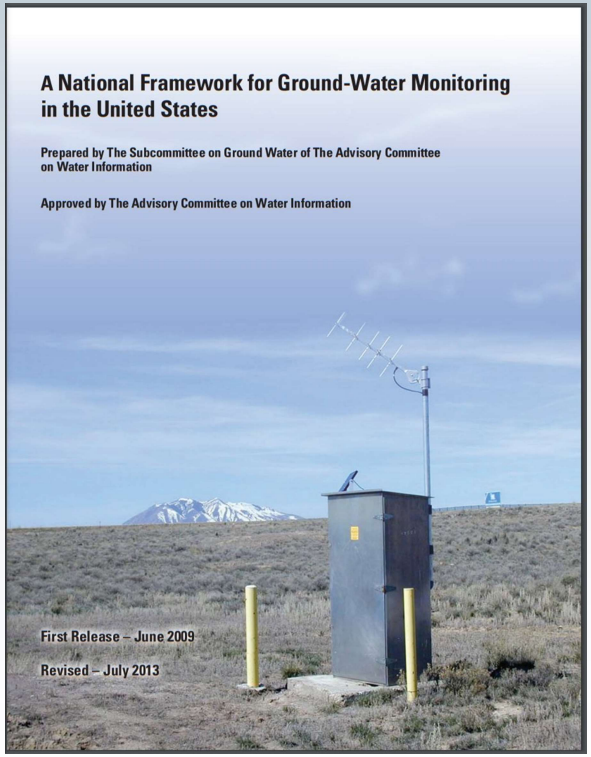
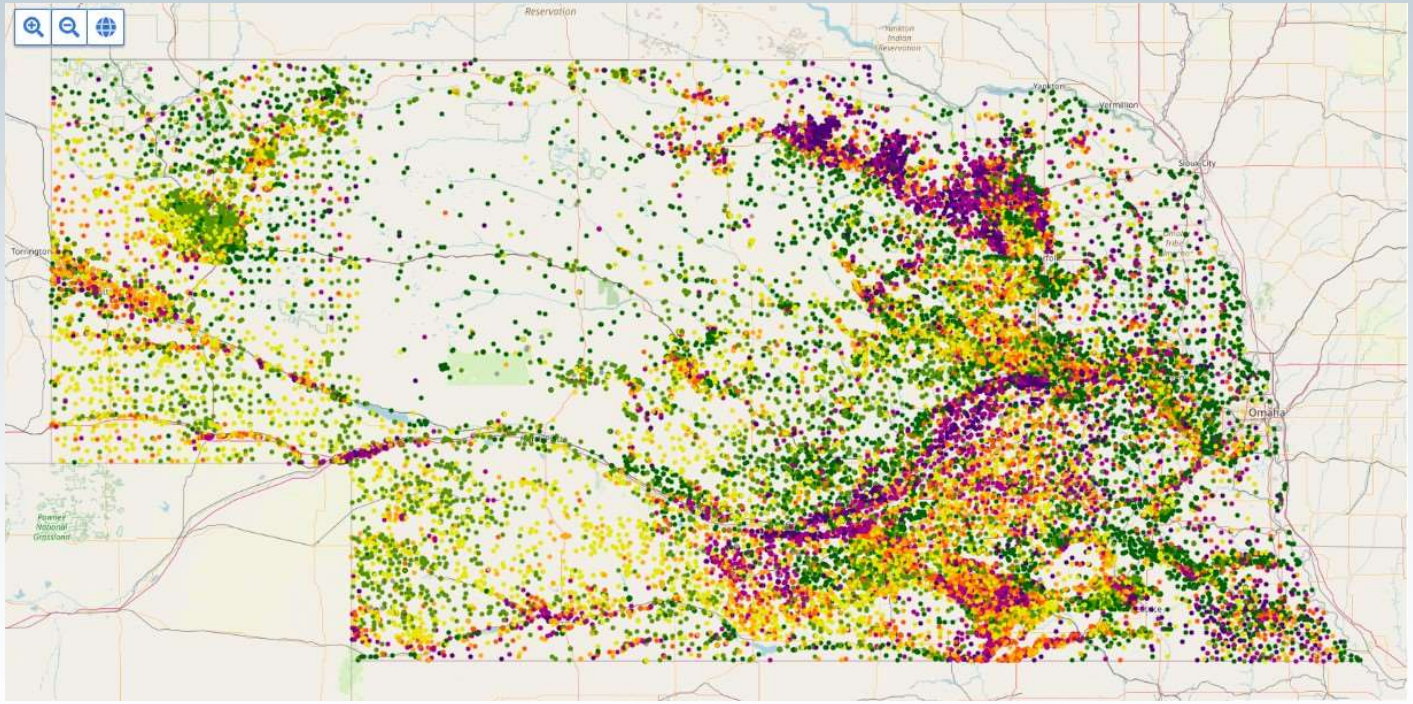
Nebraska's Participation in the NGWMN

Groundwater Monitoring Council Spring Meeting
May 2, 2023
David L. Miesbach
NDEE



Nebraska Groundwater Quality Clearinghouse



Nebraska Groundwater Quality Monitoring Report

2022 Nebraska Groundwater Quality Monitoring Report

NEBRASKA
Good Life. Great Resources.
DEPT. OF ENVIRONMENT AND ENERGY

Groundwater Section
November 2022

Prepared Pursuant
to Neb. Rev. Stat. §46-1304
(LB329 – 2001)

