



**ASRS**

**AMERICAN SOCIETY OF  
RECLAMATION SCIENCES**

**39TH ANNUAL CONFERENCE PROGRAM**  
**TRANSFORMING PITS AND PILES INTO**  
**LAKES AND LANDSCAPES**  
**June 12 - 16, 2022 | Duluth, MN**

# ASRS 2022 Conference Program



## June 12 - 16, 2022 Transforming Pits and Piles into Lakes and Landscapes Duluth, MN

The 39<sup>th</sup> Annual Meeting of the American Society of Reclamation Sciences (ASRS) is June 12-16, 2022, in Duluth, MN. This conference will focus on the research, technical, and regulatory issues associated with the land and water implications of anthropogenic land disturbances. It will provide a forum for the dissemination of information through presentation of research findings, field tours, and open discussion of public policy relating to the applied science of reclamation, rehabilitation, remediation, and restoration of areas disturbed by mining, oil and gas, conventional and alternative energy production, contaminated sites, agriculture, road construction, large-scale commercial development, and other disturbances to land and water resources.

### ASRS National Meeting Safety Protocols

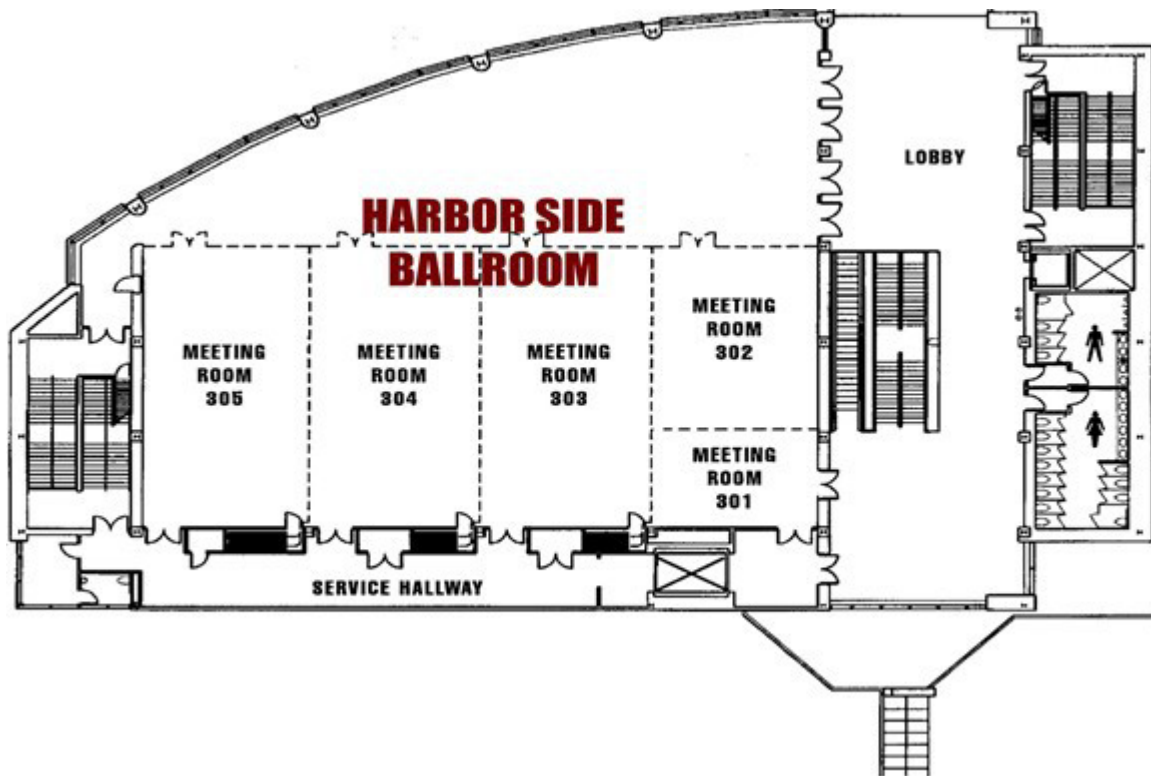
COVID-19 and its variants continue to add uncertainty to travel and public gatherings, which complicates safely and successfully conducting an in-person meeting this year. The ASRS leadership, the National Executive Committee (NEC) has approved moving forward with our Annual Meeting as scheduled. While we are excited to be able to gather in-person this year, we want to emphasize that the health and safety of our attendees is paramount. Consequently, in addition to following all US CDC guidelines and locally mandated safety protocols, we will require attendees to wear a mask and show proof of vaccination, a card, or a photo of your card, at the registration desk. Also, please consider getting a booster in addition to your basic vaccinations. We will continue to track local and federal policies in making determinations for requirements because the COVID situation is fluid. We will continue to update you. In the meantime, please stay safe. We look forward to seeing you in Duluth.



