

WATER

CURRENT

NEBRASKA WATER CENTER
PART OF THE ROBERT B.
DAUGHERTY WATER FOR FOOD
GLOBAL INSTITUTE AT THE
UNIVERSITY OF NEBRASKA
FALL 2019 VOL. 51, NO. 2

2019 Water & Natural Resources Tour Makes Waves in Montana



A new day begins at the Missouri River Headwaters State Park in Three Forks, MT.



At 11,166 feet, Lone Peak towers above Montana's Big Sky Ski Resort.

To learn more about the water and natural resources tour and see additional photos, go to page 6.

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**Nebraska
Water Center**

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NWC Takes Road Trips this Summer and Fall

From the Director
Chittaranjan Ray, Ph.D., P.E.

These past few months have been interesting and challenging. During an early morning bicycle ride in June, I hit a slippery patch along the crushed limestone trail and crashed to the ground. The piercing pain I felt was my pelvis fracturing in three places. Though thankfully surgery was not required, I spent several weeks laid up in bed and several months in physical therapy. While I've tried to go slow and pace myself, the rhythm of our center's activities has been up-tempo.

Last month, we convened nearly 200 participants at our annual water conference in Norfolk. It was the first conference in over 15 years to be held outside Lincoln. The challenges and opportunities of "Building a Clean Water Future in Northeast Nebraska" were animated by discussions from the faculty researchers, students, water managers, producers and stakeholders working toward that overarching goal. Presentation slides and videos are now available on our website. Furthermore, the road show will continue next year as we head west to Scottsbluff for our 2020 Water Conference on August 3 (See flyer on p.11).

Speaking of road trips, our Nebraska Water & Natural Resources Tour traveled to Montana and Wyoming in mid-September. This was the tour's first time to Montana in its 48-year history. Forty six participants from all walks of life—journalists, university administrators, water and natural resource managers, farmers, state employees and NGOs—came together on the five-day tour that traversed the Missouri and Yellowstone River Basins. I encourage you to read in these pages the tour reflections of two undergraduate student participants.

On the research side, we are seeing good advances with the Ogallala Water Coordinated Agriculture Project, or OWCAP. In addition to papers getting published in marquee journals, the people behind that work are budding into academic careers. Two of our former post-docs, Vaishali Sharda and Erin Haacker, recently began tenure-track faculty positions with Kansas State University and the University of Nebraska–Lincoln, respectively. Engagement-wise, UNL's Testing Ag Performance Solutions (TAPS) has successfully collaborated with Oklahoma State University to set up a similar program on their experimental crop fields. Stay tuned for a special Ogallala Aquifer-themed edition of the Water Current early next year.

Later this fall, Water Sciences Lab director Dan Snow and collaborators will begin collecting Vadose Zone data from the Bazile Groundwater Management Area. The project, part of our expanded efforts in the area, aims to establish baseline nitrate vadose zone conditions. The vadose zone is the interval between the land surface (including the crop root zone) and the water table, and is a critically important region for storage, transport and transformation of chemicals that can impact groundwater quality.

Finally, we are gearing up for our 2020 Water Seminar Series. The annual event—a collaboration between our center and UNL's School of Natural Resources—is a one credit hour course and a public seminar. Next year's theme is "Current Issues in Nebraska Water" and will feature a diverse slate of speakers. The seminars are held in Hardin Hall at 3:30 p.m. Wednesdays from mid-January to mid-April. I hope to see many of you there!

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Director
Chittaranjan Ray, Ph.D., P.E.

Director of Laboratory Services,
Water Sciences Laboratory
Daniel D. Snow, Ph.D.

