

# Water, Climate & Health Program Newsletter

Winter 2023



## A Note from the Director

Hello from Omaha!

I hope everyone is having a good start to 2023. The Water, Climate and Health Program is continuing to expand its capabilities and I am excited for the new opportunities that are developing.

Our group continues to grow! We now have over 20 faculty, staff, and students on the team. Each team member brings unique expertise and capabilities to help address environmental health challenges. We continue to build strong partnerships with local, state, and federal agencies. As we identify and address environmental issues, it is important that we have this capable network to help support these efforts. I am very grateful for our team and partners.

Speaking of partnerships, I am proud of our new collaboration with the Nebraska Department



Presentation made during the Heat Mapping Campaign. Photo by Carmela Rigatuso.

## Featured articles

- UNMC and DHHS Initiate Environmental Public Health Tracking Program for Nebraska [Page 2](#)
- UNMC Heat Mapping Campaign Shows Temperature Disparities in Omaha [Page 4](#)
- Program Funds Water Quality Curriculum Project for Nebraska Schoolchildren [Page 6](#)

of Health and Human Services. The WCHP is helping support the development of the CDC-funded Nebraska Environmental Public Health Tracking Program. This is the first time Nebraska has received this funding and I am grateful for the opportunity to be part of this important effort. Because of this work, Nebraska will have greater capacity to understand and address environmental health issues.

Please look over our newsletter and visit our [website](#) to learn more about our work. There is so much going on. To help with communication and dissemination, we have started a [research seminar series](#) focused on projects associated with our program. As always, please reach out with any questions or comments. I appreciate your interest and support!

Sincerely,

Jesse E. Bell, PhD

## UNMC and DHHS Initiate Environmental Public Health Tracking Program for Nebraska

- Article by Meghan Langel

The burden of environmental disease in the U.S. is both costly and largely preventable. Accounting for 13% of disease burden in the U.S., environmental factors cause approximately 400,000 deaths annually. In response to environmental disease burden in the U.S., in 2002, the Centers for Disease Control and Prevention (CDC) established the National Environmental Public Health Tracking Program (EPHT) with the goal of mobilizing data to improve public health by allowing users to view environmental and health data in tandem for improved surveillance and as a result, more informed decision making.

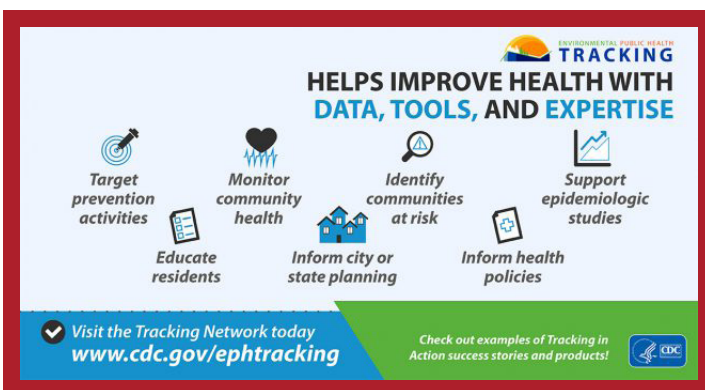
CDC currently funds 33 state and local Tracking programs, including Nebraska Tracking, a new awardee in 2022. The goal of state programs is to expand public health capacity at a local level through provision of funding and infrastructure to modernize data systems.

The Water, Climate and Health Program is excited to announce they are partnering with the Nebraska Department of Health and Human Services (DHHS) to bring Nebraska Tracking to

life. Derry Stover, a UNMC COPH graduate and Epidemiologist at DHHS, is leading the project. *“We will be working to build capacity and expertise in environmental health surveillance with the ultimate goal of reducing the burden of environmentally-related health conditions,”* explains Stover, summarizing the initiative.

Leading efforts at UNMC are Dr. Jesse Bell and Dr. Kristina Kintziger. Kintziger, an environmental epidemiologist and the Claire M. Hubbard Professor of Health and Environment in the College of Public Health, has worked with Florida Tracking for many years and has seen first-hand the positive impacts of the program. *“One of the great things about the Tracking Program is the flexibility to address specific environmental areas of concern in your state,”* says Kintziger. For example, *“private wells in Central Florida contain high levels of arsenic, so Florida Tracking assessed private well arsenic levels with household behaviors such as cooking and bathing and individual exposure levels, and we identified additional households that needed safe drinking water restoration,”* she explains.

