

***WISCONSIN GROUNDWATER  
CHARACTERISTICS AND  
REGULATIONS:  
A PRESENTATION IN  
THREE PARTS***

***BY***

***ROBERT NAUTA, P.G.***

***PRESIDENT***

***RJN ENVIRONMENTAL SERVICES, LLC***

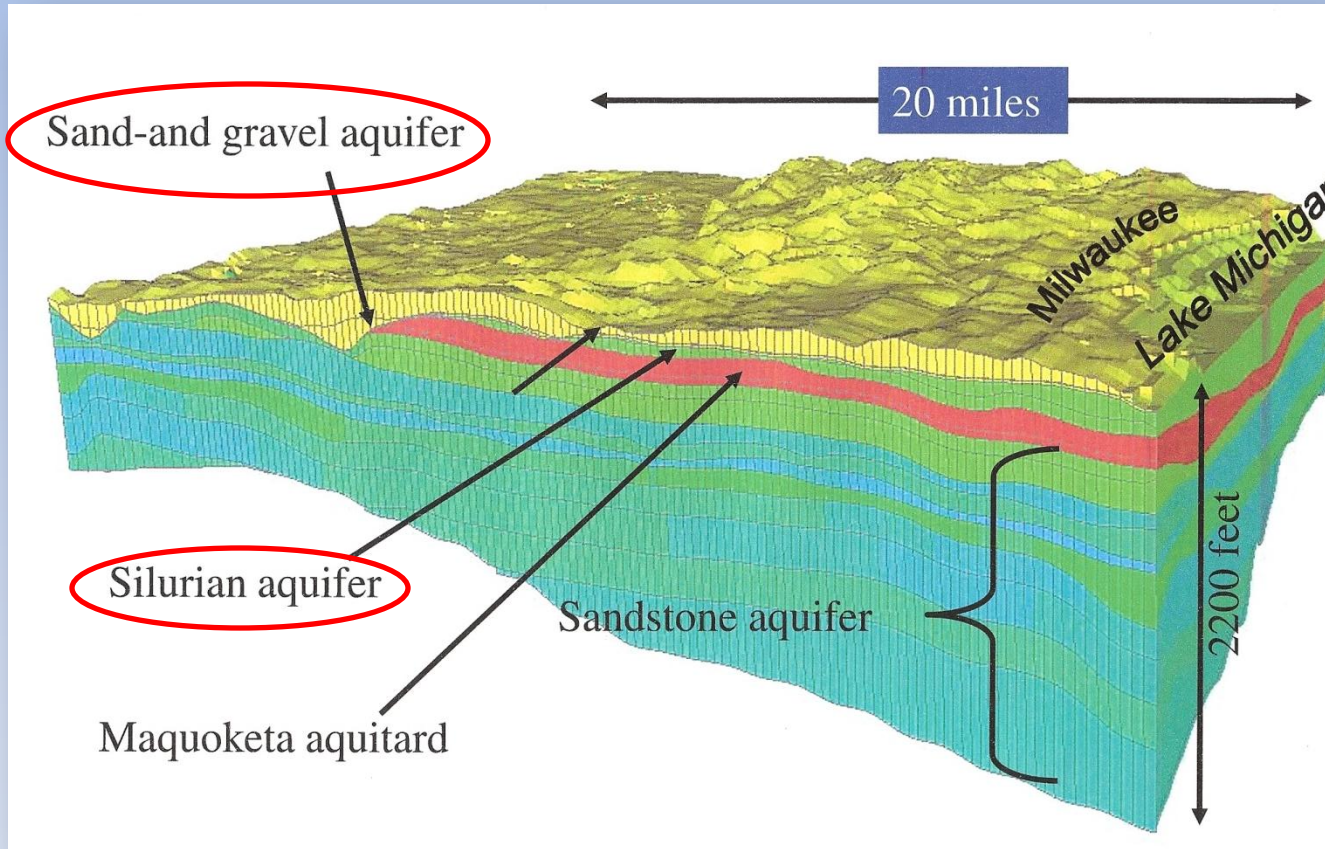


# ***PART 1***

## ***KEY CONCEPTS IN HYDROGEOLOGY***

- ***UNCONFINED AQUIFER***

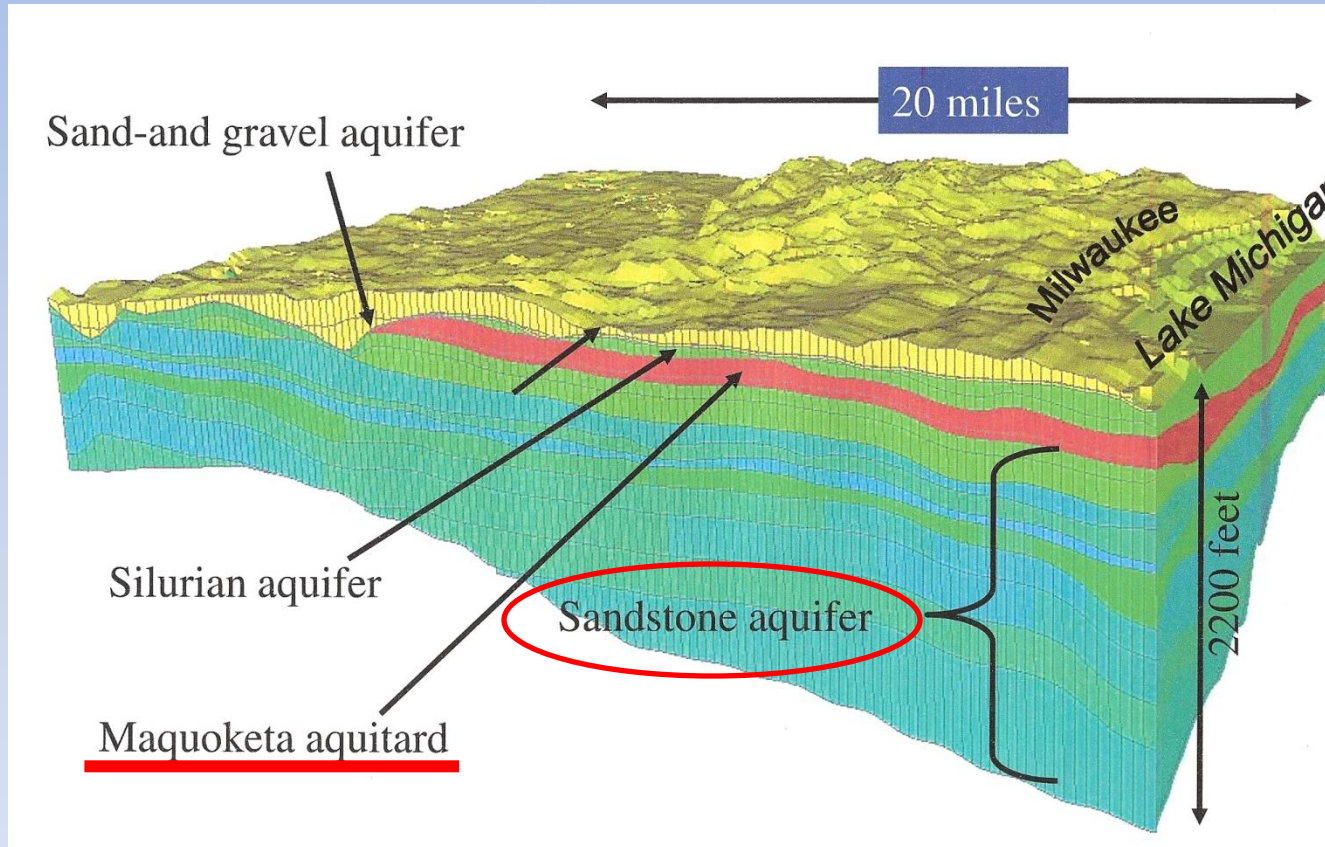
# UNCONFINED AQUIFER



# ***HYDROGEOLOGY - KEY CONCEPTS***

- ***UNCONFINED AQUIFER***
