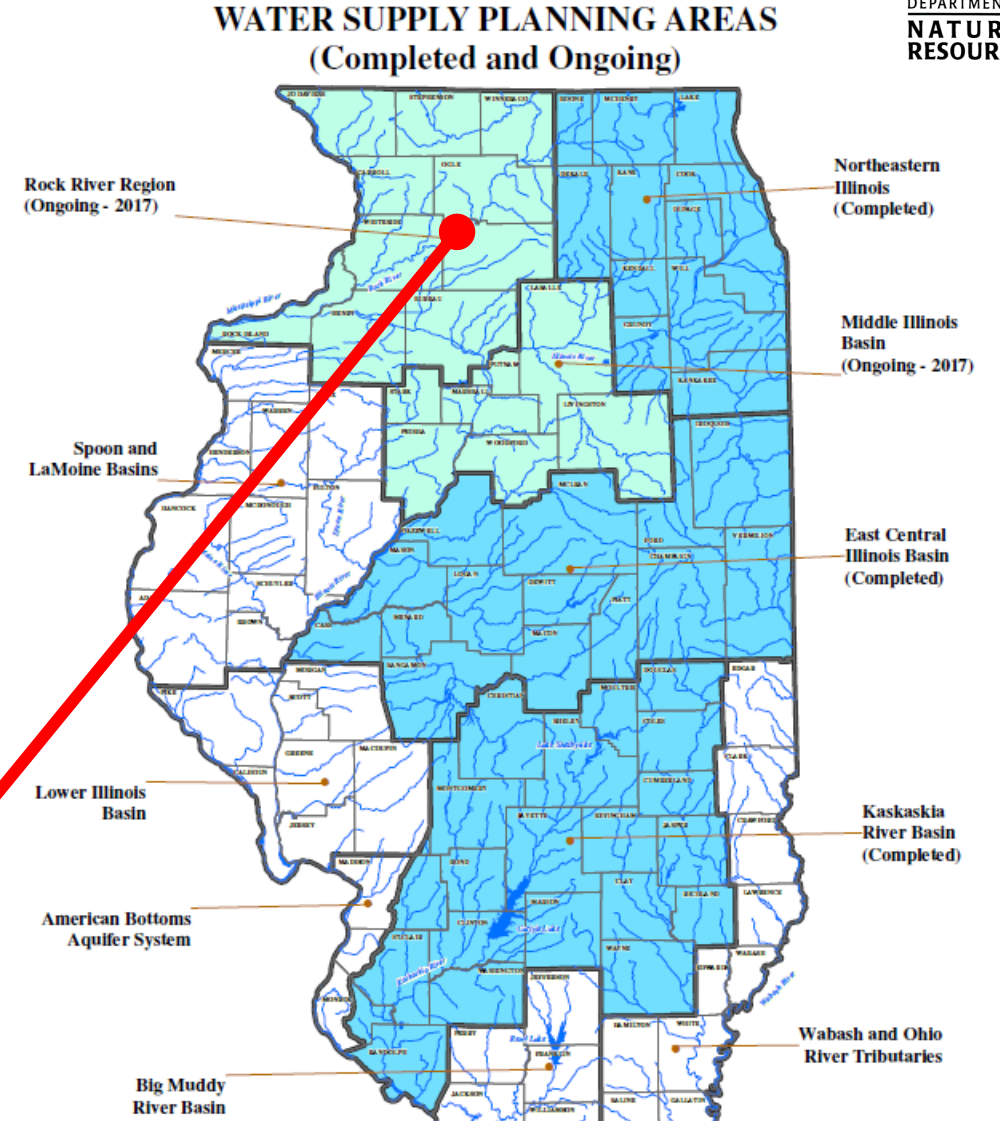




# IDNR Presentation

## Current and Previous Efforts

- **Three regions have been formed and have created water supply plans:**
  - East Central
  - Northeastern
  - Kaskaskia
- **Two regions are being formed**
  - Middle Illinois
  - Rock River (10 NW IL counties)