Cover Photo Credit
Dao Starita
Jesse Starita

Editor
Jesse Starita
Editorial Assistants: Patricia Liedle and
Crystal Powers

Designers
Stephanie Severin
Macy Behrens

Nebraska Water Center
Robert B. Daugherty Water for Food Global Institute
University of Nebraska
2021 Transformation Drive, Suite 3220
P.O. Box 886204
Lincoln, NE 68588-6204
Phone: (402) 472-3305
e-mail: jstarita@nebraska.edu



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Updates from the Water Sciences Lab

Saptashati Tania Biswas, Ph.D.
WSL Research Lab Manager

Greetings from the Water Sciences Laboratory! We've had a busy year so far and look forward to finishing it strong. Our lab has analyzed over 10,000 samples as of October through a variety of methods, including trace organic analyses, natural abundances of stable isotopes and standard water quality methods. Overall, we offer 140 analytical methods. This year, we are supporting over 60 projects within the NU system, including the College of Engineering, College of Arts of Sciences, UNMC, IANR and Daugherty Water for Food Global Institute. We also support projects from governmental, academic and private entities, such as Natural Resource Districts, outside academic institutions in Ohio, Texas, and Colorado. We recently developed a new, high throughput and sensitive method for glyphosate analyses along with its primary degradation product, aminomethylphosphonic acid (AMPA) with parts per billion-level detection levels. Glyphosate is a broad spectrum, non-selective herbicide. It is widely used in agriculture for crops such as corn and soybean. It is also used in forestry and for garden and lawn care. Please check out the lab's web page if you are interested in testing for glyphosate.

Last year we launched a new user training program on basic laboratory techniques and best practices. The training was

developed to enable new users to learn how to demonstrate proficiency on lab techniques and best practices to produce high quality data. This year we've trained 29 new users, including our own undergraduate interns and graduate students, researchers from other UNL labs and those from outside institutions. We are delighted to have students of early-career faculty users such as Judy Wu-Smart from Entomology and Tiffany Messer in Biological Systems Engineering Departments using the program. These students have been trained to use newly developed methods for analyses of neonicotinoid compounds in water and pollen.

Finally, parts of the lab underwent renovations this year to address some of the wear that has occurred over the last 30 years. Our main sample preparation and corrosion control labs now have new countertops and cabinets. Our environmental mass spectrometry lab has new countertops. Atop one of those new countertops is our brand-new liquid chromatograph, triple quadrupole mass spectrometer. Read all about it on page 10. Lastly, stay tuned for an invitation to our 30th anniversary celebration and open house in early 2020!

Building Nebraska's Clean Water Future: A Nitrate Strategy

Nebraska is home to one of the most productive cropping and livestock regions in the world. With an abundance of surface and groundwater, productive soils, and resilient people, agriculture has long been at the core of Nebraska's success. Agricultural inputs have been a key addition for increasing productivity, however they become a risk when they enter the environment. These risks challenge the state's vitality at the intersection of food production, water quantity and quality, community vitality and health, and climate.

With many parts of the state crossing safe drinking water levels, we are proposing a renewed focus on addressing water quality, starting with nitrate, built on our state's long history of pragmatic, collaborative management of our natural resources. Creating resilient change will

require a coordinated cross-sector effort to impact the decisions made at both the individual and systemic level.

The first step is to convene a team to guide development of this process. We hope the diverse sectors impacted by this issue will all be at the table: agriculture, communities, NRDs, state agencies, private industry, conservation groups, and academia. Our hope is to build off successes and failures tackling the nitrate issue here in Nebraska and beyond to guide locally-adapted solutions.

*For further questions please contact:
Crystal Powers, Nebraska Water Center,
cpowers@nebraska.edu
Katie Pekarek, Nebraska Extension,
kpekarek2@unl.edu*

Common goals: define the problem and create a shared vision to solve it.

Measures of Impact: agree to track progress in the same way, focus on continuous improvement.

Reinforcing Activities: coordinate collective efforts to maximize the end result.

Communication: build trust and relationships among all participants.

Backbone: have a team and resources in place, dedicated to orchestrating the work of the group.

Water that Connects Us

By Nolan Choquette

The 2019 Nebraska Water & Natural Resources Tour emphasized one point: water connects us all. Every person in every part of the world has their own connection to water. Each area has their own difficulties and histories, but we can connect over our shared need for it. Sharing these experiences allow us to learn from each other, as well as connect on a human level. Each of our stops along the tour expressed this point.

