

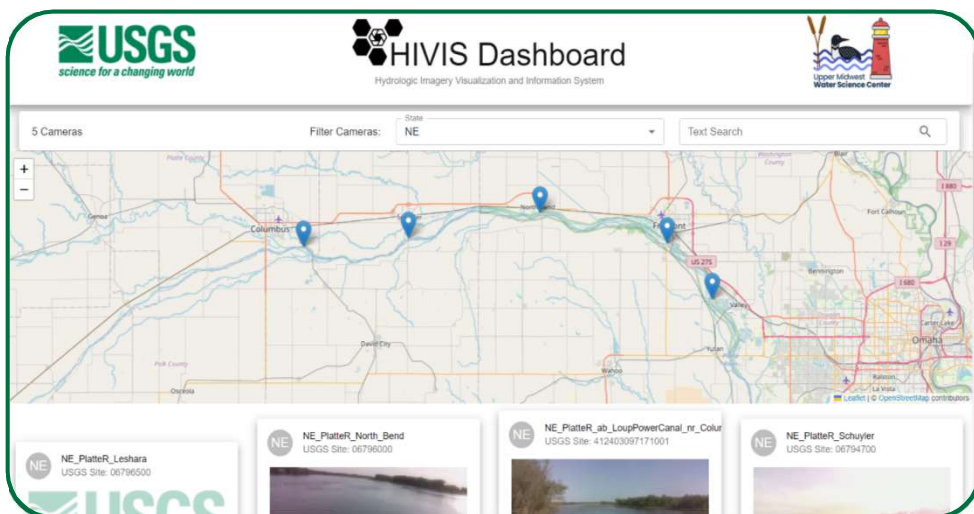
Welcome to the USGS Nebraska Water Science Center (NEWSC) newsletter. Keep reading to learn about our current research, latest products, and other interesting news.

New Gage Cameras Installed Along the Lower Platte River



Between November 2021 and February 2022, the Nebraska Water Science Center installed five river cameras at streamgages on the Platte River at Columbus, Schuyler, North Bend, Fremont, and Leshara. Funding for this partnership was provided by the Lower Platte North and Papio-Missouri River NRDs, the City of Fremont, Dodge County, and USGS Cooperative Matching Funds. The cameras at these sites collect images every 15 minutes during daylight hours and are provided to the public on the USGS Hydrologic Imagery Visualization and Information System (HIVIS) website [here](https://hivis.usgs.gov/).

Though these cameras were primarily installed for monitoring river ice conditions and backwater flooding at these locations, other uses include observing wildlife, sandbar changes, water level fluctuations, drought, and flooding conditions. These webcams provide valuable information to a host of users including the National Weather Service, emergency managers, NRDs, the public, and recreational users to evaluate near real-time conditions.



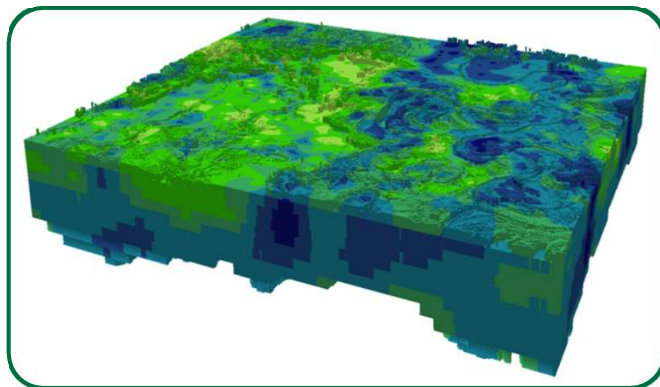
HIVIS provides access to still-frame images and timelapse videos from these webcams. At four of these sites where USGS collects gage height (water level) record, HIVIS pairs recent still-frame images to an interactive hydrograph. Images can also be downloaded. For more information, contact Jason Lambrecht (jmlambre@usgs.gov).

Spring Stakeholder Workshops

This spring, we hosted a series of workshops using the Teams platform, to inform stakeholders and partners about ongoing and recent scientific interpretive studies and data collection efforts conducted by our office. For any you may have missed, please find some short summaries below. Please let us know if you have questions on these or other water science topics.