- ***CONFINED AQUIFER***

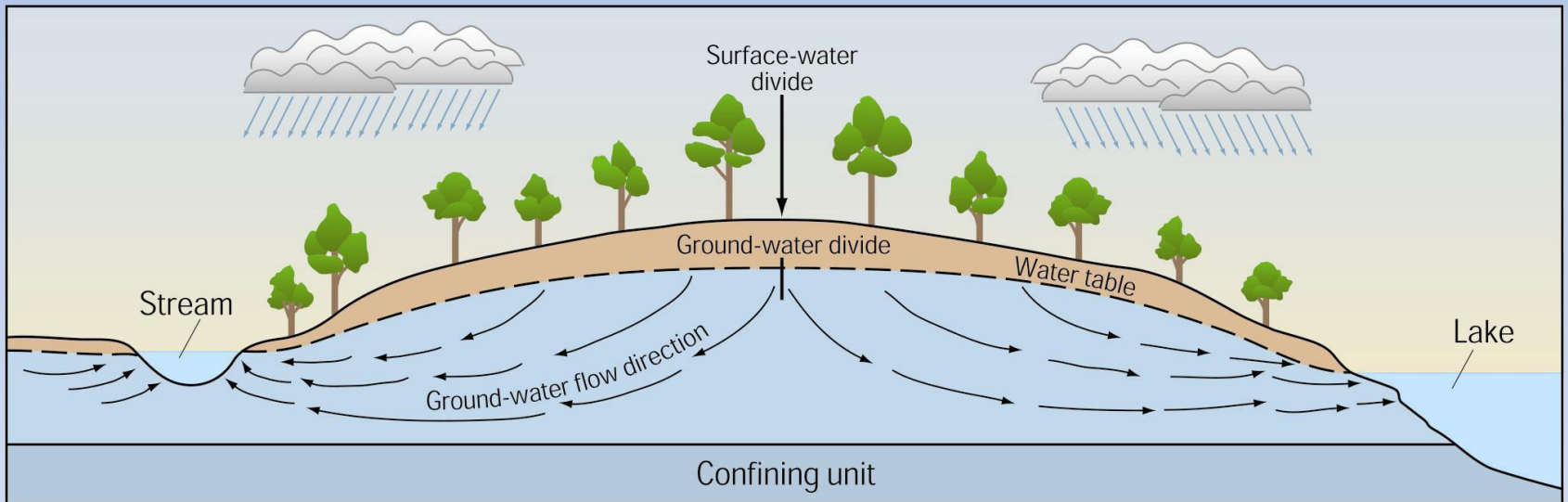
# CONFINED AQUIFER



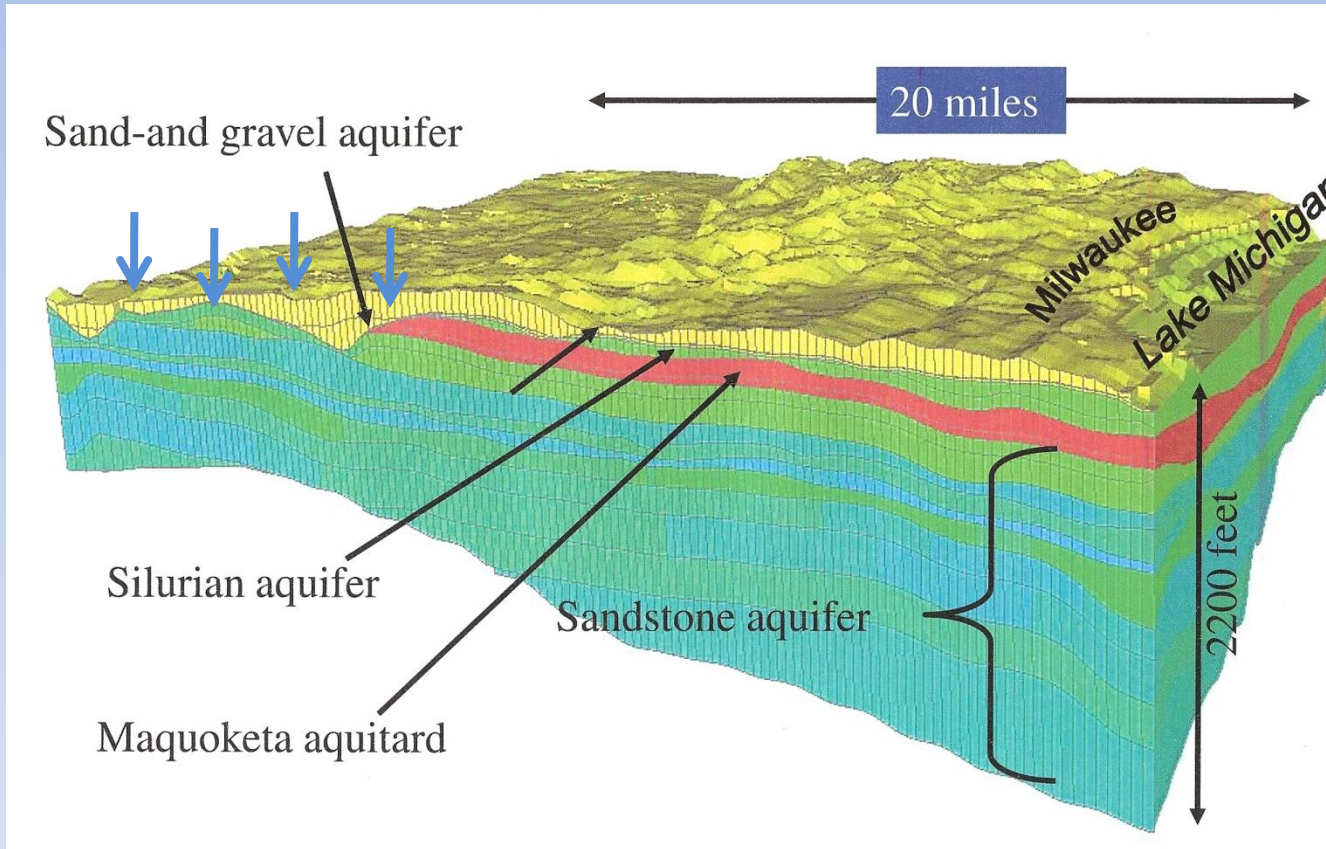
# ***HYDROGEOLOGY - KEY CONCEPTS***

- ***UNCONFINED AQUIFER***
- ***CONFINED AQUIFER***
- ***RECHARGE***

# RECHARGE - UNCONFINED AQUIFER



# RECHARGE - CONFINED AQUIFER

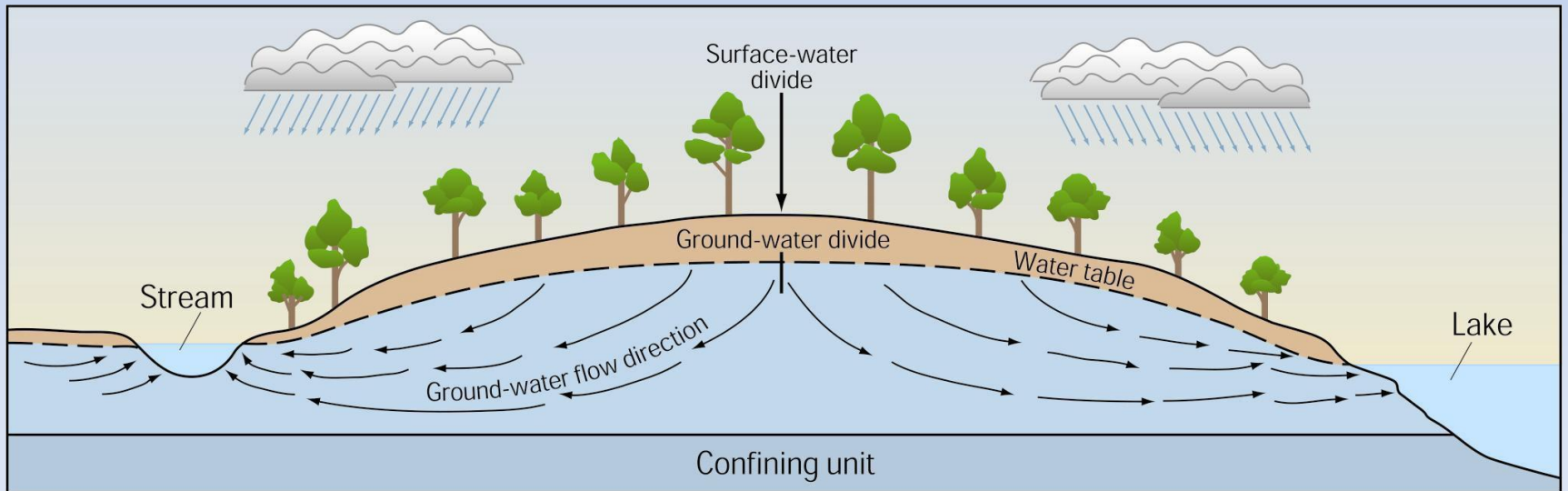
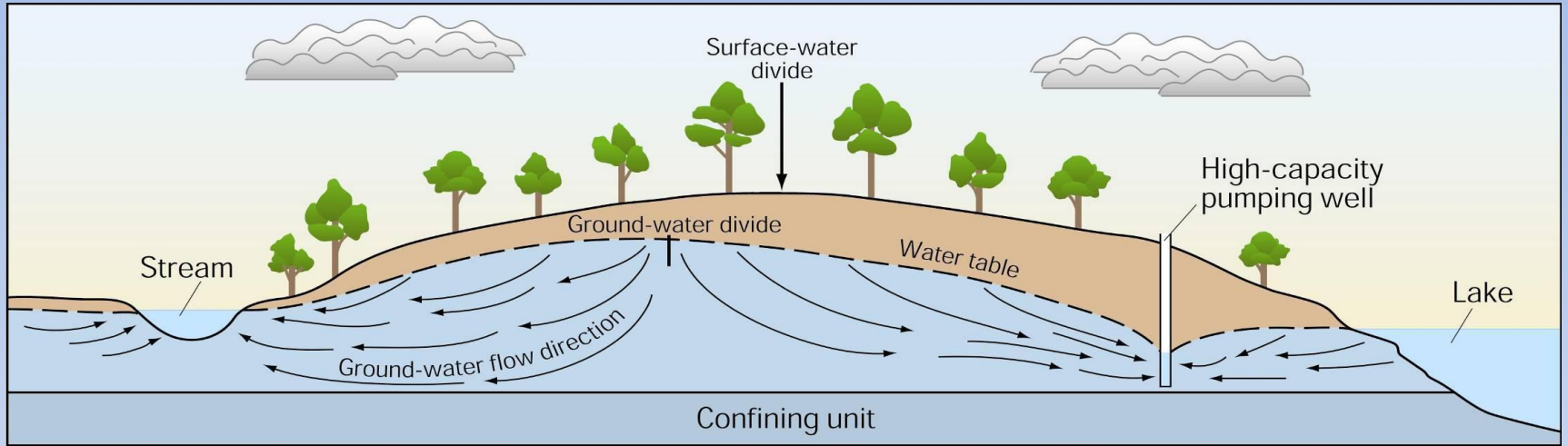




