Joint Meeting of the

Nebraska Surface Water Monitoring Council & Nebraska Groundwater Monitoring Council

October 29, 2024

10:00 A.M. to 12:00 P.M.

245 Fallbrook Boulevard, Room 023, lower lever

10:00 – Introductions and Agency Updates

- Present: Tara Anderson (NDEE), Dan Inman (NDEE), Dave Miesbach (NDEE), Craig Romary (NDA), Matt Moser (USGS), Justin Haas (NDEE), Greg Michl (NDEE), Tom Heatherly (NDEE), Ginny McGuire (USGS), Dick Ehrman (LPSNRD), Mike Myers (NDEE), Dave Rus (NDEE), Brett Dinkel (USACE), Dustin Wilcox (NARD), Jessica Russell (NDEE), Bridger Corkill (NDEE), Shawn Kruse (NDEE), Connor McFayden (NDEE), Craig Matulka (LPSNRD), Daniel Kroll (NDEE), Dylan Vogt (JEO), Kolton Witte (NDEE), Tom Buell (NDEE), Katie Cameron (ENWRA), Jason Moudry (LLNRD), Philip Paitz (PMNRD), Thad Hueneman (NGPC), Brett Roberg (NGPC), James Olson (NRCS), Tyler Weishahn (LBBNRD), Brenda Densmore (USGS), Nathan Schaepe (USGS), Lisa Lauver (LENRD / Bazile), Mike Archer (NGPC), Brandon Beethe (LPNNRD), Curt Becker (LENRD), Katie Hickle (NDEE), Dan Ross (NDEE), Laura Johnson (NDEE), Drew Ratkovec (LPSNRD), Noah Hovorka (NDEE), Daryl Andersen (NDEE), Sidney Calhoun (NDEE), Reed Trenhelm + 2 at LCNRD, Mike Murphy (LENRD), Alexa Davis (DNR), Jeremy Gehle (DNR), Laura Nagengast (UNL), Thomas Mountford (NRCS)

Contact Dan Inman to receive CEUs at: dan.inman@nebraska.gov

Agency Updates:

Nebraska Groundwater Quality Clearinghouse

Status 10-25-2024

The Nebraska Groundwater Quality Clearinghouse was updated with phase 2 updates on Friday, 10/18/24. Work is being done to restore access to the newly updated clearinghouse. Until then, the application and associated forms will not be available.

The Data Coordinator will reach out and work with collaborators one-by-one to ensure that the processes of submitting new wells and water quality results goes as smoothly as possible. The Data Coordinator has met with some collaborators to discuss how to incorporate their data into the clearinghouse and how to navigate the submission process. The Data Coordinator will continue with outreach over the coming months.

Work will begin on phase 3 enhancements for the clearinghouse soon.

Lower Elkhorn Natural Resource District

During 2024, the Lower Elkhorn NRD continued its partnership with the UNL Water Sciences Laboratory and Conservation and Survey Division to collect and analyze vadose cores from locations within the District to assess for residual nitrate, and to utilize isotope characterization in an attempt to "fingerprint" the origin of the contaminant. The targeted locations include lands located within Wellhead Protection Areas in the Lower Elkhorn portion of the Bazile Management Area, along with locations in Cuming, Colfax, and Dodge Counties. Dan Snow recently attended the October Committee of the Whole Meeting and provided an update on the status of these projects, and Conservation and Survey Division also collected cores from several new sites last week as part of this ongoing effort. The Lower Elkhorn NRD and Lewis and Clark NRD have been awarded funding to hire a Source Water Protection Specialist who will focus their efforts on engaging farm operators, landowners, and other stakeholders on lands associated with all of the Wellhead Protection Areas in the two Districts. As part of this endeavor the Lower Elkhorn NRD will allocate resources to collect vadose cores from WHPA's as part of a long term focus on protecting public water supplies.