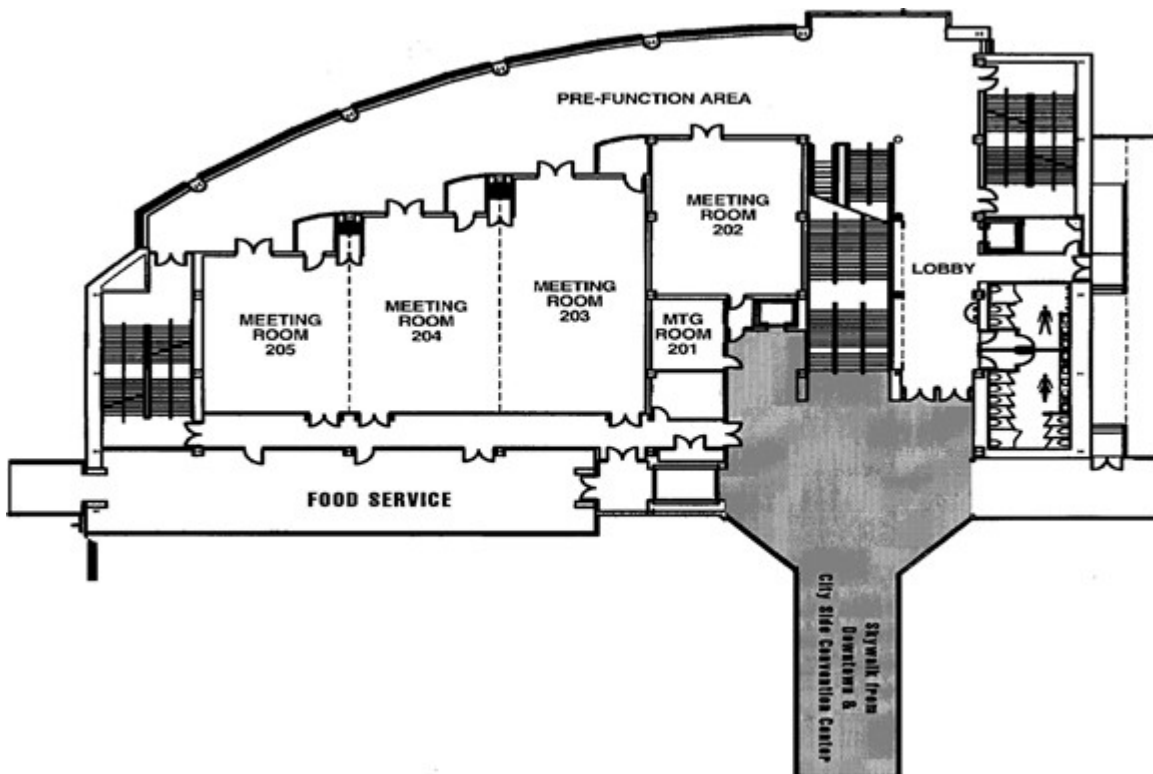
### Conference Partner: Midwest Great Lakes Society of Ecological Restoration



# HARBOR SIDE CONVENTION CENTER - 3RD FLOOR



# HARBOR SIDE CONVENTION CENTER - 2ND FLOOR / SKYWALK



# Meeting Financial Sponsors / Exhibitors

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## EARLY CAREER PROFESSIONAL EVENT



Anonymous



COLLEGE OF  
AGRICULTURE AND  
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VIRGINIA TECH.

