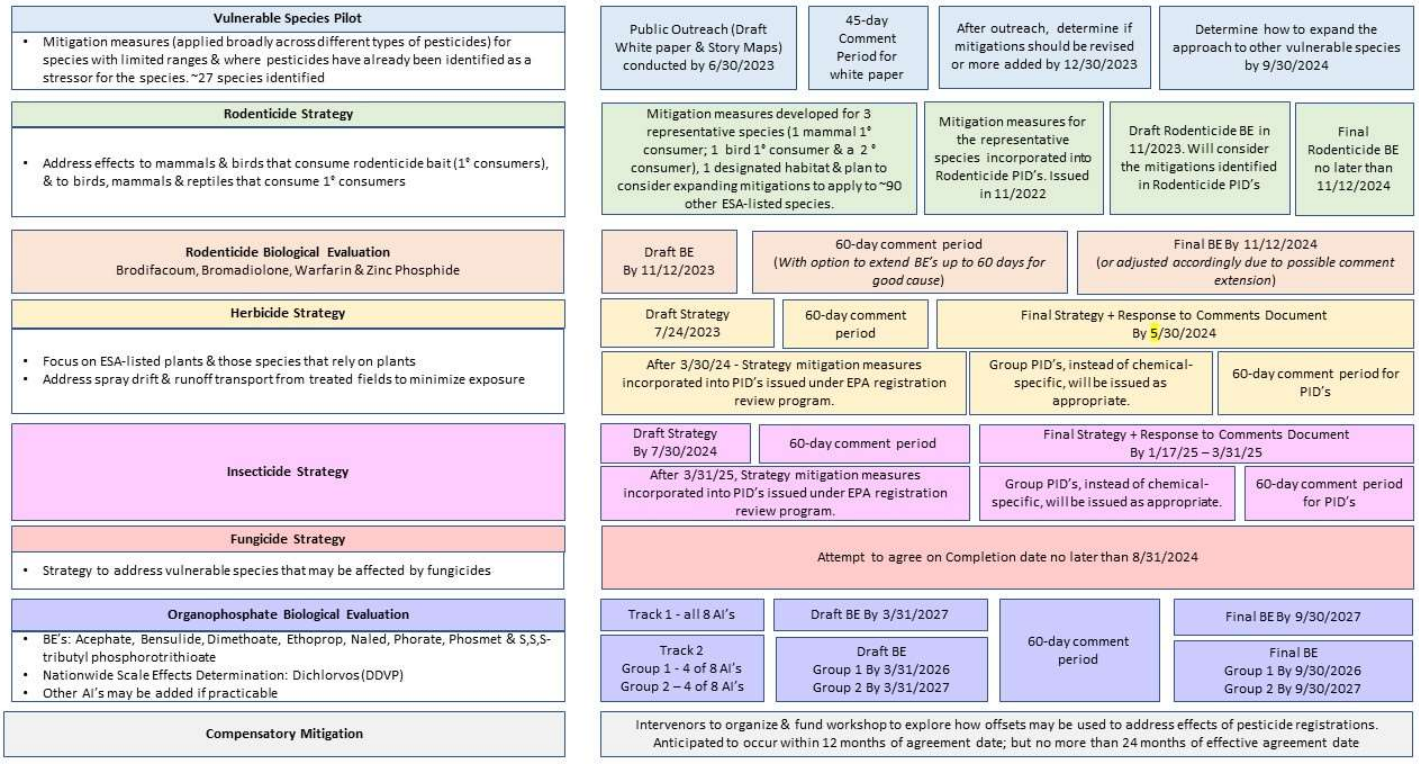
Joint Groundwater-Surface Water Monitoring Council Meeting
October 17, 2023
Agency Updates

USGS
Dave Rus

1. Water quality – SW - data collection:
    a. Sampling at National WQ Network sites (Maple Cr, Elkhorn R, Platte R, and Dismal R) and Salt Cr at Waverly
    b. Continuous WQ monitoring sites: lower Platte R corridor, Niobrara River at two locations, pH and WT monitor on N Platte River @ Scottsbluff.
        i. Sites in USGS Dashboard
        ii. Also have real-time water temperature on Platte at Venice and Overton, Dismal nr Thedford, and Niobrara at Verdel
    b. Provided 2021-22 data to NDEE for integrated report
    c. PFAS sites: Dismal River nr Thedford
2. Water quality – GW – data collection:
    a. Ongoing sampling of PMRNRD wells and LWS wells
    b. Working with LLNRD on legacy nitrate and vadose zone nitrate monitoring
3. Reports in progress
    a. Nutrients and microbial source tracking – Platte at Ashland – Dave Rus POC
    b. Arsenic characterization in the Lower Platte River and alluvial aquifer – Matt Moser POC
    c. Domestic well sampling for 'all constituents' in the Mead/AltEn area – Paul Bradley POC
    d. Sediment characteristics downstream of the dam failure at Spencer – Nathan Schaepe POC
4. Recent national report on PFAS in tap water:Per- and polyfluoroalkyl substances (PFAS) in United States tapwater: Comparison of underserved private-well and public-supply exposures and associated health implications - ScienceDirect; The data for that publication are from sampling kits that were sent to homeowners nationwide, including some in Nebraska. Some of those homeowners were on public supply systems and some were on domestic wells. The data used in this publication are available at Concentrations of per- and polyfluoroalkyl substances (PFAS) in tapwater collected throughout the United States, 2021-22 - ScienceBase-Catalog

