

Allegan County Ground Water Study Ad-Hoc Work Group



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WATER STUDY WORKGROUP – AGENDA

Wednesday, July 17, 2024 – 2PM

County Services Building – Board of Commissioners Meeting Room
3255 122nd Avenue, Allegan, MI 49010
Virtual Meeting Options – Connectivity Instructions

2PM **CALL TO ORDER:**
ROLL CALL:
PUBLIC PARTICIPATION:
PRESENTATIONS:
COMMUNICATIONS:
DISCUSSION ITEMS:

- 1) Action Items (Dunham)
- 2) Private Well Assistance Program Update (Dunham)
- 3) Monitoring Wells Update (Kapenga)
- 4) Groundwater Assessment Report Digital Attachments (Hulst)
- 5) Groundwater Protection Strategy Workshop #1 Summary and Future Strategy (Rakestraw)

PUBLIC PARTICIPATION: **ADJOURNMENT:**

Workgroup Tasks and Deliverables:

1. Review the final Allegan County Groundwater Study, conducted by Hydrosimulatics, Inc. and submitted to the Board on March 25, 2021.
2. Provide regular updates to the Board and a final written summary of observations and recommendations of the workgroup, within one-year of the appointment of its members, relative to the study content (and any other aspects of Allegan County's current and future state relative to water quality, including recommendations for how the County (as a geographic area) should proceed with next steps (if any) and provide particular focus on Hydrosimulatics, Inc. recommendation to pursue an interactive Decision Support System. All recommendations must be specific as to the management/oversight model, funding, root need/issue to be addressed and expected results of any next steps to be considered.
3. The Allegan County Health Department will participate in the discussions of the work group and will provide administrative support, guidance and expertise.
4. As an ad-hoc workgroup, the work of the group will be considered complete upon the delivery of item number 2 above.



Allegan County

Water Study Group



Allegan County
3283 122nd Ave
Allegan, MI 49010

STEP 1: Connect to the Meeting

- **OPTION 1: Zoom over Telephone**

- Call (929) 205-6099 -or- (312) 626-6799 -or- (253) 215-8782
- Type in Meeting ID: 897 7693 0617, then #, then # again
- Type in Meeting Password: 2024, then #
- To raise your hand to speak, press *9
- To Mute and Unmute, press *6

<STOP here>

You do not have to continue reading the rest of the instructions.

- **OPTION 2: Zoom over Web browser**

- Open Internet Explorer or Chrome
- Navigate to <https://zoom.us/j/89776930617>

- Meeting Password: 2024

<Continue with the rest of the instructions>

STEP 2: Enter registration information

The screenshot shows a web browser window with the URL `zoom.us/webinar/register/WN_YneHxuk_SjqfnMwchbtUEg`. The page title is "Webinar Registration". It displays the following information:

- Topic: BOC Meeting - 4/9/2020
- Time: Apr 9, 2020 01:00 PM in Eastern Time (US and Canada)

Below this information is a registration form with the following fields:

- First Name *
- Last Name *
- Email Address *
- Confirm Email Address *

A reCAPTCHA challenge is present, asking the user to "Select all images with" a specific object. The challenge includes a grid of images and a "VERIFY" button.

At the bottom of the form is a blue button labeled "Join Webinar in Progress".

1. Enter name and email

2. Click this box

4. Click when done.

3. Answer challenge question

STEP 3: This Window will appear when connected.



STEP 4: Adjust audio settings (if needed)

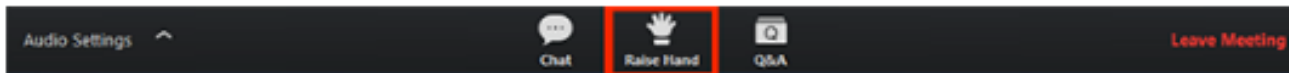
The screenshot shows the Zoom application interface. A vertical black bar on the left side of the screen has a blue arrow labeled '1' pointing to the 'Audio' icon in the Zoom menu. A blue arrow labeled '2' points to the 'Remote Audio' option in the 'Select a Speaker' dropdown menu. The 'Settings' window is open, showing the 'Audio' tab selected in the left sidebar. The 'Speaker' section is set to 'Remote Audio' with a dropdown arrow. Below it, there are sliders for 'Output Level' and 'Volume'. The 'Microphone' section is set to 'Test Mic' with a dropdown arrow. Below it, there are sliders for 'Input Level' and 'Volume', and a checked checkbox for 'Automatically adjust volume'. At the bottom of the settings window, there are several unchecked checkboxes: 'Use separate audio device to play ringtone simultaneously', 'Automatically join audio by computer when joining a meeting', and 'Mute my microphone when joining a meeting'. There are also two checked checkboxes: 'Press and hold SPACE key to temporarily unmute yourself' and 'Sync buttons on headset'. An 'Advanced' button is located at the bottom right of the settings window. The background shows a meeting in progress with a document titled 'Economic Development - Greg King, Director ADMINISTRATIVE REPORTS:' and a 'CONSENT ITEMS:' section with one item: '1. Motion to approve of claims paid and to incorporate into proceedings of the Board (3/20/20 & 3/27/20)'. The bottom of the screen shows the Zoom meeting controls: 'Audio Settings', 'Chat', 'Raise Hand', and 'Q&A'.

STEP 5: Raise hand to be recognized to speak.

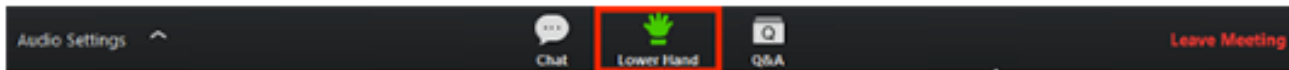
- Once “Raise Hand” is clicked, the Board Chairperson will receive notice and may UNMUTE your microphone when ready and verbally recognize you to speak.

On bottom of screen.

1. Click **Raise Hand** in the Webinar Controls.



2. The host will be notified that you've raised your hand.
3. Click **Lower Hand** to lower it if needed.



STEP 6: To leave the meeting

The screenshot shows a Zoom meeting interface. At the top, a green banner reads "You are viewing Allegan County Administration's screen" with a "View Options" dropdown. In the top right corner, there are window control buttons and an "Enter Full Screen" button. The main area displays a Microsoft Word document titled "BOC20200409_agenda [Compatibility Mode] - Word" by "Steve Sedore". The document content includes the Allegan County Board of Commissioners logo and contact information for Jim Storey and Gale Dugan. The agenda items are listed as follows:

BOARD OF COMMISSIONERS MEETING – AGENDA

DISTRICT 1
Dean Kasperge
616-218-2599
dkasperge@allegancounty.org

DISTRICT 2
Jim Storey
616-848-9767
jstorey@allegancounty.org

DISTRICT 3
Max R. Thiele
269-673-4514
mthiele@allegancounty.org

DISTRICT 4
Marti DeYoung

Virtual Meeting – Connectivity Instructions Attached

1PM

CALL TO ORDER:
ROLL CALL:
OPENING PRAYER:
PLEDGE OF ALLEGIANCE:
COMMUNICATIONS: Attached
APPROVAL OF MINUTES: Attached

PUBLIC PARTICIPATION:
ADDITIONAL AGENDA ITEMS:
APPROVAL OF AGENDA:
PRESENTATIONS:
PROCLAMATIONS:
INFORMATIONAL SESSION: Attached
ADMINISTRATIVE REPORTS:

CONSENT ITEMS:

The Zoom meeting control bar at the bottom includes "Audio Settings", "Chat", "Raise Hand", "Q&A", and a red "Leave Meeting" button. A large blue arrow points to the "Leave Meeting" button.

ALLEGAN COUNTY GROUNDWATER WORKSHOP #1

For Government Leaders | June 2024

PREPARED BY:

williams&works



ALLEGAN COUNTY GROUNDWATER WORKSHOP #1

Allegan County’s four-year groundwater research efforts are wrapping up. As part of the Allegan County Groundwater Strategic Plan process, two workshops have been planned, the first focused on sharing this research and the second on strategic groundwater management. The goal of this report is to synthesize feedback gathered during Workshop #1 and share the results so they may be used to guide and develop preliminary groundwater strategies for the second workshop.



Groundwater Workshop #1 took place on April 23, 2024 from 4 pm to 7:30 pm at the Trestle Stop in Hamilton, Michigan. This event focused on sharing the results of Allegan County’s Groundwater Assessment Report with municipal leaders of Allegan County. It was also an opportunity to gain insight into the water needs and concerns of each community.

Postcard invitations were sent to District Representatives, EGLE, MDHHS, County Commissioners, and each Local Government Unit (LGU) in Allegan County. A total of 60 participants attended the workshop, representing 27 jurisdictions and included several members from County and State Departments. The workshop followed the agenda below and was broken into two parts: Research Sharing and Discussion.