Our stop at Buffalo Bill Dam showed us one of our nation's first attempts to build a structure to harness the natural water. The people involved in designing the project had not designed a dam before and had to figure out the process as they went. Additionally, the hard-stone walls they were building into made for further troubles. Despite this, the desire for a reservoir for irrigation was strong enough to overcome these adversities. Two additions had to be made to the project to accommodate future human use, making this project a shared history for people over an era.

At Yellowstone we had a Native American guide share the history of the water of the area. This examined water from less of a mechanical standpoint and more of a spiritual one. For any ritual he described, water was involved, if not central, to the proceedings. He described that everyone in his tribe underwent an extended fast from food and water. This experience he described as understanding the importance of water on a fundamental level. It transcended thinking of water's importance, to experiencing it on an instinctual human level.

We also met with various community members who dealt with water rights in Montana. Some represented consumers, permitting agencies, or people who helped with analysis, but all work on the same subject of water. Each different expertise is necessary to get a holistic understanding of the circumstances surrounding their water and determine the proper course of action. While Montana handles water rights differently than states like Nebraska, the matter of determining who has rights to use water is universal. Determining who can use water and making sure all the water is not used is an important matter regardless of where you go. Getting insights into how the people of Montana handled these issues allowed for a perspective on the issue as a whole.

Overall, the tour allowed for exposure to water through various lenses. Each stop showed both an interesting location, a unique set of problems, and how those problems were being handled. This combination made the trip both an enjoyable one and an educational one.

Nolan Choquette is a junior civil engineering major at the University of Nebraska at Omaha.

“ It transcended thinking of water's importance, to experiencing it on an instinctual human level. ”



Nolan Choquette making a new friend in Montana.

Nolan Choquette and Phuong Minh Tu Le were awarded student scholarships through NWC and IANR to attend the 2019 Water & Natural Resources Tour.

Water Runs Through Us

By Phuong Minh Tu Le

On a sweltering day in September, we—45 individuals from different backgrounds with ages ranging from 22 to 84 years old—first met each other in Billings, Montana. Despite the heat, the predicted cold, and the driving distances, we were there because we shared one concern: our water resources. The water current brought us together, so to speak. It then led us on a five-day tour from Montana to Wyoming, from sunshine to snowfall. While enjoying some of the magnificent views of the states, we got chances to listen and see how people consumed and protected their state's water sources.

Across Wyoming and Montana, the rain shadow effect from their abundant mountain ranges creates diverse conditions throughout the states. The driest area of Wyoming receives only 5 to 8 inches of precipitation annually (for comparison, Nebraska's average annual precipitation is 22.9 inches). As agriculture is one of their major industries, farmers and ranchers have to irrigate their fields. Fortunately, they have adequate surface water and a substantial amount of groundwater for current and future use. However, as they are headwater states, their water quantity and quality also affect other downstream states. Due to that, regulations are put in place to ensure effective usage of the water. Researchers from various institutes are endeavoring to find the best practices for their states in the face of climate change. An interesting example is the leafcutter bee program for alfalfa field pollination in Wyoming. Farmers learned to grow their beehives for their fields with the help of the Wyoming Department of Agriculture.

In addition to agricultural use, tourism, mining and extraction industries significantly affect water quality in both states. In Montana, Big Sky County Water & Sewer District No. 363 is located in a bustling resort town. Without a permit to discharge, the facility must use treated wastewater to irrigate golf courses. They reuse their sludge—a by-product of the wastewater treatment

process—by putting it into compost piles. They are facing many problems, such as managing winter's peak demand and how to keep their water storage free of waterfowl contamination. Hence, their facility provides sufficient water supply for the area without harming its local surface water. Meanwhile, they can return nutrients to the soil by doing quality compost.