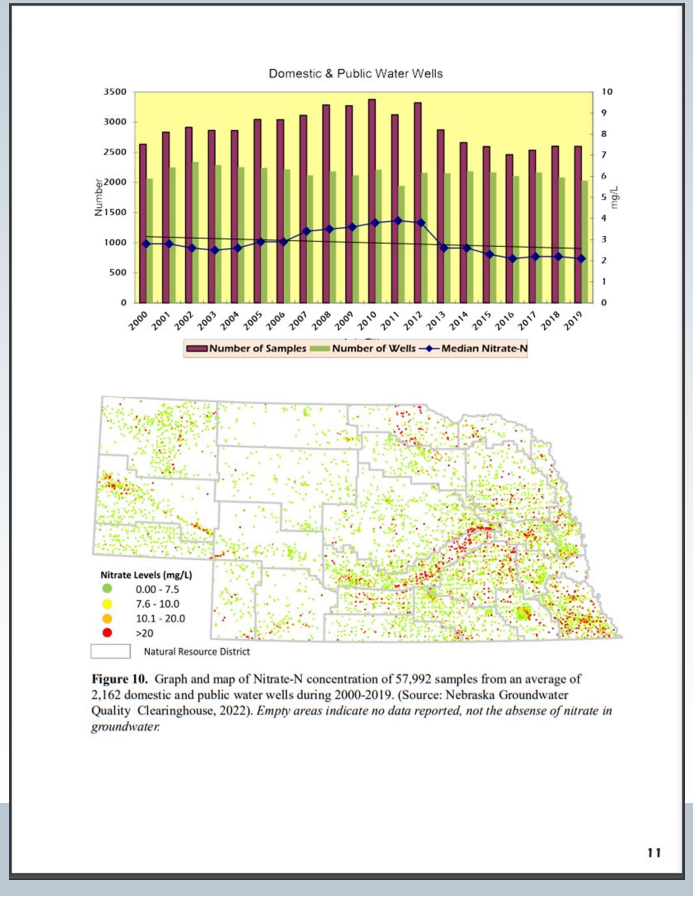


Figure 10. Graph and map of Nitrate-N concentration of 57,992 samples from an average of 2,162 domestic and public water wells during 2000-2019. (Source: Nebraska Groundwater Quality Clearinghouse, 2022). *Empty areas indicate no data reported, not the absense of nitrate in groundwater.*

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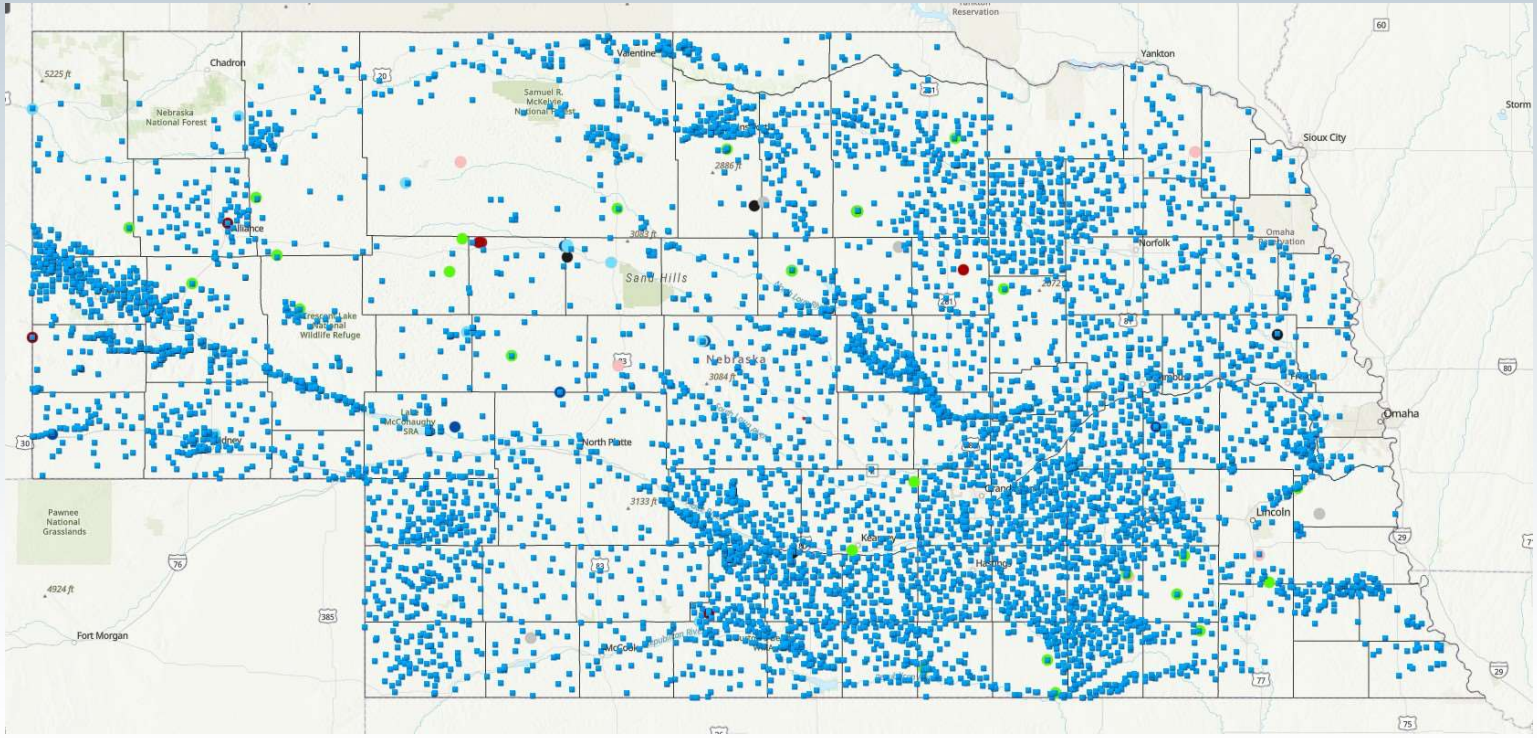
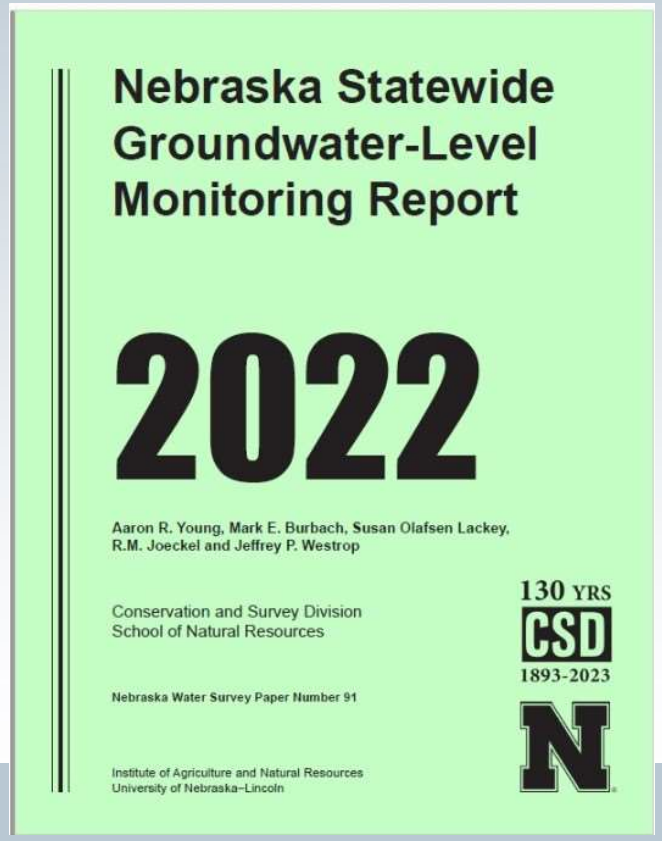
CSD Interactive Data Map