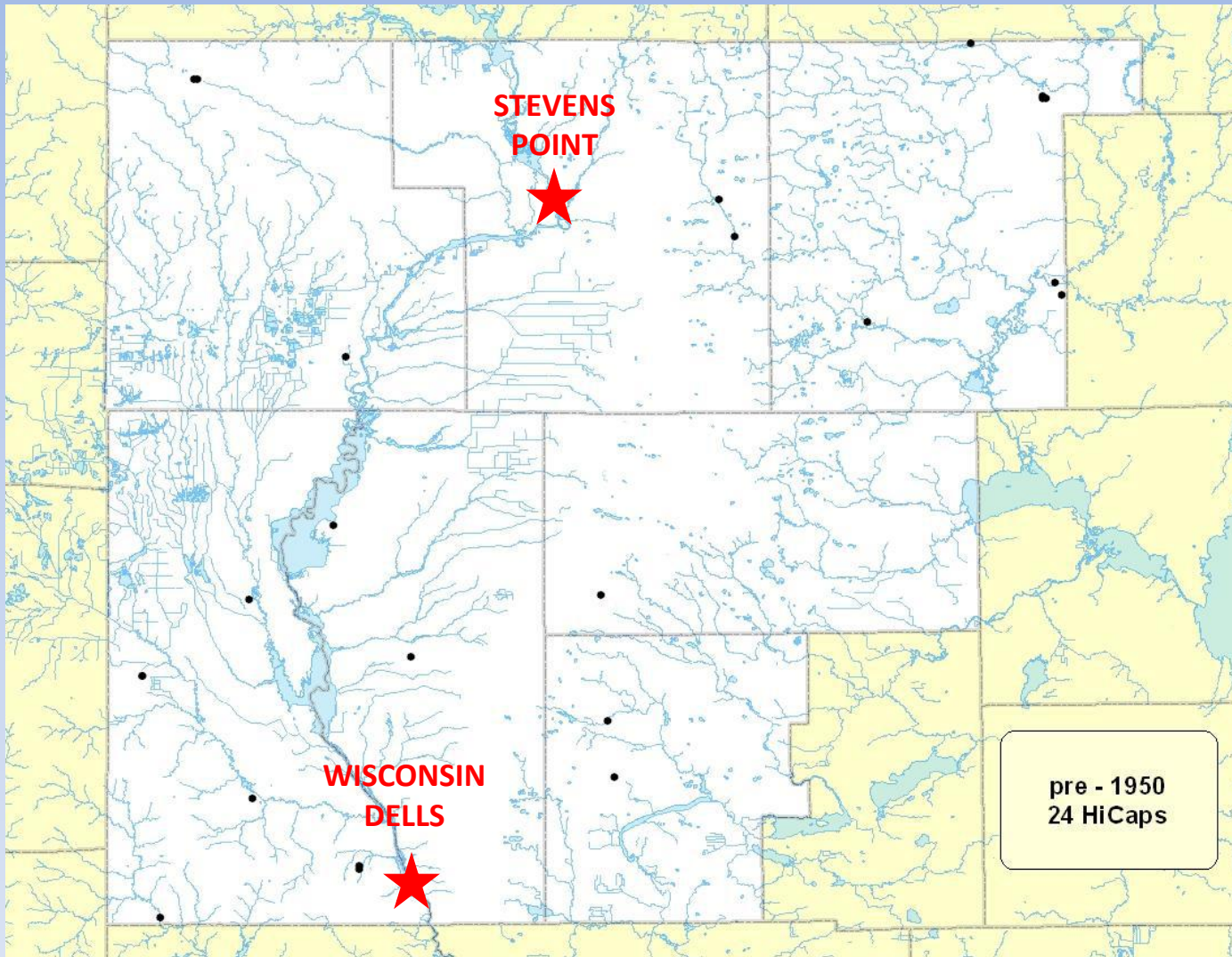
# ***HYDROGEOLOGY - KEY CONCEPTS***

- ***UNCONFINED AQUIFER***
- ***CONFINED AQUIFER***
- ***RECHARGE***
- ***IMPACTS***
  - ***Changes in recharge***