Annual monitoring of groundwater continues on a path similar to previous years, with targeted sampling of irrigation wells to monitor for nitrate contamination. In 2024, samples were collected from a group of wells that have been identified as baseline monitoring sites for the Bazile Management Area, and the irrigation wells in the Statewide Network were also targeted for collection this past summer. We continue our scheduled sampling of the LENRD Monitoring Well Network, and the wells that are part of the ENWRA Partnership. The Lower Elkhorn had recently contracted with a firm to equip the Monitoring Well Network with telemetry which would allow for remote data collection of groundwater level information. Unfortunately, the firm no longer is supporting that system and we are planning to pursue funding through the Nebraska Department of Natural Resources to re-tool the wells with In Situ equipment that will allow us to once again provide public access to real-time water level information.

On the surface water side, we continued our weekly monitoring of the three recreation beaches within the LENRD – Willow Creek Recreation Area, Maskenthine Recreation Area, and the Maple Creek Recreation Area. Unfortunately, Maple Creek Rec Area was plagued with water quality issues during 2024, and given the above normal precipitation that occurred earlier this year, it's safe to assume that nutrient laden sediment was transported to the lake and likely attributed to the issues. On a positive note, the Willow Creek Recreation Area saw no problems this year, which is uncommon for that location. We are hopeful that the aggressive efforts of our Conservation Planner, Jim Olson, are one of the variables that contributed to the situation as he has been able to convince many farm operators to take advantage of incentives that help them establish conservation practices on their land – all meant to protect or improve both groundwater and surface water quality. The LENRD also collected periodic samples of Willow Creek and it's tributaries, along with locations below Willow Creek and the North Fork of the Elkhorn River to gain baseline information on what is being transported into, and out of, the reservoir.

Nebraska Department of Environment and Energy

Nitrate Study Update

Bridger Corkill

Over the last year, the Nebraska Department of Environment and Energy conducted a study of nitrate in groundwater used for drinking water. The objective was to provide an analysis and recommend viable solutions to nitrate-impacted drinking water, including sources not regulated by the Safe Drinking Water Act (i.e., private domestic wells). This presentation will provide an overview of the study, major findings, and deliverables.

Section 319

- On October 1st, the NDEE Section 319 program received its 2024 EPA award for the purpose of continuing nonpoint source work and water quality improvement work in the state of Nebraska.

- Applications are now open for the Water Quality Liaison position that exists between the NDEE Section 319 group and UNL. Link to position https://employment.unl.edu/postings/94189

- The NDEE Section 319 program is currently work with Tetra Tech and EPA for the purpose of developing a Nonpoint Source Specific Emergency Management Plan for Nebraska.
    - This is to identify areas that the 319 program can proactively supplement emergency response to address non-point source pollution issues as a result of a natural disaster.

Surface Water Monitoring

Ambient Steam Monitoring Program

- Network of 101 fixed stations. 6 Missouri River locations collected by USACE.
- Main stem and tributary streams.
- 34 parameters analyzed at each sampling location.
- Samples are collected monthly, year-round.
- Long-term changes to water quality can be assessed.
- Sampling partners include the South Platte and Middle Niobrara NRDs.

Public Beach Monitoring Program

- 56 public beaches at 51 lakes across Nebraska will be sampled weekly May through September in 2024. Summit Lake was added back to Beach Watch mid-season since the lake had recharged after it had been renovated.
    - Cub Creek is going to be added, too
- Wagon Train Lake was not sampled in 2024 due to the lake level being low after its renovation.
- This year we had a total of 14 health alerts at 8 lakes. This was down from last year, which had 29 health alerts on eight lakes.
- Sampling partners include the Central District Health Department, Nebraska Public Power District, Upper Republican NRD, Lower Republican NRD, South Platte NRD, Middle Niobrara NRD, Lower Loup NRD, Nemaha NRD, Lower Elkhorn NRD, and USACE.

Basin Rotation Monitoring Program

- Geographically focuses water quality sampling in one to three major river basins per year.
- Weekly monitoring of rivers and streams. May-September.

- 14 parameters analyzed at each sampling location.
- In 2024, NDEE sampled 41 sites within the Republican, Little Blue, and Big Blue River Basins.
- The Upper Republican NRD assisted with sampling in 2024.