Nebraska Statewide Groundwater-Level Monitoring Report



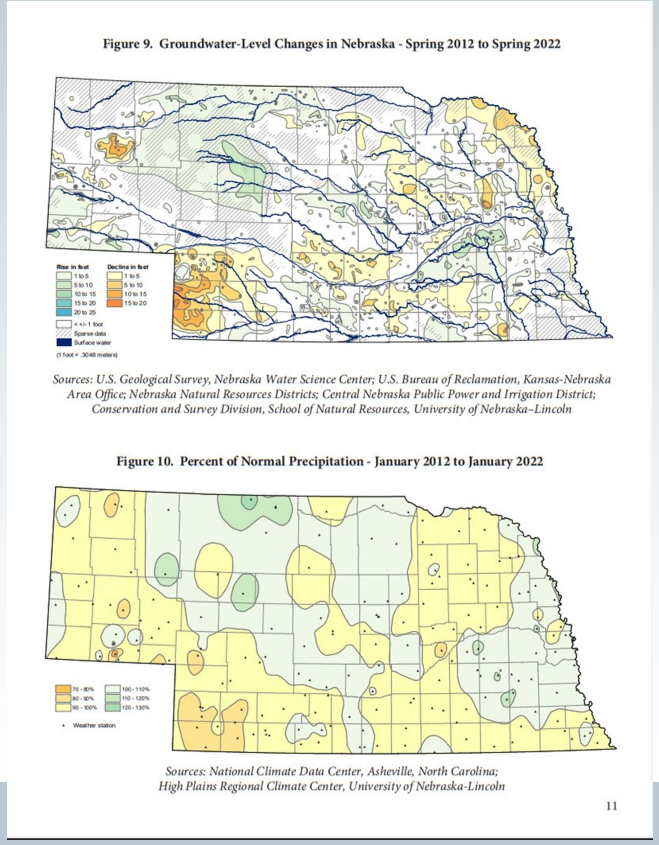


Figure 9. Groundwater-Level Changes in Nebraska - Spring 2012 to Spring 2022

Sources: U.S. Geological Survey, Nebraska Water Science Center; U.S. Bureau of Reclamation, Kansas-Nebraska Area Office; Nebraska Natural Resources Districts; Central Nebraska Public Power and Irrigation District; Conservation and Survey Division, School of Natural Resources, University of Nebraska–Lincoln

Figure 10. Percent of Normal Precipitation - January 2012 to January 2022

Sources: National Climate Data Center, Asheville, North Carolina; High Plains Regional Climate Center, University of Nebraska-Lincoln

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How do we become part of the NGWMN?

Table 6.1.1.1 Data elements for ground-water monitoring of levels and quality.