*“In our first year, we are focusing on identifying new partners, setting priorities, and identifying available sources of environmental health data,”* Stover explains. Nebraska Tracking’s priorities will be largely stakeholder driven. The team’s first step in addition to hiring staff, has been to begin assembling an advisory panel representing a variety of sectors. The panel will identify priorities and help guide the direction of the program.



## *New staff spotlight: Meet Sue Dempsey*



**Sue Dempsey, MS, CPH**

Sue Dempsey, former State Toxicologist and Drinking Water Administrator for Nebraska, has joined the team! Dempsey is working as the Interim Project Manager on the CDC-funded Nebraska Tracking grant. We sat down with Sue to discuss her new role.

**Q: Can you tell me why you wanted to be involved in Tracking and what excites you about the role?**

A: I'm excited to work with such a great team for starters! My goal is to help achieve environmental health and justice for all Nebraskans and the best way to achieve that is through education. Healthy communities start with informed citizens. Empowering public health practitioners, healthcare providers, community members, policy members, and others to make information-driven decisions that affect their health is the key.

**Q: In your opinion, what issues should Tracking focus on first?**

A: The CDC Environmental Health Tracking Network has some good information about Nebraska but there are several areas where data is available but not currently incorporated into the Network's format. Filling those gaps is a great place to start. For example, all community water system data is public on the web, but adding it to the Network makes it easier to view with other environmental data to give Nebraskans a more complete assessment of the State's environmental health.

In addition, I want to use a community engagement approach, rather than a top-down approach, to identify specific concerns that we might not be aware of for tracking, issues such as, differences between urban and rural communities, adult and childhood chemical exposure, private vs. public water quality, and health literacy issues (i.e., education level, language barriers, etc.) to name a few. Perhaps opioid use is very prevalent in a community or mental health services are lacking. Engaging with the community is the best way to identify these local concerns.

**Q: Tracking's data portal and other program products will allow end users to view environmental and health data in tandem. How do you see this information being used and by which organizations?**

A: I see lots of options for use and by diverse groups, such as those mentioned above, public health practitioners, healthcare providers, community members, and policy members. I would especially love to see educators and students utilize this information. By having the data in tandem, we can develop community health assessments, or report cards of sorts, to aid communities in prioritizing limited resources for the greatest health impact and subsequently, minimizing environmental health disparities.

## *UNMC Heat Mapping Campaign Shows Temperature Disparities in Omaha*

- Article by Meghan Langel and photo by Larissa Mark

On August 6th, sixty-eight community volunteers navigated 80 square miles of Omaha on a quest to gather heat and humidity data for the Omaha Urban Heat Watch Project, a community-driven heat mapping campaign designed to identify heat disparities in Omaha. Using sensors mounted to their cars, volunteers were able to gather over 40,000 data points by driving eight separate routes over three time points throughout the day. This data will help UNMC researchers make interesting observations about how heat intensity varies across Omaha. The project, one of sixteen sponsored by the National Oceanic and Atmospheric Administration (NOAA) and the National Integrated Heat Health Information System (NIHHIS), was part of a national effort to build community capacity and awareness around extreme heat.

Analysis of the data indicate that the distribution of heat across the study region was largely determined by land use, an observation that aligns with other published research studies on the topic. Residential areas with high tree cover and ample green space retain less heat and have cooler temperatures throughout the day. Areas with large swaths of concrete, including those with high density of industrial and commercial land use, retain more heat, resulting in higher temperatures that create “hot spots” – areas of intensified heat – in a given area. Specifically, results show that Omaha’s hot spots are primarily located in north and south Omaha. Abdoulaziz Abdoulaye, PhD student at UNMC and project lead adds, *“these are areas that have historically experienced residential segregation due to redlining housing policies. Previous studies have revealed that current and historical mortgage lending biases are linked to numerous health risks and outcomes.”* Additional environmental exposures, like



extreme heat, further complicate the quest for health equity in these areas.

