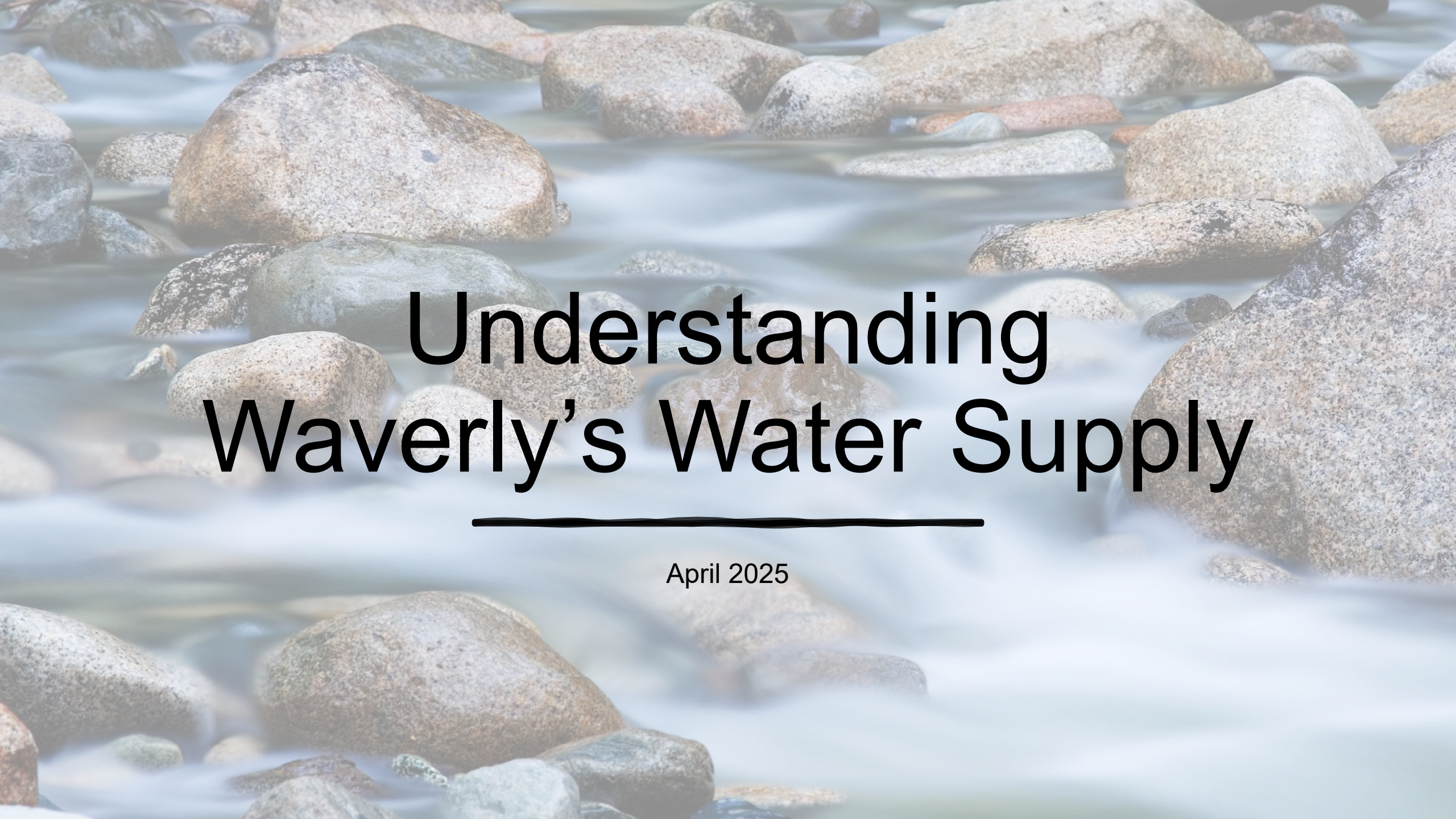
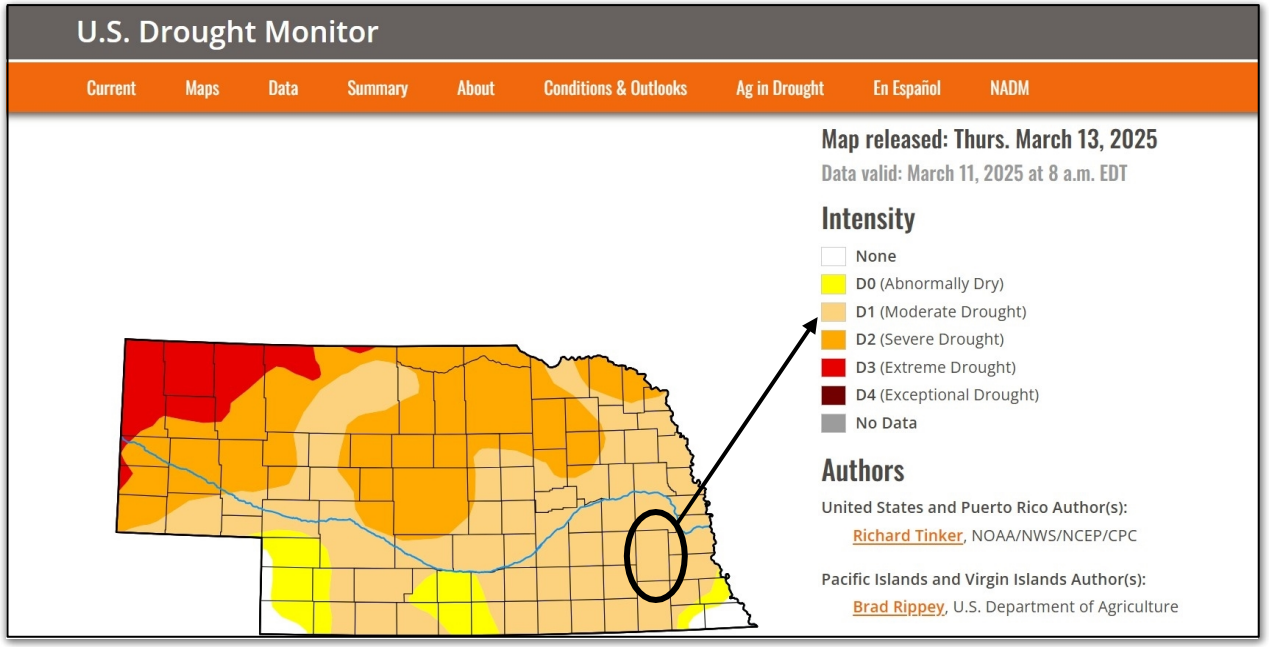