# IDNR Presentation

## Regional Planning Process



# IDNR Presentation

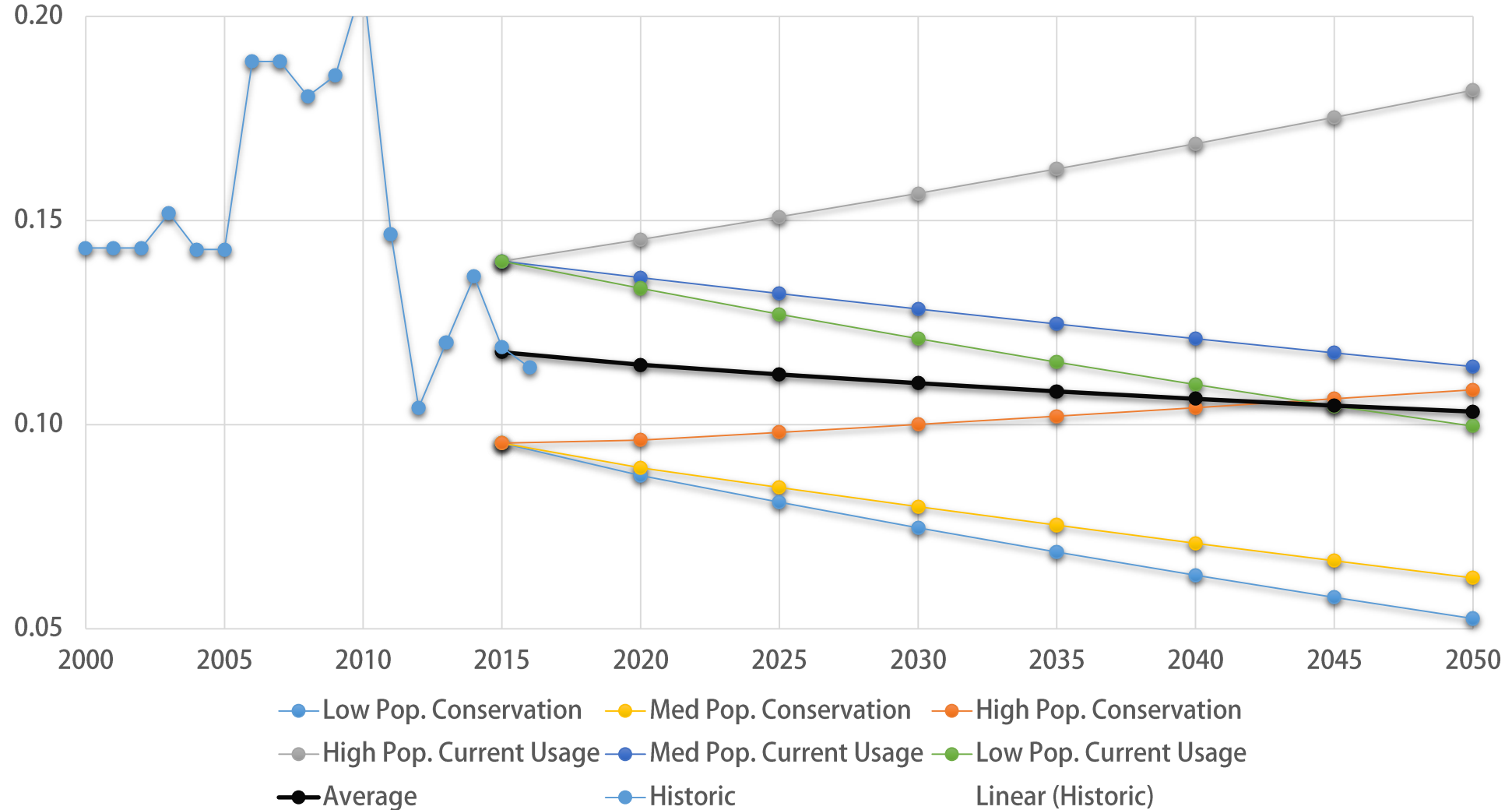
## Forming a Regional Committee





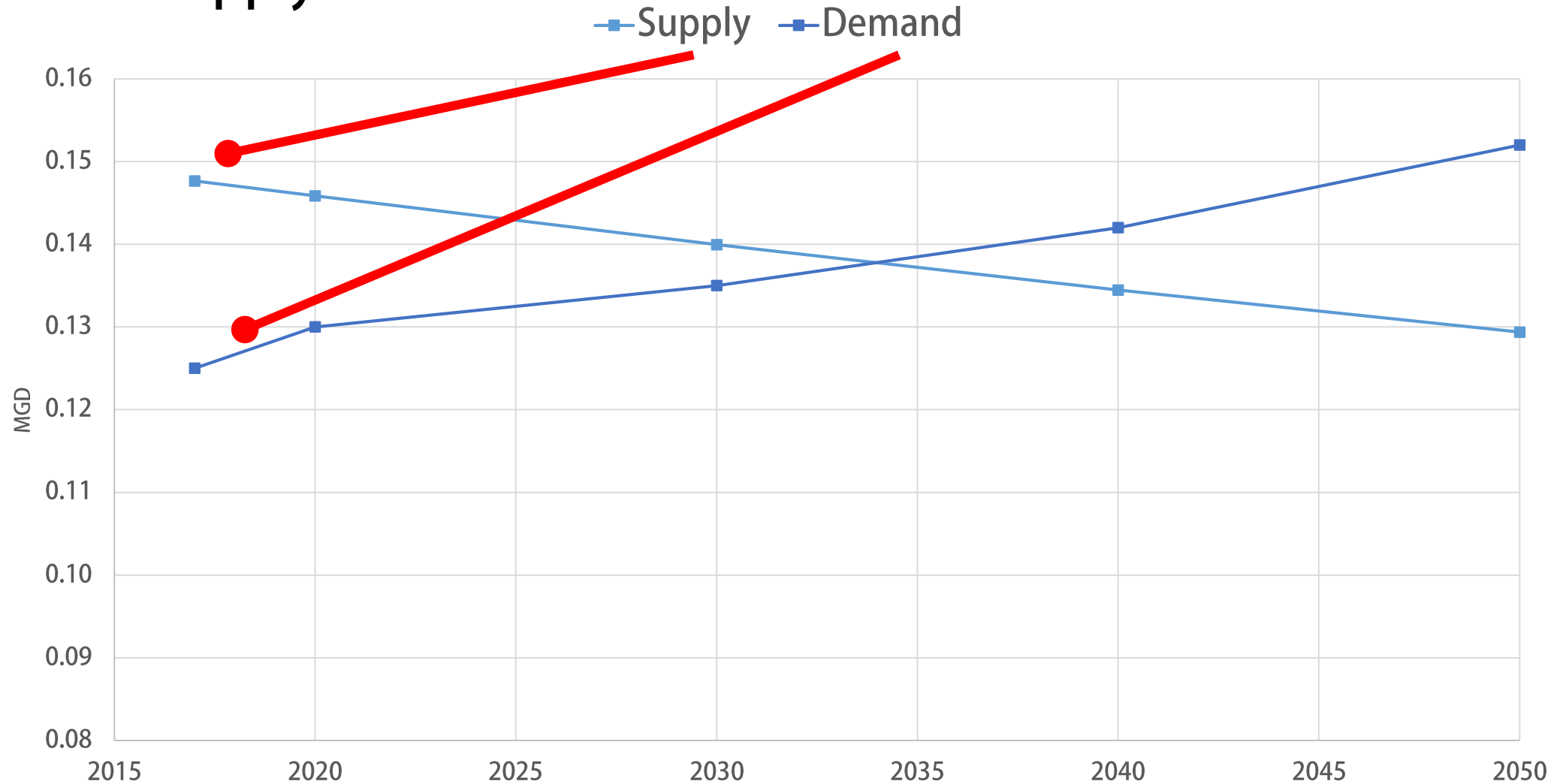
# IDNR Presentation

## Demand Forecast



# IDNR Presentation

## Future Supply vs. Demand



# IDNR Presentation

## Administration

- **Illinois Department of Natural Resources (IDNR) administers statewide program**
  - Oversight of regional committee activities and scientific research
  - Attends meetings and provides guidance to the regional committee

# IDNR Presentation

## Technical Expertise

- **Prairie Research Institute (PRI)**  
**provides technical expertise**
  - Current and future water demand
  - Scientific assessment of water availability
  - Attend regional meetings for technical support
  - Develop water demand report
  - Develop water availability report



# IDNR Presentation

## Facilitation

- **Blackhawk Hills Regional Council (BHRC) facilitates process with support of other regional planning organizations**
  - Facilitate meetings of the regional committee
  - Provide guidance to the regional committee
  - Manages funding for the regional committee
  - Coordinates between the regional committee and IDNR / PRI

# IDNR Presentation

## Local Review

- **Regional Committee**
  - Attend meetings
  - Provide feedback on water demand and water availability reports
  - Represent your sector
  - Develop report recommending solutions to water conflicts and shortages

# IDNR Presentation

## Intended Outcomes

- Determine water supply shortages and conflicts for all users and implement a solution prior to experiencing them.
- Sustainable water supply management plans with reoccurring planning reports revisions



# IDNR Presentation

## Statewide Water Supply Planning

- Establish all 10 regional committees with updated water supply reports
- Plan for an adequate water supply for current and the future growth of users and work to resolve water supply conflicts
- Provide resources for critical issues

# IDNR Presentation

## IDNR Contact



### Contact:

Wes Cattoor, Water Supply Engineer

Office of Water Resources

Department of Natural Resources

(217) 782-4847

[wes.cattoor@illinois.gov](mailto:wes.cattoor@illinois.gov)



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# Regional Water Supply Planning - ISWS

**Walt Kelly, Groundwater Geochemist**

Head, Groundwater Section

Illinois State Water Survey (ISWS)

