



Patel and Habib Win ND RURAL WATER AWARDS

By Julie Hein, NDRW Source Water Specialist

Each year North Dakota Rural Water Systems Association gives out awards for the best science fair projects dealing with water or wastewater at regional science fairs across the state. This year, two students have received these cash awards.

Hankinson High School student Allison Habib competed in the spring 2021 Southeast Regional Science Fair in Fargo. Her project, “A Chemical Analysis of Surface Waters,” was conducted at lakes and rivers in eastern North Dakota and western Minnesota. The purpose of her project was two-fold: to analyze the nitrate, phosphate and dissolved oxygen levels of lakes and rivers; and to use duckweed and cyanobacteria to determine which chemicals, if any, affected the growth of these organisms in each of the surface waters. Habib concluded that “the less excess fertilizer and products in our waters that algae will grow at slower rates and this in turn keeps the dissolved oxygen at acceptable levels.”

Grand Forks Red River student Shrimayi Patel competed with her project, “Design of Novel Scaffolds for Water Filtration by using Benign and Agriculture Based Precursors,” at the Northeast Regional Science Fair in Grand Forks. Patel proposed that dried distiller’s grain with solubles (DDGS) could be used to create filtration devices for water. She set out to create a sustainable and cost-effective way to filter water. By creating porous scaffolds composed of these pyrolyzed agricultural materials, she determined that they had hydrophilic and hydrophobic properties. The hydrophobic samples can be utilized for oil spill clean-up. And due to the hydrophilic properties, those samples can be used for water filtration. She concluded that “these discoveries are imperative to preventing the growing needs of society from risking harming the environment further.”

Science fair participation is an exceptional way for students to engage in active learning and develop sufficient science literacy. Students can take their natural curiosity and advance their understanding in a given area through research. The science fair program facilitates skills that are essential in preparation for undergraduate and graduate degrees, including academic writing, verbal, written and public communication, and problem-solving skills. Students gain confidence and crucial presentation skills and are able to network with their peers who, like Habib and Patel, share similar interests. Besides giving students opportunities to earn significant prizes or qualify for scholarships and advancement, science fair is fun!



Allison Habib



Shrimayi Patel

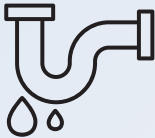
The Top 10 Challenges Water Systems are Facing

By Ward Heidbreder, NDRWSA Circuit Rider

Aging infrastructure and technology are having impacts on the operational stability and sustainability of North Dakota's drinking water systems. Here is a list of the top 10 challenges public water systems are facing:

Renewal and Replacement of Aging Water Infrastructure

Many public water systems in North Dakota were built in the 1950s and 1960s, making them 60 to 70-plus years old. This aging infrastructure is susceptible to water main breaks, causing water outages and repair expenses to the water system. Efforts have and are being made to update water mains as funding becomes available.



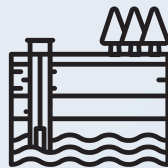
Long-Term Water Supply

Water supply has been a critical issue throughout North Dakota's history. Water quality and quantity issues have been faced repeatedly by many areas of the state. Surface water rules and ground water quality have largely been addressed by the development and expansion of rural water systems across the state. Larger community water systems have also expanded their water resources to supply their own communities and neighbors.



Ground Water Management

Ground water has long been the backbone of water supply in our region. However, agricultural and industrial practices happening on the surface may have an impact on the quality and quantity of the water available in our aquifers. Advancements in soil science and environmental stewardship are finding methods of runoff management to maintain our ground water resources.



Compliance with Current and Future Regulations

Public water systems must meet regulations enforced by the North Dakota Department of Environmental Quality and the Environment Protection Agency. Proactive contaminant management and testing are creating opportunities to better manage contaminants and resolve potential problems before they occur.



Asset Management

Understanding a water system's age, how it's maintained and allocating funds for improvements help a water system run more effectively. Development of asset management plans leads to fiscal and operational sustainability for our public water systems.



Financial Assistance for Capital Improvements

Many public water systems can't make improvements without outside funding. Systems are hesitant to raise water rates, and grants and funding opportunities can be scarce. Current discussions among our nation's leaders may provide financing for critical infrastructure improvements.



Source Water Protection

Our public water systems are making great strides in protecting our water resources, like water wells, rivers and lakes from potential contamination. Well-written and implemented source water protection plans are essential to protection our public water supplies.



Emergency Preparedness

The America's Water Infrastructure Act was signed into law in 2018. The law requires public water systems to implement a Risk and Resilience Assessment and Emergency Response Plan. These plans help public water systems understand where risks lie and how to prepare for the unexpected.



Water Conservation

As our state is impacted by drought, water conservation has become a common topic for discussion. Water supply plans evaluate conservation efforts while determining where efficiencies should be developed.



Expanding Water Reuse

Reusing nontraditional sources of water like stormwater and treated wastewater effluent can be used to offset irrigation needs. Water reuse helps reduce the impacts on public water systems treatment and distribution capacity.