Additional results of the study showed that heat variability increased throughout the day, with the highest temperatures and largest variation in temperature occurring in the evening hours. This variation is particularly distinct at night, because heat absorbed during daytime is slowly released to the environment throughout nighttime. More detail can be found in the Omaha Heat Campaign Report, found [here](#).

Results of this project are the first step to better understanding temperature distribution in Omaha. As extreme heat exposure poses a risk to human health, this study can be utilized to make informed decisions to reduce such risks, including adding valuable information to Omaha’s future climate action plan.

This project was led by Dr. Jesse Bell and PhD student Abdoulaziz Abdoulaye. It was funded by NOAA, NIHHIS and the Claire M. Hubbard Foundation. Partner organizations include the National Weather Service, UNMC Youth Enjoy Science (YES) research education program and The Simple Foundation.

## *AltEn Study Group Provides Update on Contamination: Results Show Improvement Though Concerns Remain*

- Article by Meghan Langel

In late January, the AltEn Health Study Group held a town hall meeting in Mead, NE to share updates from their ongoing investigation into the environmental contamination from the AltEn ethanol plant. In 2015, the plant began manufacturing ethanol using pesticide treated seed corn. This practice resulted in the creation of wastewater and solid residue byproduct (wetcake) highly contaminated with neonicotinoid insecticides and fungicides. The plant operated until 2021 when the Nebraska Department of Environment and Energy ordered AltEn to stop production. The focus of the ongoing investigation is determining the extent of environmental contamination in the area, and possible impacts on humans, animals and ecosystems.

The AltEn Health Study Group includes researchers from UNMC, UNL, Creighton University, the Three Rivers Public Health Department, and WCHP team members Eleanor Rogan and Jesse Bell.

While encouraging results show pesticide concentrations in surface water are declining, and local bee populations are increasing steadily after being decimated during 2020 and 2021, there remains extensive contamination in the environment and multiple insect and animal species. A sample of homes near AltEn showed detectable neonicotinoid levels on surfaces inside the home as well as in the air inside and outside the home. In contrast,

similar test homes in other communities showed none or negligible levels. Although the levels found in the homes in Mead are below what the Environmental Protection Agency would consider “*concerning*”, Eleanor Rogan points out, “*the presence of neonicotinoids in the air shows that dust from the waste is still contaminating the surrounding area.*”

Though this update provided helpful information, questions remain for the community. First, it is currently unknown whether long term exposure to a low level of neonicotinoids is harmful to humans. To track long term health consequences of exposure to these contaminants, the study team is setting up a medical registry for community members.

Second, residents remain concerned about the plan for removal of the wetcake byproduct from AltEn’s facility. The piles of solid residue have been sprayed with a concrete-type product to seal in dust, but the concrete seal has cracks and holes in it and there is currently no known process for permanently cleaning up the residue.

*“The medical registry will be very important in the coming years. It is also important to learn more about the environmental contamination and the continuing level of contamination in buildings in the surrounding area,”* says Rogan, explaining future directions for the project.

To learn more:

- [FAQ](#)
- [AltEn Health Study Group website](#)

**If you have questions**, please contact Eleanor Rogan at [egrogan@unmc.edu](mailto:egrogan@unmc.edu).



## *Program Funds Water Quality Curriculum Project for Nebraska Schoolchildren*

- Article by Meghan Langel

In 2022, the Water, Climate and Health Program awarded \$110,000 to the University of Nebraska Lincoln College of Education for the development of school curriculum designed to teach children about water quality. The inquiry-based, interdisciplinary curriculum, “Protecting Nebraska’s Waters”, was first initiated by the Nebraska Department of Education with funding from National Geographic. Intended to combine science with social studies, the curriculum involves water sampling, testing, and data analysis. Additionally, students examine environmental law, relevant news stories, and practice civic skills that encourage active citizenship. Funding from the WCHP has extended the life of the project, allowing for more extensive curricular development and paid teacher training opportunities.