ALLEGAN COUNTY GROUNDWATER WORKSHOP #1 AGENDA

- 4:00 p.m. Check-In
- 4:15 p.m. Welcome & Overview of the Process
- 4:30 p.m. The ABC’s of Groundwater Presentation
- 5:00 p.m. Areas of Concern and Water Quality Risk Presentation
- 5:20 p.m. Groundwater Use and Future Demand Presentation
- 5:45 p.m. Break / Dinner Served
- 6:15 p.m. Allegan County Groundwater Research Q&A Panel Discussion
- 7:00 p.m. Small Group Brainstorming
- 7:25 p.m. Next Steps



RESEARCH SHARING

The first half of Workshop #1 was dedicated to building an understanding about groundwater in Allegan County. The audience was greeted by the Allegan County Board of Commissioners Chair, Jim Storey, and Rob Sarro, the County Administrator. A brief introduction to groundwater concepts, terminology, and the general state of groundwater in Allegan County was presented to align the group's understanding.

Following this introductory presentation, two areas of study were highlighted during the event:

- Areas of Concern and Water Quality Risk
- Groundwater Use and Future Demand

An overview of the findings from this research was presented by Hydrosimulatics Inc. and Williams & Works. This research was shared to set a baseline for the subsequent workshop activities. A video recording of the meeting and presentation files can be found on Allegan County's website.

www.allegancounty.org/Home/Components/Calendar/Event/3739/18



ALLEGAN COUNTY
• MICHIGAN •

DISCUSSION

The first of two workshops was held with municipal leaders to both share findings from recent groundwater research and gain insight into the water needs and concerns of each community. Several activities were provided to gather input, including a Q&A panel discussion, small group brainstorming sessions, and comment cards.

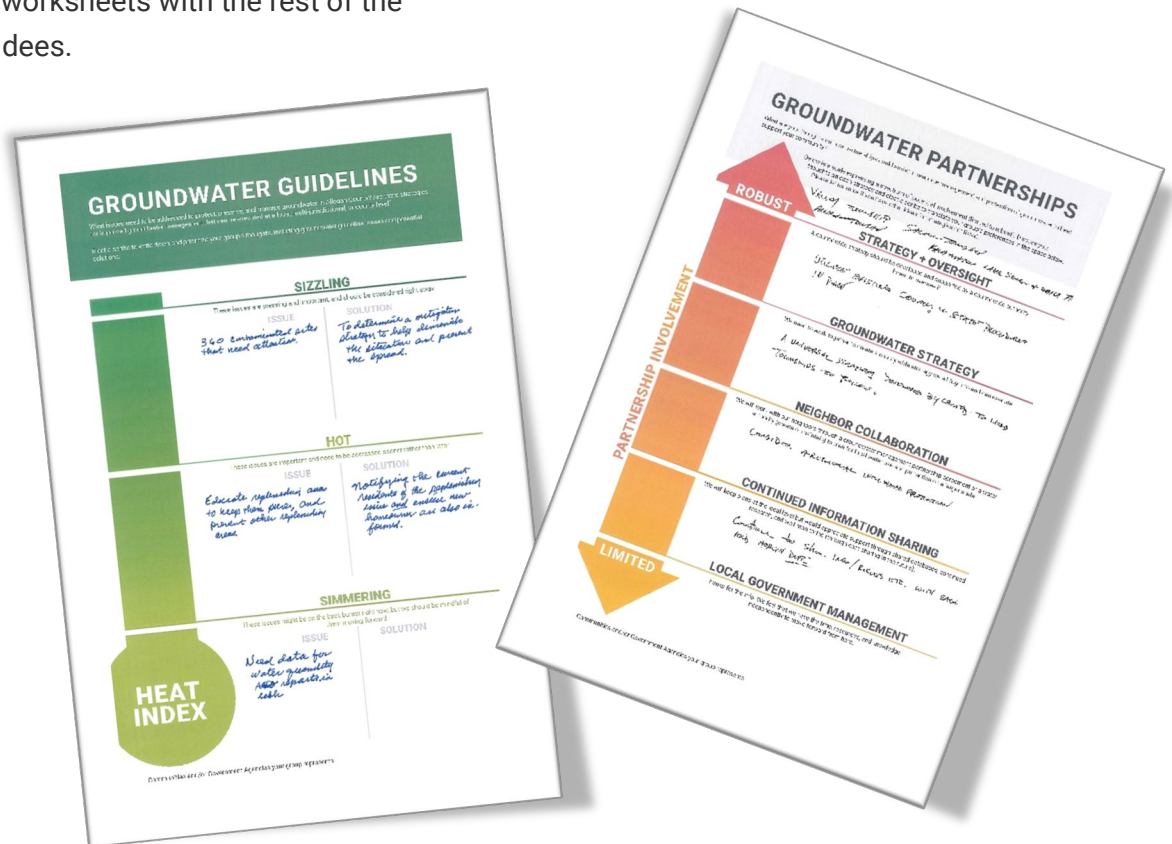
Q&A PANEL

Panelists included industry professionals Dan Whalen, PE, Zachary Curtis, Ph.D., and Allegan County Health Department's Health Services Manager, Randy Rapp, RS. Several audience questions were shared via comment cards and are included in the last section of this report. Predefined panel questions included the following:

1. What controls and procedures are currently used to protect groundwater quality?
2. What can be done if contaminants enter the aquifer?
3. What can communities do to protect groundwater from overuse?
4. How can climate impact groundwater resources in the future?
5. How is monitoring helpful and what is done with the information gathered?

SMALL GROUP BRAINSTORMING

Attendees were seated at round tables to complete two worksheets as small groups, one on Groundwater Guidelines and the other on Groundwater Partnerships. These activities prompted conversation about perceived groundwater issues, preferred management, and potential partnerships. After completing their responses, each group shared one important thought from their worksheets with the rest of the attendees.



Groundwater Guidelines Worksheet

The Groundwater Guidelines Worksheet asked each group to report issues that need to be addressed to protect, preserve, and manage groundwater in Allegan County, considering strategies that may improve groundwater management at a local, multi-jurisdictional, or county level. The participants were asked to discuss the topics among their group and elect a scribe to transcribe their thoughts into three categories; Sizzling, Hot, and Simmering issues. The subsequent tables illustrate the transcribed issues and solutions for each category and indicates the community/agency if it was provided on the worksheet.

Table 1 shows several "Sizzling" issues and proposed solutions identified by the government leaders who participated in this activity. Cheshire, Manlius, Heath, and Valley Townships emphasized the need for a tool to assess the strain on water supply due to new development and address the impact of overflow from adjacent communities. The Allegan Conservation

District, Allegan Township, Overisel, Martin Township, and the City of Fennville highlighted the lack of mandatory point-of-sale well and septic inspections and the poor data management during property transfers, advocating for mandatory inspections. Additionally, they noted frequent instances where new residents were unaware of their water supply sources.

Other comments included concerns about water quantity, suggesting prioritization of residential water use over irrigation wells, and highlighted the importance of preventing contamination spread, developing mitigation strategies for contaminated sites, improving testing, and information sharing regarding agricultural applications and point source pollution sites.

Table 1. Groundwater Guidelines, Heat Index Activity (Sizzling Issues)

SIZZLING: These issues are pressing and important, and should be considered right away.		
Communities/Agencies	Issue	Solution
Cheshire Township Manlius Township Heath Township Valley Township	regulating growth	need a tool to know what is the strain on the water supply with new development
		we feel the overflow from the adjacent town upon our township so we are impacted by our neighbor
Allegan Conservation District Allegan Township Overisel Township Martin Township City of Fennville	lack of point of sale well septic inspections requirement	
	for property transfers - poor data about devices	make mandatory inspections for property transfers
	from a city perspective, we are always astounded by the number of people who call to set up their water bill and find out after sale has gone through that they have a well, it happens at least twice per month	
Community not specified	quantity	priority for residential water over irrigation wells
	What can townships do to control the spread of contamination?	1. prevention is huge 2. do not make the problem worse 3. creating a resource to help farmers with best practices
	360 contaminated sites that need attention	to determine a mitigation strategy to help diminish the situation and prevent the spread
	agricultural applications - sprays, manures	test before application, extra water testing
	where are the point source pollution sites	share information with each other

Table 2 shows “Hot” issues selected by officials from various communities and agencies, along with their proposed solutions. Cheshire, Manlius, Heath, and Valley Townships stressed the need for easier water testing in Allegan County. They suggested that the County contract with a laboratory, make testing kits readily available for pickup, and secure state funding to support this initiative. Additionally, they emphasized the necessity of cross-border planning to prevent negative impacts from one municipality affecting another, recommending this be integrated into municipal strategic plans, the reestablishment of the county planning board, and multi-jurisdictional cooperation.