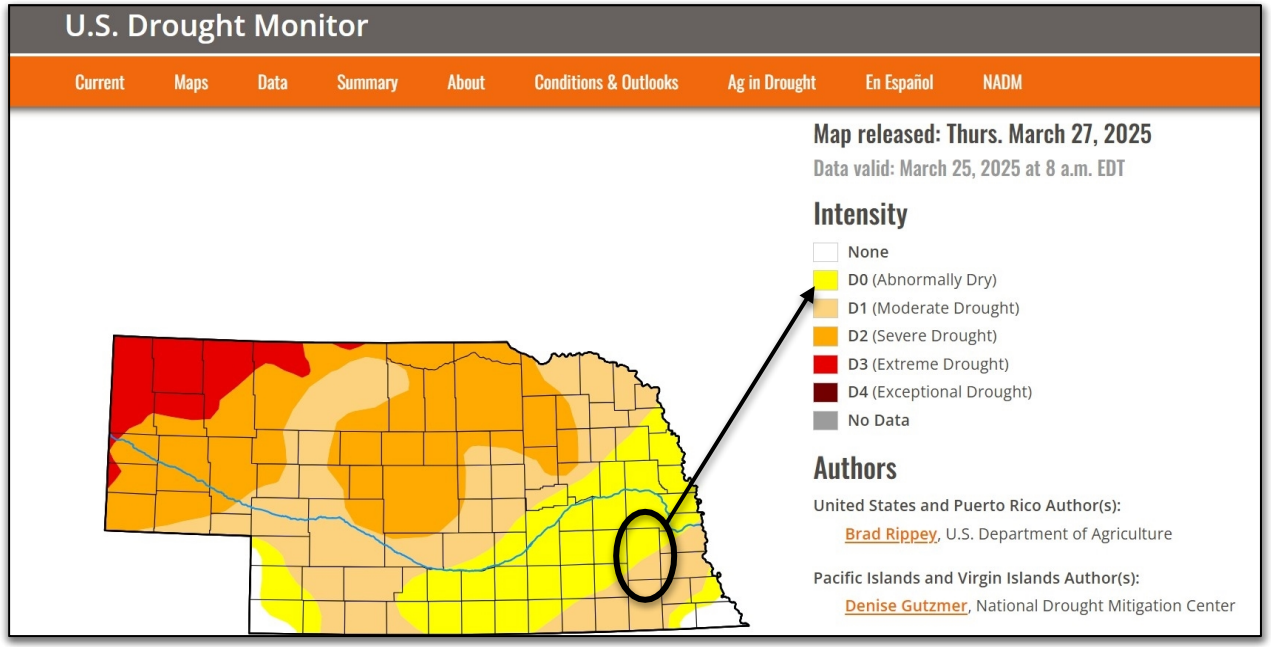