Project leads, Taylor Hamblin, PhD candidate, and Elizabeth Lewis, PhD, both of UNL, and a group of Nebraska educators served as the curriculum development team, conducting extensive revision and expansion of the original curriculum over this past summer. *“The team includes teachers from rural and urban areas from across the different regions of Nebraska. In addition, the team includes teachers of color, Indigenous teachers, women and men, and an age group ranging from 23 to 53,”* Hamblin writes of his intention to create an inclusive team. These same teachers participated in a paid pilot program this summer, providing extensive feedback to the project leads, which will be incorporated as the curriculum continues to be refined.

The two-year project, only six months underway, has lofty plans for the future. The next step involves extended teacher recruitment and

**“The insights I have gained will contribute to scholarly conversations around what and how we should teach.”**

- Taylor Hamblin,  
PhD candidate

training and the creation of additional lesson guides and other support resources. In addition, Hamblin readily embraces unanticipated opportunities as they arise. He writes, *“Lincoln Northeast High School is working towards becoming a magnet for Food, Energy, Water, and Sustainability Systems. In partnership with the school we are working towards using Protecting Nebraska Waters as a framework for the interdisciplinary curriculum that will be taught in the program.”* Hamblin is confident in the importance of this project, writing *“The insights I have gained will contribute to scholarly conversations around what and how we should teach.”*

To learn more about this project, please contact Taylor Hamblin at:

[taylor.hamblin@huskers.unl.edu](mailto:taylor.hamblin@huskers.unl.edu)

This project will be featured in the Water, Climate and Health Research Seminar Series on **March 14<sup>th</sup> at 12:00 CST.**

[Register here](#)

## Program Team Members Author Midwest Brief for International Climate Change Report

- Article by Meghan Langel

“Climate change is harming the health of residents in the Midwest,” write Jesse Bell and Rachel Lookadoo in the 2022 Midwest Brief for the annual *Lancet Countdown: Tracking Progress on Health and Climate Change*. Bell and Lookadoo, Water, Climate and Health Program Executive Director and Director of Public Health Policy, respectively, authored this year’s Midwest Report. The duo has been involved for several years in the production of this distinguished, international publication, even writing a [case study](#) on the 2019 Nebraska floods for the report in 2020.

in which climate change impacts health, such as worsening climate-sensitive hazards particularly salient to the Midwest, including drought, flooding, and heat. Bell and Lookadoo also detail opinions toward climate change, citing 70% support for climate policies throughout the Midwest region and a majority belief that Congress and local government need to do more on climate change. Further, the report credits individual state efforts to decarbonize and build climate resilience, citing the decision by Nebraska’s own Omaha Public Power District to reach net zero carbon by 2050.

The 2022 Midwest Brief describes the pathways

[Read the full Midwest Brief, 2022 Lancet Countdown](#)

### Featured Publication

*“Role of social determinants of health in differential respiratory exposure and health outcomes among children”*

- Article by Jesse Bell

Asthma affects 10.5% of the pediatric population in the United States. Environmental factors (such as air pollution, pollen, etc.) can trigger asthma exacerbations. Marginalized communities that are influenced by social vulnerabilities (such as poverty and discrimination) are often associated with higher exposure to air pollution and higher rates of asthma.

We studied the role of social determinants of health as a predictor to exposure to air pollution and asthma outcomes among children in Douglas County, Nebraska.

Our results found that socioeconomic factors and race influence rates of pediatric asthma emergency department visits in Douglas County. We also identified that a neighborhood’s racial demographics, financial stability, and level of literacy had a significant positive association in the mean annual exposure to air pollution. Based on our results, Non-Hispanic Black and Hispanic/Latino children living in Douglas County had disproportionately more exposure to air pollution than other children. In addition, Non-Hispanic Black children had higher rates of asthma due to reduced access to respiratory care and indicators of poverty. These results will hopefully inform city planners and health care providers to mitigate respiratory risks among these higher at-risk populations.

*Puvvula, J., Poole, J. A., Gwon, Y., Rogan, E. G., & Bell, J. E. (2023). Role of social determinants of health in differential respiratory exposure and health outcomes among children. BMC Public Health, 23(1), 1-11.*

[View Full Text](#)



## Our New Staff Members

We now have over 20 faculty, staff and students associated with the program!