One group (community not specified) raised concerns about water quality, advocating for the removal of leaking tanks and monitoring possible contamination sites with test wells. Specific concerns were voiced regarding LUSTs (Leaking Underground Storage Tanks) in the Village of Martin, City of Otsego, and Plainwell, noting that the City of Plainwell already identified and pumped out a tank. Furthermore, there was an emphasis on educating residents about replenishing areas to keep them pure, notifying current residents, and informing new homeowners about these issues.

Lastly, the issue of water quantity was raised, specifically regarding large irrigation density and industrial uses. Education to address these concerns, focusing on information distribution, and improving access to information were among the solutions presented by the participants.

Table 2. Groundwater Guidelines, Heat Index Activity (Hot Issues)

HOT: These issues are important and need to be addressed sooner than later.		
Communities/Agencies	Issue	Solution
Cheshire Township Manlius Township Heath Township Valley Township	we need it easier to get water testing done in Allegan County	get county to contract with a laboratory, make kits readily available for pickup, need funding from the state
	cross-border planning is necessary to avoid negative impacts to avoid negative impacts of one municipality on another	do this during creating municipal strategic plans, reestablish county planning board, multi-jurisdictional
Community not specified	quality	leaking tank get removed
	what is being done with existing site of possible contamination?	possible test wells on these sites to monitor groundwater
	LUSTs? - how do we handle these sites?!? (Village of Martin, City of Otsego, and Plainwell, we cannot address these!!!)	City of Plainwell identified a tank and pumped it
	educate replenishing areas to keep them pure, and prevent other replenishing areas	notifying the current residents of the replenishing issue and ensure new homeowners are also informed
	quantity	large irrigation density- industrial
	another layer of education	share information, information access

Table 3 provides a list of "Simmering" issues along with potential solutions. Cheshire, Manlius, Heath, and Valley Townships suggested that the Allegan County Health Department should take on the responsibility for future planning and disseminating groundwater information to local municipalities.

The Allegan Conservation District, along with Allegan Township, Overisel, Martin Township, and the City of Fennville, raised concerns about the lack of accountability for individual and commercial polluters and legacy contamination for which no one is held responsible. They proposed that the County take a more active role in pursuing polluters. Other stakeholders pointed out the need for better oversight between the county and townships. Concerns were also raised about the vulnerability of water supplies at Brownfield sites from potential sabotage and the need for comprehensive water quality data reports. Proposed solutions included improving water usage practices, enhancing education, and organizing cleanup days.

Table 3. Groundwater Guidelines, Heat Index Activity (Simmering Issues)

SIMMERING: These issues might be on the back burner right now, but we should be mindful of them moving forward.		
Communities/Agencies	Issue	Solution
Cheshire Township Manlius Township Heath Township Valley Township		the burden should rest with county health department for future planning to pass groundwater information down to the local municipalities
Allegan Conservation District Allegan Township Overisel Township Martin Township City of Fennville	lack of accountability for individual/commercial polluters legacy contamination no one is responsible	have county take more an active role in pursuing polluters
Community not specified	county with township oversite Brownfield sites - vulnerability of water supplies from acts of sabotage need data for water quality reports in each	good luck how to address
	solar, personal habits (disposal)	water usage, education, and cleanup days

Groundwater Partnerships Worksheet

The Groundwater Partnerships worksheets asked participants to discuss their thoughts on how partnerships can assist in resource management and protect groundwater to best support all communities. The worksheet was divided into a scale expressing a spectrum of potential involvement from limited to robust. The level of involvement was broken down into five strategies; Strategy + Oversight, Groundwater Strategy, Neighbor Collaboration, Continued Information Sharing, and Local Government Management. Participants reviewed each strategy and elected a scribe to document their group's preferences. Table 4 provides a summary of responses provided by participants for each category.

Table 4. Groundwater Partnerships Activity

STRATEGY + OVERSIGHT

Described as: A county-wide strategy should be developed and supported by a county-wide authority board to oversee it

- Utilize existing county and state procedures.
- Coordination with local zoning is challenging due to different planning approaches, staff, and review processes. The County could play a supportive role while maintaining local control and could provide enforcement when EGLE/EPA is not helpful.
- Develop a GIS mapping tool with specific well depth, water level statistics, and water sample data.
- Promote multi-county and multi-jurisdiction cooperation, with the development of appropriate authority.
- Encourage collaboration between local, county, and state entities.
- Establish an oversight entity to fill gaps while allowing local governments to manage their own programs and stay updated with water supply rules and regulations.
- Provide county-wide information without imposing authority.

GROUNDWATER STRATEGY

Described as: We need to work together to create a county-wide strategy we all buy into and can execute.

- Develop a universal strategy led by the County for townships to follow.
- Achieving agreement among local units is challenging.
- Relying on experts for decision-making to avoid each municipality having its own experts by using a single source. Local municipalities should have a say in decisions without losing local control.
- Increase the frequency of these types of meetings.
- Educate local governments, with the county providing help, resources, and pre-plans without interfering in day-to-day operations.
- Ensure there is a clear path to achieving these goals.

NEIGHBOR COLLABORATION

Described as: We will work with our neighbors through a groundwater management partnership agreement or a water authority (create or maintain) to plan for local water use and protection on a larger scale.

- Consider establishing a regional wellhead protection area.
- Create a water authority to assist planning commissions if needed.
- Support cross-municipality planning, potentially facilitated by the County.
- Promote cooperation with neighboring townships and counties.
- Encourage a voluntary association of all local government units (townships, cities, villages) with the County in a support role.

CONTINUED INFORMATION SHARING

Described as: We will keep plans at the local level but would appreciate support through shared databases, continued research, and well monitoring (through cost sharing in the future).

- Continue to share information, results, etc. with EGLE and Health Department
- Agree we need this
- GIS information shared with the County, GIS and create a layer
- Develop a county-wide database supported by local government contributions for example a GIS model

LOCAL GOVERNMENT MANAGEMENT

Described as: Thanks for the info! We feel that we have the time, resources, and knowledge independently to move forward from here.

- Operating a local water supply is hard – we need to provide resources to make their job easier
- No, we need to work to gather because water crosses township lines



Comment Cards

Attendees were given the opportunity to share their thoughts or ask questions regarding the state of groundwater in Allegan County/ or their community. Responses to these questions were sent to Allegan County to be distributed electronically with attendees as well as shared online through the County's website. A total of 8 comment cards were returned. Answers provided to the questions submitted are as follows:

WHAT CAN BE DONE WHEN OVER-USE IS IMMANENT?

Given that the County would be monitoring groundwater use and groundwater levels, particularly in areas with higher demand, the County Health Department will know in advance if this condition was approaching. Today, the County does not have the authority to deny a well permit for this reason, but they can make recommendations. Additionally, EGLE may not issue a "passing" zone score for irrigation or Type I wells because the Water Withdrawal Assessment Tool (WWAT) would be failing far in advance of this situation.

Other methods to address severe groundwater overuse include:

- Stop adding new wells.
- Take some existing wells offline, if, for example, another source of water is available.
- Find a surface source of water (very costly to extend existing water distribution, or set up a new system).
- Enhance groundwater recharge in the area of concern (e.g., with land cover changes, more impermeable surfaces, or with artificial recharge of surface water through injection wells).
- Drill deeper wells that tap the saturated portions of the aquifer (this is, however, an unsustainable solution).

IS THERE A DIFFERENCE IN IMPACT BETWEEN 100 PRIVATE WELLS COMPARED TO A COMMUNITY WELL SERVING 100 HOUSEHOLDS?

In terms of aquifer water balance - no, there is no difference. The amount of groundwater intercepted by the wells that should have discharged to a surface water body (under natural conditions) is the same. In terms of drawdown - yes, there is a difference. One single community well will create a much larger drawdown (water level decline) in the aquifer near the well. The collection of 100 private wells will "spread out" the drawdown such that no single location has a drawdown comparable to the single community well. Also, this depends in part on the characteristics of the aquifer – sometimes it's possible to spread out the influence of single pumping wells to produce the same amount of water needed for the same number of private wells in a manner that manages groundwater drawdowns better than private wells packed close together which can negatively influence each other. This answer depends on many factors.

WHAT IS THE BASIS FOR THE STATEMENT THAT IRRIGATION WATER WELLS ARE "UNDERREGULATED"? WHAT REGULATION IS CONTEMPLATED?

Water use with irrigation wells is reported too coarsely compared to other large user well types. This reporting is done by consolidating all irrigation well withdrawals per township, and reporting only one withdrawal number per-year, per-township. This single, annual figure does not provide enough information for those who need this information to better study groundwater uses or make evidence-based decisions that may impact water use/availability. This is a stark contrast to the manner in which Type I supplies are required to report their water use – which is daily/monthly/annually per-well.