Prairie Research Institute, University of Illinois

# ISWS Presentation

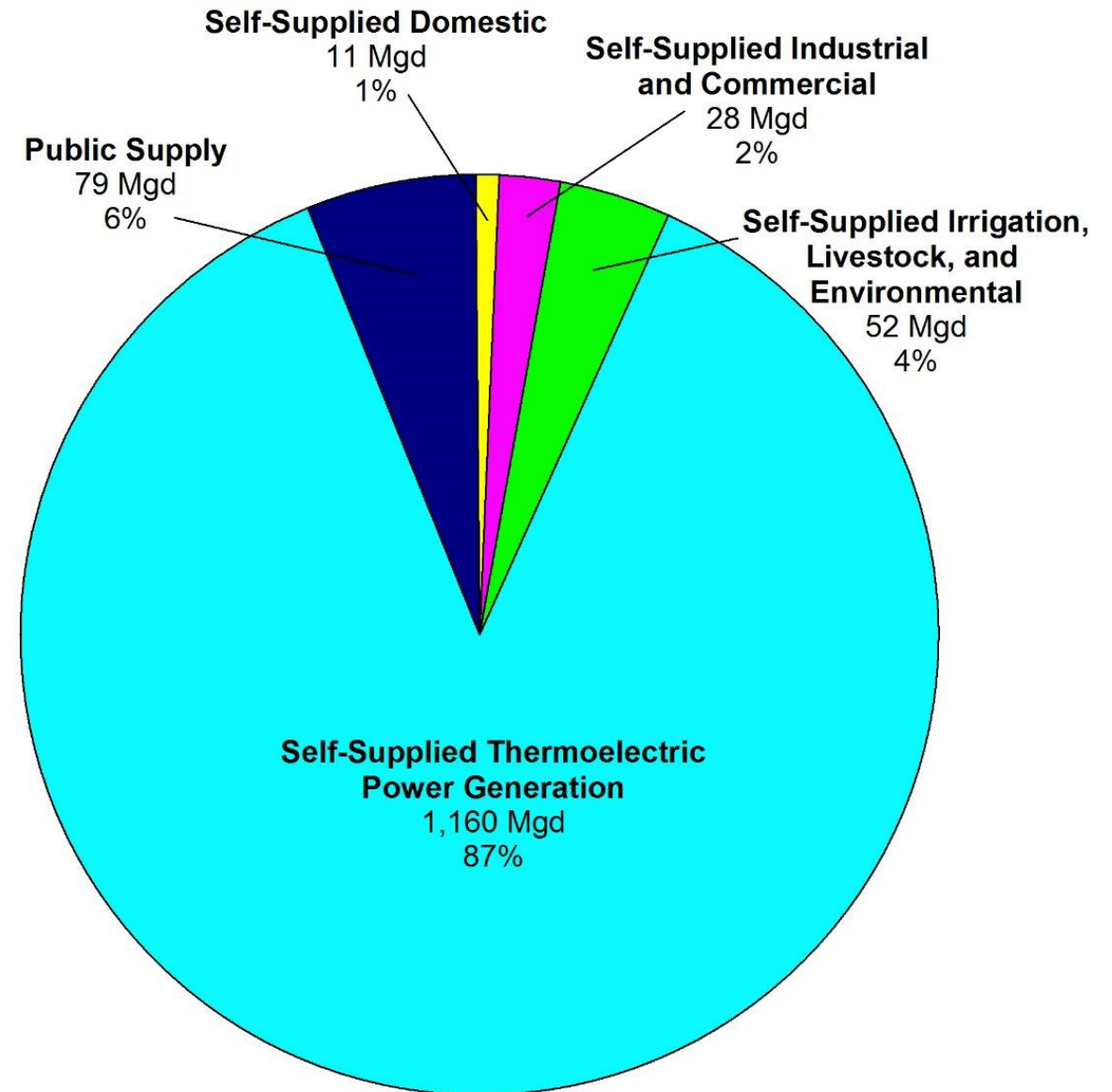
## ISWS Involvement

- **What the ISWS is providing:**
  - Future water demand scenarios
  - Report currently in draft form
  - Scientific assessment of water supply
  - Web maps and other online tools

# ISWS Presentation

## Future Water Demand Scenarios

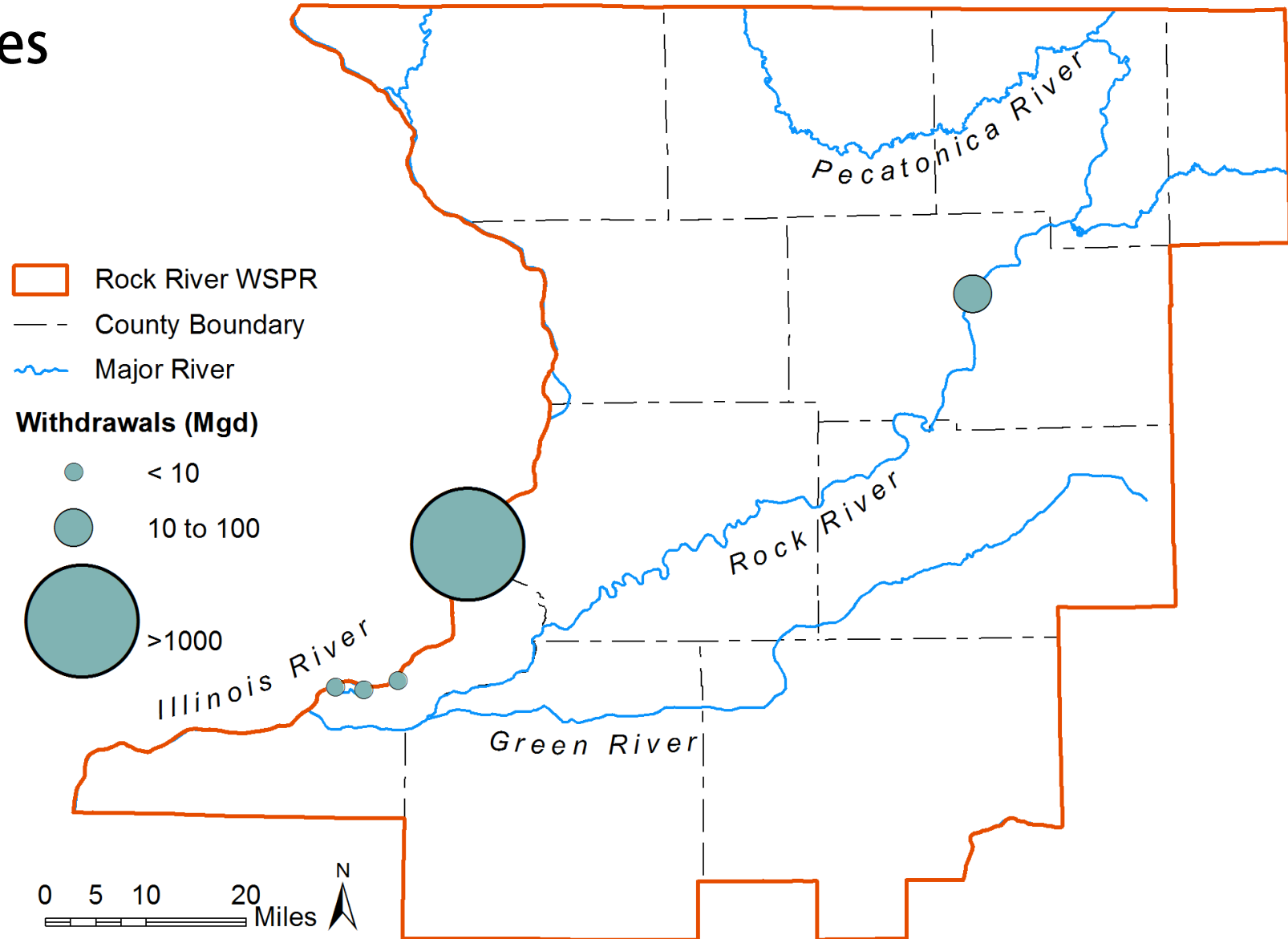
- Water use data from Illinois Water Inventory Program (IWIP)
- Assessing 5 major water use sectors
- Demands out to 2060
- Need input and guidance from regional committee