Groundwater-flow Models

February 7, J.P. Traylor and Moussa Guira, presented about groundwater-flow model background information: software used, input data requirements, common questions that can be addressed with groundwater-flow models, and the major aspects of the calibration process. Secondly, their presentation focused on the application of the latest modeling tools and techniques they have used to develop, calibrate, and analyze groundwater-flow models for cooperators in Central and Northern Nebraska, Mississippi, and Arkansas.



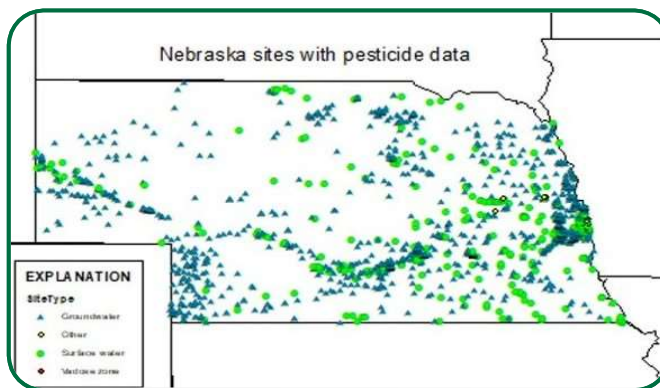
Groundwater Tracers

February 22, Chris Hobza and Mikaela Cherry, presented about groundwater tracers used in several groundwater studies throughout Nebraska. Chris and Mikaela described the use of isotopes and tracers used to characterize "young" and "old" groundwater, and presented case studies examining recharge across Nebraska, effects of irrigation in south-central Nebraska, groundwater nitrate contamination, and how tracers can characterize water availability and sustainability.



“What else is in the water?”

March 14, Dave Rus, presented on water-quality issues and studies in Nebraska, in particular about some of the lesser-known constituents. Dave described USGS efforts at characterizing contaminants of emerging concern (CEC) and other detectable chemicals in the surface water and groundwater in Nebraska as well as on a national basis. In addition to sharing monitoring results for these chemicals, their sources and their potential health or environmental impacts were also discussed.



Integrated Water Science in the Illinois River Basin

March 7, Jim Duncker of the Central Midwest Water Science Center, presented about USGS Integrated Water Science in the Illinois River Basin. Jim described the context and background of the basin, an overview of USGS's approach to Integrated Water Science Basins, and the status and progress of the new activities in this third Integrated Water Science Basin, of the ten planned. The Integrated Water Science Program is a 10-year effort in the basin consisting of next Generation Water Observing Systems, Integrated Water Availability Assessments, and Integrated Water Prediction.



Employee Spotlight

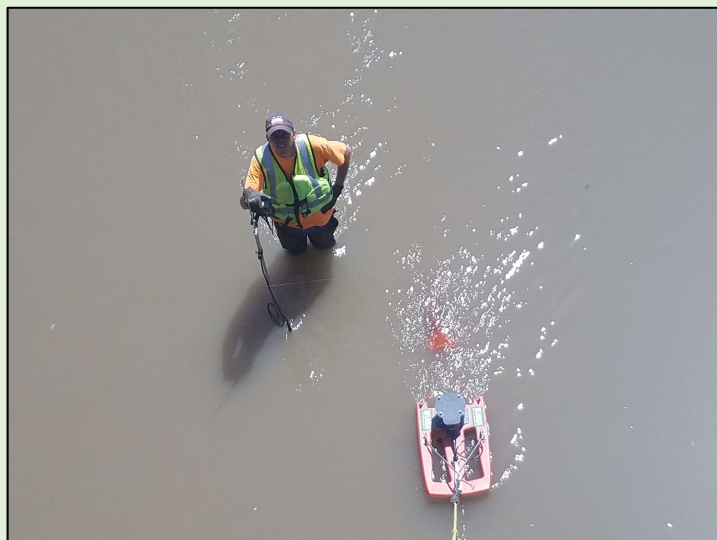
Brian Imig (Hydrologic Technician)

