Nebraska Surface Water and Groundwater Monitoring Councils

Tuesday October 21, 2025
10:00 AM – 12:00 PM
NDEE Office: 245 Fallbrook Blvd (Room 023)
Hybrid Meeting

1. **Welcome and Introductions**
   a. **In attendance in person: Tara Anderson (NDOT), Dan Ross (DWEE), Troy Gillmore (UNL), Doug Hallam (LENRD), Craig Romary (NDA), Kate Bird (DWEE), Dustin Wilcox (NARD), Isabella Peterson (DWEE), Jeremy Gehle (DWEE), Erik Prenosil (DWEE), Mike Myers (DWEE), Dan Inman (DWEE), Sean Kruse (DWEE), Dillon Vogt (JEO), Jess Corman (UNL), Jessica Russell (DWEE), Brandon Beethe (LPNNRD), Chris Schroeder (LLCHD), Michael Gude (LLCHD), David Miesbach (DWEE), Connor McFayden (DWEE), Tyler Benal (LPSNRD), Craig Matulka (LPSNRD), Brian Barnes (DWEE), Dave Bubb (DWEE), Justin Haas (DWEE)**
   b. **In attendance online: Noah Havorka (DWEE), Mike Archer (NGPC), Brett Roberg (NGPC), Daryl Andersen (LPN NRD), Colleen Steele (UNL), Daniel Kroll (DWEE), Jeff Jackson (NGPC), Xu Li (UNL), Katie Cameron (UNL), Tylr Naprstek (LL NRD), Jason Moudry (LL NRD), Brian Bruckner (LE NRD)**

2. **Agency Updates Round Table (Attached)**

3. **Presentations**

Dr. Troy Gilmore (Associate Professor, UNL)

GRIME Software for Ecohydrological Discovery and Education Using Ground-based Time-lapse Imagery

Ground-based time-lapse imagery offers rich, underutilized data for ecohydrological research and education. GRIME (GaugeCam Remote Image Manager Educational) is free, open-source software designed to streamline the use of such imagery by automating workflows from data retrieval to modeling and measurement. GRIME2 focuses specifically on measuring water levels using specialized time-lapse imagery. GRIME AI (GRIME Artificial Intelligence) provides streamlined access to imagery and associated data from major public camera networks, including the USGS Hydrologic Imagery Visualization and Information System (HIVIS) and the PhenoCam network. GRIME AI capabilities include image quality assessment, annotation, instance segmentation, and extraction of scalar features such as color and texture. These tools are also compatible with imagery from individual trail cameras and private archives, such as the watershed-scale Platte Basin Timelapse project. At the Kearney Outdoor Learning Area (KOLA) in Kearney, Nebraska, GRIME-AI and GRIME2 have supported student learning in camera deployment, sensor integration, image analysis, visualization, modeling, and measurement of ecohydrological variables. Future student projects will be supported by automated analysis of

imagery for the KOLA Data Dashboard (https://go.unl.edu/kdata), demonstrating the potential for supporting communication, education and scientific exploration at KOLA and other sites. obtained from 2025 Great Plains Water Conference

Doug Hallam (Water Resources Manager, LENRD)

Can we extract more value from groundwater and stream observations?

Doug will share groundwater and stream stage data that was collected between 2015 and 2020 in and along the lower South Platte River, discuss what was learned from those observations, and explore ways the work may apply in other parts of Nebraska.

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USACE 2025 Updates

Brent Dinkel (Brent.A.Dinkel@usace.army.mil)

Salt and Papillion Creek Reservoir Monitoring:

- Continued monitoring at Branched Oak, Wagon Train (empty), Ed Zorinsky, and Glenn Cunningham in coordination with the DWEE.
- Reduced monitoring at all other reservoirs pending available water (more comprehensive every third year).
- Zebra mussel eDNA sampling conducted in June at all reservoirs (no positive hits).
- Paused hypolimnetic withdrawals at Glenn Cunningham Reservoir to allow for post reservoir drawdown ammonia concentrations to decrease/stabilize. Tentatively planning to continue hypolimnetic withdrawals in 2026 to address reservoir nutrients and algal blooms. Additional downstream monitoring was conducted in 2025 and will be continued in 2026 to avoid negative downstream impacts.

Beach Watch Monitoring:

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

Missouri River Monitoring:

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

Nebraska Groundwater Quality Clearinghouse

Colleen Steel (csteele3@unl.edu)

- Since the April status report, the Nebraska Groundwater Quality Clearinghouse has been optimized to accept larger submissions of water quality data and to process submissions with faster speed. Testing of the optimized clearinghouse included a Sample-Result submission with just over 1,900 results. New well requests submitted in a single submission, however, are limited to 500 wells per submission.
- The Data Coordinator and Dave Miesbach have been reaching out to assist collaborators individually to prepare results for submission to the clearinghouse. Zoom sessions are being scheduled to assist collaborators individually as well.
- NRDs are encouraged to begin preparing water quality results and any new well requests chronologically year-by-year and to contact the Data Coordinator with any questions.
- Testing has begun for phase 3, release 2 enhancements for the clearinghouse.
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Nebraska Department of Water, Energy, and Environment (DWEE)

Agencywide Updates

- Through LB 317, NDEE and NDNR merged in July to create the Department of Water, Energy and Environment (DWEE).
- Isabella Peterson (Isabella.Peterson@nebraska.gov) will provide a brief overview of the Governor's Water Quality/Quantity Task Force

Surface Water Monitoring

David Schumacher (david.schumacher@nebraska.gov)

Ambient Steam Monitoring Program

- Network of 101 fixed stations statewide. 6 Missouri River locations collected by USACE.
- Main stem and tributary streams.
- Thirty-four parameters analyzed at each sampling location.
- Samples are collected monthly, year-round.
- The South Platte and Middle Niobrara NRDs assist by collecting samples for this program.
- Long-term changes to water quality can be assessed.