  - ***Pumping***

# EFFECTS OF PUMPING

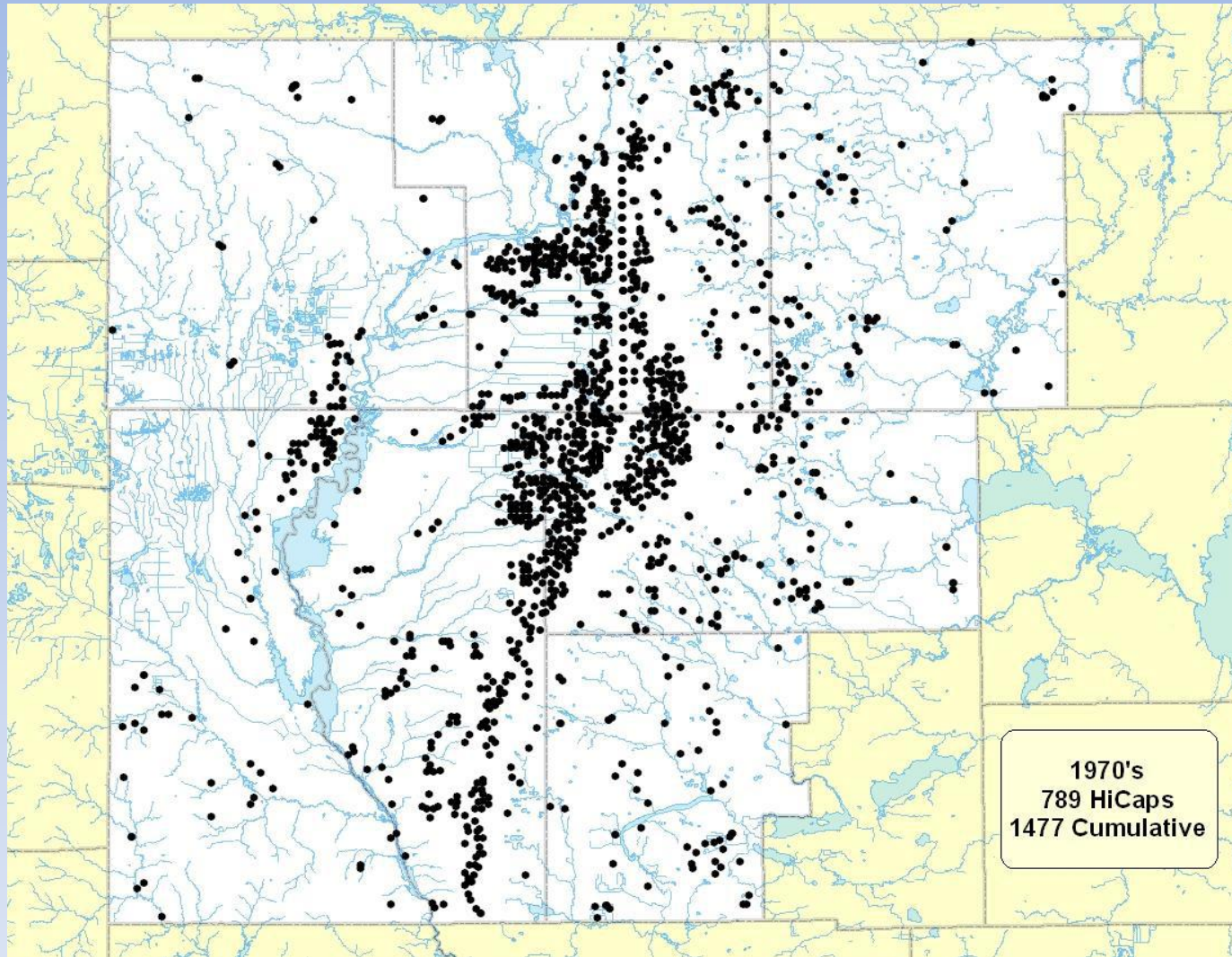


# EFFECTS OF PUMPING



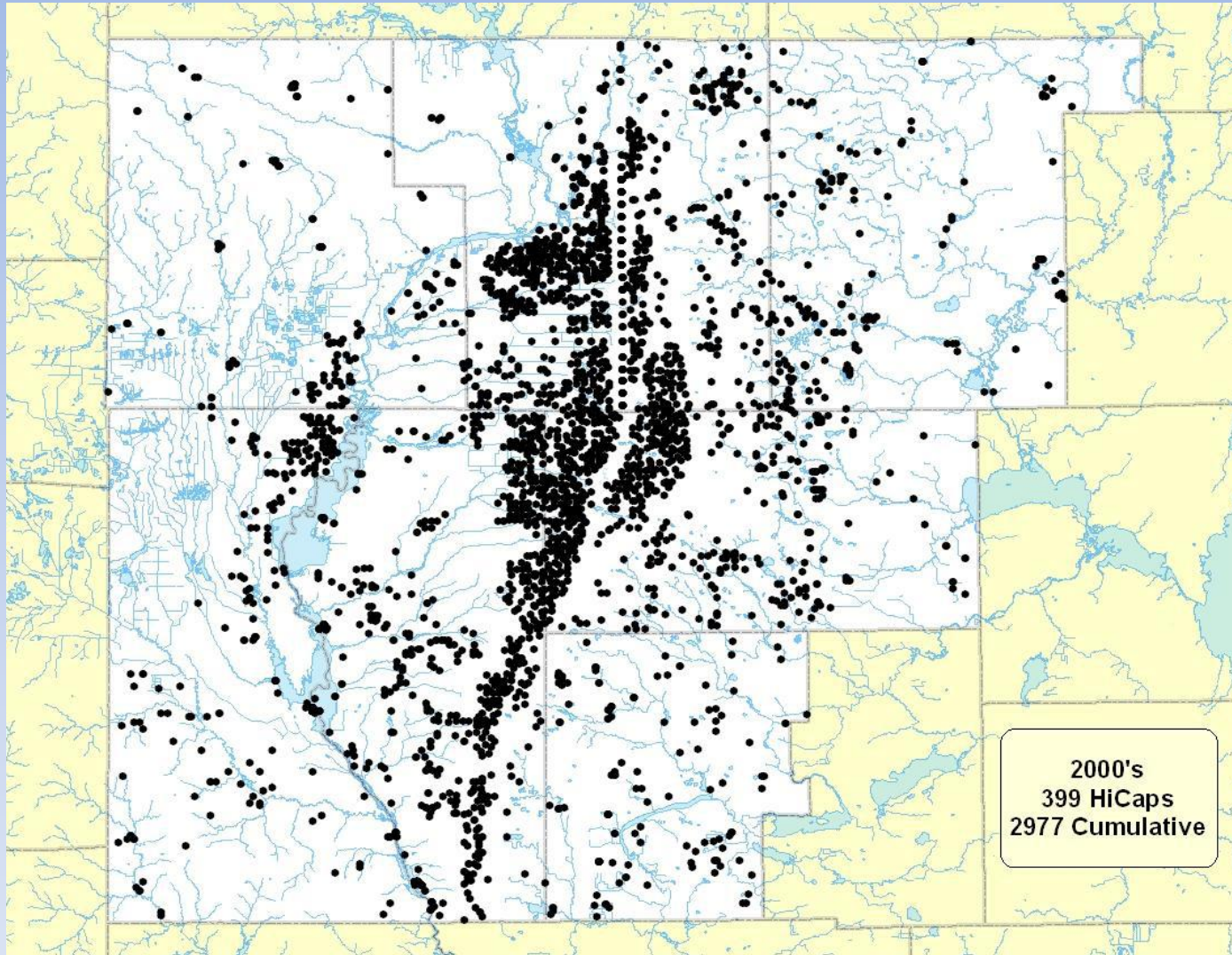
SOURCE: Dr. George Kraft, UW-Stevens Point