Moreover, the tour introduced us to a great Native American guide, Shane Doyle. While our bus was driving across Yellowstone National Park, Shane took us on a spiritual lesson. He taught us about how the water connects to each and all of us. Shane gave us an insight into how his tribe, the Crow, and others respect the water through stories and history. With his slow and soft voice, he led us through the sacred land where his tribe once thrived. He taught us about being grateful for what Mother Nature is giving us. The water which is running inside your body is like the water flowing on rivers and streams. It gives us life.

Coming from a tropical country, I cannot imagine how little rain an area could get and how farmers can grow crops with such limitations. Five days were not enough to explore all the beautiful corners of these two states. However, it was enough for me to see how the local people shared and respected their limited water sources. The tour taught me about many aspects of the states. The issues Wyoming and Montana are facing, their changing history, the lessons they learned from managing nature, and so much more. It also allowed me to know about a variety of organizations that work together to improve their land.

In the end, everyone has a right to use water and natural resources, and along with that right, he or she has the responsibility to preserve them. With the changing climate, we need to be more conscious about our consumption. From what I feel from this trip, nature is a part of us, and we are parts of nature.



Tu Le at the Big Sky Water & Sewer District.

“Everyone has a right to use water and natural resources, and along with that right, he or she has the responsibility to preserve them.”

Phuong Minh Tu Le is a senior environmental restoration science major at the University of Nebraska–Lincoln. Originally from Vietnam, Le came to the U.S. three years ago to pursue her education.

2019 Water & Natural Resources Tour Roundup

For the first time in its 48-year history, the Nebraska Water and Natural Resources Tour traveled to Montana's "Big Sky Country." Organized yearly by the Nebraska Water Center and Central Nebraska Public Power and Irrigation District, this year's tour blended Native American history, the Lewis & Clark expedition and a daylong excursion to Yellowstone National Park with contemporary issues in agricultural, municipal and recreational water use in Montana and Wyoming.

The Sep. 15-19 tour drew 46 participants and included journalists, university administrators, water and natural resource managers, farmers, state agency employees and non-governmental representatives.

Learn more about the Water and Natural Resources Tour at <https://watercenter.unl.edu/water-tour>.



The tour group at the famed Old Faithful Geyser in Yellowstone National Park.



One of the 10,000 thermal features spread across Yellowstone.

Research Corner

Mitigating the Risk of Atrazine Exposure: Identifying Hot Spots and Hot Times in Surface Waters across Nebraska, USA

By Samuel Hansen; Tiffany Messer; and Aaron Mittelstet, Biological Systems Engineering Department, UNL



Aaron Mittelstet



Tiffany Messer

Atrazine, one of the most widely used herbicides in the world, threatens human health along with terrestrial and aquatic biota. Recent reports have found atrazine in drinking water to be associated with increased birth defects and incidences of Non-Hodgkin's Lymphoma, with higher levels of significance from exposure to both atrazine and nitrate-N. The Midwest region of the United States, which includes Nebraska, is one of the leading regions for high nitrate-N concentrations and agrochemicals, including atrazine, in surface waters. Therefore, the objective of this study was to provide a case study for completing an environmental risk analysis for the potential exposure of atrazine and nitrate-N to ecosystems and humans through interaction with surface waters using two approaches: (1) Identify watersheds across Nebraska that were at risk for exceeding atrazine and nitrate-N maximum contaminant limits (MCLs) in surface water; and (2) Determine the specific times of year where risks were greatest.

Read the full article in the *Journal of Environmental Management* at go.unl.edu/atrazine.

Prediction of Nitrate Accumulation and Leaching beneath Groundwater Irrigated Corn Fields in the Upper Platte Basin under a Future Climate Scenario

By Simin Akbariyeh et al., Postdoctoral Teaching Fellow, Civil and Environmental Engineering Department, California Polytechnic State University (PhD in Civil Engineering, UNL, 2017)



Simin Akbariyeh

Understanding the impacts of future climate change on soil hydrological processes and solute transport is crucial to develop appropriate strategies to minimize the adverse impacts of agricultural activities on groundwater quality. To evaluate the direct effects of climate change on the transport and accumulation of nitrate-N, we developed an integrated modeling framework combining climatic change, nitrate-N infiltration in the unsaturated zone, and groundwater level fluctuations. The study was based on a center-pivot irrigated corn field at the Nebraska Management Systems Evaluation Area (MSEA) site.