**Rachael Birn, MPH**



**Summer Woolsey, MPH**

### **Epidemiologist, Nebraska Tracking Program:**

Rachael Birn is a graduate from the Council of State and Territorial Epidemiologists (CSTE) Applied Epidemiology Fellowship and holds an MPH in Epidemiology from University of South Florida. She developed a passion to serve the public as a Registered Dental Hygienist and transitioned to public health to make a greater impact. Her CSTE fellowship with the Nebraska Department of Health and Human Services focused on infectious diseases at the human-animal-environmental interface.

### **Communications & Outreach Coordinator, Nebraska Tracking Program:**

Summer Woolsey holds a BA in History and Anthropology from the University of Texas at Austin and a master's degree in Public Health with a concentration in Health Promotion from UNMC. She has worked in both public health research and communications roles and is interested in health communication, health equity, and health promotion.



## Student Corner

### *Program Adds More Medical Students to the Team*

A new cohort of medical students have been accepted to the “Climate and Health” Enhanced Medical Education Track (EMET), one of several competitive training tracks offered by the University of Nebraska Medical Center’s (UNMC) College of Medicine (COM) to provide specialized training in an interdisciplinary field of medicine. The climate and health EMET, new in 2021, is co-directed by Dr. Jesse Bell and Dr. Ellen Kerns, faculty in the UNMC COM.

Meet our new EMET students!

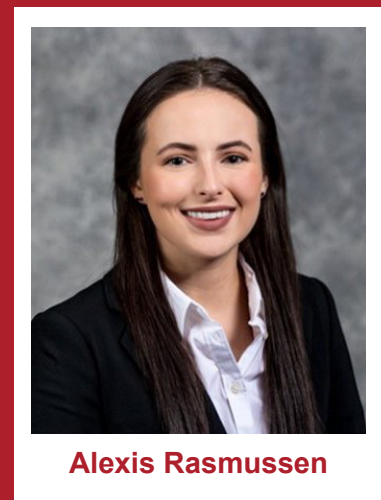
#### **Denise Torres, BS:**

Denise Torres is a first-year medical student at UNMC College of Medicine. She is originally from the Philippines, and grew up in Maui, Hawaii prior to obtaining a B.S. in Neuroscience at Creighton University. She is involved in the Climate Change and Health Enhanced Medical Education Track (EMET) program to understand and prepare for the impacts of climate change on health.



#### **Alexis Rasmussen, BS:**

Alexis Rasmussen is an Omaha native and received her Bachelor’s degree in Nutrition and Dietetics from South Dakota State University. She is currently a first-year medical student with an interest in exploring how the effects of climate change will impact the health of future patients through the College of Medicine’s Enhanced Medical Education Track.



## *Publications*

Abadi, A. M., **Gwon, Y.**, Gribble, M. O., Berman, J. D., Bilotta, R., Hobbins, M., & **Bell, J. E.** (2022). Drought and all-cause mortality in Nebraska from 1980 to 2014: Time-series analyses by age, sex, race, urbanicity and drought severity. *Science of The Total Environment*, 840, 156660. DOI: [10.1016/j.scitotenv.2022.156660](https://doi.org/10.1016/j.scitotenv.2022.156660).

Hass AL, McCanless K, Cooper W, Ellis K, Furhmann C, **Kintziger KW**, Sugg M, Runkle J. Heat exposure misclassification: Do current methods of classifying diurnal range in individually experienced temperatures and heat indices accurately reflect personal exposure? *Int J Biometeorology* 2022; 66(7): 1339-1348. DOI: [10.1007/s00484-022-02280-8](https://doi.org/10.1007/s00484-022-02280-8).

Joseph, N., Libunao, T., Herrmann, E., Bartelt-Hunt, S., Propper, C. R., **Bell, J.**, & Kolok, A. S. (2022). Chemical Toxicants in Water: A GeoHealth perspective in the context of Climate Change. *GeoHealth*, 6(8), e2022GH000675. DOI: [10.1029/2022GH000675](https://doi.org/10.1029/2022GH000675).