AT LEAST ONE ALLENDALE ENTITY HAS PUT A MORATORIUM ON NEW SUBDIVISIONS DUE TO DIMINISHING QUALITY WATER SUPPLIES. ARE THERE ANY ALLEGAN COMMUNITIES THAT SHOULD BE CONSIDER THAT ACTION?

There is no clear data that suggests this type of action is needed at the present time. There are areas of high use (currently) and expected growth that may require this action in the future. Monitoring of groundwater levels in these areas will be critical to make evidence-based decisions.

SHOULD EMERGENCY MANAGEMENT BE INVOLVED TO COME UP WITH AN EMERGENCY PLAN IF WATER WAS TO GO BAD?

If groundwater becomes contaminated, then EGLE is already equipped to deal with contamination issues – particularly when it affects a large number of wells. Public utility operators are required to have an emergency action plan. If a public water supply system is compromised, then the utility has their emergency action plan to address these situations.

DOES ALLEGAN COUNTY HAVE ANY INDUSTRIAL INJECTION DEEP WELLS?

At the time of the Phase I Groundwater Study, there were 94 oil or gas wells within Allegan County.

ARE ALL KNOWN PETROLEUM AND GAS WELLS CAPPED WHEN ABANDONED AND IN USE?

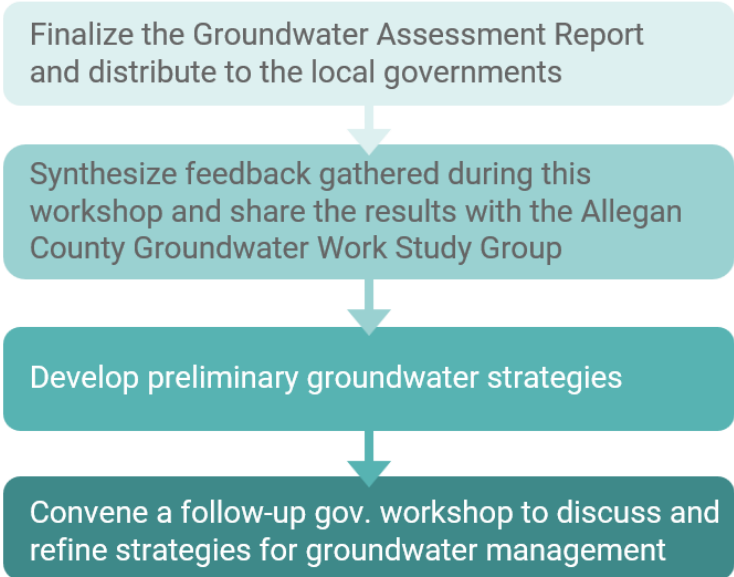
All oil and gas wells must follow specific abandonment logging and reporting procedures. EGLE/State of Michigan may be a good resource to provide additional information about certain petroleum and gas wells and their status.

WHAT IS THE CONTROL/REGULATION PROCESS FOR DEEP INJECTION WELLS?

There are specific injection well construction standards that must be followed. Injection wells are not allowed when they could potentially impact a drinking water source, so they're normally very deep and typically not a concern to the shallower aquifers that can be used for drinking water.

NEXT STEPS

Workshop #1 concluded with an overview of project next steps, key research takeaways, and a reminder about of the importance of groundwater research and planning.





ALLEGAN COUNTY GROUNDWATER WORKSHOP #1

For Government Leaders

williams&works

engineers | surveyors | planners

MEMORANDUM

To: Tom Kunetz, GWS Chair
Date: July 2, 2024
From: Maleah Rakestraw, PLA, ASLA
Tanya DeOliveira, AICP
Dan Whalen, PE
RE: **Groundwater Work Study Group (GWS) Strategies
Brainstorming Session**

Overview. The purpose of this memorandum is to provide a brief overview of the tasks for today's meeting. We will engage in the first of two groundwater strategy brainstorming sessions (approx. 90 min.).

Results from Workshop #1 were synthesized into a short report and will be reviewed with the GWS. Feedback gathered during this event should be used to inform subsequent strategy conversations. Additionally, a short presentation highlighting case studies of groundwater initiatives will be shared to provide context for strategies employed by other local, regional, and national bodies. The goal for today is to begin informing potential groundwater initiatives that will be assessed by the Local Government Units (LGU) during Workshop #2. We will guide the GWS through an exercise to help facilitate a productive brainstorming session.

Agenda:

1. Introductions
2. Workshop #1 Engagement Report Highlights
3. Groundwater Strategies Case Study Review
4. Brainstorming Session

Next Steps. GAR draft comments will be submitted to the consultant team following this meeting. A revised draft of the GAR will be developed in preparation for final review and distribution by the County.

GWS input today will help steer the consultant team's subsequent groundwater strategy research. We will reconvene with the GWS and provide an outline of preliminary strategies for a second brainstorming session, with the goal of further refining potential groundwater initiatives to be discussed with LGUs during Workshop #2.

In the meantime, please do not hesitate to contact Maleah with any questions at 616.224.1500 or by email rakestraw@williams-works.com

Alleghan County Groundwater-Related Initiatives & Strategy Examples

July 2024

Workshop #1 for Government Leaders

Groundwater Guidelines Worksheet Summary

- **Availability**

- Growth management
- Well density
- Prioritization of water supply

- **Education**

- Private well education and inspections
- Easy to access information to help inform decision making
- Disposal habits

- **Contamination**

- Prevention
- Mitigation
- Accountability
- Testing
- Education

- **Coordination**

- Cross-border planning (local level)
- County role
 - Planning to inform LGUs
 - Pursue polluters
 - Testing/data gathering & dissemination

“The burden should rest with county health department for future planning to pass groundwater information down to the local municipalities.”



Workshop #1 for Government Leaders

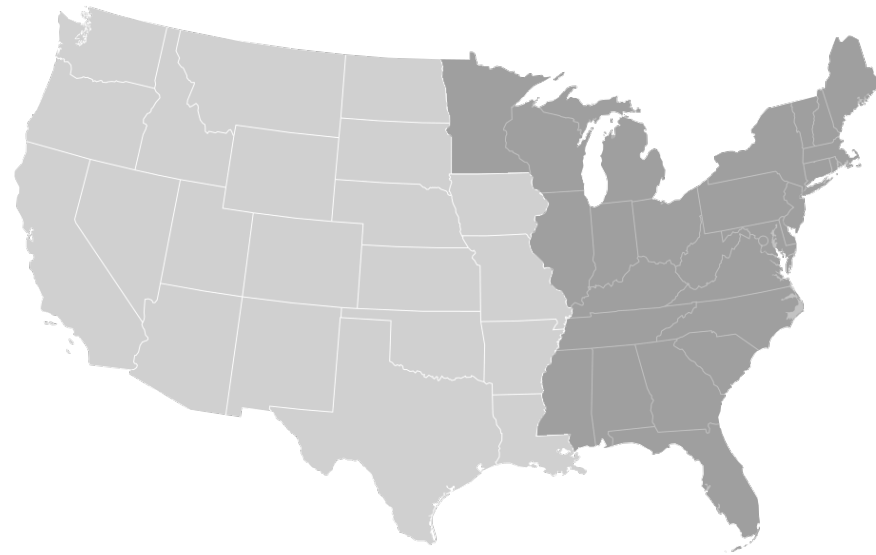
Groundwater Partnerships Worksheet Summary

- No LGU indicated that they wanted ONLY local government management.
- Only one group favored the Strategy + Oversight option.
- Most groups favored the Continued Information Sharing and Groundwater Strategy partnership options.
 - *“The county should provide an information bank but not be the enforcer of how a groundwater strategy should be executed.”*
 - *“Create an entity to provide education and oversight to fill in gaps but still have local control.”*
- Would like to see **collaboration** between **local, county, and state** entities.