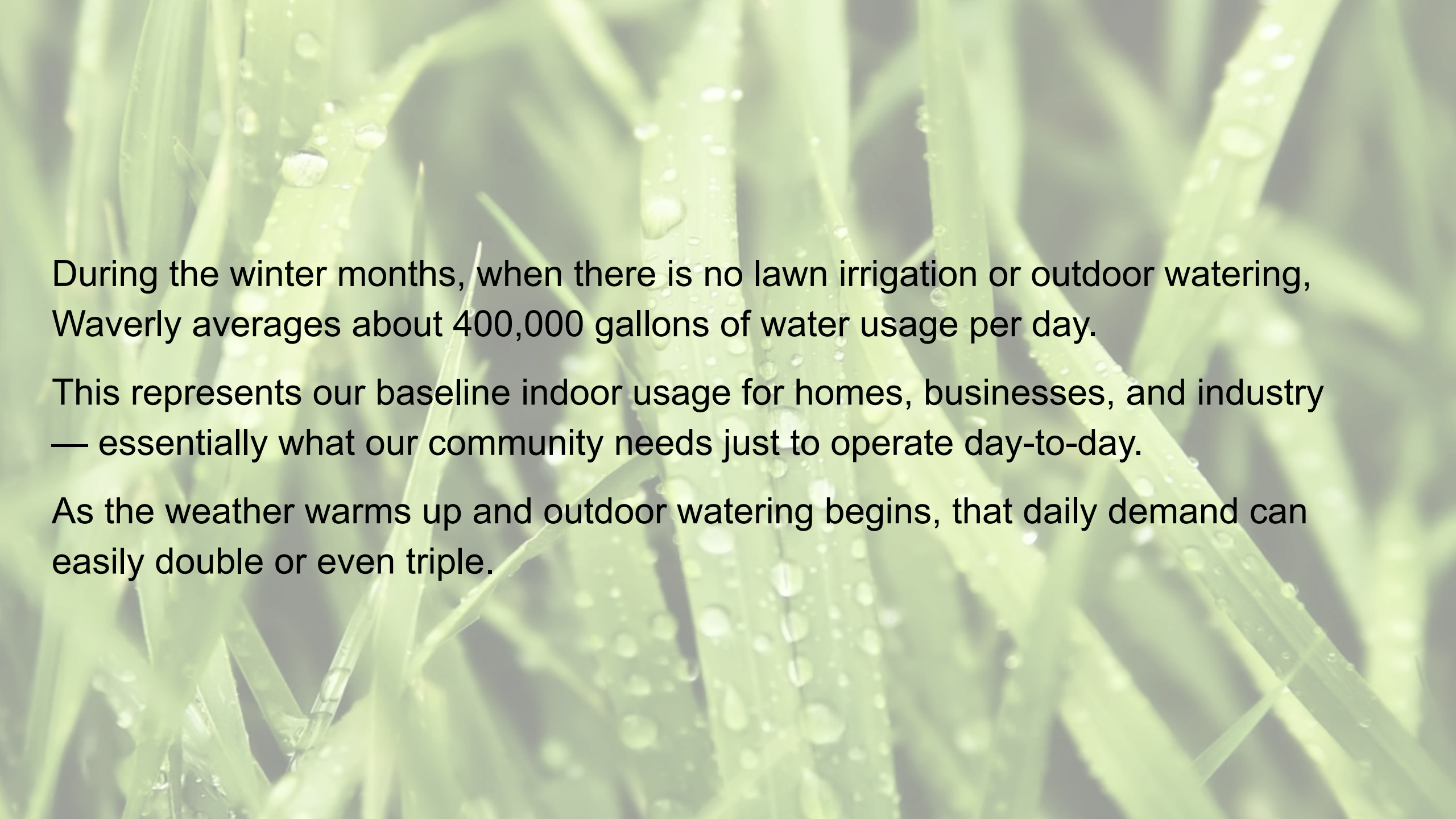
Understanding Waverly's Water Supply

April 2025

In the Waverly area, two snow events in March helped improve drought conditions, shifting the classification from a moderate drought to an abnormally dry intensity. While this is a positive development, it's important to note that the region is still experiencing below-average moisture levels. Continued monitoring and conservation efforts remain essential as we move into the summer season.



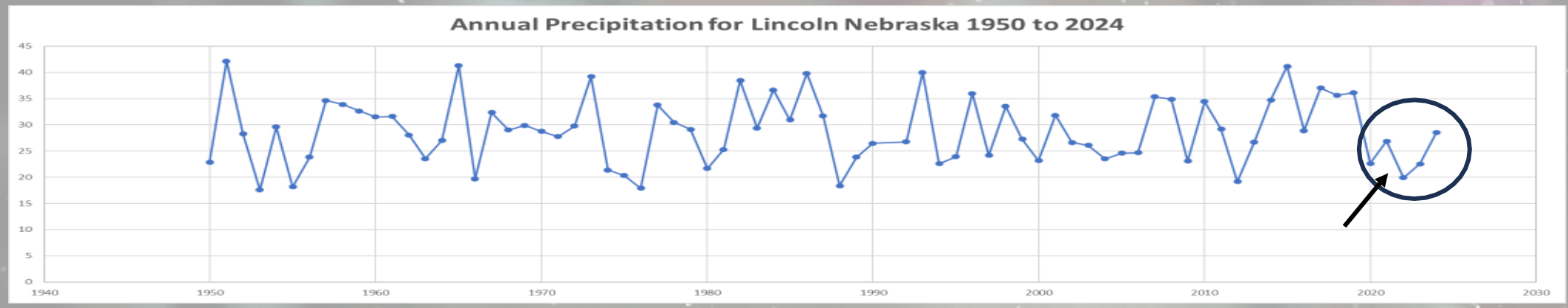




During the winter months, when there is no lawn irrigation or outdoor watering, Waverly averages about 400,000 gallons of water usage per day.

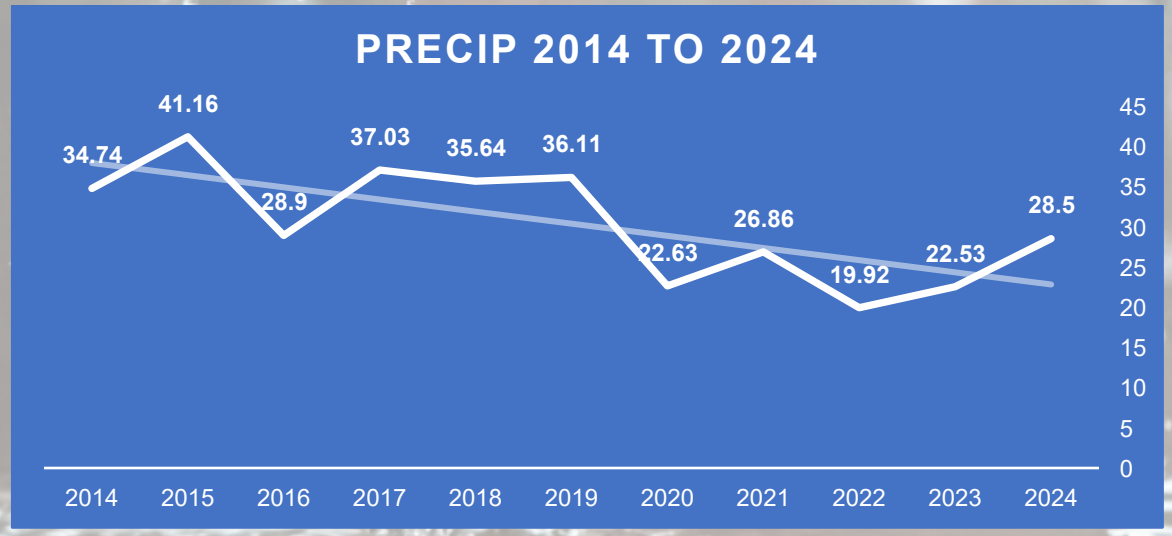
This represents our baseline indoor usage for homes, businesses, and industry — essentially what our community needs just to operate day-to-day.

As the weather warms up and outdoor watering begins, that daily demand can easily double or even triple.