Virginia Tech College of Agriculture & Life Sciences

## STUDENT BREAKFAST - WILD WOMEN of RECLAMATION BREAKFAST



Navajo Transitional Energy Co.



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# Special Thanks to Our Exhibitors

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Minnesota Department of  
Iron Range Resources  
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Minnesota Native Landscapes

Reclamation Sciences Journal

**RECLAMATION  
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**Driven to Discover™**



On behalf of the ASRS Duluth 2022 National Meeting Local Planning Committee and the ASRS NEC we want to thank our sponsors and exhibitors for their support, as well as our meeting attendees in Duluth for their continued confidence and faithfulness. After being compelled to cancel our last two scheduled meetings in these trying COVID times, it is gratifying to know that the show can go on.

We hope to see everybody again in beautiful Boise, Idaho for our 40<sup>th</sup> Annual National Meeting next year.

**A Special Thanks to Our Conference Planning Committee**

<p><b>CONFERENCE PLANNING COMMITTEE</b>  Mehgan Blair, 2022 Conference Chair, Barr Engineering  Linda Johnson, Conference Co-Chair, MN Dept. Iron Range Resources &amp; Rehabilitation  Dr. Robert Darmody, ASRS Executive Director  Michele Coleman, ASRS President-Elect  Dustin Wasley, ASRS Past President/Haley &amp; Aldrich  Chris Lenhart, Midwest-Great Lakes SER President  Amy Blyth, Trihydro Corporation  Kennet Bertelsen, Morrison-Maierle  Doug Learmont, Midland Research Center</p>	<p><b>TECHNICAL PROGRAM COMMITTEE</b>  Julie LaBar, Centenary University  Kenton Sena, University of Kentucky  Gwen Geidel, University of South Carolina</p> <p><b>FIELD TRIP COMMITTEE</b>  Marsha Patelke, University of MN, Duluth  Paul Eger, Global Minerals Engineering  Paula Giryn Lillesve, Hibbing Taconite Co.  Rory Olberhelman, PolyMet Mining</p>
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**PROFESSIONAL FIELD TOUR INFORMATION**

**Sunday, June 12 – Taconite Tour (Full Day)**

**8:00 a.m. – 4:00 p.m.**

- 8:00 Board bus and travel to the newly renovated Hibbing Mine View about 75 miles north of Duluth.
- 9:30 Arrive at Mine View for a geology/mining background on the Iron Range and a reclamation overview.
- 10:45 Arrive at Department of Natural Resources Reclamation Research laboratory and field demonstration areas and the Drill Core Repository.
- 11:45 Arrive at MN Discovery Center for lunch at the Pavilion and a discussion of the development of the Redhead Mountain Bike Facility.
- 12:45 Tour Redhead trails and/or the mining museum.
- 2:30 Depart for Duluth.





### Wednesday, June 15 - 2:00 - 4:00 p. m. - Duluth Stream Restoration

- 2:00 Board bus and travel to Chester Bowl.
- 2:10 Chester Bowl highlights dam removal and restoration using Natural Channel Design methods.
- 2:45 Arrive at Tischer Creek at Glen Avon Hockey Arena – Trout stream restoration using Natural Channel Design.
- 3:20 Arrive at Keene Creek – Recent restoration and hydrology tracer study.
- 3:45 Depart for Convention Center.

### Thursday, June 16 - Peat Mining and Reclamation (Full Day)

#### 8:00 a.m. - 5:00 p.m. - Professional Tour

- 8:00 Board bus for Premier Horticulture in Cromwell, about 40 miles west of Duluth.
- 9:00 Observe mining, bagging, and reclamation sites at Premier.
- 10:45 Arrive at Talon Nickel high-grade Cu/Ni + PGE deposit exploration site. Lunch in Tamarack.
- 1:00 Arrive at American Peat Technology to see peat mining and reclamation as well as innovative peat-based materials for water treatment and soil amendment applications.
- 3:30 (If time) Arrive at Jay Cooke State Park for unique geological look at the St. Louis River.
- 4:30 Depart for Convention Center.