Read the full article in *Science of the Total Environment* at go.unl.edu/nitrate.

Perchlorate Behavior in the Context of Black Carbon and Metal Cogeneration following Fireworks Emission at Oak Lake, Lincoln, Nebraska, USA

By Manish Kumar, WARI Fellow; Dan Snow, Water Sciences Laboratory; Yusong Li, Department of Civil Engineering; and Pat Shea, School of Natural Resources, UNL

The imprints of fireworks displays on the adjacent water body were investigated from the perspective of cogeneration of black carbon, metals and perchlorate (ClO_4^-). In particular, the mixing and dissipation of ClO_4^- were studied at Oak Lake, Lincoln, Nebraska, following fireworks displays in 2015 and 2016. Following the display, ClO_4^-

concentration in the water increased up to 4.3 $\mu\text{g/L}$ and 4.0 $\mu\text{g/L}$ in 2015 and 2016, respectively. Cogeneration of black carbon and metal with perchlorate was established, indicating that ClO_4^- is an excellent marker of fireworks or a burning event over all other analyzed parameters.

Read the full article in *Environmental Pollution* at go.unl.edu/fireworks.

Grid-Based Model for Estimating Evapotranspiration Rates of Heterogeneous Land Surface

By Mohanasundaram Shanmugam, Post-Doc, NWC; Mesfin Mekonnen, Post-Doc, DWFI; and Chittaranjan Ray, Director, NWC

The complementary relationship areal evapotranspiration (CRAE) model estimates actual evapotranspiration (ET) based on potential and wet environment evapotranspiration rates. The existing CRAE-based models that calculate ET using point-based climatic inputs often adopt an interpolation method to produce spatially continuous ET grids at a regional scale. However, the effect of land surface heterogeneity on the ET estimation process is not well captured by these approaches. In the present study, the authors have developed a grid-based CRAE model (PY-CRAE) that accounts for the spatial heterogeneity in the land surface processes for estimating ET at a 4 km scale. The developed PY-CRAE model was applied for the entire state of Nebraska with monthly averaged climatic input data sets during the period 2000-2014.

Read the full article in the *Journal of Irrigation and Drainage Engineering* at go.unl.edu/ET.



Mohanasundaram Shanmugam

Researcher Spotlight: Sue Lackey, Hydrogeologist

By Gabrielle Boucher, Student Intern, NWC



Sue Lackey

Sue Lackey is a research hydrogeologist with the University of Nebraska–Lincoln’s Conservation and Survey Division. Sue recently spoke at the Nebraska Water Center’s 2019 Nebraska Water Conference which was held in her home base of Norfolk. We had the opportunity to speak more with Sue about how she got where she is, what she is doing now, and what she is looking forward to in the future.

Sue has lived and worked in Nebraska for many years, but was raised in eastern Pennsylvania. Growing up in the country, she loved to collect rocks and found them interesting. A family move to the Midwest eventually led her to attend the South Dakota School of Mines where she obtained a degree in Geological Engineering. After moving around a bit, she wanted to move to Nebraska and found a position with UNL. For the past 30 years, she has been a vital member of her community through serving Natural Resources Districts (NRDs), consulting, drilling, and research.

There is no such thing as a typical week for Sue, which she enjoys. Her responsibilities change from season to season. Much of her time is spent responding to service calls, designing and analyzing wells, and educating the public on groundwater. She also spends time analyzing different aquifers to optimize well designs. Her favorite part of the job is being a part of drilling wells—which recently ended for the season), using samples

from wells to improve designs, and putting together the “puzzle” that is our underground water system, while also educating and helping her community.