Since 1950, precipitation in our region has followed a pattern of natural variability—marked by cycles of wetter and drier years. **In the past five years, we have seen less than 30” of precipitation each year.**

2024 - 28.5"
2023 - 22.53”
2022 - 19.92”
2021 - 26.8”
2020 - 22.63”



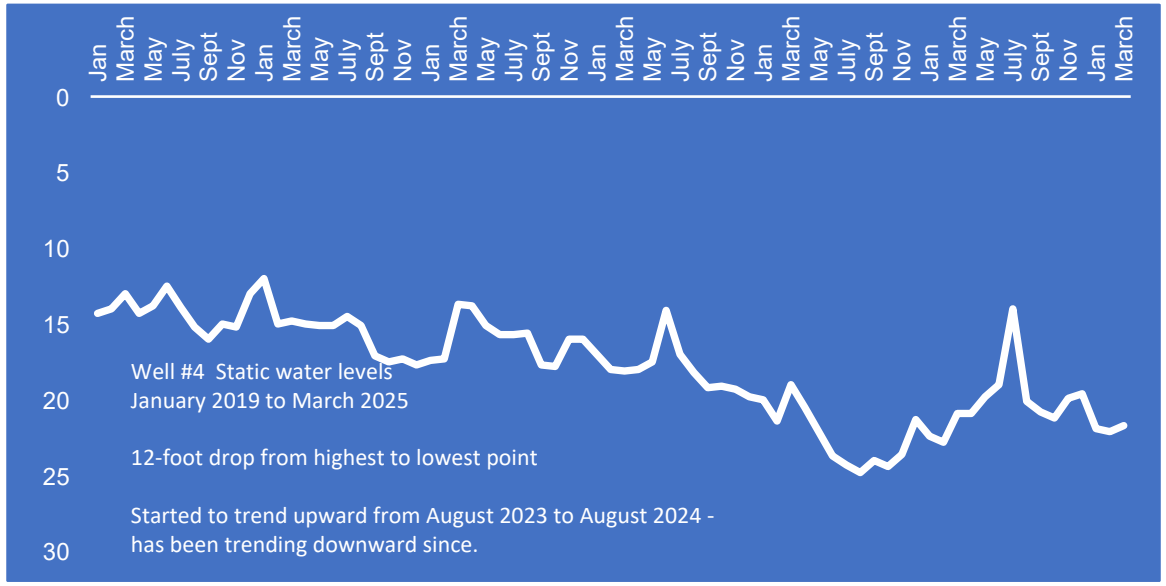
Over the past decade, precipitation in our area has steadily declined, with **2022** marking the driest year at just **19.92”**.

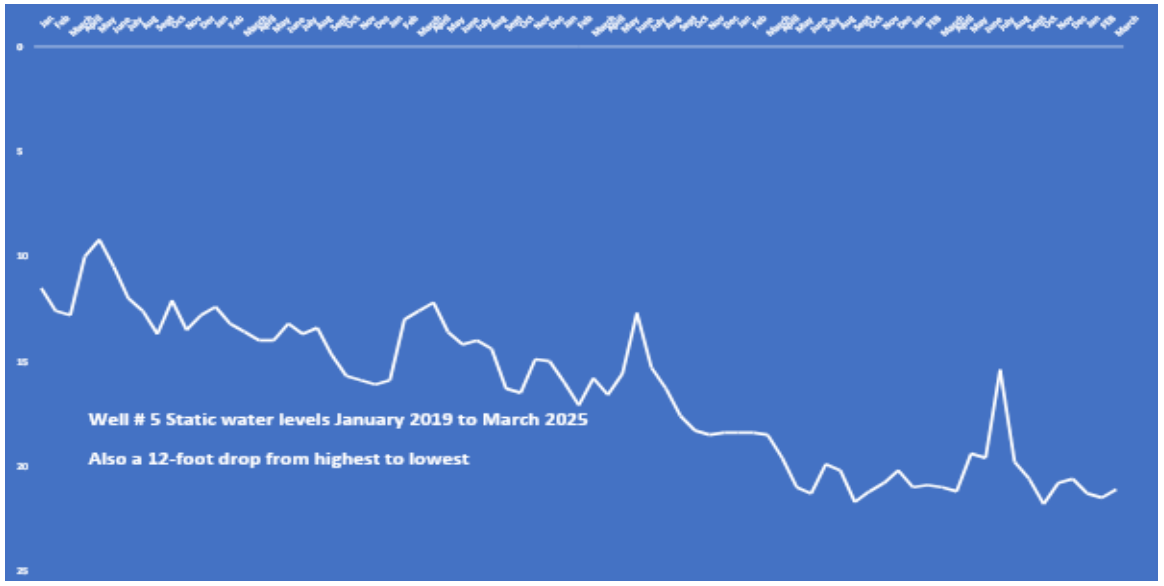
This long-term trend of reduced rainfall puts additional stress on our water supply, especially during high-demand periods and drought conditions.

As the annual precipitation has remained below 30” for the past five years, this has contributed to a noticeable decline in groundwater levels.

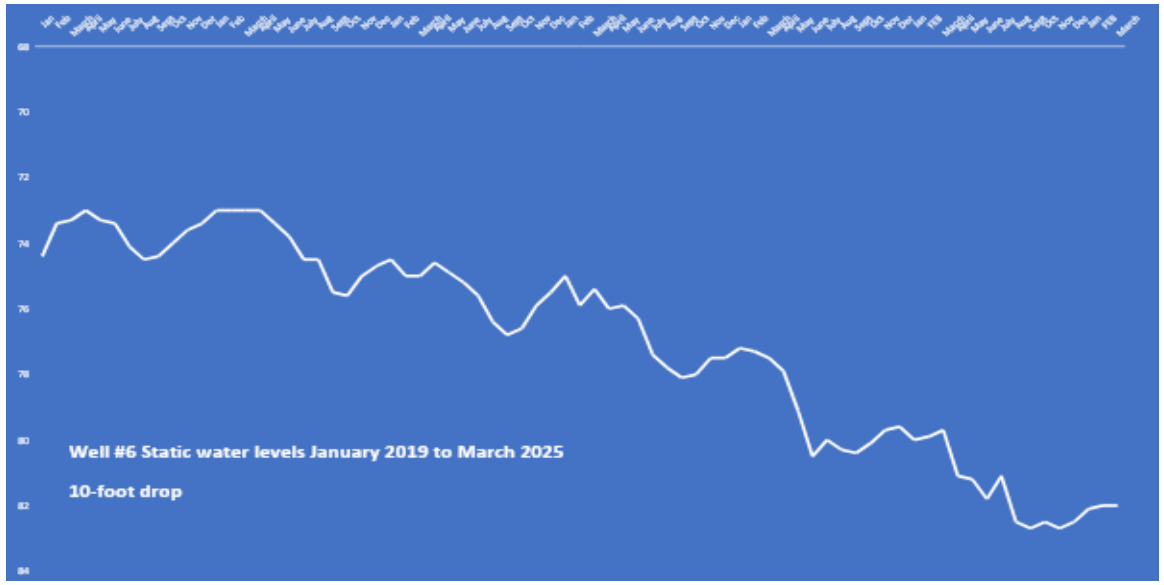
The following slides display static water level trends over the past five years for each of our wells, giving a clear picture of how the aquifer has been impacted over time.