Nebraska Department of Agriculture
Craig Romary

- I hope to work with a couple of NRDs in 2024 to help them get up to speed with the pesticide immunoassay analytical equipment again, and the offer is open to other NRDs.
- Funding available for the Nebraska Buffer Strip Program (https://bit.ly/NDAbuffer)
- EPA Endangered Species Act Workplan for Pesticides.
    - To date: accepted comments on the Vulnerable Species Pilot Project and the Herbicide Strategy, with more proposals to come… (proposed timeline image)
    - Major changes coming very quickly.
        - Labels for practically all ag use products will direct users to the Bulletins Live web map. (some background info is needed)
        - Depending on the location of the pesticide application and the product to be used, mitigation measures will be needed to address both potential drift and runoff/erosion. (Drift measures include no-spray zones (called buffers), windbreaks, etc.) and runoff/erosion measures include a suite of conservation practices. Both types of measures may vary depending on the pesticide's properties, toxicity, and location of the site to species' habitat)
    - Lots of questions still…
        - How will we (the State of Nebraska) be able to do this?
            - Great need for outreach (NDA, Extension, NGPC, USFWS, ag/industry organizations)
            - Landowner/operator vs commercial applicator – communication
            - Enforcement.



NARD
Jennifer Swanson

Producer Connect
The NARD in partnership with 17 NRDS, The Nebraska Cornboard, NRCS, Corteva and CVA are developing a nitrogen dashboard called “Producer Connect”. Producer Connect will be a desktop and mobile app that will allow a producer to submit their crop reporting form online and provide them with a nitrogen recommendation based on their data and yield goals. The goal of developing this tool is twofold: 1) track progress in nitrogen management and use that information to help educate the public and producers and 2) provide support to producers with decision making tool.

Producer Connect is a spatial tool integrating producer data with aerial photographs. By analyzing crop reporting data, which accounts for all nitrogen sources, it generates precise nitrogen recommendations. The tool compares the nitrogen efficiency of applied fertilizer, displaying it against the regional average within NRD, subarea, or specified zones. Economic analysis highlights cost savings compared to typical fertilizer application.

Groundwater Model Training
NARD has partnered with NeDNR to host a two-part Groundwater Model Training that will be held by Dr. Sorab Panday. Part 1 will be a half day training to provide a basic understanding of groundwater modeling and model reporting. Part 2 will be a 2 ½ day training to provide a basic capability for manipulating a groundwater model and reviewing the results.

Part 1 will be hosted at NARD in Lincoln on Thursday October 26. Part 2 will be hosted at Embassy Suites in Lincoln Wednesday January 24-Friday, January 26. More information can be found on NARDs website under events: Groundwater Modeling Training Part-One | Nebraska's Natural Resources Districts (nrdnet.org)

NARD Legislative Conference
The NARD Legislative Conference will be held January 23-24, 2024, at Embassy Suites in Lincoln. Registration will be available on the NARD website under events soon.

NRD Water Programs Conference
The NRD Water Programs Conference will be held March 5, 2024, at Holiday Inn in Kearney.

USACE
Brent Dinkel

No major updates. Finished our routine more comprehensive sampling of the Salt and Papillion Creek Reservoirs. Comprehensive sampling is done every three years. Sampling is reduced other years. Zebra mussel eDNA samples came back negative for all reservoirs. Low-level releases for nutrient removal were not conducted this year at Conestoga due to low water and Standing Bear due to renovation project. Low-level releases were initiated at Cunningham but were ended early due to low-water. Continuing our sampling of the Missouri River in partnership with NDEE.

NDEE – Monitoring Section
Dave Schumacher

Ambient Steam Monitoring Program

- Network of 101 fixed stations. 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.
- Long-term changes to water quality can be assessed

Public Beach Monitoring Program

- 55 public beaches at 50 lakes across Nebraska are sampled weekly May through September during 2023.
- Valentine Mill Pond will no longer be sampled due to sedimentation of the lake and decreased use.
- Wagon Train Lake and Summit Lake were dropped from the list of lakes sampled in 2023 due to both lakes undergoing renovation.
- Ogallala Beach at Lake McConaughy and Nunda Shoal Beach at Calamus Reservoir were added to the list of beaches sampled this year.
- This year we had eight lakes that went on Health Alert.

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.
- Fourteen parameters analyzed at each sampling location.
- In 2023, NDEE sampled 40 sites within the North Platte, South Platte, and White/Hat River Basins.

