

Nebraska's Natural Resources Districts Water Sampling Programs

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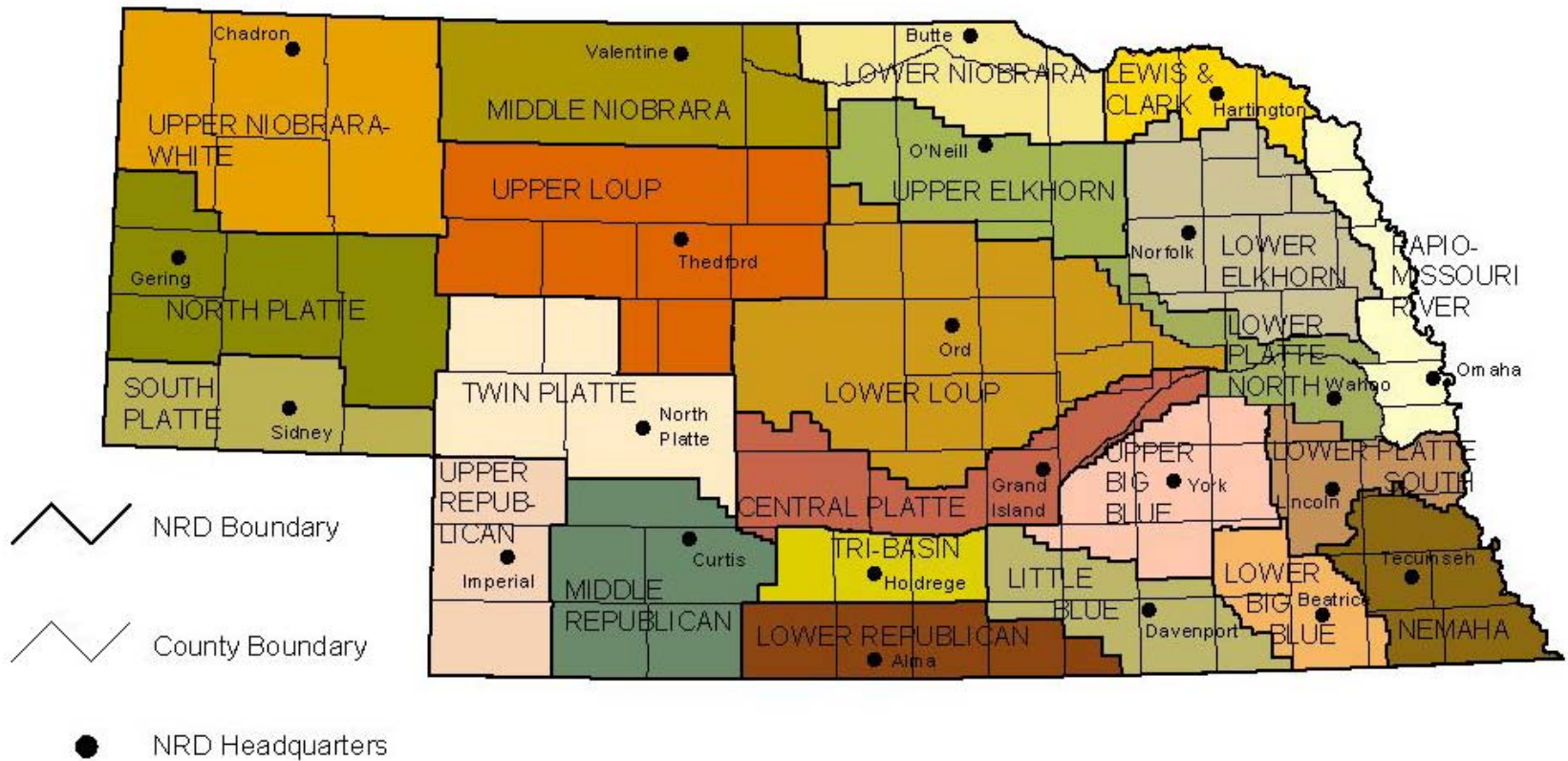


Nebraska's Natural Resources Districts (NRDs)