Data Element	Definition
1.0 POINT OF CONTACT (Metadata collected and reported one time for a well or monitoring site)	
1.1 Source of data	Identifies the primary source or provider of data, including name, address, telephone number, email address.
1.1.1 Organization Name	Legal formal name of organization that is the primary source of data.
1.1.2 Mailing Address	Exact address where mail is intended to be delivered, including street, rural route and (or) PO Box.
1.1.2.1 City, Town, Village Name	Municipality where organization that collected information resides.
1.1.2.2 State Name	State
1.1.2.3 Mailing Address ZIP Code/Postal Code	5-digit Zone Improvement Plan (ZIP) code and 4-digit extension code (if available).
1.1.3 Telephone number	Telephone number (including area code) of the person who is the point of contact for the organization.
1.1.4 Electronic Mail Address	Electronic Mail Address (email) of the contact person at the organization.
2.0 SITE IDENTIFICATION/DESCRIPTION (Metadata collected and reported one time for a well or monitoring site)	
2.1 Site Identifier	Unique site identifier consisting of latitude (DDMMSS), longitude (DDDMMSS), and sequence number (NN) (DDMMSSDDDMMSSNN) or other unique identifier.
3.0 GEOLOGIC/HYDROLOGIC DESCRIPTION (Metadata collected and reported one time for a well or monitoring site)	
3.1 Geologic unit(s) containing aquifer (Aquifer lithology; the lithology of the primary contributing unit(s))	Name of geologic unit given by national, Federal, or interstate agency for the Principal aquifer for which measurement is taken.
3.2 Aquifer tapped (Principal aquifer or other significantly used aquifer; primary unit(s) contributing water to the well)	USGS Atlas designation of aquifer (blank otherwise).
3.3 Local aquifer or geologic formation name (if applicable)	Local or State name of an aquifer or geologic formation.
3.4 Aquifer conditions	Hydrogeologic characteristics of the aquifer identified as: (1) confined (2) unconfined or leaky confined

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4.0 WELL LOCATION (Metadata collected and reported one time for a well or monitoring site)	
4.1 Horizontal Location	
4.1.1 Latitude	Measure of angular distance on a meridian north or south of the equator in decimal degrees.
4.1.2 Longitude	Measure of angular distance on a meridian east or west of the prime meridian in decimal degrees.
4.1.3 Horizontal Reference Datum	The reference datum to determine latitude and longitude coordinates.
4.1.4 Location Horizontal Accuracy	The measure of accuracy (in feet) of the latitude and longitude coordinates.
4.1.5 Location Collection Method	Method used to determine latitude and longitude coordinates for well.
4.2 Vertical Location	
4.2.1 Altitude of top of well casing	Altitude of the casing at the wellhead for the well at which a measurement is being taken.
4.2.2 Altitude measurement method	Method used to determine altitude.
4.2.3 Altitude of the land surface next to the well casing (at the wellhead)	The measure of elevation of the ground level at the wellhead .
4.2.4 Altitude accuracy	The accuracy of altitude measurement.
4.2.5 Vertical Reference Datum	Datum of altitude
5.0 WELL CHARACTERISTICS (Metadata collected and reported one time for a well or monitoring site)	
5.1 Local/State Identifier	State unique identifier/State permit number.
5.2 Depth of well	Well depth to bottom of open hole or casing.

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Data Element	Definition
5.2.1 Depth of Well unit of measure	Measurement of well depth in (a) Feet (b) Meters
5.3 Source of Data	The contributing source of the well-depth data.
5.4 Casing depth of well	Depth to casing string bottom.
5.4.1 Casing depth of well unit of measure	Measurement of well casing depth in (a) Feet (b) Meters
5.5 Top of uppermost screened interval or open hole (Depth to top of each open interval)	Depth to top of uppermost open interval.
5.5.1 Top of uppermost screened interval or open hole unit of measure	Measurement unit to top of uppermost screened interval or open hole in (a) Feet (b) Meters
5.6 Bottom of lowermost screened interval or open hole (Depth to bottom of each open interval)	Depth to lowermost open-interval bottom.
5.6.1 Top of lowermost screened interval or open hole unit of measure	Measurement unit to top of lowermost screened interval or open hole in (a) Feet (b) Meters
5.7 Casing material(s), if there is a casing	Casing material such as steel, polyvinyl chloride (PVC) fiberglass, etc.
5.8 Screen material type(s) at each open interval(s), if the well has well screen(s)	Screen material such as steel, polyvinyl chloride (PVC) fiberglass, etc.
5.9 Well Log or Completion Report Available	Indication of well log or Completion Report availability: Yes/No
5.10 Measurement Location (Metadata collected and reported one time for each well)	
5.10.1 Description of Measurement/Sampling/Reference Location	Location at which the measurement/sampling was done: (a) top of well above land surface (b) top of well at land surface (c) top of well below land surface
5.10.2 Measurement/Sampling reference location elevation (Measuring-point elevation relative to datum (rtd)	Height of measurement/sampling reference location from land-surface elevation (altitude).
5.10.2.1 Measurement/Sampling reference location elevation unit of measure	Measurement unit of reference location elevation at wellhead in (a) Feet (b) Meters
5.10.3 Measuring/Sampling Point Accuracy of Measurement	Indication of accuracy of the point of measurement or sampling in feet or meters.