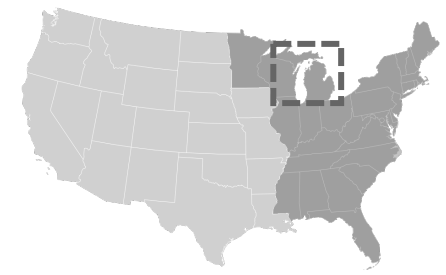
Water Rights/Laws in the United States

West vs. East	Typical Authority	What	Special Notes
States East of the Mississippi River	Riparian Doctrine	Grants rights of reasonable use to those who own land adjacent to a body of water	State mandates are less common
States West of the Mississippi River	Prior Appropriation Doctrine	Grants water rights to the first person to use the water source (goes back 100 yrs+)	State mandates typical Every drop of water is accounted for/owned

Groundwater-Related Initiatives & Strategies Examples East of Mississippi River



Michigan



Who	Program	Authority	What	Funding
Ottawa County	“Be Water Wise”	Local level	Groundwater study resulted in a Proactive Strategies Index	County-level
Local Government(s) Voluntary Program	Local Wellhead Protection Program	National Safe Water Drinking Act	Local governments formally coordinate to protect Public Water Supply Systems	50% local/ 50% EGLE grants or 100% local
EGLE (Department of Environment, Great Lakes, and Energy)	Water Withdrawal Assessment Tool (WWAT)	Great Lakes-St. Lawrence River Basin Water Resources Compact. New state laws allowed program creation	Large quantity withdrawal computer software program	State-funded and free for local communities to use



Be Water Wise

A Groundwater-Saving Initiative by Ottawa County

Michigan: Ottawa County

Multi-year Groundwater Study resulted in many things, including a Proactive Strategies Index:

1. Education Strategies

- Outreach campaign
- Online resources
- Youth and community education programs

2. Integration Strategies

- County and the Groundwater Sustainability Initiative partners
- Collaborating to develop household conservation, landscape, and irrigation strategies and recommendations



Be Water Wise

A Groundwater-Saving Initiative by Ottawa County

Michigan: Ottawa County

Proactive Strategies Index continued:

3. Mitigation Strategies

- Model ordinances
- Health code revisions
- Well monitoring network
- Infrastructure planning
- To manage and conserve groundwater
- County may also have a program that permits private wells for subdivisions/large parcel size

4. Coordination Strategies

- Committees and other personnel structures that will manage groundwater initiatives

Michigan: Wellhead Protection Program (WHPP)

Protection is provided by:

1. Identifying the area that contributes groundwater to Public Water Supply System (PWSS) wells
2. Identifying sources of contamination in the area
3. Develop methods to manage the area and minimize the threats to the PWSS

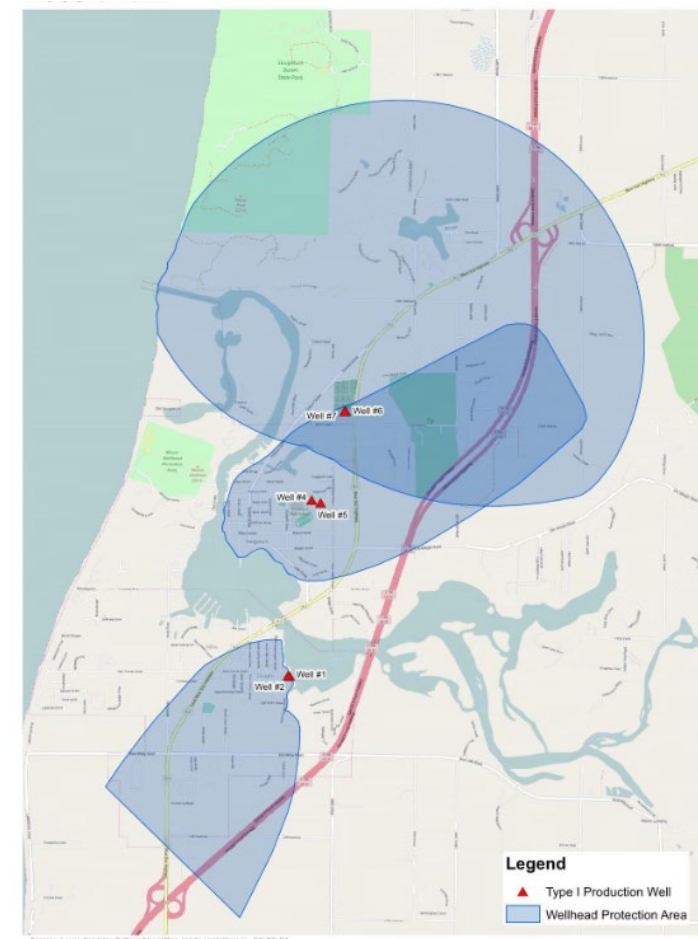
7 elements for local WHPP:

1. Establishment of roles and duties
2. Wellhead protection area (WHPA) delineation
3. Identification of potential sources of contamination
4. Develop strategies to manage sources and minimize threats to the PWSS
5. Develop contingency plans for water supply emergencies
6. Identification of procedures for the development of new well sites
7. Provide opportunities for public participation

Michigan: Wellhead Protection Program (WHPP)

Local Examples:

- Kalamazoo-Lake Sewer & Water Authority (KLWSA) WHPP
 - Multijurisdictional - includes Allegan County
 - Updated 2017
- City of Kalamazoo
 - Est. 1992
 - City Commission approved WHPP Zoning Overlay 2007
 - Overlay IDs 1 and 10 yr time-of-travel capture zones
- Village of Middleville
 - Est. 2013
 - Robust program elements that are documented
 - WHPA is an overlay in the Village Master Plan



Michigan: EGLE's Water Withdrawal Assessment Tool (WWAT)

- Hydrogeological technical support
- Development of Water Withdrawal Assessment Tool (WWAT)
 - Prior to installing a new or increased large quantity withdrawal, WWAT can determine the impact on nearby water resources

EGLE MICHIGAN DEPARTMENT OF IRONMENT, GREAT LAKES, AND ENERGY
Water Withdrawal Assessment Tool

Michigan.gov Home | WWAT Home | Map

Basemaps

ENTER WITHDRAWAL INFORMATION

Pumping Source and Frequency
* Fields indicated with an asterisk are required.
Withdrawal Source: (select an icon)
Surface Water (from stream) | Groundwater | Shallow Pond

Pumping Parameters
* Pumping Capacity (GPM):
Lat/Long from Map: 42.586799, -85.873555
* Well Casing Depth (ft):
* Aquifer Type: Bedrock Glacial

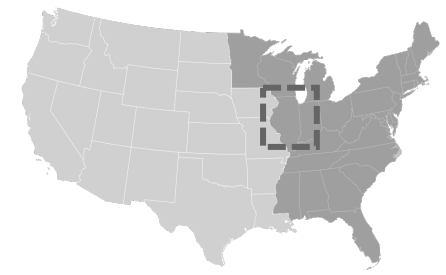
Stats at Location
• Depth to Bedrock (FT): 201
• Average Well Depth (FT): 83
• Percent Wells in Glacial: 98
• Percent Wells in Bedrock: 2

Pumping Schedule
 Continuous Pumping
* Pumping Hours/Day:
* Pumping Days/Week:
* Months Pumping: Jan, Feb, Mar, Apr, May (hold Ctrl to select multiple months)

Run Model

Michigan.gov Home | WWAT Home | Contact WWAT | State Web Sites | Policies | Copyright © 2024 State of Michigan

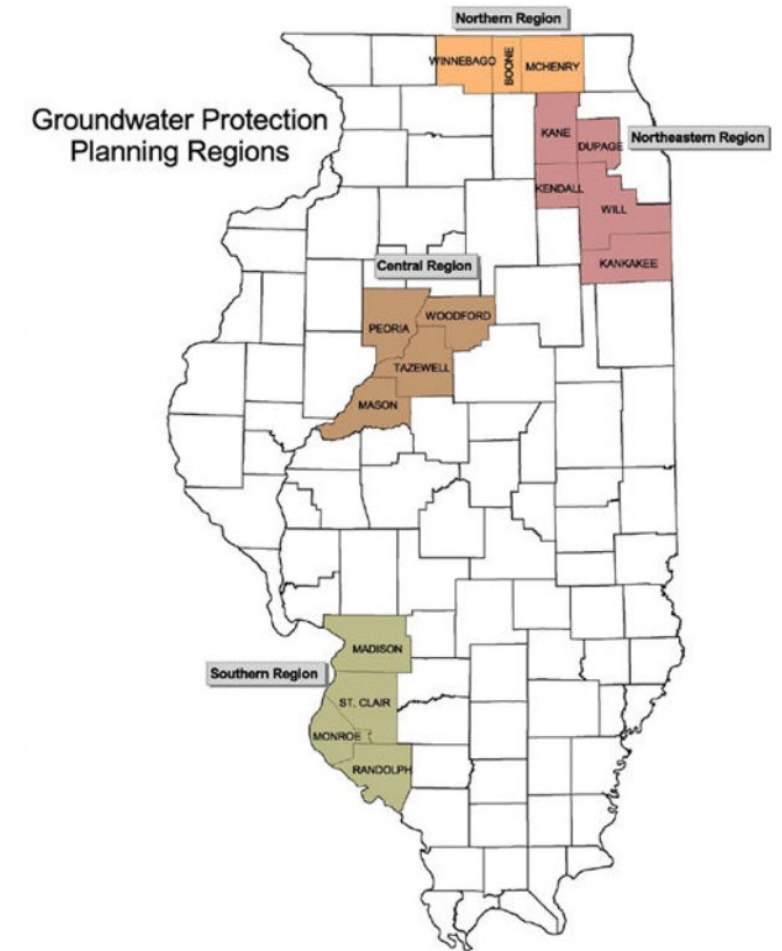
Illinois



Who	Program	Authority	What	Funding
IL EPA & IL DNR	Groundwater Protection Planning Regions/Committees	State legislation	Education, local zoning/setback examples, and defines recharge areas Facilitates Wellhead Protection Programs for Community Water Supply (CWS) Wells	Unknown
IL EPA	Ambient Groundwater Monitoring Network	State legislation	To represent the detection of pesticides and other chemical contamination in CWS Wells	State
IL EPA	Groundwater Advisory Council	State legislation	Quarterly meetings to discuss groundwater issues	None