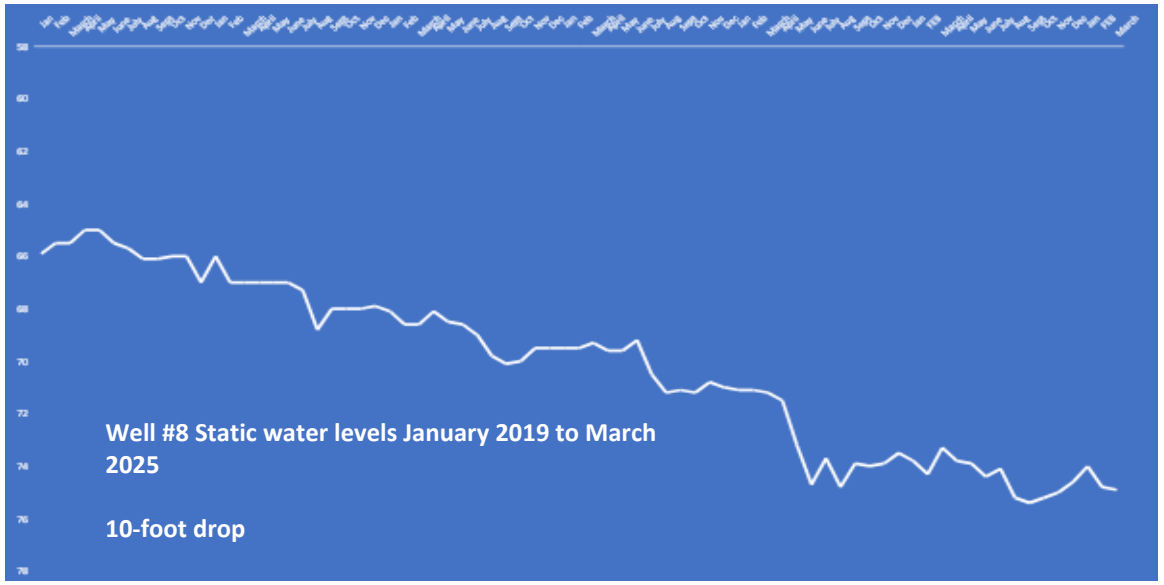
The *static water level* refers to the depth from the ground surface to the water in the well when it is not actively pumping. By monitoring these levels at each well, we’re able to track trends, plan for future demand, and make informed decisions about water conservation, infrastructure, and new well development.