# ***EFFECTS OF PUMPING***



SOURCE: Dr. George Kraft, UW-Stevens Point

# EFFECTS OF PUMPING



SOURCE: Dr. George Kraft, UW-Stevens Point

# ***EFFECTS OF PUMPING***

## ***Little Plover River – 1980s***



SOURCE: Dr. George Kraft, UW-Stevens Point

# ***EFFECTS OF PUMPING***

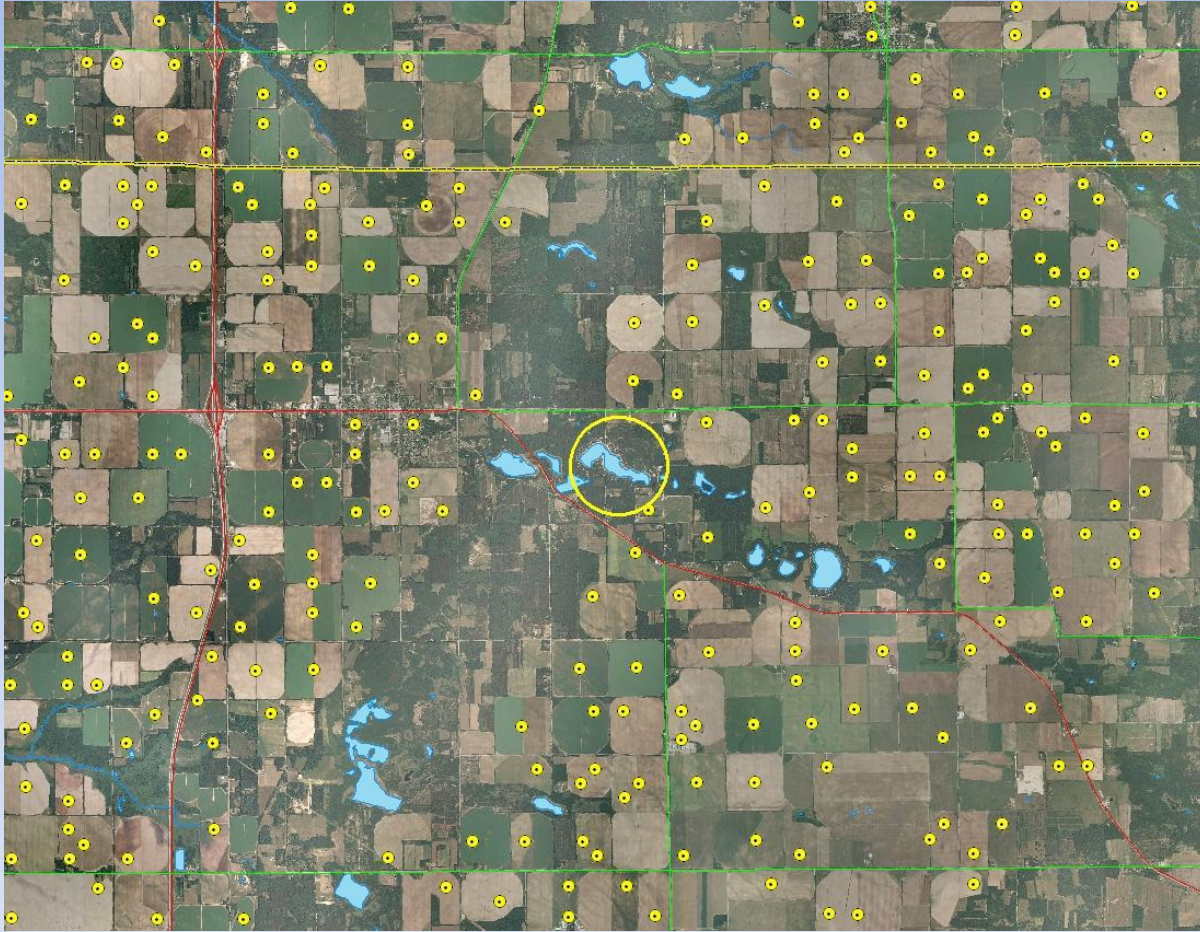
## ***Dry stretches – 2005 - 2009***



SOURCE: Dr. George Kraft, UW-Stevens Point

# ***EFFECTS OF PUMPING***

## ***Long Lake – Waushara County***



SOURCE: Dr. George Kraft, UW-Stevens Point



# ***EFFECTS OF PUMPING***

## ***Long Lake – Waushara County***



***1950s***

***1994***



# ***EFFECTS OF PUMPING***

## ***Long Lake – Waushara County***



***Spring 2006***

***July 2006***



# ***PART 2***

## ***CURRENT GROUNDWATER LAW***

- ~~Cannot adversely impact a lake~~
- ~~Cannot adversely impact a stream~~
- ~~Cannot adversely impact a wetland~~
- ~~Cannot adversely impact a private water supply~~
- Cannot adversely impact a municipal water supply
- Approval – not a permit
- Properties – not wells