Illinois: Groundwater Protection Planning Regions

- 4 Regions within the State
- Responsibilities
 - Convenes local officials and businesses
 - Facilitates implementation of groundwater protection tools
 - Holds education and assistance workshops
 - Maintains database of groundwater contamination hazards
 - Annual self-evaluation review of program effectiveness



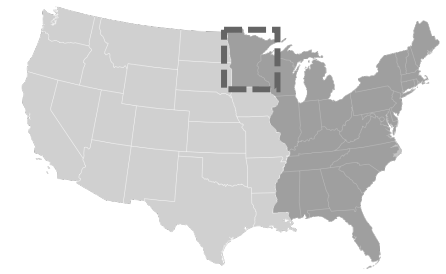
Illinois: Ambient Groundwater Monitoring Network

- 3,300+ active wells in network, 350 are sampled
- Purpose:
 - Groundwater conditions in the Community Water Supply Wells
 - Groundwater conditions in major aquifers
 - Water quality baselines and trends in major aquifers
 - Evaluate the long-term effectiveness of activities
- The 350 wells were randomly selected based on depth, aquifer, and surficial vulnerability

Illinois: Groundwater Advisory Council

- 9 members appointed by the Governor
 - 2 Environmental members
 - 2 Industrial & commercial members
 - 1 Agriculture member
 - 1 Local government member
 - 1 Regional planning agency member
 - 1 Public water supplies member
 - 1 Water well driller member
- Responsibilities
 - Review, evaluate, and recommend groundwater protection regarding the Illinois Groundwater Protection Act and new state laws, regulations, procedures and resources
 - Make recommendations related to IL's groundwater research needs
 - Review, evaluate, and recommend groundwater data collection and analysis

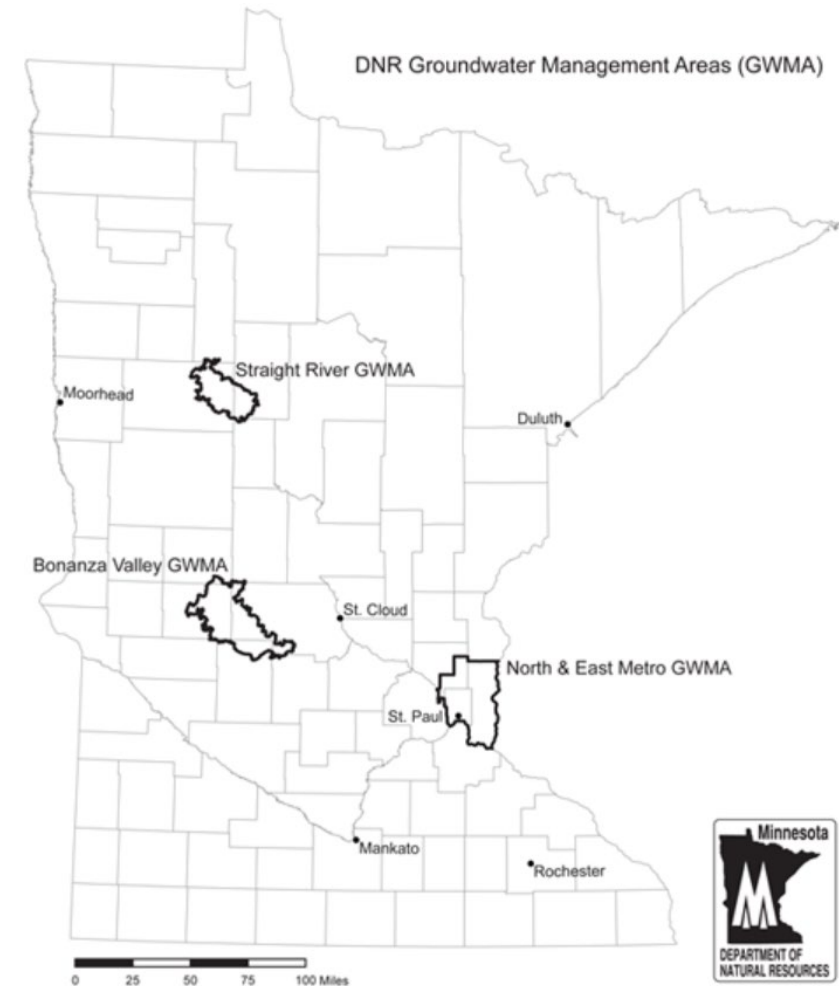
Minnesota



Who	Program	Authority	What	Funding
MNDNR + Local Government(s) or Business(es)	Groundwater Management Areas	State legislation	Tool to address difficult groundwater-related resource challenges	State
MNDNR + Local Government(s) or Business(es)	Aquifer Management Partnership	State legislation	Civic engagement effort designed to explore and define a community's unique groundwater story	State
MNDNR	Groundwater Threshold Project (2015 Report)	<i>Not relevant</i>	Report on the state of groundwater. Data developed, management of groundwater moving forward	State

Minnesota: Groundwater Management Areas

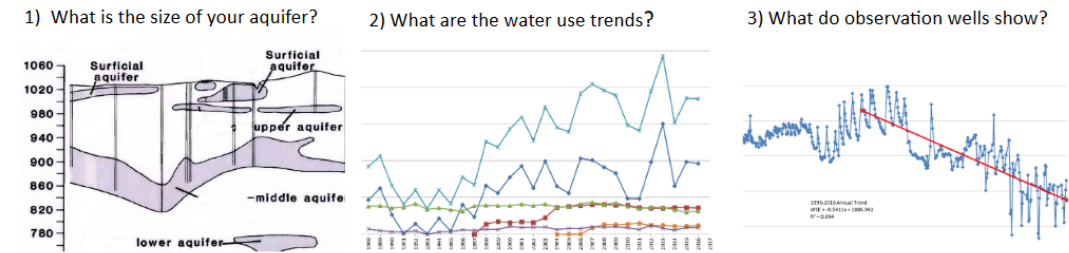
- MNDNR has 3 pilot areas
- State + local agencies
- Each has a basic organizational structure but are unique
 - Reflect area's hydrology and permitted water users
- MNDNR applied knowledge gained to address challenges in other areas



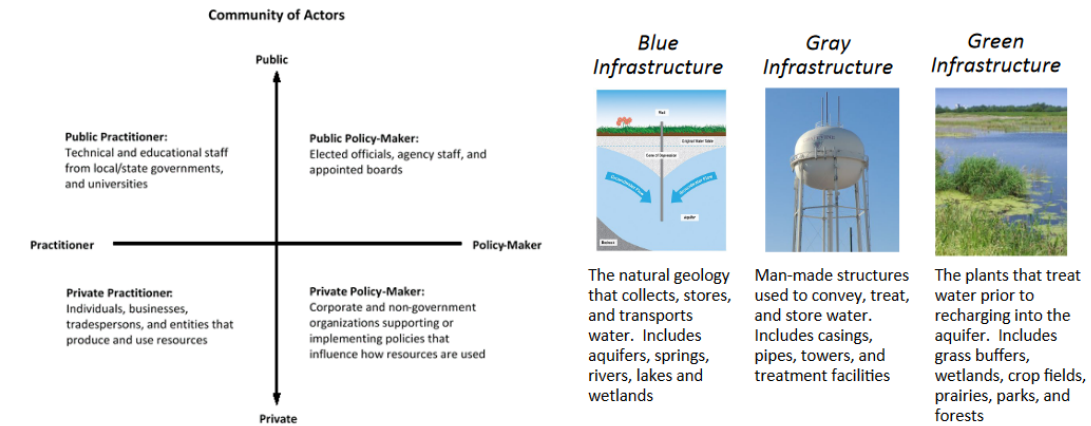
Minnesota: Aquifer Management Partnership

- MNDNR is working with communities in SW MN
- MNDNR talks with local government to discuss three components of the community's aquifer:
 - Identify community aquifer
 - Major water users and water use trends
 - Observation well data and aquifer levels
- This is a “opt-in” program
- “Land of 10,000 aquifers”