Stream Biological Monitoring Program

- Diversity and numbers of resident aquatic macroinvertebrate and fish communities are evaluated to assess the overall health of streams.
- Sites chosen with a probabilistic sampling design within the framework of the basin rotation schedule.
- 32 sites (5 completed in partnership with NGPC) were sampled in 2024 within the Republican, Little Blue, and Big Blue River basins.

Fish Tissue Monitoring Program

- Assess fish tissue for toxins, such as mercury and polychlorinated biphenyl compounds (PCBs).
- Current fish tissue consumption advisories at 139 locations (133 lakes and 6 river/stream segments.
- In 2024, sampling was conducted within the Republican, Little Blue, and Big Blue River basins.
- 51 lakes/reservoirs - 98 composite biopsy punch samples (one composite sample equals 3-5 fish of a single species) were collected for mercury analysis. Two composite fillet samples from one waterbody were also collected for PCB analysis.
- Three streams/rivers/canals - 4 composite biopsy punch samples were collected for mercury analysis.
- The NGPC assisted by collecting 2 composite samples in 2024.

Ambient Lake Monitoring Program

- 24 trend lakes were sampled monthly in 2024 from May through September.
- 5-6 basin lakes are selected to be monitored for 2 consecutive years.
- Basin rotation sampling at Lake Ogallala and Bridgeport Middle Lake were completed this year and will be removed. Chappell Interstate Lake was also removed from basin rotation at the beginning of the year because the lake level was too low to sample.
- Big Indian (11A), Lonestar, Ox Bow Trails, Swanson, and Hugh Butler (Red Willow) were added as basin lakes in 2024 and will be sampled again in 2025.
- Lakes from the Loup River and Middle Platte basins will be selected for 2025.
- Sampling partners include the USACE (4 lakes), Nemaha NRD (2 lakes), and the Lower Loup NRD (1 lake).

Fish Kill and Citizen Complaint Investigations

- Dead fish and other surface water concerns are relayed to NDEE throughout the year.
- On-site investigations and water quality sampling performed at sites of many of the complaints.
- 8 fish kills were investigated from July 1, 2023, to June 30, 2024: Two resulted from discharges, one from a spill, four were from low dissolved oxygen levels and one resulted from an unknown cause.

- 64 complaints of surface water pollution were taken by the Monitoring Section in the last year, many were forwarded to other NDEE programs.

NRD Watershed Special Studies

- NDEE has partnered with several NRDs on Watershed Special Studies with strategic plans to monitor the sources and quantities of pollutants entering these systems from specific sub-watersheds.
- Information gathered allows a complete assessment of stream segments where data is insufficient to determine if all designated uses are met.
- Allows finer calibration of predictive models to allocate pollutant loads to specific sub-watersheds and to quantify load reductions from sub-watershed conservation projects.
- Sampling partners of Watershed Special Studies in 2024 included the Lower Big Blue NRD – Turkey Creek Special Study.

Regional Monitoring Network

- Collaboration between the USEPA and numerous states, tribes, and other organizations to collect continuous stream discharges and temperatures and other chemical and biological data.
- Data are used as baselines for long term comparisons of stream condition.
- Having many sensors deployed nationwide that collect continuous data allows USEPA and other partners to detect significant yet subtle trends in stream condition.
- NDEE has been monitoring 7 streams since May 2017.
- Each location has a sensor that collects water level and temperature every thirty minutes, typically bolted to a post driven into the stream bottom.
- Each of the study locations is also sampled as part of the NDEE Ambient Stream Monitoring Program.

National Rivers and Streams Assessment

- NDEE partnered with USEPA to assess Nebraska stream quality as part of their larger national assessment.
- Collected data includes benthic macroinvertebrate, algal, and fish communities, water chemistry, fish tissue, and others.
- NDEE sampled 27 streams statewide for NRSA in 2023 and another 17 sites in 2024.