# ISWS Presentation

## Surface Water Resources

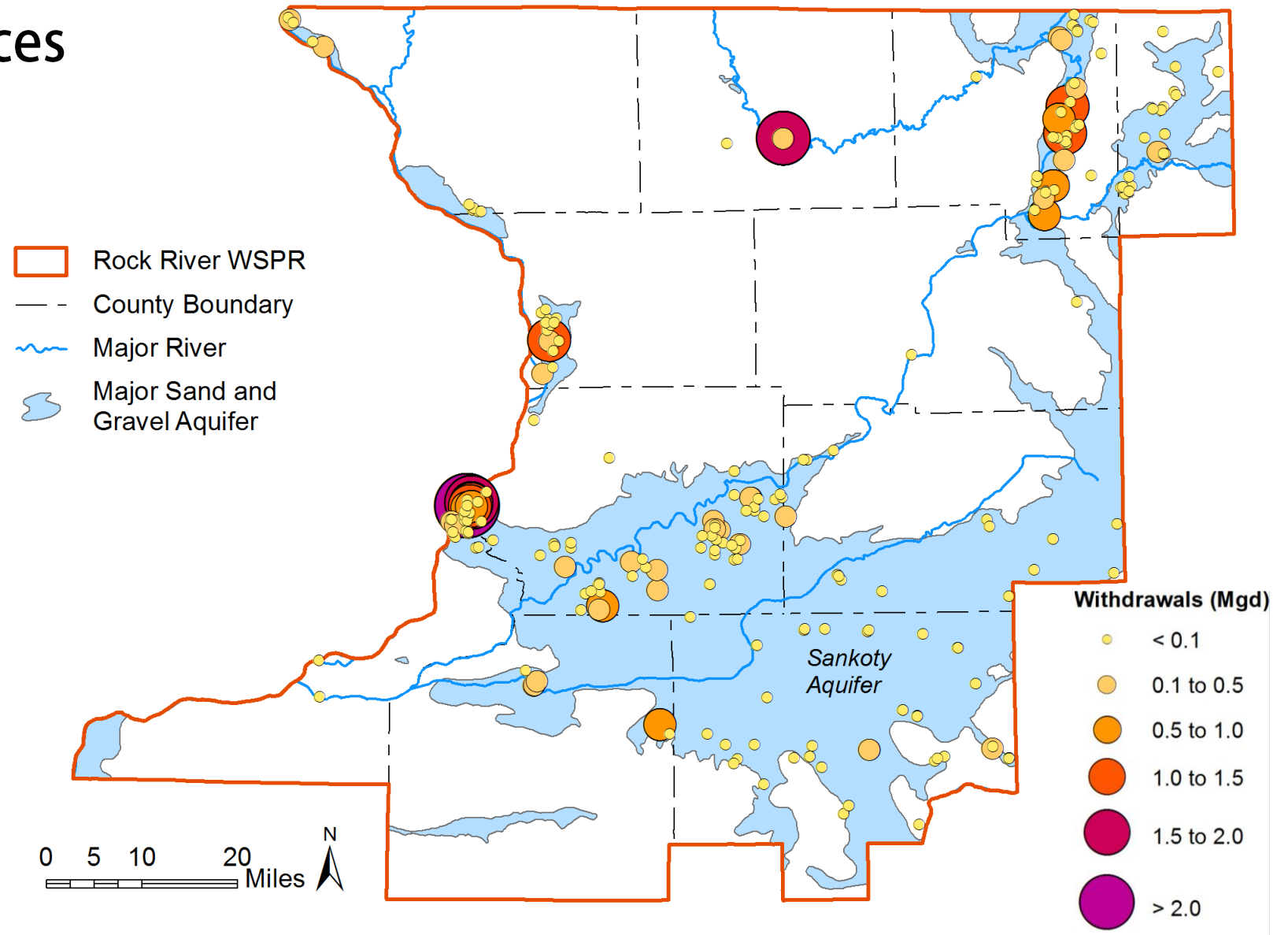
- Mississippi River and Rock River



# ISWS Presentation

## Groundwater Resources

- Shallow sand and gravel aquifers
- Bedrock aquifers



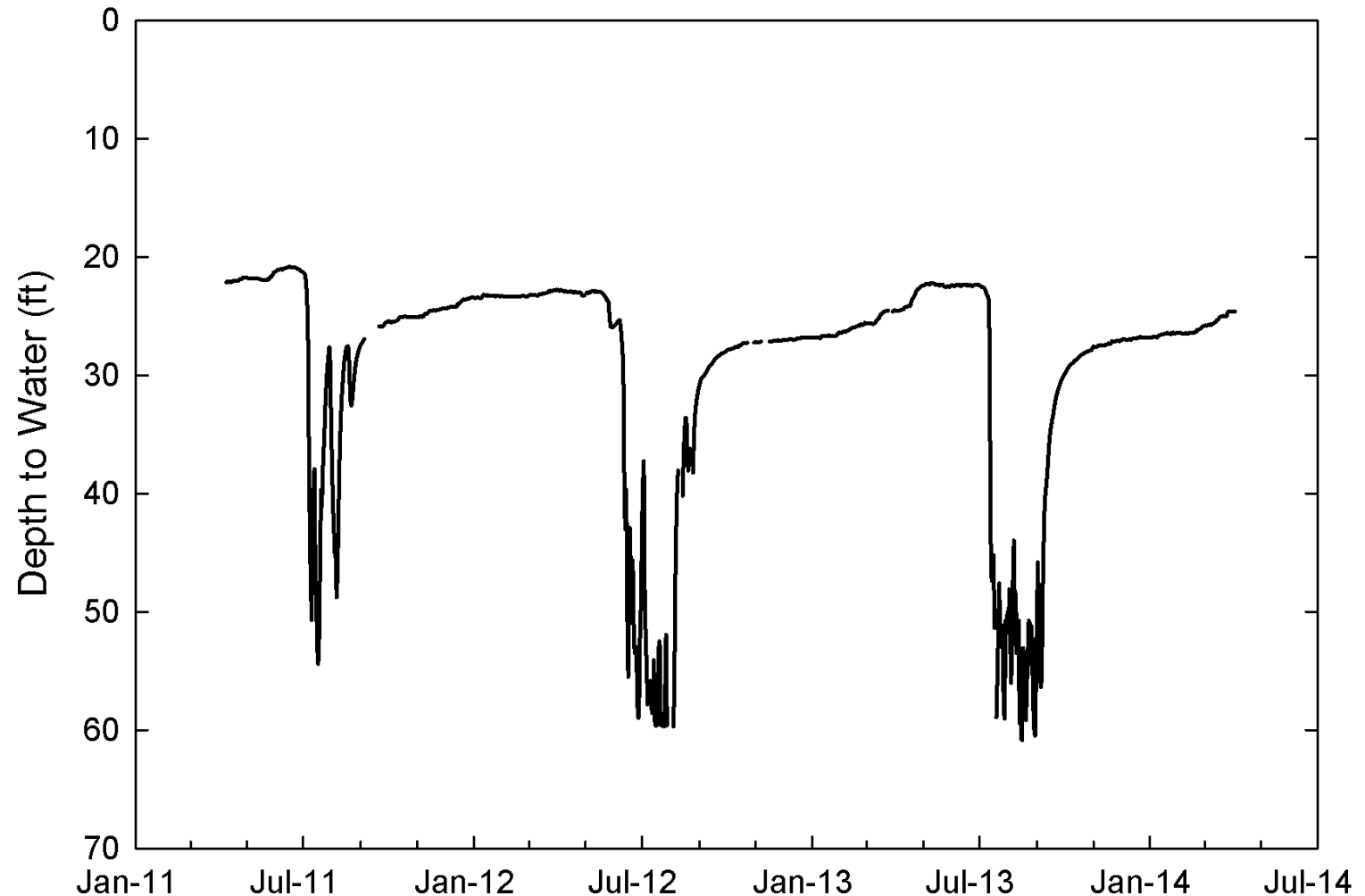


# ISWS Presentation

## General Data Collection and Interpretation

Lee 92-E

- Collect and interpret geological, hydrogeological, hydrologic, and water quality data