Public Beach Monitoring Program

- 56 public beaches at 51 lakes across Nebraska were sampled weekly May through September for microcystin and E. coli in 2025.
- Wagon Train Lake was dropped from the list of lakes sampled in 2025 due to low water levels after undergoing renovation.
- Cub Creek Reservoir was added back to the list of lakes sampled in 2025 after undergoing renovation. It was on Health Alert six times this year.
- There were 20 Health Alerts this year at eight lakes.
- A new Beach Watch GIS interactive map app. was launched this year on the DWEE website.
- Numerous sampling partners assist each year by collecting samples for this program. They include: Central District Health Dept., NPPD, USACE, the Upper Republican, Lower Republican, South Platte, Middle Niobrara, Lower Loup, Nemaha, and Lower Elkhorn NRDs.

Basin Rotation Monitoring Program

- Geographically focuses on water quality sampling in one to three major river basins per year.
- Weekly monitoring of rivers and streams from May-September.
- Fourteen parameters analyzed at each sampling location.
- In 2025, DWEE sampled 40 sites within the Middle Platte and Loup River basins.
- The Upper and Lower Loup NRDs assisted by collecting samples for this program in 2025.

Stream Biological Monitoring Program

- Diversity and numbers of resident aquatic macroinvertebrate and fish communities are evaluated to assess the overall health of streams.

- Sites are chosen within the framework of the basin rotation schedule.
- Thirty-two sites (4 completed in partnership with Nebraska Game and Parks Commission) were sampled in 2025 within the Loup and Middle Platte 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 141 locations (136 lakes and 5 river/stream segments.
- In 2025, 71 lakes and 2 river locations were sampled within the Middle Platte and Loup River basins where 124 samples were collected for analysis.
- Each year the NGPC assists in sampling some of the large reservoirs during their fall surveys.

Ambient Lake Monitoring Program

- Consists of a core of 31 long term trend lakes that are monitored by DWEE (24), United States Army Corps of Engineers (4), and the Lower Loup (1) and Nemaha (2) NRDs to characterize and assess a variety of different lakes and reservoirs within the state.
- Additionally, each year 3-4 basin lakes are targeted for sampling for 2 consecutive years within a set of river basins that follows DWEE's six-year basin rotation scheme with at least one lake sampled within each river basin.
- Swanson Reservoir, Hugh Butler (Red Willow) Reservoir, Lone Star Reservoir, Oxbow Trails Reservoir, and Big Indian Lake (11A) are basin lakes that were sampled for the second consecutive year in 2025.
- Davis Creek Reservoir, Elwood Reservoir, and Ravenna Lake were added as basin lakes for 2025.
- Thirteen parameters are analyzed at each lake.
- Depth profile data are taken at deep water and mid-lake locations to determine stratification.

Fish Kill and Citizen Complaint Investigations

- Dead fish and other surface water concerns are relayed to DWEE throughout the year.
- Onsite investigations and water quality sampling performed at sites of many of the complaints.
- Eleven fish kills investigated from July 1, 2024, to June 30, 2025: Eight resulted from low dissolved oxygen levels and three resulted from unknown causes.
- Eighty-four complaints regarding surface water pollution were taken by the Monitoring Section in the last year, many were forwarded to other DWEE programs.

NRD Watershed Special Studies

- DWEE 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 past Watershed Special Studies include the Lower Loup NRD – South Loup River, Lower Platte North NRD – Wahoo Creek, Lewis and Clark NRD – Bow Creek and 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 conditions.
- DWEE 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 DWEE Ambient Stream Monitoring Program.

DWEE Nonpoint Source Pollution Program (Section 319)

Katie Hickle (Katie.Hickle@nebraska.gov)

- The Nonpoint Source Pollution Program currently supports two monitoring related initiatives, the "Trend Analysis on Continuous Water Quality in the Lower Platte River" and the "Nebraska Groundwater Quality Clearinghouse". The program shall continue to support the monitoring and assessment of nonpoint source data impacting both Nebraska's surface and groundwater resources.

DWEE Wellhead Protection Program

Connor McFayden (Connor.Mcfayden@nebraska.gov)

- The Wellhead Protection Program has been engaged in assisting communities produce wellhead protection plans, updating wellhead protection areas statewide, and updating outreach and guidance materials. We are on track to approve 4 wellhead protection plans in calendar year 2025 for Malcolm, Tecumseh, Newman Grove and Platte Center. The program is working to update data storage and sharing of WHP area files after the merger, making them more accessible to the public and agency partners.

Nebraska Game and Parks Commission

Mike Archer (mike.archer@nebraska.gov), Jeff Jackson (jeff.jackson@nebraska.gov)

- Rehabilitation projects include:
    - Methodist Cove of Harlan Lake Reservoir
        - Habitat rehab
        - Deepening and restoring connectivity to the rest of the reservoir
        - Protecting cove from sedimentation
    - Carter P. Johnson dam removal
        - Habitat project on Soldier creek
- Rivers and Streams coordinating with DWEE for sampling efforts
- Compact call year for the Republican River – looking at how that impacts NGPC properties – in particular the Rock Creek Hatchery
- Aquatic Invasive Species Program
    - They did a lot of boat inspections and are working on getting the word out about zebra mussels.
    - Conducted invasive carp sampling on the South Platte River above CNPPD diversion dam. They did not find invasive carp above the dam.
    - Grant application for invasive carp team to do more sampling and removal