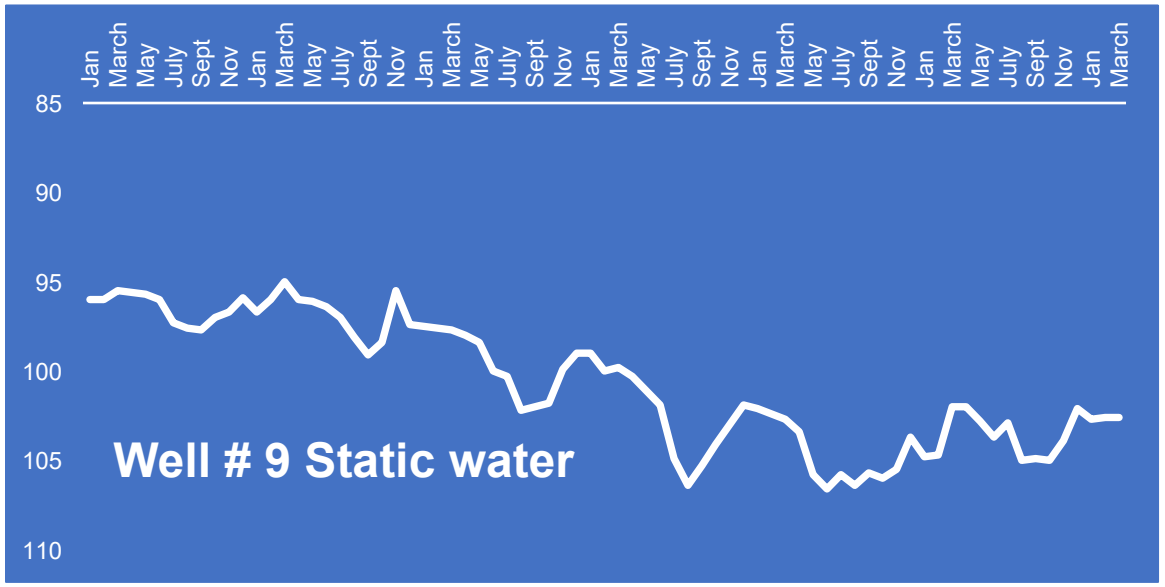


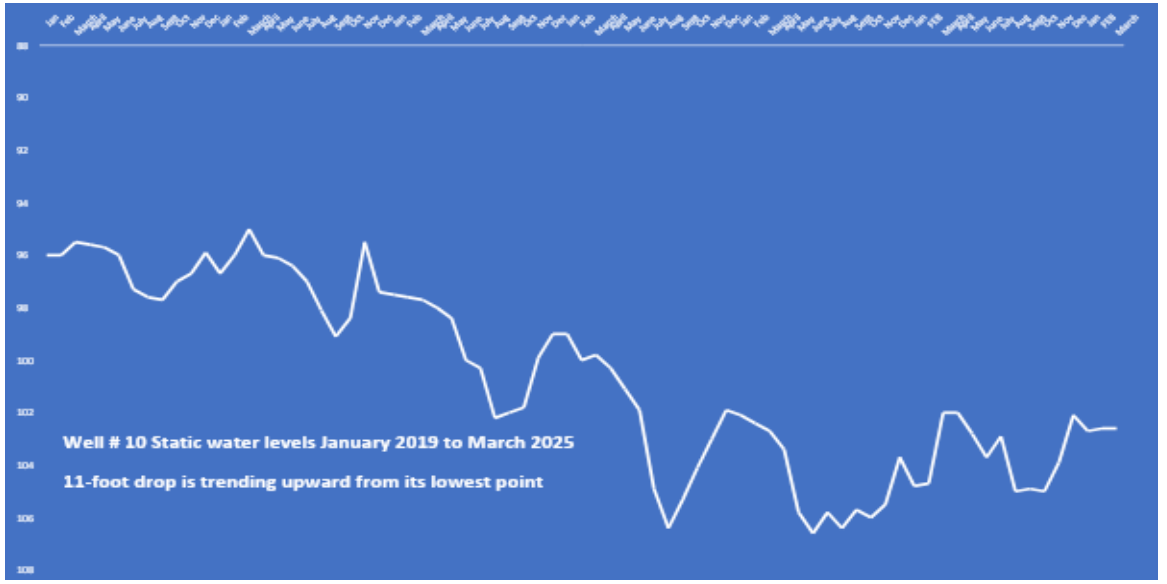


STATIC WATER LEVELS

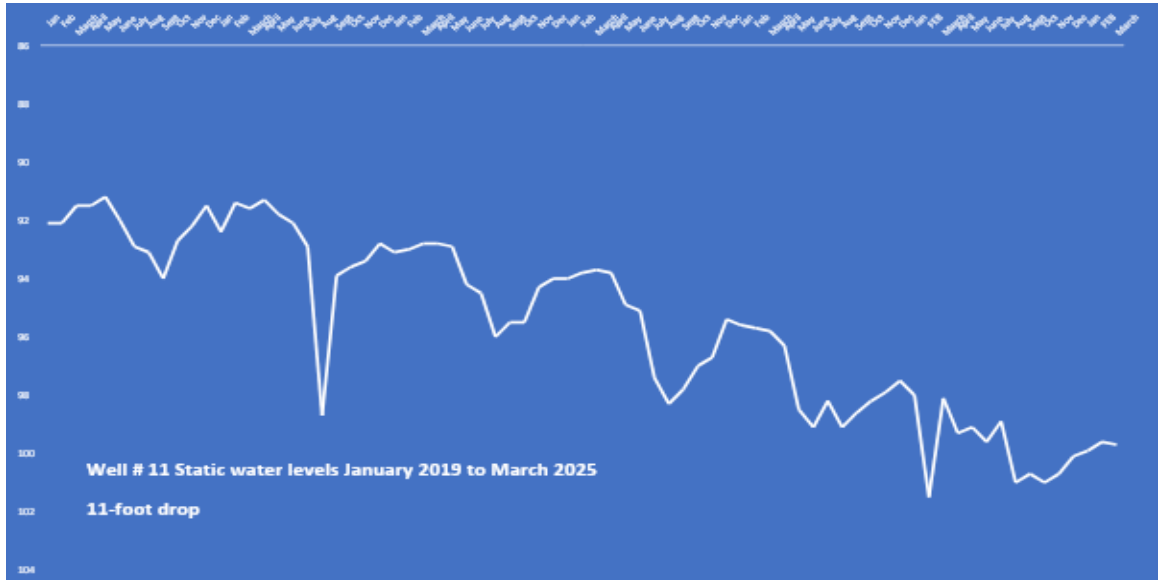








STATIC WATER LEVELS



We operate eight (8) wells capable of pumping up to 2 million gallons of water over a 12-hour period.

However, the number of wells isn’t the limiting factor — what truly matters is how much water is available in the aquifer.

Even with strong pumping capacity, if groundwater levels continue to decline, our ability to meet demand could be compromised. Sustainable water management depends on both supply and usage working in balance.

We're not the only ones relying on groundwater — each dot represents a registered well across the state.

During dry conditions, groundwater use increases everywhere.

As a result, static water levels decline statewide.

This isn’t an issue unique to Waverly—it's a challenge shared across the region.