US Army Corps of Engineers

Salt and Papillion Creek Reservoir Monitoring:

- Continued monitoring at Branched Oak, Wagon Train (empty), Ed Zorinsky, and Glenn Cunningham in coordination with the NDEE.
- Reduced monitoring at all other reservoirs (more comprehensive every third year).
- Zebra mussel eDNA sampling conducted in June at all reservoirs (no positive hits).
- Hypolimnetic withdrawals conducted at Cunningham from May through September. Withdrawal initiated at Standing Bear upon refill but was limited due to clogging. Planning to

do withdrawals again in 2025 pending sufficient water levels at Cunningham, Standing Bear, and Conestoga. Release amounts and timing of releases may be adjusted to limit clogging at Standing Bear. Intent is to remove nutrients from the reservoirs.

Beach Watch Monitoring:

- Continued beach watch monitoring at Lewis and Clark, Lake Yankton, and Glenn Cunningham in coordination with the NDEE.

Missouri River Monitoring:

- Continued monitoring along the Missouri River downstream of Fort Randall Dam to Rulo, NE in coordination with the NDEE.

US Geological Survey – Nebraska Water Science Center

The USGS Nebraska Water Science Center and the USGS Kansas Water Science Center are in the process of merging into one organizational unit. This transition will be complete by October 1, 2025.

- Water quality – SW - data collection:
  - Sampling at National WQ Network sites (Maple Cr, Elkhorn R, Platte R, and Dismal R) and Salt Cr at Waverly
  - Continuous WQ monitoring sites: lower Platte R corridor, Niobrara River at Sparks, Bow Creek near Wynot, N Platte River @ Scottsbluff (pH and WT).
    - Sites in USGS Dashboard
    - Also have real-time water temperature on Platte at Venice and Overton, Dismal nr Thedford, and Niobrara at Verdel
  - PFAS monitoring: Dismal River nr Thedford and stream sites in and around Offutt

- Water quality – GW – data collection:
  - Ongoing sampling of PMRNRD wells; Focus on the upland aquifer this past summer for regular sampling and collected 15 groundwater age dating samples in the Dakota Aquifer.
  - Ongoing sampling in the LWS Ashland well field for nutrients, metals, major ions, and herbicides. Wells are sampled every 4 months to coincide with seasonal application windows. In addition, once per year, 3 monitoring wells are sampled for explosives and related degradates, located downgradient (south-east) of the Mead munitions superfund site.
  - Working with LLNRD on legacy nitrate and vadose zone nitrate monitoring

- National WQ Network groundwater wells in 2025; Decadal sampling of 30 domestic and 30 monitoring wells in eastern Nebraska, for a national groundwater-quality trend analysis.

- Interpretive projects
  - Trends in continuous water quality. USGS is working with many partners associated with the lower Platte R corridor to assess trends occurring in continuous WQ over the past 17 years. Initial assessments are actively occurring with a report expected to be released in 2026.
  - Arsenic assessment around the City of Lincoln Wellfield. The USGS has sampled arsenic concentrations in the lower Platte River since the early 1970s and in monitoring wells around the City of Lincoln wellfield since the early 1990s. Isotope analysis of the surface and groundwater was also examined. A statical assessment of these data has been done and a report is expected to be released in early 2025.
  - Inclusion of water quality in a MODFLOW model of the Northern High Plains. The NEWSC will develop a groundwater flow model using MODFLOW with a water quality component. The 3 yr (2025-27) project is funded by the NRCS and in cooperation with the Rainwater Basin Joint Venture and its partners.
- Recent national report of possible interest:
  - Tokranov and others, 2024, Predictions of groundwater PFAS occurrence at drinking water supply depths in the United States: Science, https://www.science.org/doi/full/10.1126/science.ado6638

Nebraska Department of Agriculture

• Funding is available for the Nebraska Buffer Strip Program, which provides rental incentives for installing filter strips and riparian forest buffer strips. More info at https://bit.ly/NDAbuffer.

• I have spent much time in the last year trying to understand new efforts by EPA to be in compliance with the Endangered Species Act when registering pesticides under FIFRA, and what it means for NDA's Pesticide Program and the regulated public. Most product labels with outdoor ag uses will begin to have language directing users to access a couple of websites for determining if they need more "mitigation measures" for reducing drift and/or runoff at the application site. This will be a big effort for us and our many partners. I'll have an article in the next newsletter; link to subscribe below.