- # Formed in 1972 from combination of about 150 small special use districts
- # 24 original Districts, now 23
- # Boundaries coincide with major watershed/basin boundaries
- # Governed by locally elected Boards
- # Managed by professional staffs
- # Funded by property tax authority & state/federal grants

Nebraska's NRDs

Natural Resources District Offices



Primary Areas of Responsibility

- # Soil Conservation
- # Trees & Wildlife
- # Flood Control
- # Recreation/Trails
- # Information/Education
- # Water Quantity
- # Water Quality

NRD Water Quality Programs & Concerns

Ground Water

- Nitrate
- Pesticides

Surface Water

- Nutrients
- Sediment
- Pesticides
- Bacteria
- Algal toxins



NRD Water Programs

- # Ground Water Management and Protection Act
 - Specifies preparation of Ground Water Management Plan (GWMP)
 - Ground water quality and quantity goals
 - General provisions for monitoring
 - Allows for implementation/requirement of BMPs in Ground Water Management Areas
- # Surface Water—little specific authority, but fits into general water quality and other issues (flood control, recreation, etc.)
- # NRD authorities directed at nonpoint sources (NPS)

NRD Ground Water Monitoring

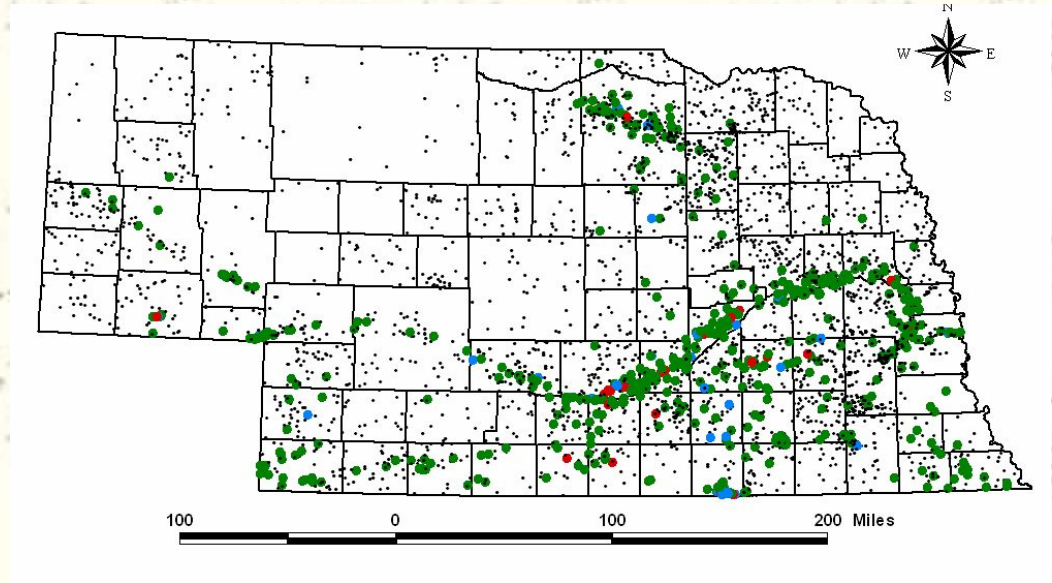
- # Nitrates & pesticides--NPS
- # Some information on inorganics, etc.
- # Most NRDs have QA plans and SOPs for sampling
- # Data required to be submitted to NDEQ since 2001
 - UNL designated as recipient

Quality-Assessed Agrichemical Database for Nebraska Ground Water (aka Clearinghouse)

- # Begun in 1996
- # Joint effort of UNL, NDA, NDEQ
- # Repository of ag chemical data for ground water
 - Nitrates & Pesticides
 - NRDs are important ongoing contributors
- # Data assigned "quality flag" number from 1-5 depending on QA
- # <http://dnrdata.dnr.ne.gov/clearinghouse>
- # 2005 NDEQ Ground Water Quality Report available