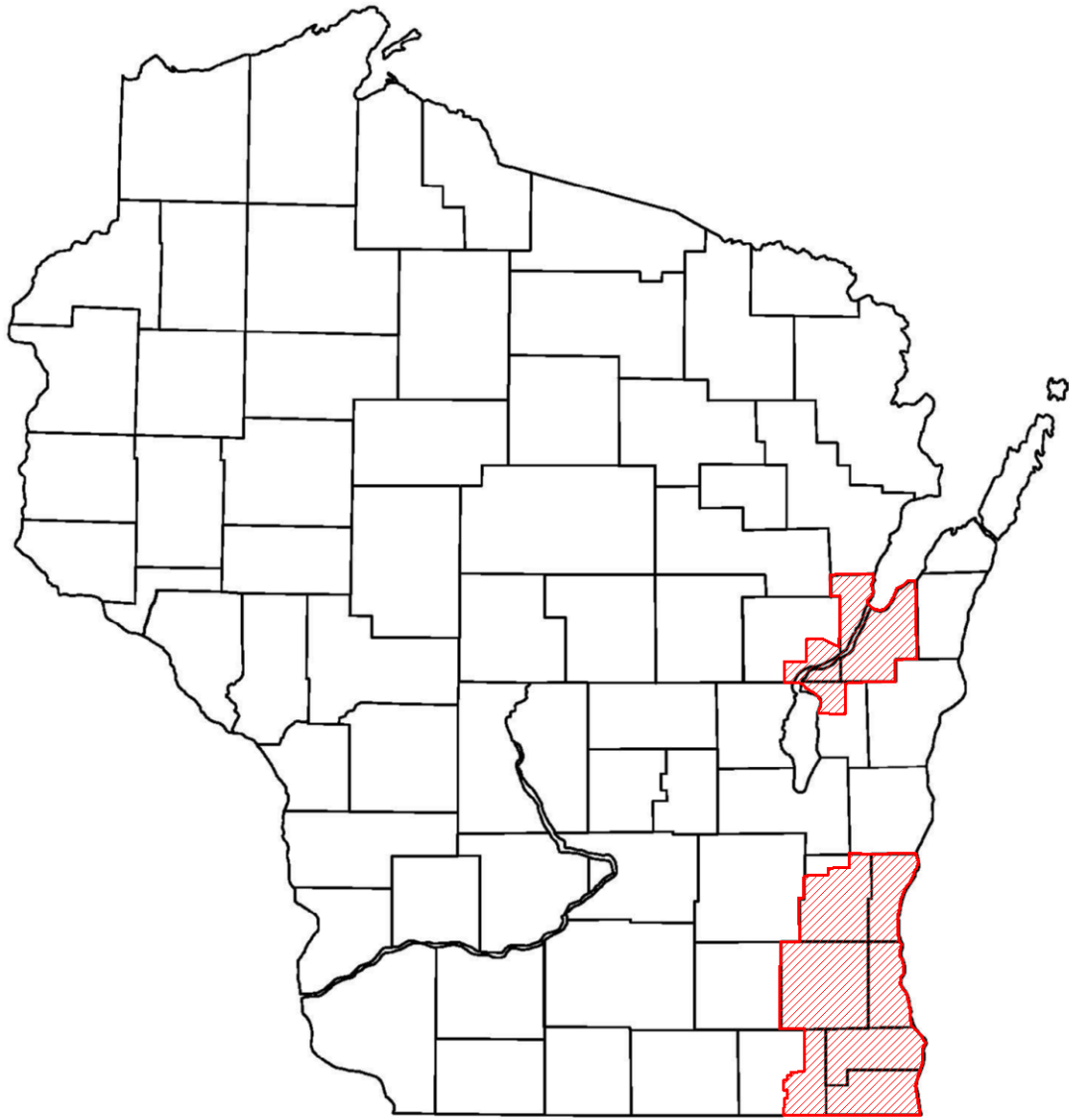
# ***2003 WI ACT 310***

**Act 310 provided minimal protections**

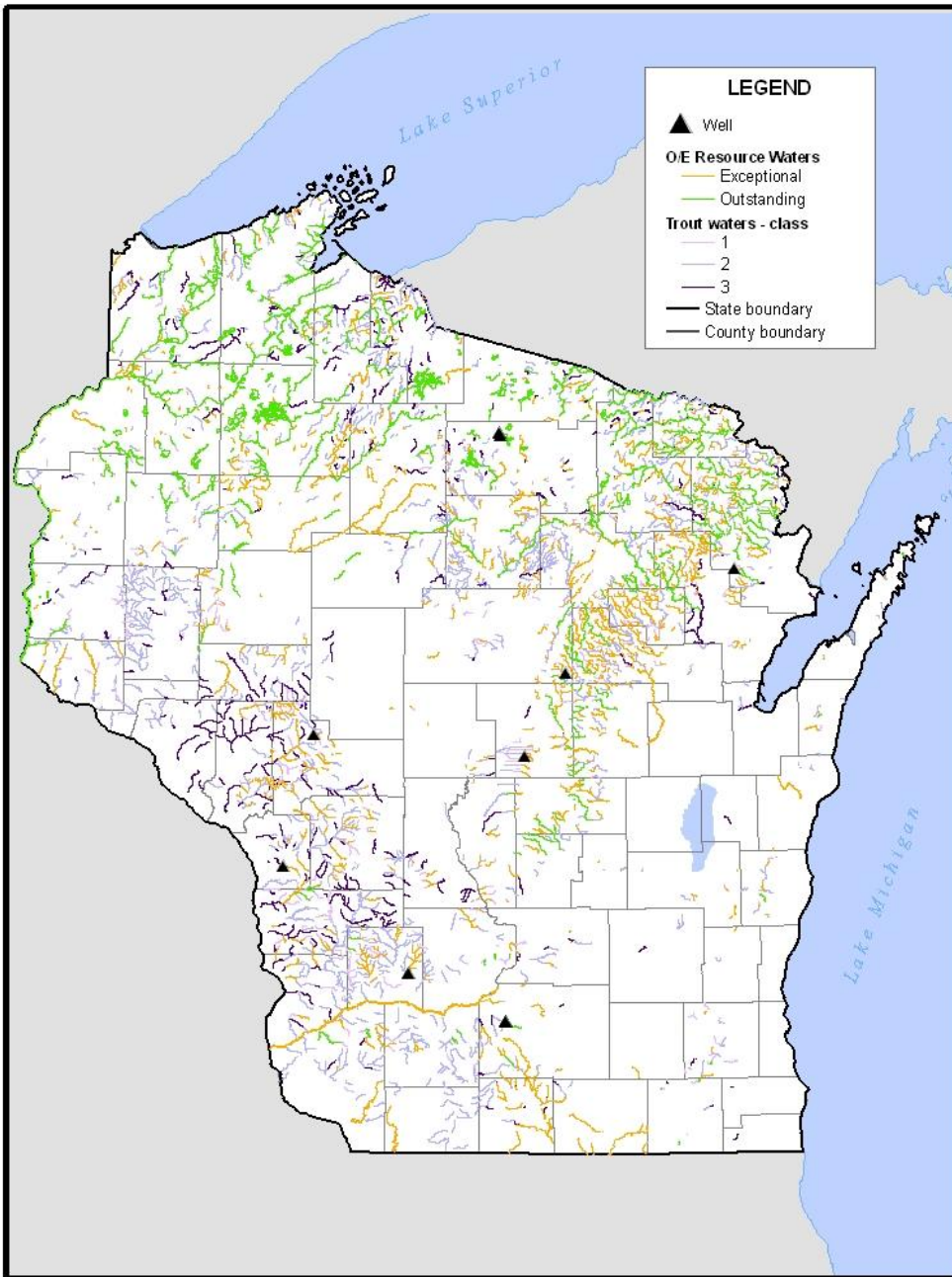
- **Created Groundwater Management Areas (GMAs)**
- **Created and “protected” Groundwater Protection Areas (GPAs)**
- **“Protected” springs**
- **Municipalities are exempted (mostly)**
- **Created the Groundwater Advisory Committee (GAC)**

## ***2003 WI ACT 310***

**“The department may require an applicant...to submit an environmental impact report if the area affected exceeds 40 acres, the estimated cost of the project exceeds \$25,000, or the applicant is requesting a well described in s. 281.34 (4) (a) 1. to 3.”**