**Kintziger KW** & Horney JA. Impacts of the COVID-19 Response on the Academic Public Health Workforce. In: *COVID-19, Frontline Responders and Mental Health: A Playbook for Delivering Resilient Public Health Systems Post-Pandemic*. Horney JA (editor). 1st edition, Bingley, United Kingdom, Emerald Publishing Limited, 2023; 177-198. <https://doi.org/10.1108/978-1-80262-115-020231012>.

Park, J.H., Lee, E., Fechter-Leggett, E.D., Williams, E., Yadav, S., Bakshi, A., Ebelt, S., **Bell, J.E.**, Strosnider, H. and Chew, G.L., 2022. Associations of Emergency Department Visits for Asthma with Precipitation and Temperature on Thunderstorm Days: A Time-Series Analysis of Data from Louisiana, USA, 2010–2012. *Environmental Health Perspectives*, 130(8), p.087003. DOI: [10.1289/EHP10440](https://doi.org/10.1289/EHP10440).

Puvvula, J., Abadi, A. M., Conlon, K. C., Rennie, J. J., Herring, S. C., Thie, L., ... & **Bell, J. E.** (2022). Estimating the Burden of Heat-Related Illness Morbidity Attributable to Anthropogenic Climate Change in North Carolina. *GeoHealth*, 6(11), e2022GH000636. DOI: [10.1029/2022GH000636](https://doi.org/10.1029/2022GH000636).

Puvvula, J., Abadi, A. M., Conlon, K. C., Rennie, J. J., Jones, H., & **Bell, J. E.** (2022). Evaluating the sensitivity of heat wave definitions among North Carolina physiographic regions. *International journal of environmental research and public health*, 19(16), 10108. DOI: [10.20944/preprints202207.0260.v1](https://doi.org/10.20944/preprints202207.0260.v1).

Puvvula, J., Poole, J. A., Gonzalez, S., **Rogan, E. G.**, **Gwon, Y.**, Rorie, A. C., ... & **Bell, J. E.** (2022). Joint association between ambient air pollutant mixture and pediatric asthma exacerbations. *Environmental Epidemiology*, 6(5), e225. DOI: [10.1097/EE9.0000000000000225](https://doi.org/10.1097/EE9.0000000000000225).

Puvvula, J., Poole, J. A., **Gwon, Y.**, **Rogan, E. G.**, & **Bell, J. E.** (2023). Role of social determinants of health in differential respiratory exposure and health outcomes among children. *BMC Public Health*, 23(1), 1-11. <https://doi.org/10.1186/s12889-022-14964-2>.

Rau, A., Abadi, A., Fiecas, M. B., **Gwon, Y., Bell, J. E.**, & Berman, J. D. (2023). Nationwide assessment of ambient monthly fine particulate matter (PM<sub>2.5</sub>) and the associations with total, cardiovascular and respiratory mortality in the United States. *Environmental Research: Health*, 1(2), 025001. DOI: [10.1088/2752-5309/ac9b7e](https://doi.org/10.1088/2752-5309/ac9b7e).

Scales SE\*, Patrick E, Stone KW, **Kintziger KW**, Jagger MA, Horney JA. Lessons learned from the public health workforce's experience with the COVID-19 response. *Health Secur* 2022; 20(5): 387-393. DOI: [10.1089/hs.2022.0091](https://doi.org/10.1089/hs.2022.0091).