Ground Water Monitoring- Atrazine

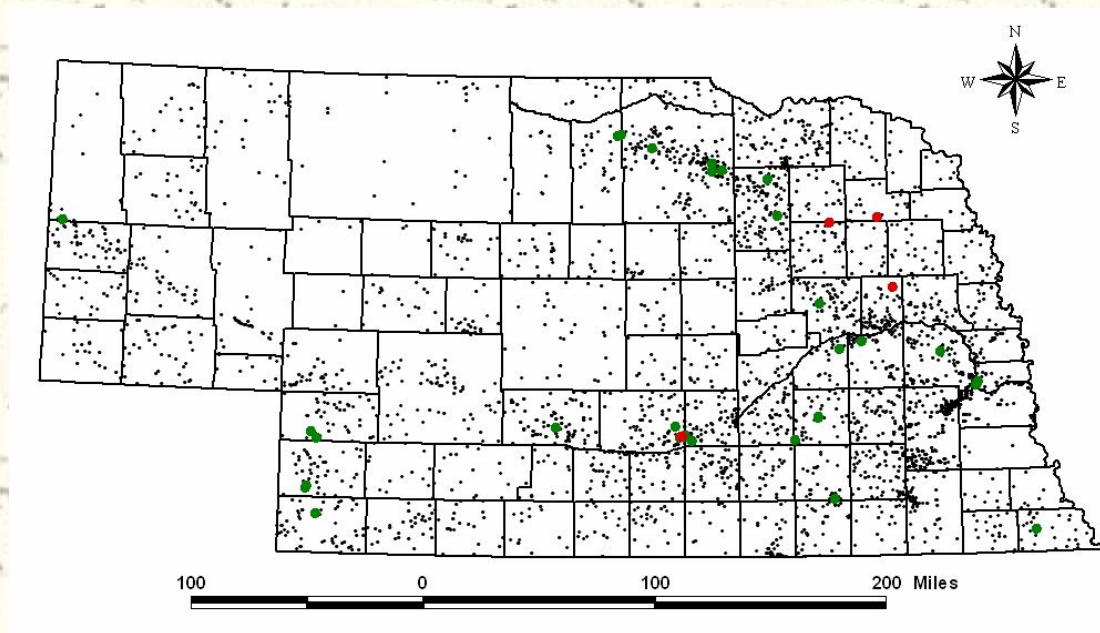
- # 16,576 analyses from 4,453 wells (1974-2004)
- # Includes data from other agencies