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6.0 MEASUREMENT/SAMPLING EVENT (Metadata collected and reported for each measurement and sampling event and data for water-level measurement)	
6.1 Purpose	
6.1.1 Monitoring Purpose	Specified monitoring purpose: (a) baseline (b) surveillance (c) trend (d) special studies
6.2 Date and Time (Metadata collected and reported for each measurement and sampling event)	
6.2.2 Measurement/Sampling date/time	
6.2.2.1 Level Measurement date and time (Data for water-level measurement collected and reported for each measurement event)	
6.2.2.2 Water-level measurement date	The calendar date when water level was measured, reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.
6.2.2.3 Water-level measurement time	The measure of clock time and time zone when water level was measured, reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.

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Data Element	Definition
6.2.3 Quality Sampling date and time (Metadata for water-quality sampling collected and reported for each sampling event)	
6.2.3.1 Sample Collection Date	The calendar date when collection of the sample was started, reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.
6.2.3.2 Sample Collection Time Measure	The measure of clock time and time zone when collection of the sample was begun, reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.
6.3 Measurement/Sampling Site Use (Metadata collected and reported each time for water-level or water-quality sampling event)	
6.3.1 Site use at time of measurement/sampling event	Use of area immediately around well: Commercial, industrial, agricultural cropping, undeveloped pasture/ range, forest, or residential at time of measurement or sampling event.
6.4 Level Elevation Measurement (Data collected and reported each time for a water-level measurement)	
6.4.1 Water Level	Water level reported to accuracy of measurement to the nearest ones, tenths, or hundredths of a unit.
6.4.1.1 Water Level Unit of Measure	Measurement unit of water elevation in well (a) Feet (b) Meters
6.4.2 Measurement method	Method of water-level measurement.
6.4.3 Water-level accuracy	Accuracy of water-level measurement in feet or meters.
6.4.4 Water-level status	Status of water-level: (a) static (b) pumping
6.5 Sample Collection (Metadata collected and reported for each water-quality sample)	
6.5.1 Sample Type	The type of sample being described. Permitted values include: (1) Sample (2) Duplicate sample (3) Other entries as applicable
6.5.2 Sample Identification	The unique name, number, or code assigned to identify the sample.
6.5.3 Sample Collection Method Code	An alphanumeric label to identify the sample-collection method.

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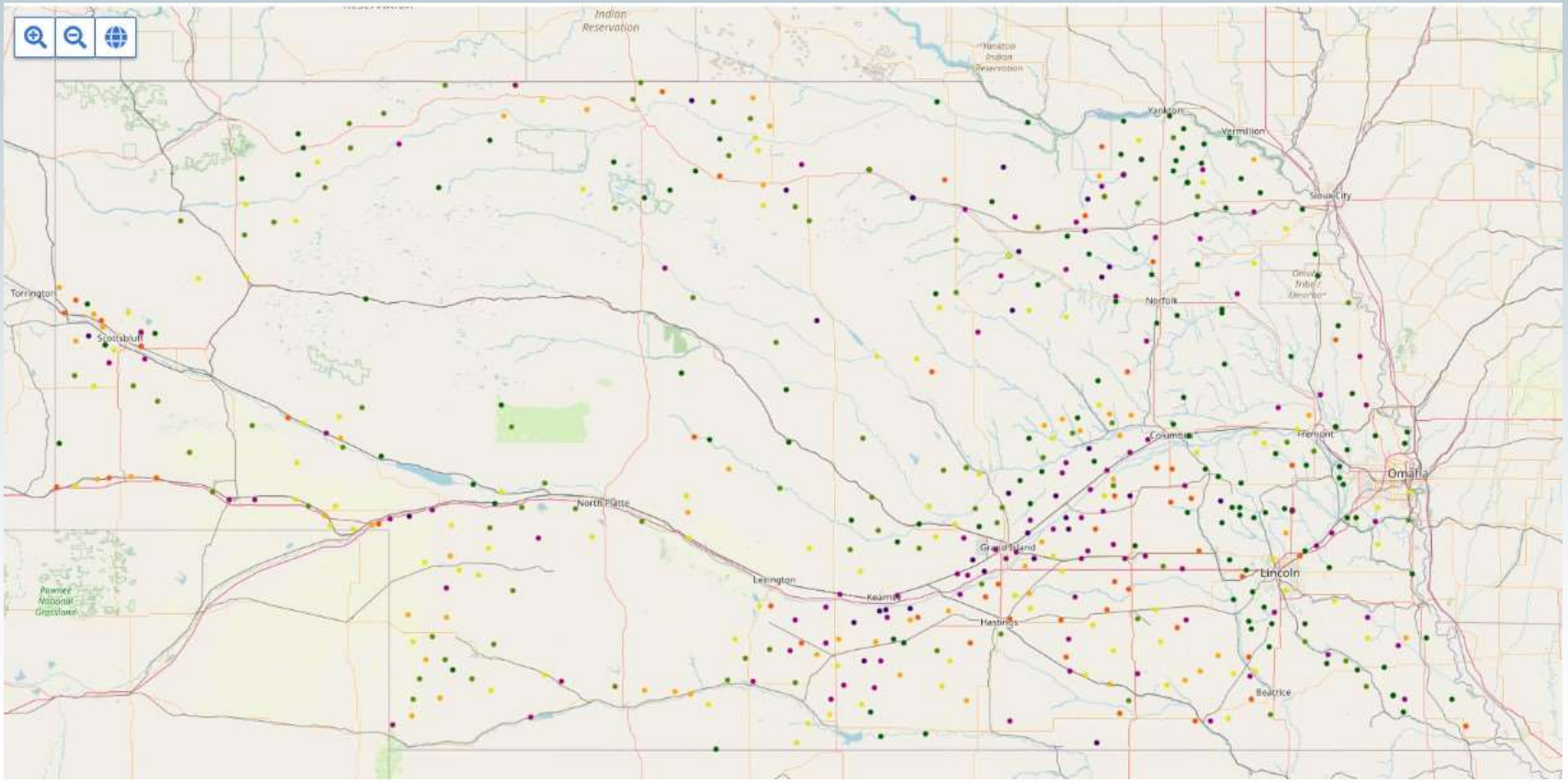
7.0 WATER-QUALITY RESULTS (data from laboratory reported for each sample and analyte tested)	
7.1 Result Value	Reportable numerical measure of the result for the chemical or microbiological analyte, or other characteristic, being analyzed.
7.1.1 Result Value Unit of Measure	The name of the determinate quantity for a standard of measurement used for measuring dimension, capacity, or amount (e.g., mg/L, pCi/L, CFU/mL, etc.).
7.1.2 Analyte Name	The name assigned to a substance or feature that describes it in terms of its molecular composition, taxonomic nomenclature, or other characteristic.
7.1.3 Chemical Identifier/Number (Chemicals only)	Chemical Identifier/Number is the unique number assigned to all chemical substances in the Chemical Abstract Service's (CAS) Registry or, in the USEPA Chemical Registry System, to chemical groupings for which CAS Registry Numbers do not exist and cannot be assigned.
7.1.3.1 Chemical Classification System	The name of the classification system used to assign a systematic name to a chemical analyte.
7.1.4 Biological Identification Number	The unique identification number assigned by either the Integrated Taxonomic Information System, (ITIS) the International Committee on Taxonomy of Viruses, or the USEPA Biological Registry System.