Sue was excited to present at the conference to give attendees a better understanding of the groundwater in northeast Nebraska. She gave an overview of nitrate concentrations, explained variations in different aquifers, and what is going on in the ground below us. With her level of experience, listeners learned and comprehended important aspects about the water system in northeast Nebraska.

Sue encourages everyone to get out there and learn everything they can. She is passionate about her work and has successfully contributed to her community and the state of Nebraska. Looking toward the future, Sue is excited about assisting NRDs in efforts to create outdoor classrooms. These outdoor classrooms will help educate youth on natural resources and how to preserve them. She hopes to continue to define aquifer boundaries and qualitative degrees of connection between aquifers to improve groundwater management across this area. Sue is also looking forward to continuing designing observation wells and monitoring equipment.

We are grateful for all the contributions Sue has made and look forward to her future work for Nebraska!

Watch Sue’s presentation at the 2019 Nebraska Water Conference at youtube.com/nebraskawatercenter.

Gabrielle Boucher joins NWC as student intern



Gabrielle Boucher

Gabrielle Boucher joined the Nebraska Water Center in August 2019 as a student intern. Gabrielle is a junior at the University of Nebraska–Lincoln majoring in civil engineering with an emphasis on water resources. At the NWC, Gabrielle has already been involved in a number of projects. For the annual water conference, she designed graphics and profiled some of the researchers involved in the conference. She recently finished an article about the Water Sciences Lab’s new mass spectrometer, which is included in this edition of the newsletter.

Her interest to “meet people in the field and get a sense of what a career path would look like” is one of the things that drew her to the internship. In general, she hopes to gain more knowledge about the world of water.

A native of Lenexa, Kansas, Gabrielle is active on and off campus. She runs on the university’s varsity cross country and track team and is the community service chair of her sorority. She is a repeat Academic All-Big Ten and Dean’s List awardee.

2019 Nebraska Water Conference Snapshots

Nearly 200 water managers, conservationists, policymakers, students, researchers, community members and growers gathered in Norfolk, Neb. for the 2019 Nebraska Water Conference, held Oct. 9 and 10 at the Divots Conference Center. The conference, entitled “Building a Clean Water Future in Northeast Nebraska,” was the first in over 15 years to be held outside of Lincoln.

The event focused on three core pillars: water quality and public health, innovative solutions to current problems and

community engagement. The latter topic included presentations by students from Newman Grove and Madison Senior High Schools who are meticulously documenting the water quality of their local watersheds. Both presentations drew rave reviews from conference attendees.

Videos of all conference presentations are available on NWC’s YouTube channel, youtube.com/nebraskawatercenter.



Marty Link (L), water quality division administrator with the Nebraska Department of Environment & Energy, visits with a conference attendee.



Drs. Martha Rhoades and Jesse Bell (R) present on water quality and public health.



(L to R) NWC assistant director Rachael Herpel moderates the closing panel with Nebraska Environmental Trust director Mark Brohman and Lower Elkhorn Natural Resources District general manager Mike Sousek



Marie Krausnick, water department manager with the Upper Big Blue Natural Resources District, listens to a session.



The NWC's Spring Water Seminar Series returns in January 2020.

Spring Seminar Series Returns in January 2020

Save the dates for the 2020 Nebraska Water Center’s Spring Water Seminar Series! The annual event—a collaboration between NWC and UNL’s School of Natural Resources—is both a one credit hour course and a public seminar. Next year’s theme is “Current Issues in Nebraska Water” and will feature a diverse slate of speakers.

All seven seminars are held in Hardin Hall at 3:30 p.m. Wednesdays from mid-January to mid-April.

Find more information at <https://watercenter.unl.edu/spring-seminar-series>.

New Mass Spectrometer Part of Upgraded Water Sciences Lab

The Water Sciences Laboratory (WSL) on East Campus recently obtained funding for a new addition to its wide array of advanced analytical equipment. This new instrument, a Xevo TQS triple quadrupole mass spectrometer, is a major upgrade for the lab which has been using an older “triple quad” since 2002. This new machine will have state of the art detection of chemicals, speed up processes and give researchers who use the lab an edge on research proposals and publications, which is one way it demonstrates competence and efficiency.