# ISWS Presentation

## General Data Collection and Interpretation

- Develop models to evaluate future scenarios
- Web page will contain information, links to reports and data, interactive webmaps
- <https://www.isws.illinois.edu/illinois-water-supply-planning/rock-river-region>

# ISWS Presentation

General Data Collection and Interpretation

## Contact:

Walt Kelly, Groundwater Geochemist  
Head, Groundwater Section

Illinois State Water Survey (ISWS)

Prairie Research Institute, University of Illinois

(217) 333-3729

[wkelly@illinois.edu](mailto:wkelly@illinois.edu)

# Water 2050 (Northeast Illinois)

Neighboring study background

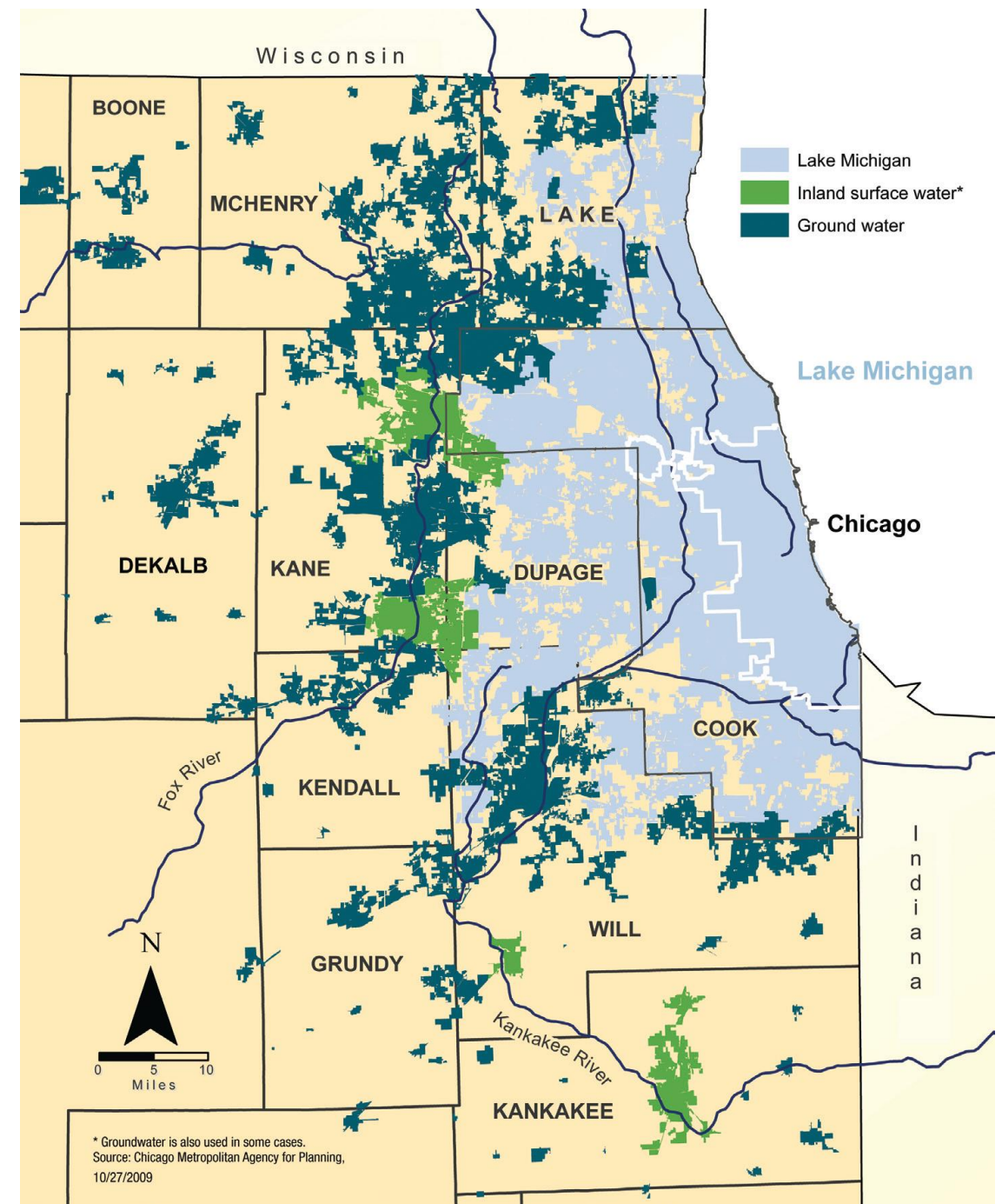
- Plan for Northeast Illinois
- Effort led CMAP
- 11 counties included
- Report published in 2010



# Water 2050

## Findings and results

- **Sources of water supply**
  - Light blue = Lake Michigan
  - Green = Inland surface water
  - Dark blue = Ground water