How do we become part of the NGWMN?

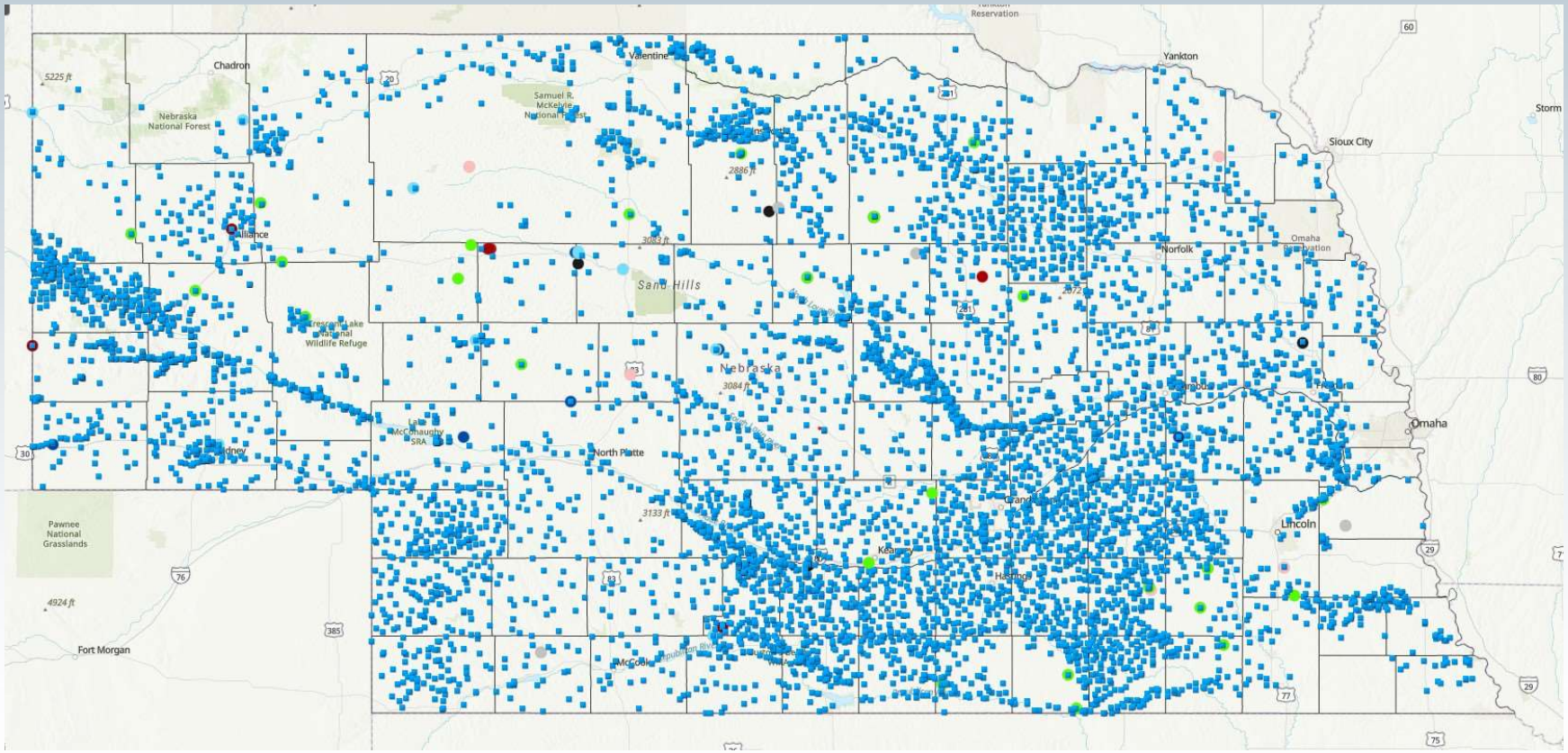
Data Element	Definition
7.1.4.1 Biological Systematic Context Name	The name of the classification system used to assign a systematic name to a biological entity.
7.2 Analytical Method Number	The method number of the analytical method used, represented as a reference number.
7.2.1 Analytical Method Classification System	The name of the classification system used to assign a systematic number to an analytical method. (a) USEPA (b) ASTM (c) Standard Methods (d) Other methods as applicable