For the last 17 years, Seward Nebraska native Brian Imig has been a key member of the USGS Nebraska Water Science Center. Starting as a Pathways Student Intern, Brian worked first on various projects with the Hydrologic Investigations section. Upon graduation from the University of Nebraska Lincoln with a BA in Geology, he transitioned to full-time work at the USGS as a Physical Scientist in 2008. With the Hydrologic Investigations unit, Brian worked primarily with geologic framework studies throughout Nebraska that included geophysics and test-hole drilling. This work required extensive travel and overnights away from home. After that, Brian decided it would be nice to be home a little more often and moved over to the Hydrologic Observations section in 2011, where he has enjoyed running streamgages primarily in southeast Nebraska. Brian is known for his expertise in data collection, records analysis and approval, construction, and more recently in gage camera installation and operation. He is also a strong mentor and sets an example for the other technicians at our WSC.



Brian has found working for the USGS to be very rewarding and puts all emphasis on maintaining high quality data collection. In 2022, Brian was selected to serve on the USGS Hydrologic Data Advisory Committee (HDAC). HDAC is made up of hydrographers from across the county and provides guidance and information to improve all aspects of hydrologic data operations by gathering and sharing information, experiences, and solutions to address specific operational issues, instrumentation, training, and safety.

Brian's consistent positive attitude and customary smile persist no matter what the situation (floods, blizzards, gale-force winds, biting bugs). Outside of work, Brian lives in Seward, NE, with his wife and 3 kids, and occasionally does a little fishing (primarily on the West Fork of the Big Blue River).



New Employee Profile

James Kramer (Administrative Officer)

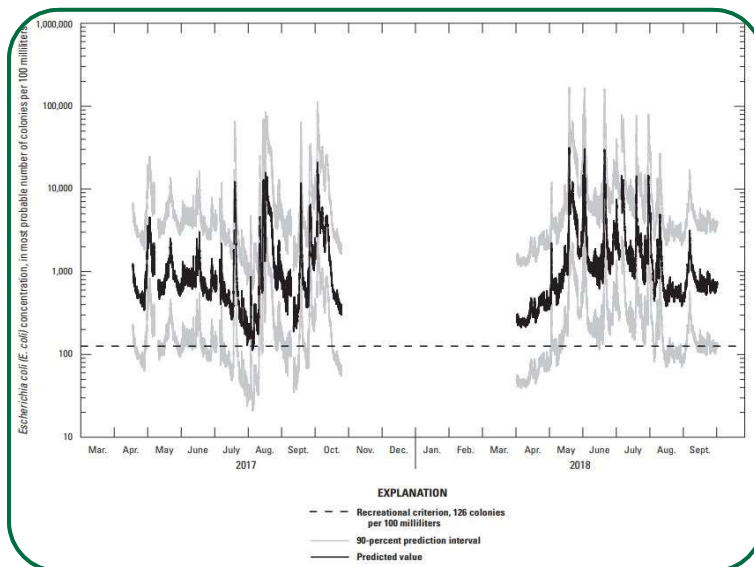
James comes to the Nebraska Water Science Center as the new Administrative Officer and began work in November 2021. He graduated from UNL with a BS in Geology and was then commissioned as an Officer in the U.S. Navy. After active duty, James worked for Platte County, Missouri Planning & Zoning, the Central Platte NRD, and finally as a City Administrator for the last 15 years. He is married with two children and spends much of his free time anticipating opening day for his beloved Kansas City Royals. After the first month of Royals baseball, he starts to anticipate opening day for the next season.