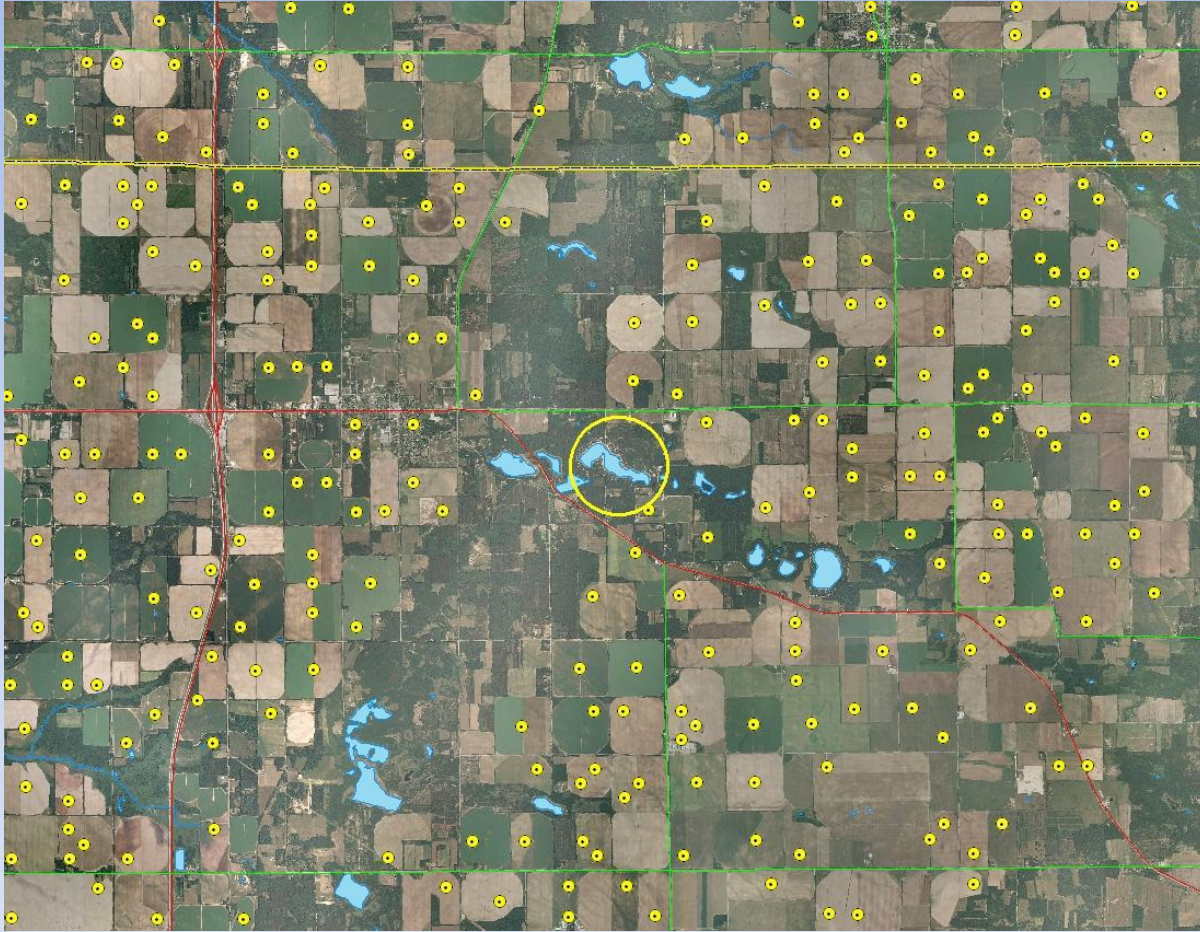


***GROUNDWATER  
MANAGEMENT  
AREAS***



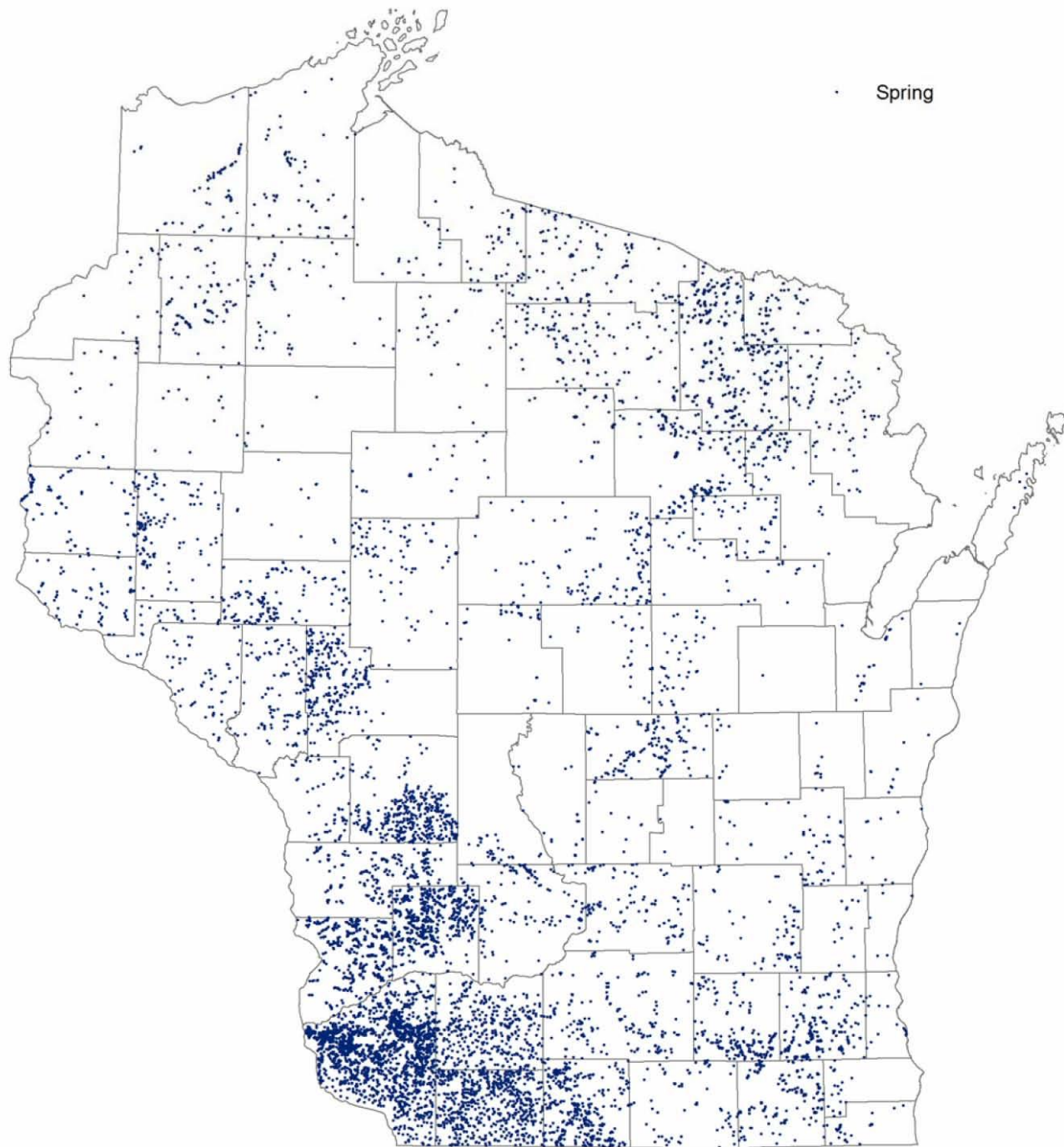
# ***GROUNDWATER PROTECTION AREAS***

# *Long Lake*



SOURCE: Dr. George Kraft, UW-Stevens Point



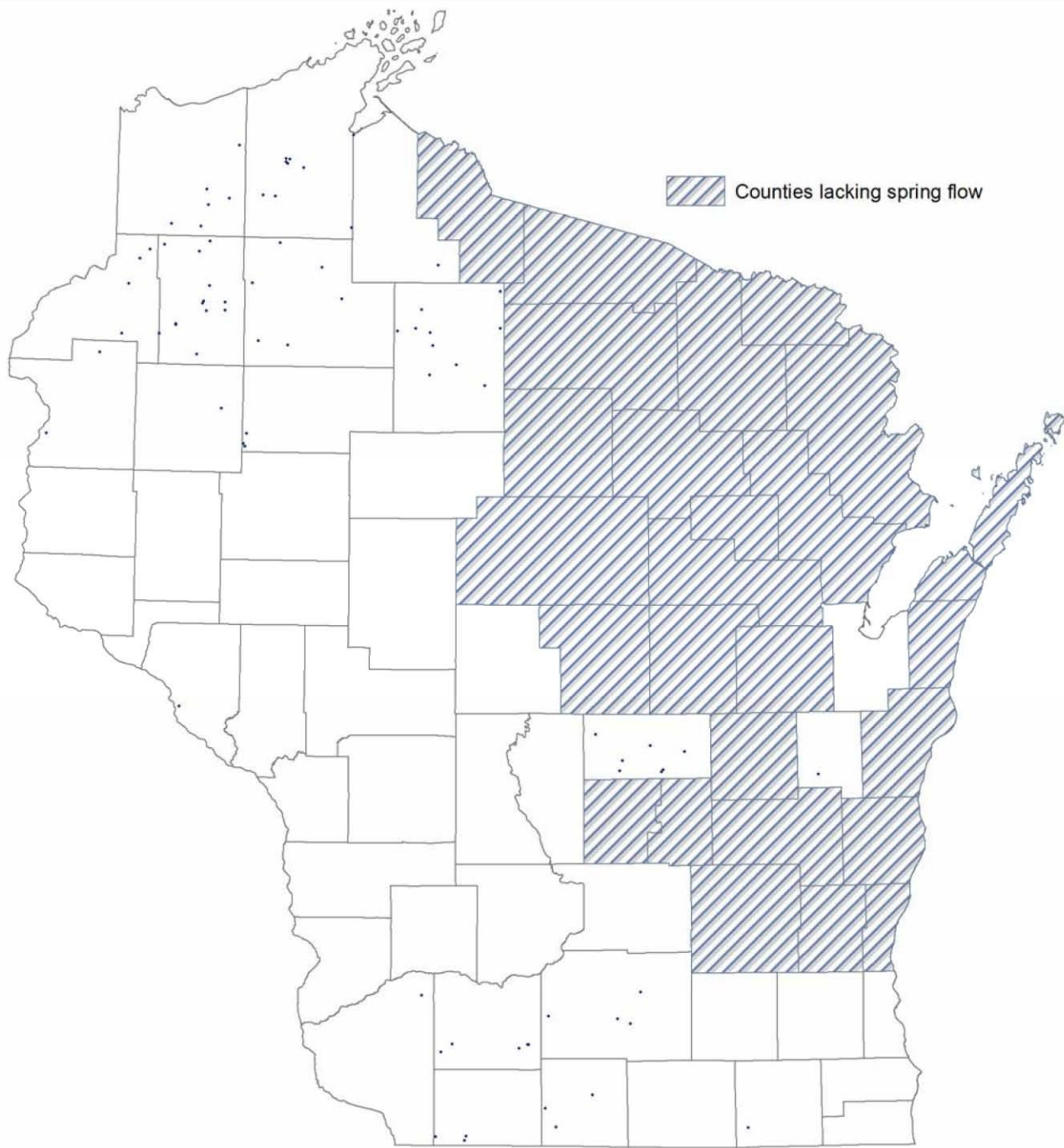


## All Known Springs



Number of springs: 10851

# Springs 1 CFS and Greater



Counties lacking spring flow



Number of springs: 81

# ***GROUNDWATER ADVISORY COMMITTEE***

**14 MEMBERS – SELECTED BY THE GOVERNOR, SPEAKER OF THE ASSEMBLY & PRESIDENT OF THE STATE SENATE**

- **1 – DNR**
- **3 – Environmental**
- **3 – Agriculture**
- **3 – Industrial**
- **3 – Municipal**
- **1 – Driller**

# ***GROUNDWATER ADVISORY COMMITTEE***

***April 2005 – December 2006***

**REPORT SUBMITTED TO THE LEGISLATURE ON  
DECEMBER 31, 2006:**

- **RECOMMENDATIONS FOR FUNDING**
- **RECOMMENDATIONS FOR GOALS AND OBJECTIVES**
- **RECOMMENDATIONS FOR PROCESS TO BE  
RELIEVED OF GMA STATUS**

# ***GROUNDWATER ADVISORY COMMITTEE***

***2007***

- **GPA's**
- **SPRINGS**
- **WELL APPROVALS**
- **SIGNIFICANT ENVIRONMENTAL  
IMPACT**
- **FUNDING**

# ***GROUNDWATER ADVISORY COMMITTEE***

***2007***



**SPRINGS**

# ***GROUNDWATER ADVISORY COMMITTEE***

***2007***

**REPORT SUBMITTED DECEMBER 31, 2007:**

- **CONSENSUS ITEMS**
- **A SERIES OF POSITION PAPERS**
- **THE RULES ARE WORKING?**

# ***PART 3***

## ***PROPOSED GROUNDWATER LAW***

- **JOINT ASSEMBLY/SENATE  
GROUNDWATER WORK GROUP**
- **BEGAN MEETING IN JULY 2009**
