



2024 ND WATER QUALITY MONITORING CONFERENCE

Water Quality Impacts in a Changing Landscape

March 11-13, 2024

Bismarck State College
National Energy Center of Excellence
Bavendick State Room
1200 Schafer Street
Bismarck, North Dakota



MONDAY, MARCH 11, 2024

12:00 pm - 1:00 pm REGISTRATION & CHECK-IN

FOYER, 4TH FLOOR
NATIONAL ENERGY CENTER OF EXCELLENCE

1:00 pm WELCOME

BAVENDICK STATEROOM

Joel Galloway, Hydrologic Studies Chief, Dakota Water Science Center, US Geological Survey

Karl Rockeman, Director, Division of Water Quality, ND Dept of Environmental Quality

Session 1 WORKING ACROSS CULTURES

MODERATOR: KARL ROCKEMAN, NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

1:20 pm

- UNDERSTANDING DIFFERENCE THROUGH MEANINGFUL ENGAGEMENT

*Jan Stankiewicz, Extension Specialist Community Health & Nutrition Agricultural Affairs
Tribal Liaison, NDSU Extension Office*

1:50 pm

- CHARACTERIZATION OF SURFACE WATER AND GROUNDWATER QUALITY ON THE FORT BERTHOLD RESERVATION, NORTH DAKOTA, 2014-17

Robert (Bob) Lundgren, Hydrologist / Tribal Coordinator, U.S. Geological Survey

4:00 pm

- CIVIL RIGHTS, ENVIRONMENTAL JUSTICE AND WATER QUALITY MONITORING

*Ann Fritz, Nondiscrimination / Environmental Justice Program Coordinator
ND Department of Environmental Quality*

2:40 pm – 3:10 pm BREAK Sponsor – North Dakota Department of Environmental Quality

Session 2 CONTAMINATES OF EMERGING CONCERN

MODERATOR: JOE NETT, NORTH DAKOTA DEPARTMENT OF WATER RESOURCES

3:10 pm

- LEAD AND COPPER MONITORING FOR DRINKING WATER

Sandy Washek, North Dakota Department of Environmental Quality

3:30 pm

- PFAS IN DRINKING WATER

Stacey Harried, North Dakota Department of Environmental Quality

- PFAS IN THE ENVIRONMENT

Shannon Suggs, North Dakota Department of Environmental Quality

4:00 pm

- FISH TISSUE MONITORING

Pete Wax, Special Projects, North Dakota Department of Environmental Quality

4:30 pm WRAP-UP

Thank you, Exhibitors!



Game and Fish



NDWRRI



NORTH
Dakota
Be Legendary.

Water Resources

TUESDAY, MARCH 12, 2024

8:00 am – 8:30 am Welcome

Session 3 HYDROLOGY AND WATER QUALITY

MODERATOR: SHANNON SUGGS, NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

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| 8:30 am | ▪ WATER QUALITY CHARACTERISTICS OF THE RED RIVER AND TRIBUTARIES IN THE FARGO-MOORHEAD AREA RELATED TO THE FLOOD MANAGEMENT PROJECT
<i>Spencer Wheeling, U.S. Geological Survey</i> |
| 9:00 am | ▪ GROUNDWATER RECHARGE TO COLD REGION SHALLOW UNCONFINED AQUIFER USING PROCESS-BASED MODELS
<i>Hesham Mahmud, University of North Dakota</i> |
| 9:30 am | ▪ SPIRITWOOD HYPOLIMNETIC DRAWDOWN SYSTEM
<i>Jim Collins, Clearwater Communications</i> |

10:00 am – 10:30 am BREAK Sponsor – UND College of Engineering and Mines

Session 4 COMMUNICATION & EDUCATION

MODERATOR: EMILY JOYNT, NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

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| 10:30 am | ▪ THE MAGIC OF CITIZEN SCIENCE (VIRTUAL)
<i>Madison Eklund, Expedition Alpine</i> |
| 10:50 am | ▪ RIVERWATCH-MONTPELIER, STUDENT PRESENTATIONS AND OVERVIEW
<i>Ellen Fehr, Cecelia Bear, Cheyenne Bowen, Jacob Lusby, Locklynn Steele & Mylee Widmer; Riverwatch-Montpelier</i> |
| 11:10 am | ▪ THE MAKING OF COMMON GROUND: A PRAIRIE PODCAST. STORIES AND INTERVIEWS WITH THE FOLKS LEADING HANDS-ON CONSERVATION EFFORTS THROUGHOUT NORTH DAKOTA AND THE BROADER GREAT PLAINS
<i>Josh Anderson, Three Rivers SCD</i> |

11:30 am – 12:00 pm Exhibitors & Posters

12:00 pm – 2:00 pm Luncheon & Keynote
Communicating Science - Sheril Kirshenbaum, Michigan State University