New Reports

South Loup surrogate model

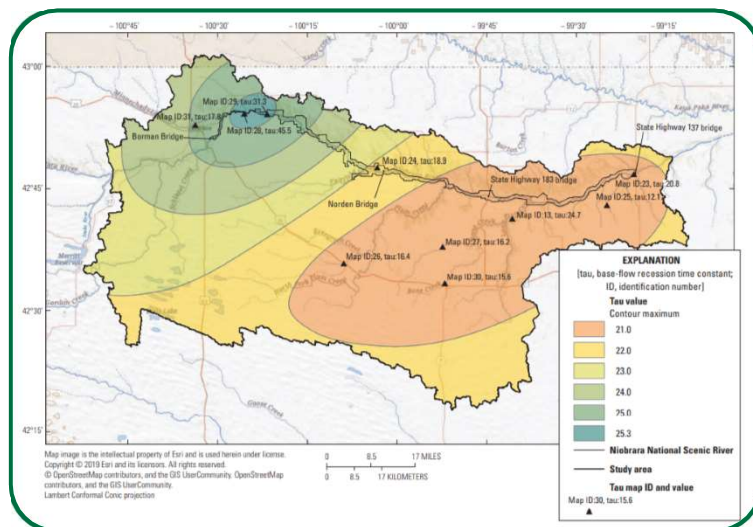
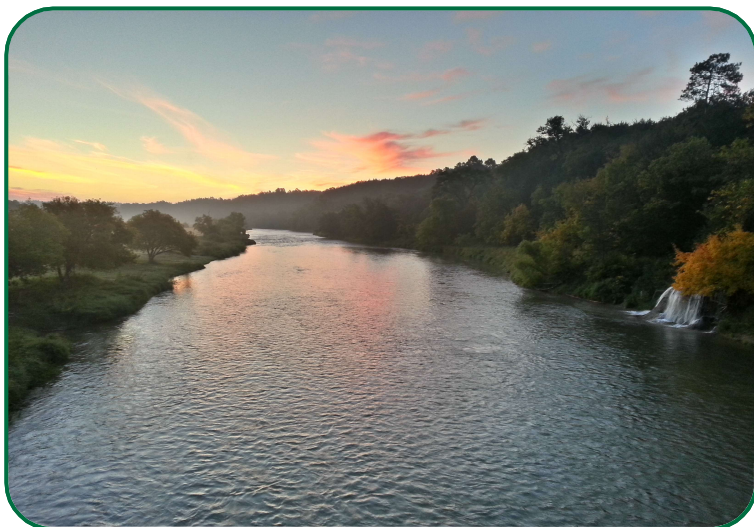
As part of a strategy for reducing the bacterial load in the South Loup River, the U.S. Geological Survey, in cooperation with the Lower Loup Natural Resources District, paired sampling data with continuous turbidity data to produce continuous estimates of *E. coli* and nutrient concentrations during seasonal monitoring of 2017–18. Those continuous estimates, like [those of *E. coli*](#), are available online and the models from which they are based were recently published in [USGS Scientific Investigations Report 2021-5120](#). It is expected that these continuous estimates will provide stakeholders with an understanding of constituent concentrations during the 2017–18 monitoring period and the results will also provide a good reference point for future comparisons related to management actions and/or land use changes.” Find report [here](#).



New Reports

Niobrara Tau report

The USGS, in cooperation with the National Park Service, completed a study to quantify seepage gains/losses along the eastern half of the Niobrara National Scenic River (NSR) and create a map characterizing the base-flow recession time constant (τ). Seepage gains/losses were determined from measurements or estimates of streamflow for 23 sites in the Niobrara River geologic reach 3 (Norden Bridge to State Highway 137 bridge). The τ map was created from 10 streamflow measurement locations in the Niobrara NSR study area and can be used to estimate τ values at locations where streamflow was not measured. Find report [here](#).



South Loup Tracer report

Streams in the Loup River Basin are sensitive to groundwater withdrawals because of the close hydrologic connection between groundwater and surface water. The U.S. Geological Survey, in cooperation with the Upper Loup and Lower Loup Natural Resources Districts, and the Nebraska Environmental Trust, studied the age and water-quality characteristics of groundwater discharge near the South Loup River to assess the possible effects of a multiyear drought on streamflow. In addition to the results and interpretations of water-quality and age tracer data, the report includes analyses of real-time water quality and streamflow to assess the drought resilience of the South Loup River. Find report [here](#).