## SUNDAY, JUNE 12, 2022 AGENDA

- All Day-----ASRS Office – Meeting Room 201
- 8:00 a.m. – 5:00 p.m.-----Exhibitor Setup – Harbor Side Ballroom Foyer
- 8:00 a.m. – 5:00 p.m.-----Registration – Harbor Side 2nd Floor Lobby
- 8:00 a.m. – 4:00 p.m. -----Taconite Tour
- 4:30 p.m. – 6:00 p.m.-----NEC Meeting – Meeting Room 202
- 5:00 p.m. – 8:00 p.m. -----Exhibitor Show – Harbor Side Ballroom Foyer
- 6:00 p.m. – 8:00 p.m.-----Welcome Reception – Harbor Side Ballroom

# MONDAY, JUNE 13, 2022 AGENDA

- 6:30 a.m. - 7:30 a.m. -----Haulin' ASRS - Meet at Hampton Inn Lobby  
The ASRS Running group meets every morning. From the Hampton Inn, run will go up to Gichi-Ode' Akiing (Lake Place Park) and get onto the Lake Walk.
- 7:30 a.m. - 8:30 a.m. -----Breakfast - Harbor Side Ballroom
- 7:30 a.m. - 5:00 p.m. -----Registration - Harbor Side 2<sup>nd</sup> Floor Lobby
- 9:00 a.m. - 5:30 p.m. -----Exhibitor Displays - Harbor Side Ballroom Foyer
- 10:00 a.m. - 6:00 p.m.-----Silent Auction opens - Meeting Room 202
- 10:00 a.m. - 12:00 noon-----Cultural Event #1 - Vista Boat Tour (~2 hours)
- 9:00 a.m. - Noon-----Plenary Session - Harbor Side Ballroom  
Mehgan Blair - Conference Chair - Welcome  
Tim Danehy - ASRS President - President's Welcome and Keynote Address  
Dr. Robert Darmody - ASRS Executive Director - Welcome & Announcements
- 10:00 a.m. - 10:30 a.m. -----Keynote Speaker- Harbor Side Ballroom  
Pete Kero - Vice President, Barr Engineering Company -  
*Mineland Reclamation on Minnesota's Iron Range: Five Generations of Innovation*
- 10:30 a.m. - 11:00 a.m. -----Break - Harbor Side Ballroom Foyer
- 11:00 a.m. - 12:00 noon-----Keynote Speakers- Harbor Side Ballroom  
Melissa Sjolund - MN Department of Natural Resources St. Louis River Restoration Initiative-  
*Remediation, Restoration, and Revitalization in the St. Louis River Area of Concern*  
Chris Lenhart - Society for Ecological Restoration Midwest-Great Lakes Chapter -  
*SER's International Principles & Standards for the Practice of Ecological Restoration*
- 12:00 noon - 2:00 p.m. -----AWARDS LUNCHEON / ASRS BUSINESS MEETING
- 2:00 p.m. - 5:30 p.m. -----Technical sessions - Harbor Side Rooms 203-205
- 6:00 p.m. - 9:00 p.m. -----Social Dinner at Pier B Waterfront Resort

## MONDAY, JUNE 13 EVENTS



### Social Event and Dinner

6:00 p.m. - 9:00 p.m.

Join us for a catered dinner and drinks on the lakefront grounds of the Pier B Resort. We'll enjoy appetizers and cocktails on the rooftop deck while the lakereiners come through the iconic Aerial Lift Bridge on their way to load with taconite pellets. The beautiful waterfront views await you.



### Vista Boat Cultural Tour

10:00 a.m. - 12:00 noon - Cultural Event #1

Enjoy Duluth's Waterfront Tour by hopping on the Vista Star!