# Water 2050

## Findings and results

- 2005  
withdrawals by  
water source

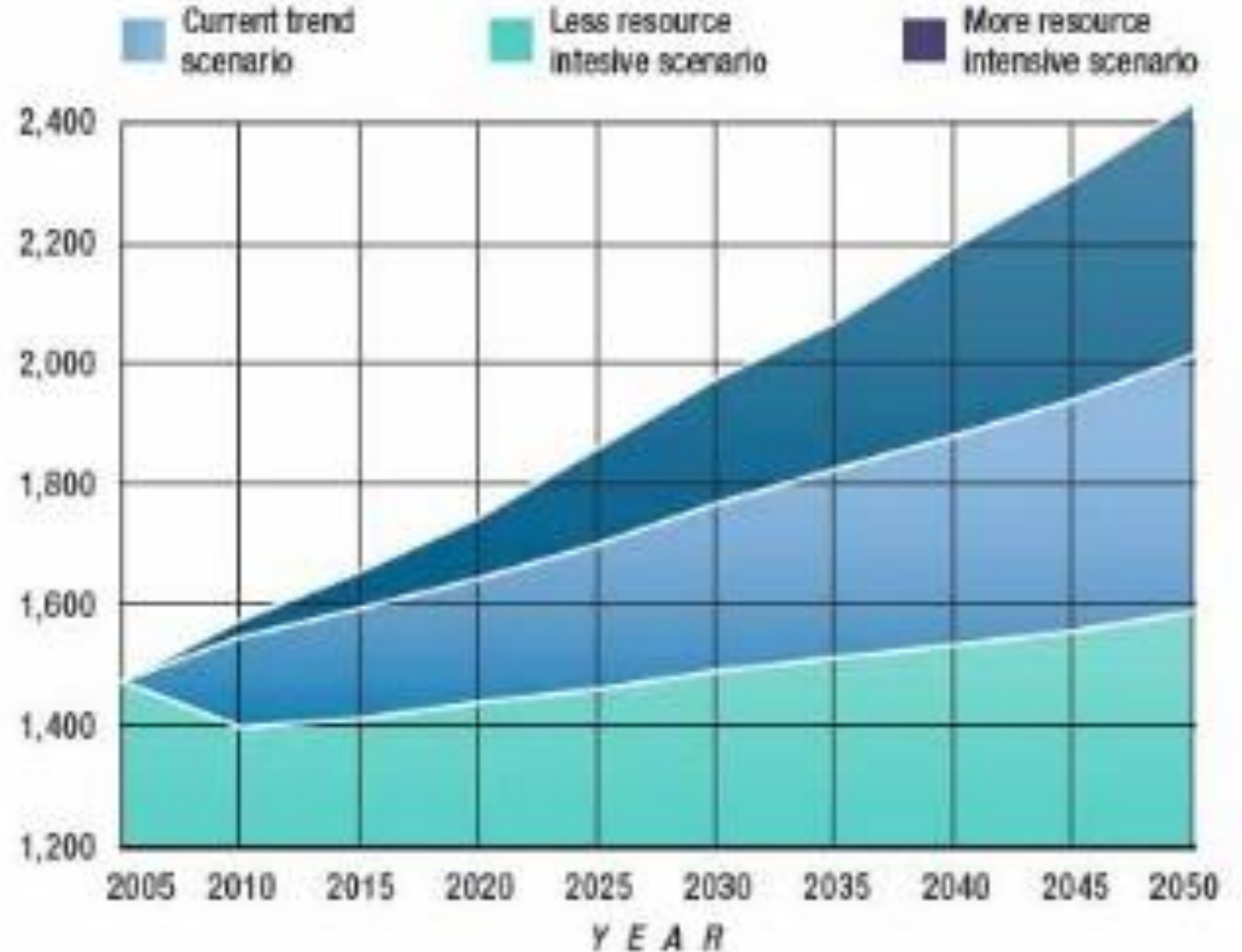


Sources: B. Dziegielewski and F.J. Chowdhury, Southern Illinois University Carbondale;  
Chicago Metropolitan Agency for Planning

# Water 2050

## Findings and results

- **Scenario water withdrawals**
  - Numbers represent million gallons per day



Source: B. Dziegielewska and F.J. Clowdury, 2008, Southern Illinois University Carbondale



# Water 2050

## Findings and results

- Demand management and other strategies including:
  - Recommended conservation approaches
  - Public information and education



# Water 2050

Real world example: Joliet

- 2017 article in **Chicago Tribune**
- Reported that municipal wells in Joliet could run dry in 15 years
- Data comes from ISWS
- As a result, city and county working on conservation measures and alternative sourcing



# **Regional Water Supply Planning - BHRC**

**Daniel Payette, Executive Director**

**Blackhawk Hills Regional Council**

# 10-County Water Study Kickoff

## Initiator

- State of Illinois, through a 2006 executive order
- IDNR & ISWS given planning responsibilities and have since coordinated with regions



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# 10-County Water Study Kickoff

## BHRC Background

- Regional planning organization for Northwest Illinois (est. 1974)
- 6 counties, 18-member board
  - 3 reps from each of the following counties: Carroll, Jo Daviess, Lee, Ogle, Stephenson, & Whiteside
- Community & economic development
- Natural resources conservation
- General planning
  - Comprehensive plans, freight, greenways/trails, water, energy efficiency, broadband, strategic planning, etc.
- Grant, incentives, & program assistance/administration

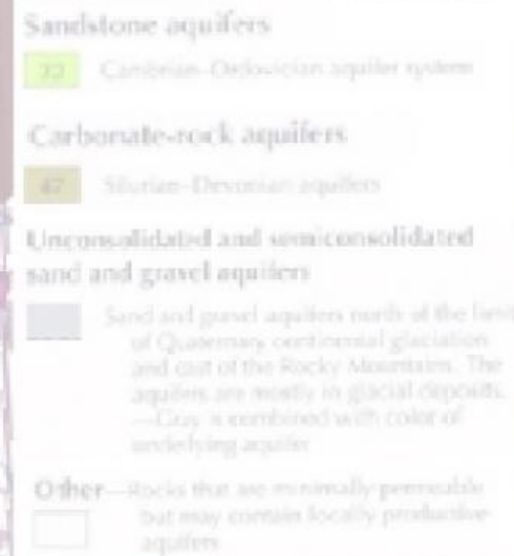
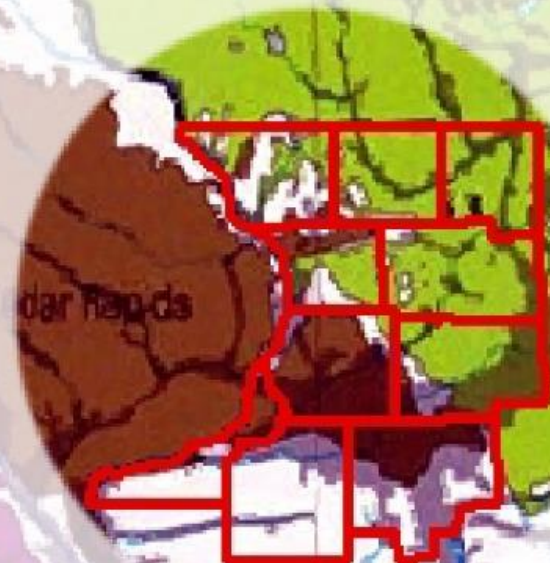