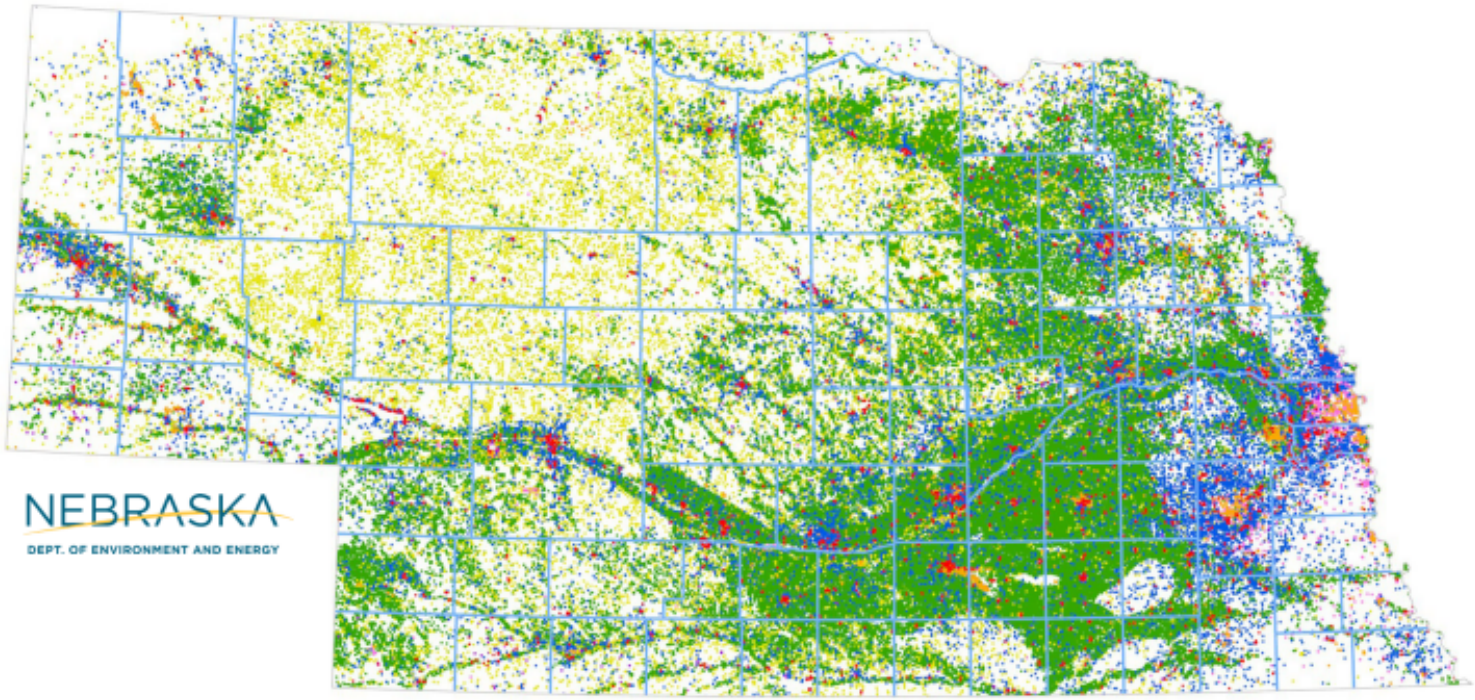
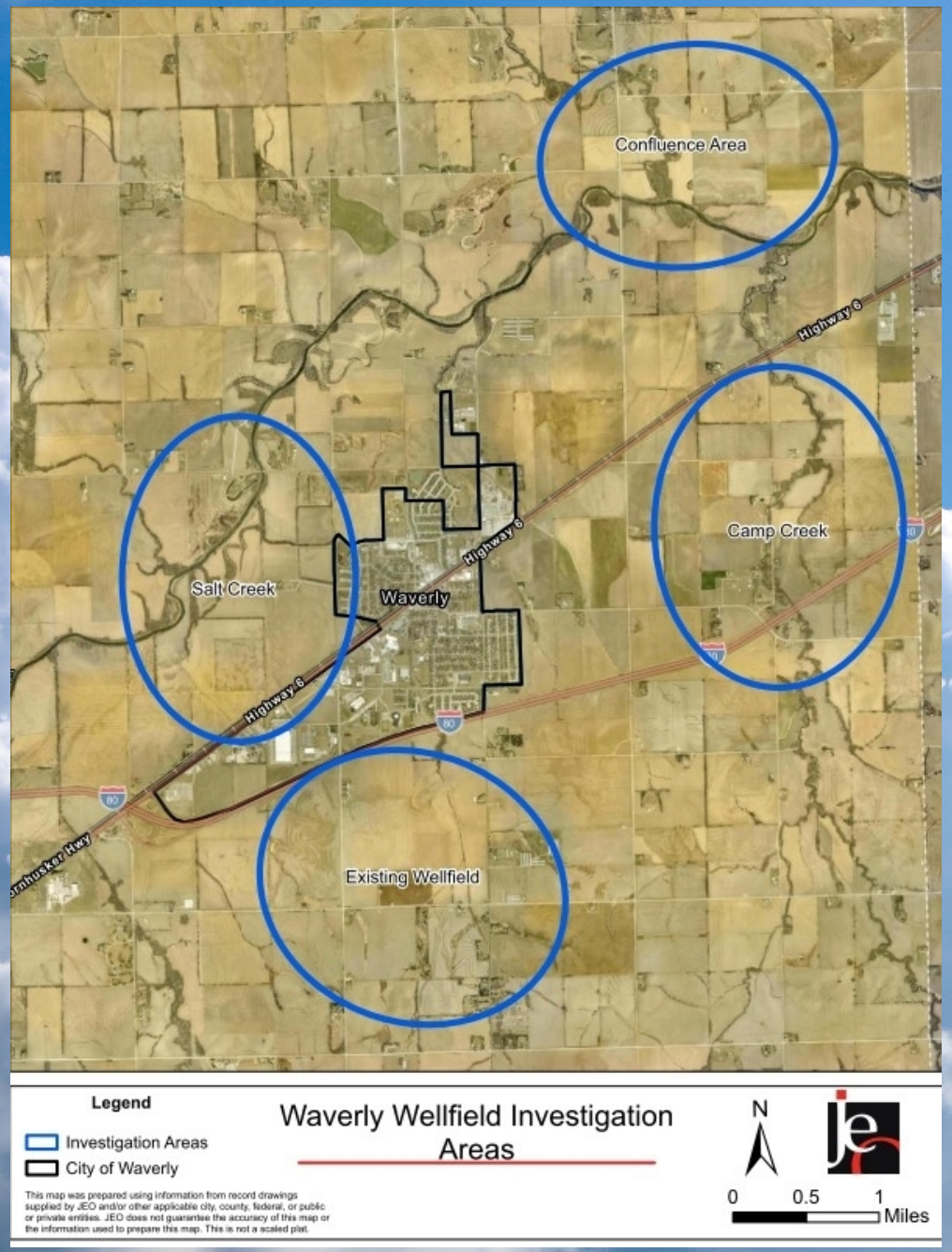


Figure 7. Active registered water wells as of November 2024 (Nebraska Department of Natural Resources Registered Well Database, 2024).

Table 1. Active registered water wells and use as of November 2024 (Nebraska Department of Natural Resources Registered Well Database, 2024).