Black: <RL Blue: 1.5-3 ug/l
Green: <1.5 ug/l Red: >3 ug/l MCL: 3 ug/l

Ground Water Monitoring- Alachlor

- # Data from 4,196 wells
- # Includes data from other agencies



Black: $< 2 \text{ ug/l}$

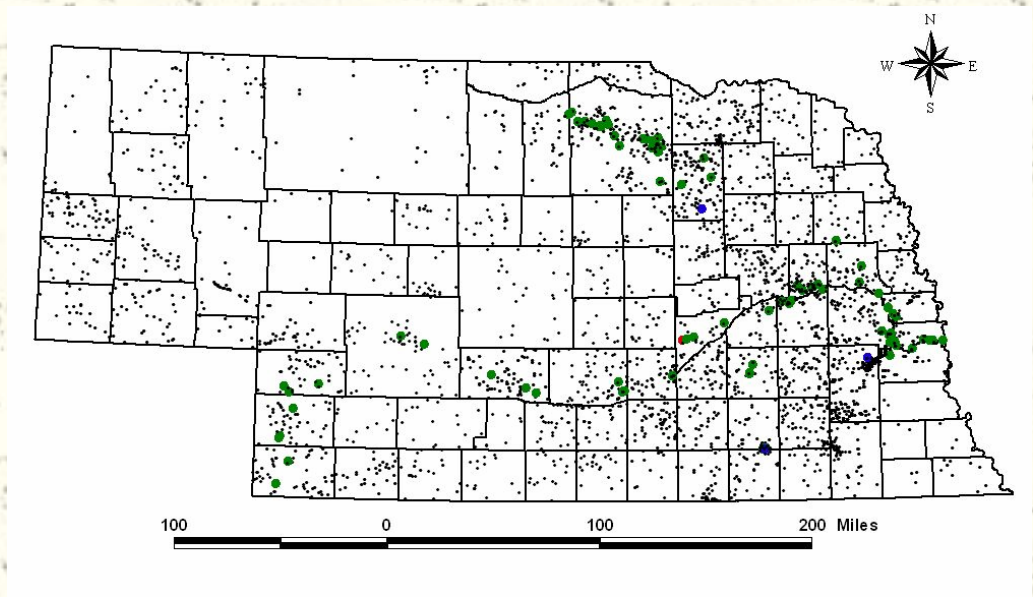
Green: $< 2 \text{ ug/l}$

Red: $> 2 \text{ ug/l}$

MCL: 2 ug/l

Ground Water Monitoring- Metolachlor

- # Data from 4,014 wells
- # Includes data from other agencies



Black: <RL Blue: 2-4 mg/l HA: 100 ug/l
Green: < 2 ug/l Red: >4 ug/l

NRD Ground Water Results— Nitrate-N

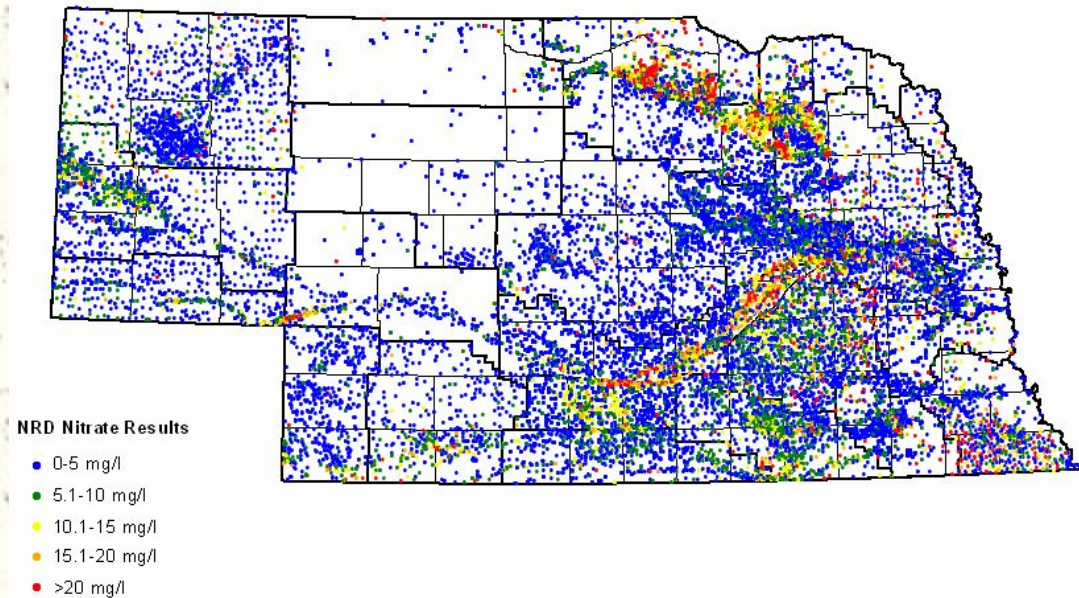
66,815 analyses
from 20,000 wells
(1974-2004)

Mean: 10.19 mg/l

Median: 6.1 mg/l

Maximum: 260
mg/l

NRD Nitrate Monitoring Results, 1974-2004



NRD Surface Water Monitoring

- # Little statutory requirement
- # Surface water projects for flood control, recreation, etc.
 - Ongoing/"remedial" monitoring of existing lakes & streams
 - Pre- & post-construction monitoring of new projects
- # Often coordinated w/ NDEQ projects & programs
- # 2005 NDEQ Surface Water Quality Report available



Community-Based Planning—Key to Surface Water Management

CBP—used in Nebraska since late 1990s

- Pre-planning
- Public Meetings
- Resource Inventory & Analysis
- Alternatives
- Watershed Management Plan



Driven by constituents in watershed

Example fact sheets available:

- Powder Creek Reservoir (northeast NE)
- Swan Creek Reservoir (southeast NE)