Session 5 LONG TERM MONITORING AND TRENDS

MODERATOR: ALYSSA SCHIWAL, NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

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| 2:00 pm | ▪ NORTH DAKOTA SURFACE WATER AMBIENT MONITORING NETWORK
<i>Mickey Schick, North Dakota Department of Environmental Quality</i> |
| 2:20 pm | ▪ NDDEQ GROUNDWATER AMBIENT MONITORING PROGRAM
<i>Casey Gleich, North Dakota Department of Environmental Quality</i>
<i>Ryan Kritzberger, North Dakota Department of Environmental Quality</i> |
| 2:40 pm | ▪ COMPREHENSIVE WATER QUALITY TREND ANALYSIS FOR SOURIS RIVER BASIN
<i>Rochelle Nustad, U.S. Geological Survey</i> |

TUESDAY, MARCH 12, 2024 *(continued)*

3:00 pm – 3:30 pm **BREAK** *Sponsor – Barr Engineering*

Session 6 DATA INNOVATIONS

MODERATOR: ROCHELLE NUSTAD, U.S. GEOLOGICAL SURVEY

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| 3:30 pm | ▪ USING PREDICTIVE MODELS FOR HARMFUL ALGAL BLOOMS: INTEGRATING CYANOBACTERIA DATA WITH METEOROLOGICAL AND WATER QUALITY INDICATORS IN DEVIL'S LAKE, NORTH DAKOTA
<i>Devarshi Patel, University of North Dakota</i> |
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| 3:50 pm | ▪ USING A.I. TO HELP WITH GIS DATA QUERY
<i>Tanner Woutat, North Dakota Department of Environmental Quality</i> |
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| 4:10 pm | ▪ DEVELOPMENT AND COMPARATIVE EVALUATION OF DATA LEARNING MODELS FOR PREDICTING RAINFALL-RUNOFF USING BORUTA-EXTREME GRADIENT BOOSTING
<i>Arvin Samadi-Koucheksaraee, North Dakota State University</i> |
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| 4:30 | ▪ REMOTELY CONTROLLED DRIP IRRIGATION FOR TOMATO AND PEPPER PRODUCTIONS INSIDE AND OUTSIDE A HIGH TUNNEL IN NORTH DAKOTA
<i>Sai Sri Sravya Vishnumolakala, North Dakota State University</i> |
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Thank you, Conference Partners!



UND UNIVERSITY OF
NORTH DAKOTA

College of Engineering & Mines

Wednesday, March 13, 2024

8:00 am – 8:40 am **Total Phosphorus Target Load for the Red River at Emerson:**

Morning Plenary **Where's the Historical Perspective?**

Scott Korom, UND College of Engineering & Mines

Session 7 **HARMFUL ALGAL BLOOMS (HABs)**

MODERATOR: SCOTT KOROM, UND COLLEGE OF ENGINEERING & MINES

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| 8:40 am | ▪ HABs ASSESSMENT OF BOWMAN-HALEY RESERVOIR
<i>Joel Galloway, U.S. Geological Survey</i> |
| 9:10 am | ▪ HABs MONITORING PAST, PRESENT, AND FUTURE
<i>Brian Houle, North Dakota Department of Environmental Quality</i> |
| 9:40 am | ▪ DETECTION OF CHLOROPHYLL REGIONS TO TRACK HARMFUL ALGAL BLOOMS (HABs) IN DEVILS LAKE, ND.
<i>Devarshi Patel, University of North Dakota</i> |

10:10 am – 10:30 am **BREAK** *Sponsor – North Dakota Water Resources*

Session 8 **WETLANDS**

MODERATOR: AARON LARSON, NORTH DAKOTA GAME AND FISH

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| 10:30 am | ▪ EVALUATION OF THE IMPACTS OF WETLANDS ON HYDROLOGIC PROCESSES AND NUTRIENT LOADING BASED ON WETLAND DELINEATION AND RESTORATION
<i>Tiansong Qi, North Dakota State University</i>
<i>Mosammat Khanaum, North Dakota State University</i> |
| 10:50 am | ▪ DETERMINING THE AREA OF CONSTRUCTED WETLANDS NEEDED TO SIGNIFICANTLY IMPROVE WATER QUALITY IN IMPAIRED RED RIVER VALLEY WATERSHEDS
<i>Kyle Boutin, North Dakota State University</i> |
| 11:10 am | ▪ DETECTING REGIME SHIFTS: UNCOVERING UNIQUE RELATIONSHIPS BETWEEN WETLAND SURFACE AREA AND COMMUNITY DYNAMICS
<i>Julia Hampton, University of North Dakota</i> |
| 11:30 | ▪ WATERFOWL PRODUCTION AND HABITAT QUALITY OF DUCKS UNLIMITED'S WORKING LANDS PROGRAMS
<i>Kyle Kuechle, Ducks Unlimited</i> |

CONFERENCE END