Sources:

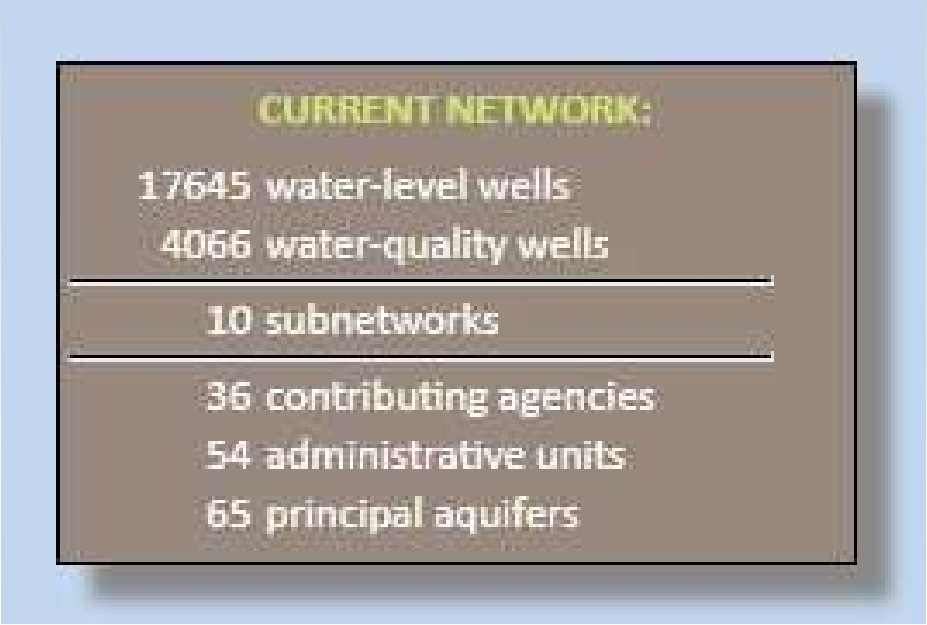
NDEE's Contribution (529)



CSD's Contribution (6,000+)