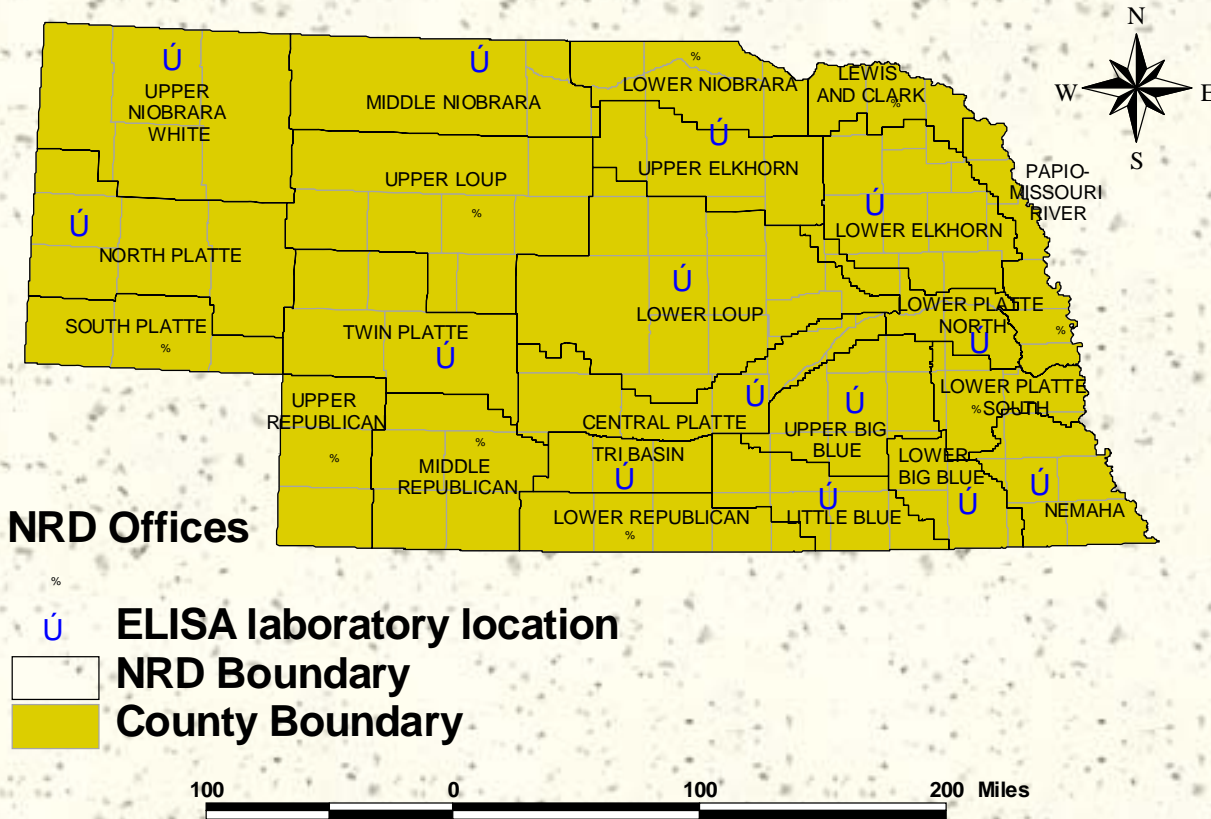
Building NRD Capacity

Pesticides

- 2004--USEPA Pesticide Program Grant thru NDA
- ELISA analytical units for four priority herbicides
 - Atrazine
 - Alachlor
 - Metolachlor
 - Acetochlor
- Initial grant for 10 NRDs; expanded to 14 in 2005 w/ USEPA 319 grant from NDEQ

NRD ELISA Project

NRD ELISA Pesticide Analysis Project



NRD ELISA Project



Building NRD Capacity

Bacteria

- 2004—USEPA TMDL Grant thru NDEQ
- Colilert™ bacteria analytical units
 - Total coliform
 - *E. coli*
- Units placed in 22 of 23 NRDs
- Surface water (recreation & water quality) and ground water (drinking water—domestic wells)

NRD Bacteria Project



The Future

- # Continue traditional water quality programs
 - Emphasis on NPS ground water issues
 - Development of NPS surface water capacity
- # "Training" phase of pesticide/bacteria effort complete
- # Emphasize data quality and comparability
- # Continue to integrate NRD water quality data w/ state & federal efforts

Questions/Comments

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