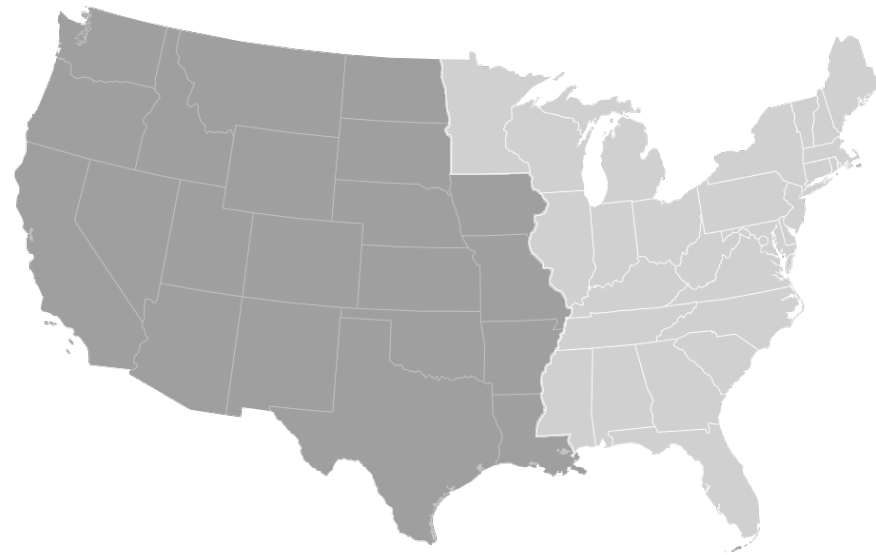
A Community's Groundwater Story *Begins* With Three Questions:



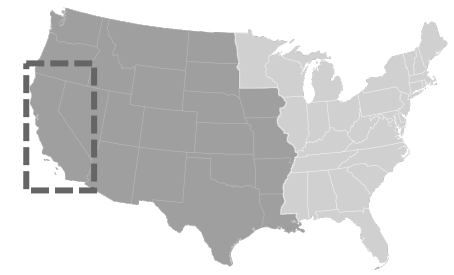
If Needed, *More Story Details*: The *Who* and *What* of a Community's Groundwater Story



Groundwater-Related Initiatives & Strategies Examples **West of Mississippi River**



California

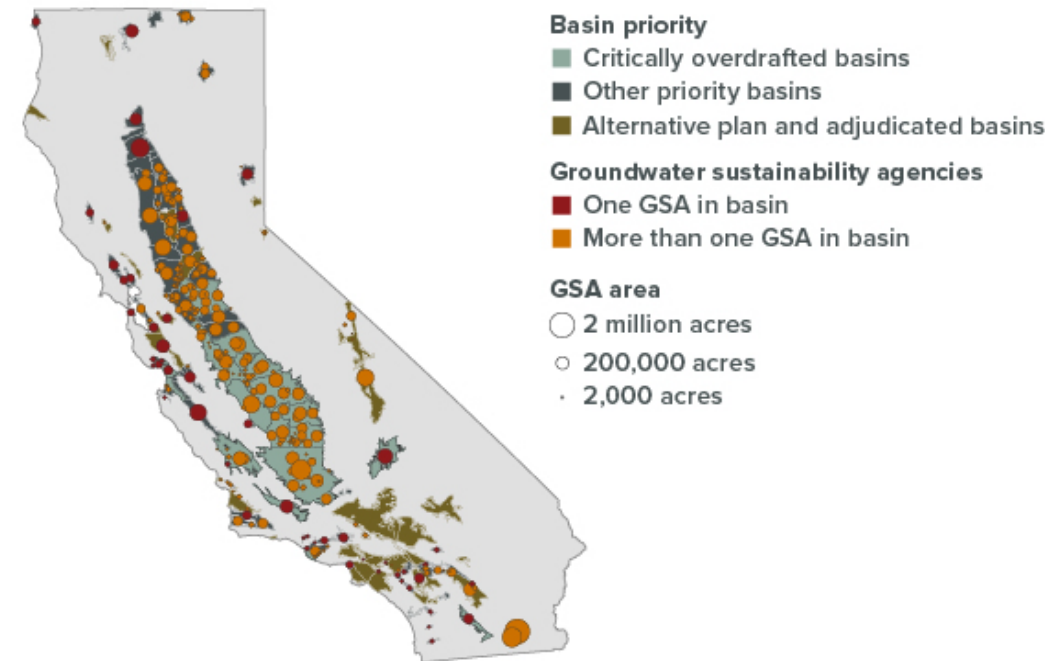


Who	Program	Authority	What	Funding
Local agencies	Groundwater Sustainable Agencies (per watershed)	State legislation	Groundwater Sustainability Plans (GSPs)	Member Agencies (local gov'ts), State
The Department of Water Resources	Report	State legislation	A Framework for State Action to Support Drought Resilient Communities	State

California: Groundwater Sustainable Agencies

- Groundwater Sustainability Plans must:
 - Assess the groundwater basin
 - Physical structure and properties of the aquifer
 - Historic water levels
 - Abstractions, recharge, and quality
 - Land subsidence
 - Interconnected surface waters, etc.
 - Develop sustainable management criteria
 - Setting sustainability goals
 - Establish minimum thresholds
 - Define measurable objectives and milestones for achieving sustainable groundwater management

GROUNDWATER AGENCIES VARY IN SIZE AND RANGE



California: Groundwater Sustainable Agencies

(continued)

- Groundwater Sustainability Plans must:
 - Identify policies, projects, and management actions to implement and achieve the sustainability goals
 - Outline how the GSA will:
 - Monitor groundwater conditions in the basin
 - Impacts on water users
 - Progress towards the sustainability goals
- GSAs must engage with stakeholders and coordinate water governance
- Sub-basins within a basin must coordinate to ensure sustainability

California: Groundwater Sustainable Agencies

(continued)

- Groundwater Sustainability Plans have various strategies:
 - ***“Implement programs to protect and promote groundwater quality.”*** ([Link](#), pg 143/832)
 - ***“Maintain and develop adequate groundwater models and monitoring networks.”*** ([Link](#), pg 144/832)
 - ***“Work with regulatory and land use agencies to protect recharge areas, promote natural recharge, and prevent groundwater contamination.”*** ([Link](#), pg 144/832)

California: Groundwater Sustainable Agencies

(continued)

- Some GSPs also have models that show potential impacts on groundwater based on various factors and scenarios like **climate change and land use growth** ([Link](#), pg 280 of 348)
- Some plans include Management Actions ([Link](#), pg 335 of 348)
 - *“Improve Monitoring Program and Data Management System”*
 - *“Develop Response Plans”*
 - *“Enhance Water Quality Improvement Programs”*
 - *“Reduce Potential Impacts to Groundwater Dependent Ecosystems”*
 - *“Provide Long-term Basin-wide Funding Mechanism”*
 - *“Provide GPS Administration, Monitoring, and Reporting”*

California: Framework Action Plan

- The Department of Water Resources' [framework report](#) principles and strategies:

1. Achieve Drinking Water Resilience

- Implement drought planning and responses and other groundwater management programs
- Goal: To achieve drought resilience for drinking water well users

2. Integrate Equity

- Equity needs to be integrated in drought-related planning processes
- Equitable access to available drought assistance – especially where barriers may exist for drinking water well users

California: Framework Action Plan (continued)

- The Department of Water Resources' [framework report](#) principles and strategies:

3. Address Underlying Challenges

- Deliver targeted drought assistance
- Address the underlying challenges drinking water well users face = near-term relief, resolve fundamental issues, and anticipates and mitigate future drought impacts

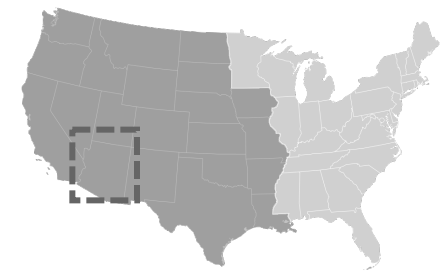
4. Lead with Best Available Data

- Prioritize the alignment, centralization, and accessibility of available well data and information
- Identify emerging and existing groundwater and drinking water issues for improved drought management

5. Build Trusted Relationships

- Emphasize prioritizing and building trusted relationships with drinking water well users
- Creates opportunities for effective coordination, communication, and decision-making