- **INTRODUCED AB 844/SB 260 ON  
MARCH 8**



# ***PROPOSED GROUNDWATER LAW KEY COMPONENTS***

## ***GROUNDWATER MANAGEMENT AREAS:***

- Re-defines GMA
- Groundwater Coordinating Council will make recommendations to the DNR
- County chief executive will appoint a groundwater management council (YIKES)
- Groundwater management plan to be developed with public input
- New and existing high capacity wells must be consistent with the plan

# ***PROPOSED GROUNDWATER LAW KEY COMPONENTS***

## ***GROUNDWATER ATTENTION AREAS:***

- **Similar in concept to GMAs**
- **Does not require DNR approval of plans**
- **Does require county executive to appoint a council**
- **Requires (if council requests) DNR to apply management plan to well applications**

# ***PROPOSED GROUNDWATER LAW KEY COMPONENTS***

## ***HC WELL APPROVALS:***

- **Changes definition of a spring to  $\frac{1}{4}$  cfs**
- **Special review provisions for water bottling facilities**
- **Codifies definition of “significant adverse environmental impact”**
- **Notice to the public of HC applications**
- **Ability to request environmental study**

# ***PROPOSED GROUNDWATER LAW KEY COMPONENTS***

## ***WATER CONSERVATION:***

- **Requires DNR to include water conservation requirements under extreme conditions**
- **Directs the PSC to encourage water conservation through rate incentives**
- **Establish standards for graywater and rainwater systems**

***FINAL COMMENT....***  
***....STILL WAY BEHIND***