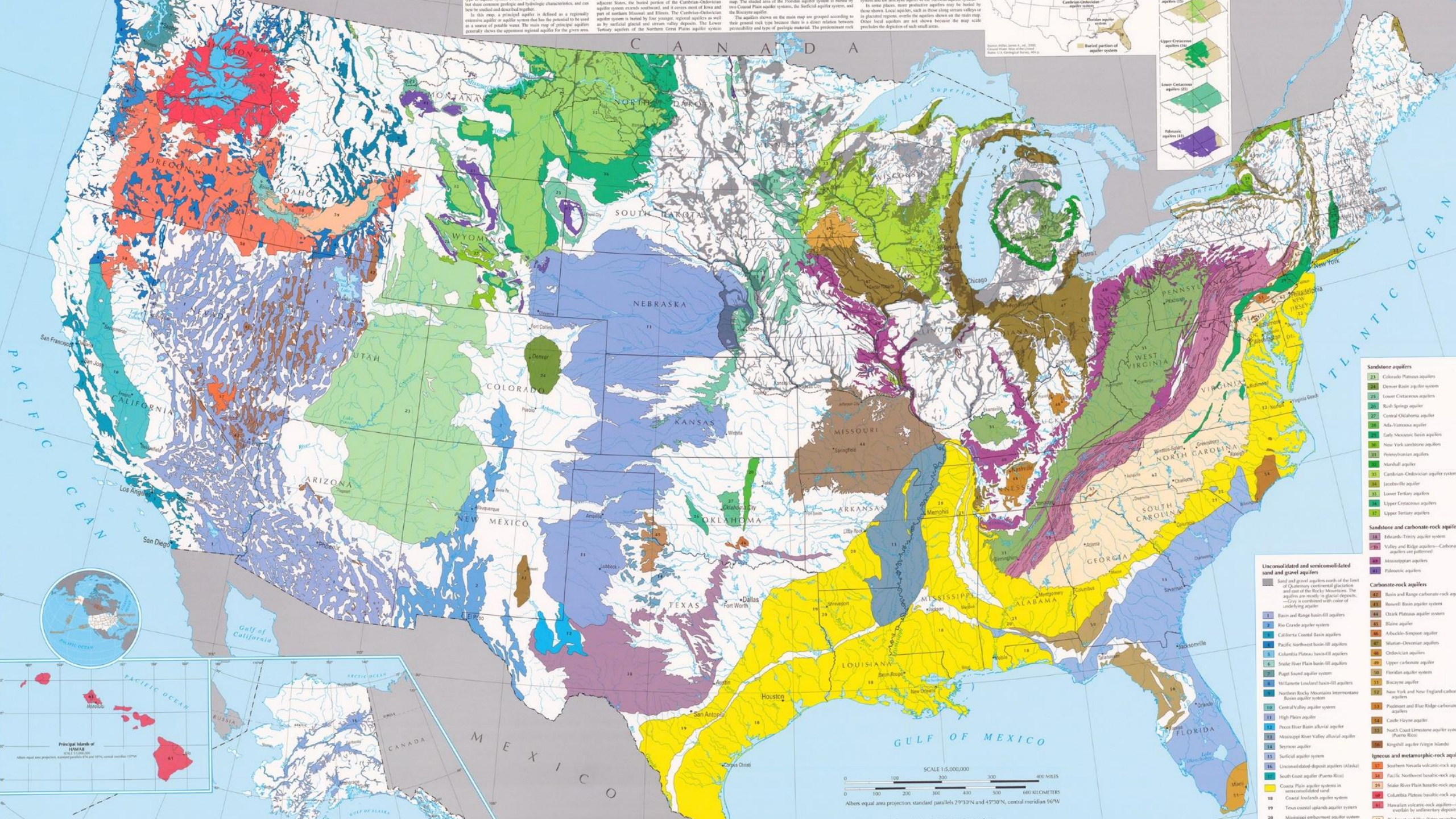
# 10-County Water Study Kickoff

Study Area

- Bureau
- Carroll
- Henry
- Jo Daviess
- Lee
- Ogle
- Rock Island
- Stephenson
- Whiteside
- Winnebago

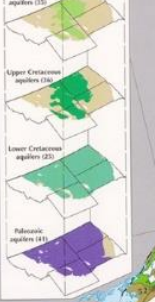






...not share common geologic and hydrologic characteristics, and can  
not be studied and described together.  
In this map, a principal aquifer is defined as a regionally  
extensive aquifer or aquifer system that has the potential to be used  
as a source of public water. The main map of principal aquifers  
generally shows the uppermost regional aquifer for the given area.  
The shaded area of the Pacific aquifer system is limited by  
two coastal plain aquifer systems, the Pacific aquifer system, and  
the Biscayne aquifer.  
The aquifer shown on the main map are grouped according to  
their general rock type because there is a direct relation between  
permeability and type of geologic material. The predominant rock  
systems are as follows:  
Its some places, more productive aquifers may be hidden by  
these shows. Local aquifers, such as those along urban valleys or  
in glacial regions, overlie the aquifers shown on the main map.  
Other local aquifers are not shown because the map scale  
precludes the depiction of such small areas.

Source: Miller, James H., ed. 1990.  
Geological Survey of the United States.  
Geological Survey, Washington, D.C.



- Sandstone and carbonate-rock aquifers**
- 21 Colorado Plateau aquifers
  - 22 Denver Basin aquifer system
  - 23 Lower Cretaceous aquifers
  - 24 Rush Springs aquifer
  - 25 Central Oklahoma aquifer
  - 26 Ada-Vernon aquifer
  - 27 Early Mesozoic basin aquifers
  - 28 New York sandstone aquifers
  - 29 Pennsylvania aquifers
  - 30 Marshall aquifer
  - 31 Cambrian-Ordovician aquifer system
  - 32 Jacobsville aquifer
  - 33 Lower Tertiary aquifers
  - 34 Upper Cretaceous aquifers
  - 35 Upper Tertiary aquifers

- Sandstone and carbonate-rock aquifers**
- 36 Edwards-Tertiary aquifer system
  - 37 Valley and Ridge aquifers—Carbonate aquifers are patterned
  - 38 Mississippi aquifers
  - 39 Paleozoic aquifers

- Carbonate-rock aquifers**
- 40 Basin and Range carbonate-rock aquifer
  - 41 Roswell Basin aquifer system
  - 42 Ozark Plateau aquifer system
  - 43 Blaine aquifer
  - 44 Atchafalaya-Simpson aquifer
  - 45 Silurian-Devonian aquifers
  - 46 Ordovician aquifers
  - 47 Upper carbonate aquifer
  - 48 Floridan aquifer system
  - 49 Brincrine aquifer
  - 50 New York and New England carbonate aquifers
  - 51 Piedmont and Blue Ridge carbonate aquifers
  - 52 Castle Hayne aquifer
  - 53 North Coast Limestone aquifer system
  - 54 Puerto Rico
  - 55 Kingshill aquifer (Virgin Islands)

- Igneous and metamorphic-rock aquifers**
- 56 Southern Nevada volcanic-rock aquifer
  - 57 Pacific Northwest basaltic-rock aquifer
  - 58 Snake River Plain basaltic-rock aquifer
  - 59 Columbia Plateau basaltic-rock aquifer
  - 60 Hawaiian volcanic-rock aquifers—overlain by sedimentary deposits
  - 61 Mississippi embayment aquifer system

- Unconsolidated sand and gravel aquifers**
- 1 Sand and gravel aquifers north of the limit of Quaternary continental glaciation and east of the Rocky Mountains. The aquifers are mostly in glacial deposits. \*City is continued with center of underlying aquifer
  - 2 Basin and Range basin-fill aquifers
  - 3 Rio Grande aquifer system
  - 4 California Coastal Basin aquifers
  - 5 Pacific Northwest basin-fill aquifers
  - 6 Columbia Plateau basin-fill aquifers
  - 7 Snake River Plain basin-fill aquifers
  - 8 Puget Sound aquifer system
  - 9 Willamette Lowland basin-fill aquifers
  - 10 Northern Rocky Mountains intermontane Basin aquifer system
  - 11 Central Valley aquifer system
  - 12 High Plains aquifer
  - 13 Pecos River Basin alluvial aquifer
  - 14 Mississippi River Valley alluvial aquifer
  - 15 Seymour aquifer
  - 16 Surficial aquifer system
  - 17 Unconsolidated-deposit aquifers (Alaska)
  - 18 South Coast aquifer (Puerto Rico)
  - 19 Coastal Plain aquifer systems in unconsolidated sand
  - 20 Coastal lowlands aquifer system
  - 21 Texas coastal uplands aquifer system
  - 22 Mississippi embayment aquifer system

SCALE 1:15,000,000  
0 100 200 300 400 500 600 KILOMETERS  
0 100 200 300 400 500 MILES  
Albers equal area projection, standard parallels 29°30' N and 45°30' N, central meridian 96° W