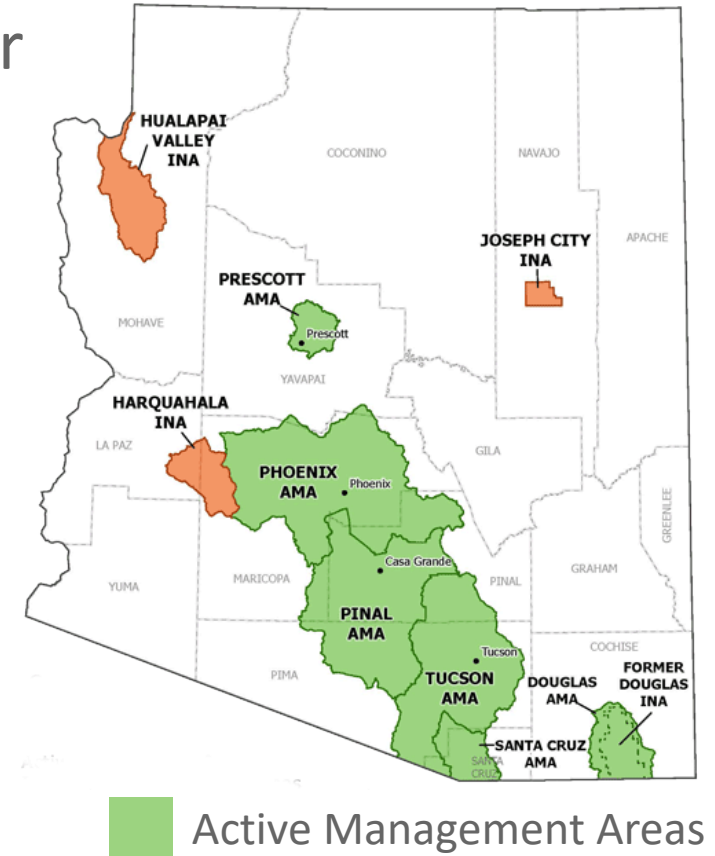
Arizona



Who	Program	Authority	What	Funding
Department of Water Resources + Groundwater Users Advisory Council (GUAC) per AMA	Active Management Areas (AMA)	State legislation	Administers state law, implements groundwater plan Provides advice on management	State
Department of Water Resources	Irrigation Non-Expansion Areas	State legislation	Limits irrigatable land	State
<i>Proposed for Local Gov't Level</i>	Local Groundwater Stewardship Areas (LGSA)	<i>No authority yet - New idea being proposed</i>	See other slide	State lottery funds

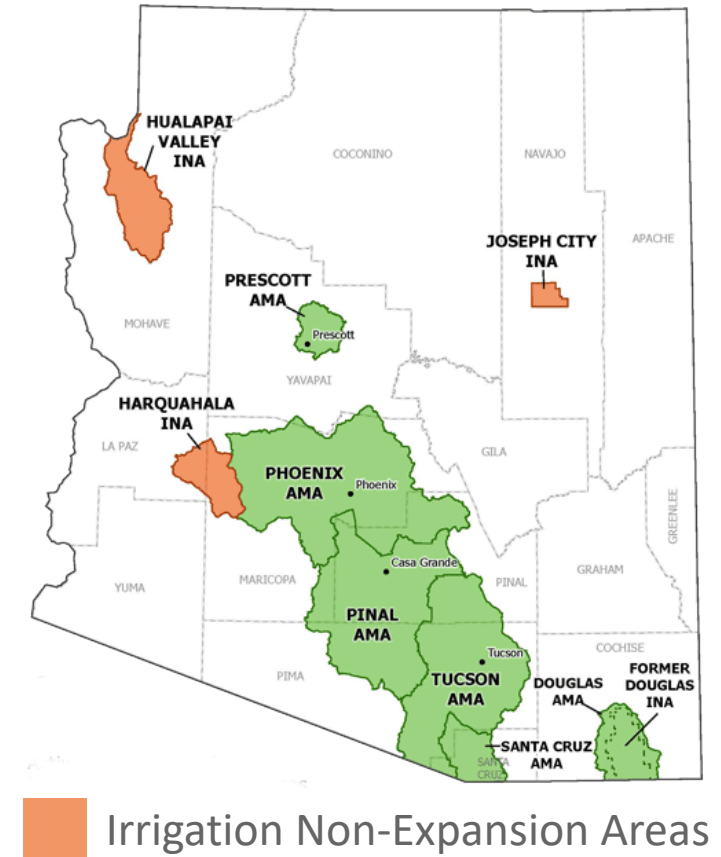
Arizona: Active Management Areas (AMAs)

- Areas with heavy reliance on mined groundwater were identified and designated in the 1980's
- 5 member GUAC appointed by the Governor
- 82% of the state population is within an AMA
 - 87% of municipal water use is under mandatory conservation
 - 72% of industrial water use is under mandatory conservation
 - 34% of agricultural water use is under mandatory conservation



Arizona: Irrigation Non-Expansion Areas (INAs)

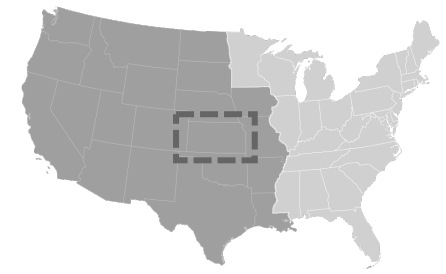
- Restricts new irrigated acreage based on *“insufficient groundwater to provide a reasonably safe supply for the cultivated lands”*
 - Wells must be registered with the Department of Water Resources
 - Irrigation groundwater withdrawal authorities must report their water use
 - New INAs can be formed using the boundaries of either a groundwater basin or sub-basin



Arizona: Local Groundwater Stewardship Areas (LGSA)

- [Water for Arizona](#) Coalition leading a new call for a local approach to groundwater management
- *Proposed* LGSA
 - Locally-based, Opt-In, Groundwater Management Tool
 - Process for developing local governmental structure
 - County Board of Supervisors or community petition to opt-in to create a LGSA
 - No new taxes or fees are necessary or authorized as part of a Stewardship Area
 - \$50 million annually dedicated state lottery funds for administration, technical support, implementation, and other relevant activities for Stewardship Areas
 - Sample County Resolutions in support

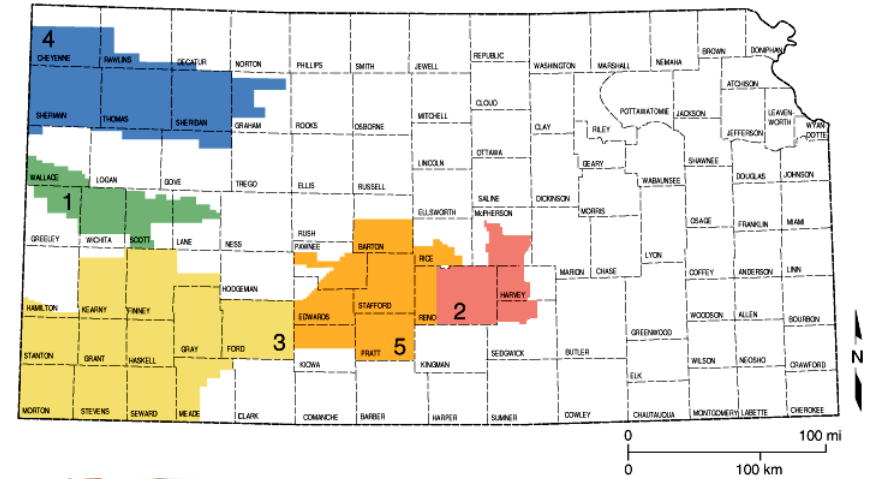
Kansas



Who	Program	Authority	What	Funding
Department of Agriculture + Local Board	Groundwater Management Districts	State legislation	Conserve groundwater resources to support businesses, local economy, agriculture by establishing local water uses rights.	State

Kansas: Groundwater Management Districts

- Many are overlaying the Ogalla Aquifer
 - Critical to the economy of the State
 - One of the most productive sources of groundwater for irrigation in the world
- Monitor groundwater levels and quality
- Safe yield evaluation, groundwater monitoring, and application assistance
- On-going education component (newsletter, workshops, etc.)



Case Study Commonalities

- Monitoring systems and providing data(sets) seems to be the first step many organizations take.
 - How would you know what to do if you don't have the data?
- Boards/Committees are developed to make decisions. They are comprised of stakeholders, scientists, local leaders, etc.
- Resource management is informed by the data.
 - Good data helps inform good decisions.

On-going education
is a focus for many
agencies.

Also acts as an outreach
and relationship
building opportunity.

Case Study Commonalities

- When growth increases, groundwater management increases
 - Increased stress to groundwater from extreme flooding and drought events also is exerting pressure (California)
- Most groundwater strategies are at the state level
- Updates to groundwater management, programs, and state laws are currently happening:
 - Minnesota 2013
 - California 2021
 - Arizona 2024



Case Study Commonalities

There is no quick solution.
Education and relationship
building takes time and needs
to be on-going.