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.
- Twenty-nine sites (4 completed in partnership with NGPC) were sampled in 2023 within the North Platte, South Platte, and White/Hat 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 137 locations (130 lakes and 7 river/stream segments.
- In 2023, sampling was conducted within the North Platte, South Platte, and White/Hat River basins.
- 32 lakes/reservoirs - 66 composite biopsy punch samples (one composite sample equals 3-5 fish of a single species) were collected for mercury analysis. Composite fillet samples from two waterbodies were also collected for PCB analysis.
- 6 Streams/Rivers/Canals -13 composite biopsy punch samples were collected for mercury analysis. Composite fillet samples from two waterbodies were also collected for PCB analysis.

Ambient Lake Monitoring Program

- Data from 24 trend lakes (sampled every year) and 5-6 basin lakes (sampled according to basin rotation schedule) were collected monthly May through September in 2023.
- Basin lakes are monitored for 2 consecutive years and included Maskenthine, Prairie Queen and Lawrence Youngman Lakes this year. Lake Ogallala and Bridgeport Middle Lake were added to the list of basin lakes monitored this year.

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.
- Seven fish kills investigated from July 1, 2022, to June 30, 2023: Five were from low dissolved oxygen levels and two resulted from unknown causes.
- Ninety-one complaints of surface water pollution were taken by the Monitoring Section in the last year, many were forwarded to other NDEE programs.

Public Drinking Water Special Study

- Title 117 – Nebraska Surface Water Quality Standards (NSWQS) defines the Public Drinking Water (PDW) designation as "These are surface waters which serve as a public drinking water supply. These waters must be treated (e.g., coagulation, sedimentation, filtration, chlorination) before the water is suitable for human consumption. After treatment, these waters are suitable for drinking water, food processing, and similar uses."
- Goal to develop a dataset that will allow NDEE to assess all stream segments that have the PDW designation. This will ensure sufficient data is collected to determine if a stream segment is impaired by pollution, as well as potentially identify whether the pollution source is from groundwater or surface water.
- Atrazine, nitrate/nitrite, arsenic, manganese, uranium, and selenium are monitored monthly with the collection of surface water samples at 26 stream location sites statewide. Sampling for this program concluded in April 2023.

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 2023 include the Lewis and Clark NRD – Bow 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 for NRSA in 2023 and will sample another 17 in 2024.

NDEE – Groundwater Section
Dave Miesbach

Big changes in groundwater since our last meeting. Jeff Gottula retired and was replaced by Scott Summerside. Tatiana Davila moved on to Montana DEQ and her job was split into two positions, Source Water Protection (SWP) and Wellhead Protection (WHP). Amanda Osborn (formerly Underground Injection Control (UIC)) filled the SWP position and Connor McFayden (formerly Drinking Water) filled the WHP position. I then filled the UIC coordinator position with Daniel Kroll (former WHP intern and NPDES).

Data going into the Clearinghouse is going smoother thanks to Colleen's oversight. We have been working with several NRD's to see if we can iron out a few wrinkles. We are preparing to write the Groundwater Report to the Legislature which is due December 1.

Nebraska Groundwater Quality Clearinghouse
Colleen Steele

An update to the Nebraska Groundwater Quality Clearinghouse was moved into the production environment in September 2023. Collaborators were notified of the update and provided with updated instructions for submitting water quality results.

The Data Coordinator is working individually with collaborators who submitted results to the clearinghouse prior to software updates that impacted the submission format and requirements.

The new application has approximately 1.7 million water quality results. Over 500,000 are from the old Quality-Assessed database.

Notes from Roundtable Discussion
Dave Rus, USGS

- NDA: EPA looking to institute lots of changes with regards to pesticide management and enforcement
- USGS PFAS in tap water report – Pointing it out just so folks know about it if their stakeholders ask; NDEE followed up that the municipal tap that had a PFAS hit was clean at the well, and the well is where the systems are regulated at.
- NDEE
    - Fish tissue monitoring might include PFAS in the future, but no definite plans
    - SW Data from 2009 to near present should be in the WQX format and available in the WQ Portal; Working to retain some help for getting 2002-08 data into the portal as well
    - Title 117 SW standards proposed to be changed – Nov 4 hearing at 10AM and Nov 17; Contact Tara if you have questions
        - Primary contact recreation designation to be added to 800-ish stream segments; A few municipalities may need to add disinfection to water source and others to change the timing of lagoon discharges
        - Adding 4 stream segments, removing the Spencer Dam
    - GW forensic testing of 5 wells to try to figure out why the nitrates were so high
        - Commercial fertilizer was the source in all cases, but it's still not clear why from a hydrogeologic perspective
- NGWQ Clearinghouse
    - Mostly current through 2019;
    - Working through some of the issues to start tackling the backlog of 2020-22, but nearly ready.
        - Revising the document of best practices of how to submit data
        - Excel was auto-formatting data values
        - New system is harder to fix than prior, so more scrutiny of data as its coming in