# 10-County Water Study Kickoff

## Partners



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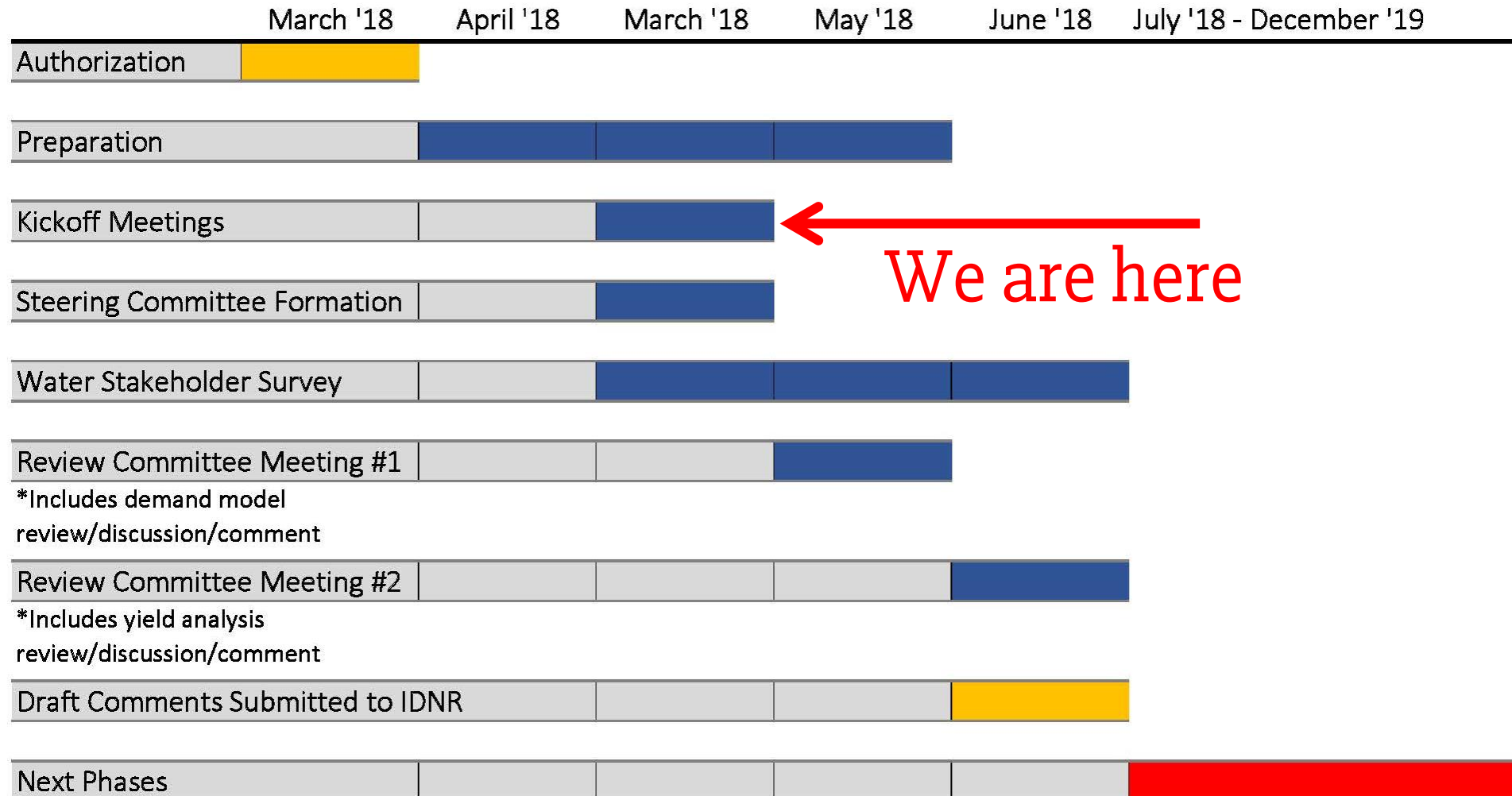
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- Bi-State Regional Commission
- Blackhawk Hills Regional Council
- North Central Illinois Council of Government
  - Region 1 Planning Council
- Illinois State Water Survey
- Illinois Department of Natural Resources

# 10-County Water Study Kickoff

Timeline for Phase 1 — Q1 & Q2 2018 (two-year process overall)



# 10-County Water Study Kickoff

## SWOT

### 1. SWOT

### 2. Discussion

- What is my greatest concern re: water supply?
- What is the region's greatest opportunity re: water supply?
- What is the region's greatest challenge re: water supply?
- What do I, my community, or my business want out of this planning process or addressed in the final report?
- Who needs to be on the regional committee?

# 10-County Water Study Kickoff

Forming the regional committee

- Phase 1 includes two regional committee meetings
  - One in May 2018, one in June 2018
- Need regional committee volunteers (representatives) now
- Representatives will include...

# 10-County Water Study Kickoff

Forming the regional committee

## Representatives by Geography

<u>Jo Daviess</u>	<u>Stephenson</u>	<u>Winnebago</u>
<u>Carroll</u>	<u>Ogle</u>	<u>Regional</u> BHRC BSRC NCICG R1PC
<u>Whiteside</u>	<u>Lee</u>	
<u>Rock Island</u>	<u>Henry</u>	
		<u>Bureau</u>

## Representatives by Industry

<u>Recreation &amp; Hospitality</u>	<u>Manufacturing</u>	<u>Agriculture</u>
<u>Food Processing</u>	<u>Municipal &amp; Public Sector</u>	<u>Individuals</u>
<u>Public Safety</u>	<u>Energy Production</u>	<u>Transportation</u>
<u>Other</u>		

# 10-County Water Study Kickoff

Forming the regional committee

- Regional committee will be asked to contribute:
  - General comments, critiques, and ideas
  - Future land use and development
  - Population growth and decline
  - Impacted industries
  - Trends and anticipated trends
  - Other issues that arise through discussion
- BHRC will support to the committee

# 10-County Water Study Kickoff

## Water survey

[blackhawkhills.com/watersurvey](https://blackhawkhills.com/watersurvey)

Tell your friends.

**Section 1: If you DON'T own or manage a farm or business located in Northwest Illinois, please skip this section.**

**If you own or manage a farm or business in Northwest Illinois, where does your farm or business get water? Check all that apply.**

- ☐ Municipal system
- ☐ Private well
- ☐ Surface water (lake, rivers, etc.)
- ☐ I pick up water or it is delivered to my farm or business
- ☐ I don't know
- ☐ Other: \_\_\_\_\_

**What is my primary industry? (e.g., food processing, manufacturing, energy production, etc.)**

\_\_\_\_\_

**What are the most important uses of water at my farm or business? (including specific industrial or other processes)**

\_\_\_\_\_

\_\_\_\_\_

**My farm or business' use of water is**

- ☐ Increasing
- ☐ About the same
- ☐ Decreasing
- ☐ I don't know

**My farm or business has a continuity plan for dealing with water supply shortages.**

- ☐ Yes
- ☐ No
- ☐ I don't know

**How important is ground or surface water to your farm or business?**

- ☐ Very important
- ☐ Important
- ☐ Somewhat important
- ☐ Not important

**Does your farm or business in Northwest Illinois have stormwater runoff issues? Check all that apply.**

- ☐ Yes (on my farm or business property)
- ☐ Yes (on another person's property)
- ☐ Yes (on public property)
- ☐ No



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