The Xevo TQS allows the lab capability to measure “emerging contaminants” at levels that previously could not be measured. Emerging contaminants, including new pesticides, pharmaceuticals, illicit drugs, veterinary and human antibiotics, steroids and flame retardants, can now be measured for research projects at higher precision and greater speed than ever before. Examples of emerging contaminants that can be measured with the Xevo TQS include polyfluoroalkyl substances, or “PFAS”, which are highly complex and persistent. Methods for measuring these chemicals have only recently become

available and these contaminants are being found in water supplies, soil, and plant and animal tissue. Being able to measure the PFAS can help to better understand their effects on human and ecosystem health. Director Daniel Snow notes the instrument is 1,000 times more sensitive than the older Quattro micro. The Xevo TQS also allows for less sample preparation and can rapidly switch between different detection modes, all of which speeds up the entire process. Pair that with the instrument being 10 times faster in analyzing a sample, the lab expects to make huge strides in emerging contaminants research.

Funding for the Xevo TQS was provided from a combination of sources, including a large portion from the Nebraska Research Initiative. The new equipment will be operated and maintained by Sathaporn (Tong) Onanong, who has developed a variety of methods for emerging contaminants since joining the WSL staff in 2008. Though the Xevo TQS requires extensive knowledge to operate properly, there are plenty of opportunities for students and researchers to be trained. The Lab Research Manager, Tania Biswas, has

developed a suite of training modules for new users that includes basic safety training, lab methods training, and actual instrument proficiency training. Snow says the lab is always open to the possibility of training students and generally starts with sample extraction and purification. One use for the older Quattro mass spectrometer is to train others on how to properly use a triple quadrupole mass spectrometer. After mastering preparation and operation of the Quattro, students will be able to move on to use the new triple quadrupole.

Part of the Nebraska Water Center, the Water Sciences Laboratory will celebrate its 30th anniversary in 2020. The new equipment is an important part to upgrading the look and feel of the lab whose mission is to provide technology, expertise, services, and training in advanced analytical science supporting today’s water and natural resources students, researchers, and stakeholders. Staff and student users are looking forward to sharing more of what they do with the community and promoting the laboratory through tours, and expects to hold an open house next year to promote the new capability.



Director Daniel Snow with the new Mass Spectrometer in the Water Sciences Laboratory on East Campus.



The Ebb and Flow

Crystal Powers

Research and Extension Communication Specialist

I am enjoying the fall colors and the many wonderful events, where I have connected with many of you. One of the key issues that arose in nearly every conversation has been “why don’t people just do what the science says?” I’m so glad you asked! Presenting science in a compelling manner that impacts decision making has its own fields of study and prompted the “stakeholder engagement” sessions at our annual conference so we can find ways to improve our skills.

As technical experts and scientists, we tend to weigh our decisions based on the ‘facts.’ However, only 10-15% of the population makes decisions this way. Most people form decisions around a mix of risk perception, emotion, values, trust and

barriers. So how do we communicate effectively? It begins by connecting across shared values: “People don’t care how much you know, until they know how much you care.” (Teddy Roosevelt). Be transparent about our motivations, and acknowledge our own biases and worldviews. Model commitment, respect and empathy, and take the time to build trust.

These form the foundation for opportunities to co-create solutions. There is more than one way to cook the egg, and good communication skills can help bring us all to the same table. I look forward to bringing more of our campus research and education expertise to the topic of water as we move forward.



SAVE THE DATE

Photo Credit: Platte Basin Timelapse

AUGUST 3, 2020

Nebraska Water Conference: Irrigation in a Water-Deficit Region

Scottsbluff, Nebraska

Optional Water Tour: August 4-5, 2020

More information is available at watercenter.unl.edu.

Hosted by:





Nebraska Water Center
Robert B. Daugherty Water for Food Global Institute
2021 Transformation Drive, Suite 3220
P.O. Box 886204
Lincoln, NE 68588-6204

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