	WATER USE	ACTIVE
	Irrigation	96,846
	Domestic	35,575
	Livestock	25,508
	Monitoring (Groundwater Quality)	18,117
	Public Water Supply	5,200
	Commercial/Industrial	1,851
	Other	7,332
	Total	190,429



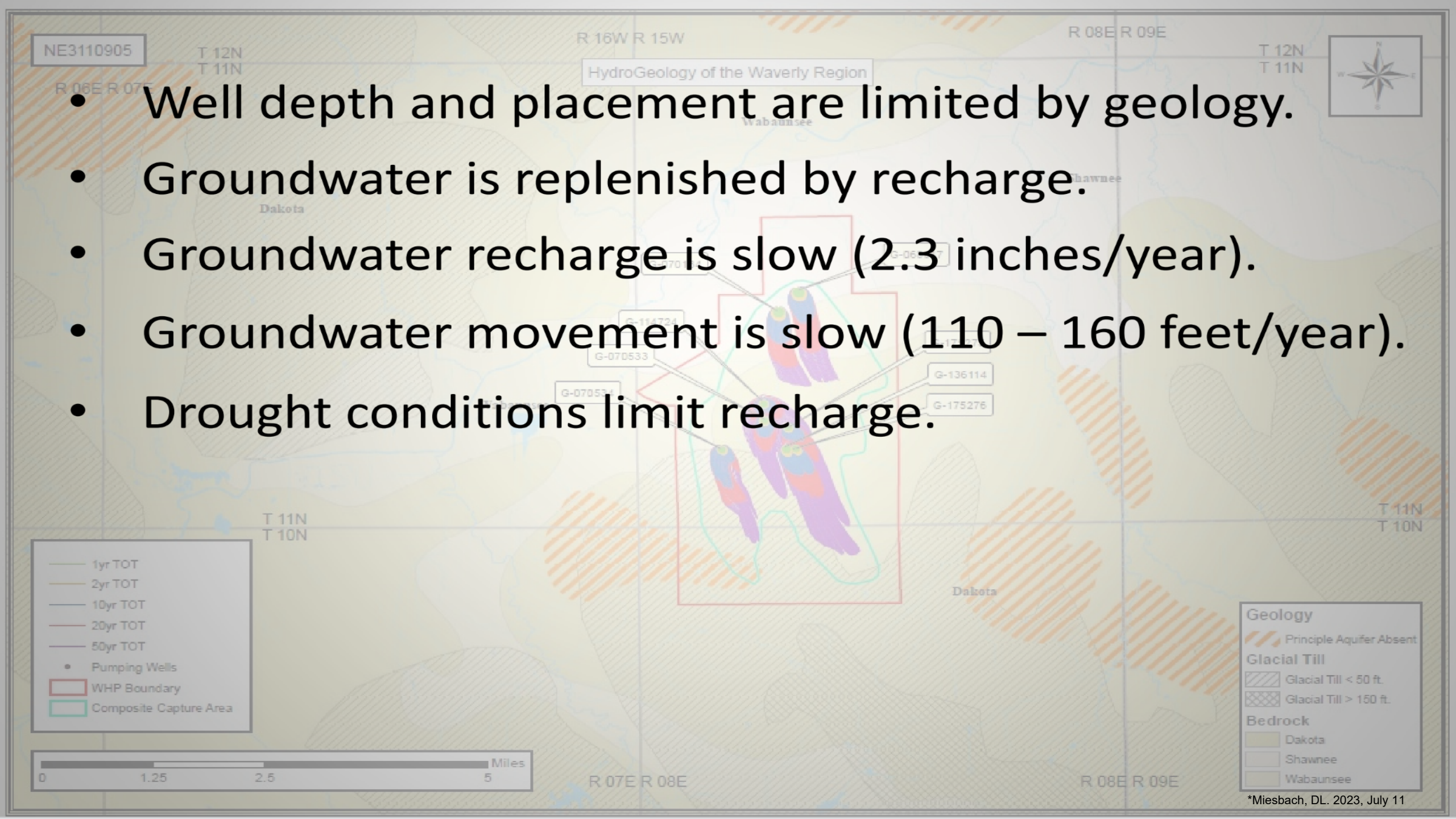
Later this year, we will begin exploratory drilling in these targeted areas to evaluate future groundwater availability and potential pumping capacities within the Waverly area.

This project will assess up to 13 possible sites for the development of a new well, testing both water quality and site suitability to determine the most viable location.

Based on the results of these test wells, we may move forward with the process of adding a new production well as early as next year.

All related study documents are available on our website for public review.

- Well depth and placement are limited by geology.
- Groundwater is replenished by recharge.
- Groundwater recharge is slow (2.3 inches/year).
- Groundwater movement is slow (110 – 160 feet/year).
- Drought conditions limit recharge.



*Miesbach, DL. 2023, July 11

Water to the Bottom of the Roots

- Spring & Fall 1” water / week
- Summer
  - Heavy soils- 1.5” water / week
  - Sandy soils- 2” water / week
- Allow Kentucky bluegrass to go dormant
  - Greater susceptibility to wear damage
  - Disease & insect injury may go undetected

EXTENSION

The City has moistur
meters available for
anyone who wants to
this method for their
lawn.

Watering Tips

- Water deeply and infrequently
- “Soak & cycle”
- Look for wilting symptoms
  - Color change
  - Leaf blades don’t spring back after foot traffic
- Measure soil moisture level to determine need to water
  - Screwdriver

EXTENSION

*Browning, Sarah. Giesler, Loren. 2024, March 26.

Water conservation remains the most powerful and effective tool for managing usage, especially as drought conditions continue.

While infrastructure improvements and new wells can support supply, reducing demand through smart water use has the greatest **immediate** impact.

Every drop we save helps preserve our aquifer and ensures a more resilient water system for the entire community.

Watering SCHEDULE

Effective 5-1-24
Year-Round

SUNDAY	Addresses ending in **EVEN** numbers (0, 2, 4, 6, 8)
MONDAY	No Watering
TUESDAY	Addresses ending in **ODD** numbers (1, 3, 5, 7, 9)
WEDNESDAY	Addresses ending in **EVEN** numbers (0, 2, 4, 6, 8)
THURSDAY	No Watering
FRIDAY	No Watering
SATURDAY	Addresses ending in **ODD** numbers (1, 3, 5, 7, 9)
*No lawn watering or irrigation is permitted between the hours of **10:00 a.m. and 4:00 p.m.** on any day.*	

VIOLATIONS:
Per Calendar Year

1st: **Warning** notice attached to front door of residence
2nd: **Warning** notice attached to front door of residence
3RD: **$200** reconnect fee + notice attached to front door
4TH & up: **$400** reconnect fee + notice attached to front door

This schedule only applies to lawn irrigation (watering of your yard).

You are still able to:

- Water gardens
- Water bushes/shrubs
- Water trees
- Wash vehicles
- Fill pools/hot tubs


What we need most is consistent precipitation.
Thank you all for doing your part to help us with our conservation efforts.