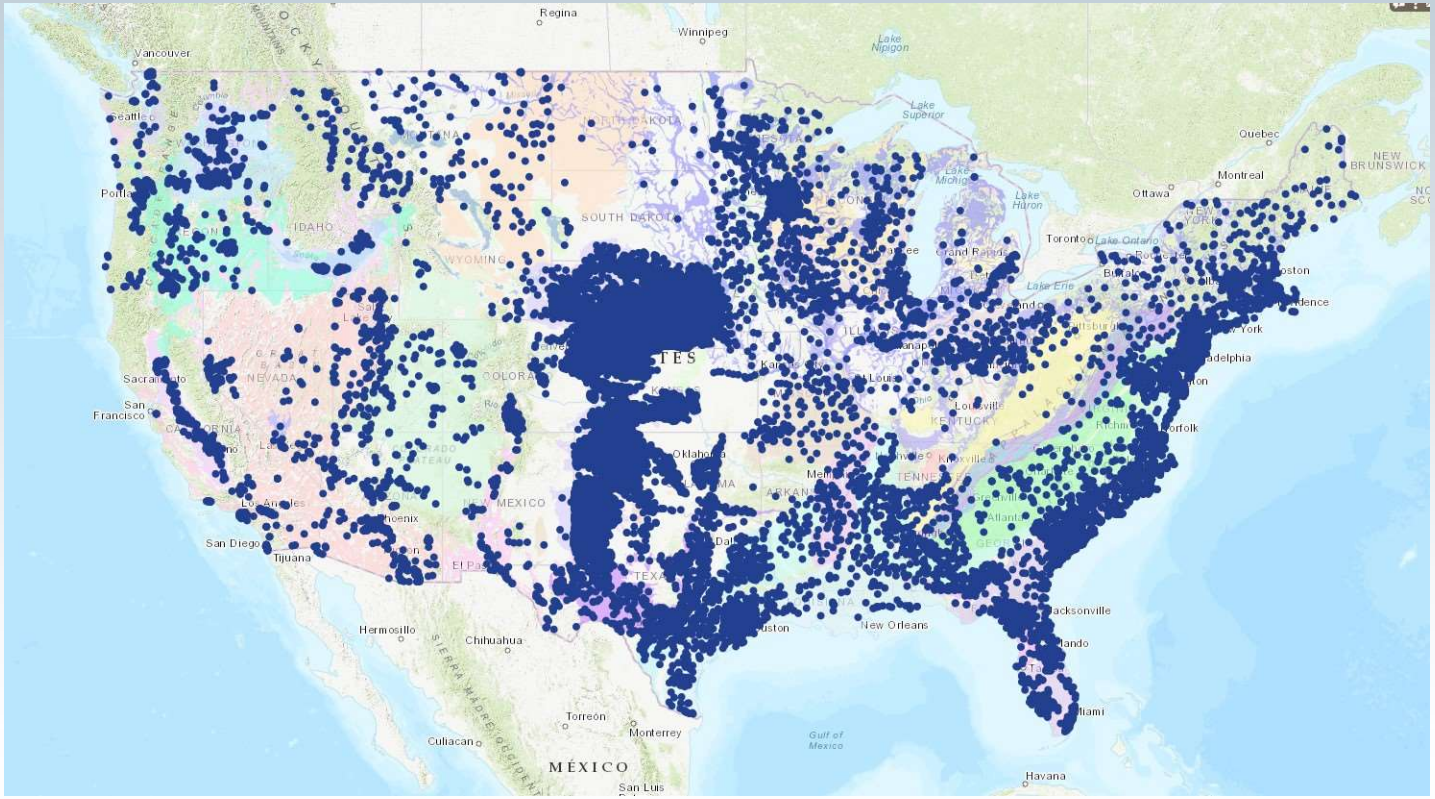
Network Providers



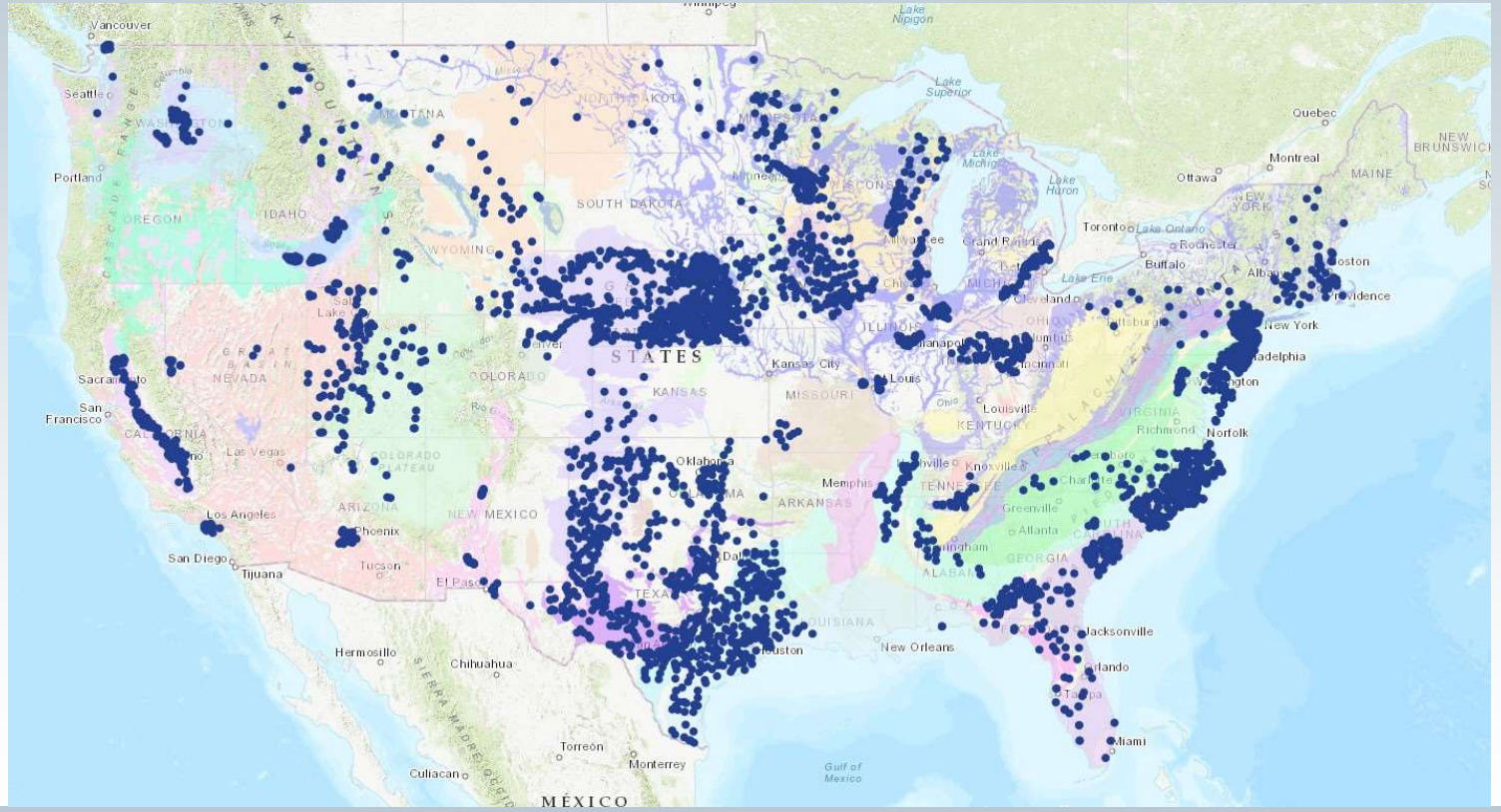
Nebraska Providers

- USGS
- CSD
- NDEE

NGWMN Water Levels



NGWMN Water Quality



Questions?

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