• NDA Pesticide, Fertilizer, & Noxious Weed Newsletter – archive and subscription link found here.

• I will be contacting NRDs having NDA equipment for pesticide analysis to see what their plans are for the near future.

• EPA Office of Pesticide Programs requests any/all water quality data for pesticides that aren't publicly available. This could be from historical or recent projects regardless of scale. Monitoring data provide snapshots of pesticide concentrations in time at specific locations. OPP is more likely to be able to quantitatively incorporate data in risk assessment when supporting information allows the results of the data to be put in context within the larger picture of pesticide exposure in the environment. As a matter of routine, OPP typically checks and reviews the following sources for pesticide monitoring data: 1) EPA's Water Quality Portal (WQP) 2) United States Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Program; 3) United States Department of Agriculture (USDA) Pesticide Data Program Drinking Water Monitoring. Even when monitoring data can't be used quantitatively, they may still be valuable in providing context to the exposure assessments.

Where Should I Submit the Data?

1. Submit to OPPWaterMonitoringData@epa.gov

2. If file sizes are too large to send via e-mail, contact your EPA Regional office

Who Do I Contact for Further Information?

EPA Headquarters: Melanie Biscoe, Pesticide Re-Evaluation Division, Office of Pesticide Programs, (202) 566-0701 or biscoe.melanie@epa.gov.

Nebraska Game and Parks Commission

- Revisions for a new aquatic habitat plan coming out in Spring 2025 – new sites and new projects.
- State Wildlife Action Plan being updated and available in Oct 2025
    - Biologically unique boundary areas
    - Habitat needs for at risk species and potential addition of new at-risk species.
- Invasive Carp monitoring – Silver Carp detected at the N Platte diversion dam (If they're able to get upstream of the diversion dam, they'll have access to the reservoirs from the supply canals
- Doing a travel time assessment for spills for USFWS related to crane habitat.

Lower Loup NRD

- Pibel lake monitoring – Doing some wetland mitigation.
- Vadose Zone monitoring for nitrates.
- Metering related to drought monitoring .
- Outreach: Envirothon; Hosting Mudfest for area 4th graders.

NDNR

- 3 streamgages added to Missouri River
- Nitrogen Reduction incentive act is now live and is to encourage producers to reduce their N application. NRDs have information and applications.

LPNNRD

- Hiring some new staff related to WQ;
- Shell Cr improvement group still active and looking at E. coli and atrazine.
- Updating their Groundwater Management Plan.
- Phase III WQMA moving to a Phase IV WQMA.
- Wahoo Creek NWQI will be submitting to 319 soon.
- Supporting the USGS effort to look at trend analysis with the Lower Platte Corridor Alliance.

LBBNRD

- Public hearing on new GW mgmt. rules on Nov 6 in Beatrice
- Have a WQI source water protection position that will be getting filled soon.
- AEM flights
- WFPO project

11:00 – Bridger Corkill, NDEE Engineer

"Nebraska Nitrate in Drinking Water Study Update"

Over the last year, the Nebraska Department of Environment and Energy conducted a study of nitrate in groundwater used for drinking water. The objective was to provide an analysis and recommend viable solutions to nitrate-impacted drinking water, including sources not regulated by the Safe Drinking Water Act (i.e., private domestic wells). This presentation will provide an overview of the study, major findings, and deliverables.

11:30 – Dr. Jessica Corman, UNL Associate Professor

"StreamNet: Semi-autonomous, high frequency sampling of ammonium, nitrate, and phosphate concentrations in streams"

Water quality managers need high quality information on nutrient concentrations in surface waters, yet sampling efforts are often only feasible on a monthly, possibly weekly, basis. The objective of the StreamNet project, a collaboration between UNL, the North Platte NRD, and Nebraska Environmental Trust, was to determine the feasibility of using high-frequency nutrient monitoring devices in impacted streams. This talk will present an overview of the monitoring device, unique insights on surface water quality from the Scottsbluff region, and recommendations for adopting the technology.