## *Helpful Resources*

**Nitrate and Health Video:** [Nitrate and Human Health - Nebraska WAVES - YouTube](#)

**Water and Health Fact Sheet:** [Water and Health Fact Sheet \(unmc.edu\)](#)

**Nebraska Reverse Osmosis Rebate Program:** [RO Funding Flyer \(unmc.edu\)](#)



## Presentations

- **Kristina Kintziger** participated on a panel presentation on “The State of Indigenous Peoples’ Sovereignty & Environmental Justice” at the 2022 Indigenous Peoples Summit, Omaha, Nebraska (August 9, 2022).
- **Jesse Bell** presented on “Climate Change and Health” to the University of Colorado (September 12, 2022).
- **Jesse Bell** presented on “Climate Change and Health” to the University of Iowa Department of Engineering (September 12, 2022).
- **Jesse Bell** presented on “the Relationship Between Climate Change and Health” to the University of Miami (September 28, 2022).
- **Jesse Bell** presented on “Water, Climate and Health” at the EPA Region 7 Climate and Health Meeting in Kansas City (September 15-16).
- **Jesse Bell** presented on “Climate Change and Human Health” at the Youth Climate Summit in Lincoln, Nebraska (October 7, 2022).
- **Jesse Bell** participated on a panel titled “Climate, Health, Extreme Events and Compounding Disasters” at the Keystone Symposia in collaboration with Columbia University (October 12, 2022).
- **Jesse Bell** presented on “Drought and Health” and the Drought and Health Workshop Drought Early Warning System (DEWS) Partner Meeting in Omaha, NE (October 13-14, 2022).
- **Kristina Kintziger** presented on “Climate Change and Human Health in Nebraska” at the Nebraska Environmental Health Association Annual Meeting, Ashland, Nebraska (October 19, 2022).
- **Jesse Bell** presented on “Drought and Health” at Pacific Northwest Drought and Health Meeting in Portland, OR (October 19-20, 2022).
- **Jesse Bell** presented on “Water, Climate and Health Program” at the Nebraska Water Center Platte River Conference (October 25, 2022).
- **Rachel Lookadoo** presented on “Climate Communications and Policy” for Nebraska Cures (November 3, 2022).
- **Jesse Bell** presented on “Lancet Countdown on Human Health and Climate Change: Policy Brief for the United States” at the Midwest Rural Agricultural Safety and Health Conference in Cedar Rapids, IA (November 16-17, 2022).

- **Jesse Bell** participated in a panel presentation on the “Well-being of Nebraskans and Conservation of Our Resources” at the University of Nebraska Sustainability Summit in Lincoln, NE (November 21, 2022).
- **Jesse Bell** and **Siddhi Munde** were authors on a poster titled, “An Evaluation of Drought Climatologies from Commonly Used Drought Indicators” presented at the AGU Fall Meeting in Chicago, IL (December 2022).
- **Siddhi Munde, Babak Fard, Yeongjin Gwon** and **Jesse Bell** were authors on a poster titled, “Association Between Drought Exposure and Risk of Suicide in the United States from 2000 to 2018” presented at the AGU Fall Meeting in Chicago, IL (December 2022).
- **Babak Fard, Morgan Penry, El Kerns,** and **Jesse Bell** were authors on a poster titled “The Effect of Drought on Heat-Related Mortalities During 2000-2018 in the Conterminous United States”, presented at the AGU Fall Meeting in Chicago, IL (December 2022).
- **Babak Fard** presented on “CliMedBERT: A Pre-trained Language Model for Climate and Health-related Text” at the NeurIPS 2022 Workshop on Tackling Climate Change with Machine Learning (Nov 29 - Dec 1, 2022).
- **Jesse Bell** presented on “Identifying, Quantifying and Addressing Risks of Water Quality Contamination in Nebraska” at the Farmer’s Union Meeting (December 1, 2022).
- **Jesse Bell** presented on “Advancing Drought Science and Preparedness Across the Nation: A Focus on Public Health” at the AGU Annual Meeting in Chicago, IL (December 12, 2022).
- **Kristina Kintziger** presented on “Understanding urban heat island vulnerabilities to build adaptive capacity among vulnerable populations in a southeastern city” at the 103rd American Meteorological Society Annual Meeting in Denver, CO (January 8 – 12, 2023).
- **Eleanor Rogan** and **Jesse Bell** presented on “AltEn research study results” to the community of Mead, NE in a town hall meeting (January 30, 2023).

# WELLHEAD PROTECTION NETWORK MEETING

MARCH 31, 2023



Join us from 10am-3pm in York, NE!

Address: 319 E 25th St, York, NE 68467

FREE TO ATTEND

## Agenda

- 10am-12:30 pm: Morning Speakers  
Dan Leininger and Erinn Wilkins (History of Wellhead Protection in York, NE and Project Grow)  
Brandon Osentowski (City Involvement)  
Caro Córdova (Soil Health)  
Laura Nagengast (Water Quality and Health)
- 12:30pm-1:30pm: Lunch
- 1:30pm-3pm: Tour Project Grow

**Register here:**



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