## MONDAY, JUNE 13, TECHNICAL SESSIONS

Time	Treatment Wastes SESSION 1A Harbor Side Room 203 Moderator – William Strosnider	Vegetation: Developing Techniques SESSION 1B Harbor Side Room 204 Moderator – Chris Lenhart	Soils and Spoils SESSION 1C Harbor Side Room 205 Moderator – Kennet Bertelsen
2:00 p.m. - 2:30 p.m.	Assessing Fate and Potential Reuse of Hard Rock Mine Drainage Passive Treatment Residual Solids <b>by Justine McCann*</b>	Reducing Seed Dormancy in Southern-Adapted Native Forage Grasses <b>by Brian Baldwin</b>	Forest Soil Response Three-Years After Aerial Liming Application in West Virginia <b>by Jeff Skousen</b>
2:30 p.m. - 3:00 p.m.	Determination and Prediction of Rare Earth Element Geochemical Associations in Acid Mine Drainage Treatment Wastes <b>by Benjamin Hedin</b>	Development of Locally Adapted Native Germplasms for Commercial Use <b>by Anthony Falk</b>	Effect of Forest Reclamation Approach Practices on Soil Water Chemistry <b>by Amir Hass</b>
3:00 p.m. - 3:30 p.m.	Using "Big Science" to Evaluate Metal Removal <b>by Brandy Stewart</b>	Seed-Spec: A Native Seed Blend Development Tool <b>by Rob Cook</b>	Scram Tailings Mineland Reclamation 3-Year Case Study and Recommendations <b>by Allyz Kramer</b>
<b>3:30 P.M. - 4:00 p.m. - BREAK - Ballroom</b>			
Time	Reclamation Regulations SESSION 2A Harbor Side Room 203 Moderator - Jeff Skousen	Vegetation: Developing Techniques (Continued) SESSION 2B Harbor Side Room 204 Moderator – Zachary Rundell	Soils and Spoils (Continued) SESSION 2C Harbor Side Room 205 Moderator – Kehinde Ositemehin
4:00 p.m. - 4:30 p.m.	Enforcement of Surface Coal Mine Rules and Regulations, Case Study (Wyoming, USA) <b>by Anna Waitkus</b>	Buried Wood in Reclamation Soils: Impacts on Soil Nutrients and Tree Growth <b>by Brad Pinno</b>	Short and Long-Term Groundwater Impacts Associated with the Reclamation of Acid Water Seeping Historical Tailings in the Central and West Rand Basins, South Africa <b>by Robel Gebrekristos</b>
4:30 p.m. - 5:00 p.m.	Development of International (ISO) Standards for Mine Reclamation <b>by Lee Daniels</b>	Bamboo as a Potential Option for Land Reclamation and Restoration <b>by Apsana Kafle*</b>	Field Testing of Geomorphic Landform Design Features in Central Appalachia <b>by Iuri Lira Santos*</b>
5:00 p.m. - 5:30 p.m.	An Argument for Long-Term Care and Maintenance at Reclaimed Mine Sites <b>by Peter Werner</b>	Planning, Implementation, and Analysis of Success in Revegetating Lignite Mines in Texas <b>by Jeremiah McKinney</b>	Designing a Meaningful Baseline for Reclamation Monitoring <b>by Kevin Krogstad</b>
<b>Water TD Meeting Technology TD Meeting</b>		<b>4:30 p.m. – 5:00 p.m. Room 305 5:00 p.m. – 5:30 p.m. Room 305</b>	
<b>6:00 p.m. - 9:00 p.m. - Social Dinner at Pier B Resort</b>			

# TUESDAY, JUNE 14, 2022 AGENDA

- 6:30 a.m. - 7:30 a.m. -----Haulin' ASRS - Meet in Hampton Inn Lobby**
- 7:00 a.m. - 8:15 a.m. -----Wild Women of Reclamation – Harbor Side Room 305**  
Every woman is welcome. Previous topics: Choosing your own path, mentoring, starting a business, and juggling a career with family and community obligations. Coffee, tea, and pastries will be provided.
- 7:45 a.m. – 8:15 a.m. -----Reclamation Sciences Editorial Board Meeting, Room 202**
- 8:00 a.m. - 7:00 p.m. -----Exhibitors – Harbor Side Ballroom Foyer**
- 8:15 a.m. - 6:00 p.m. -----Silent Auction – Meeting Room 202**
- 7:30 a.m. - 5:00 p.m. -----Registration – Harbor Side 2<sup>nd</sup> Floor Lobby**
- 9:00 a.m. – 12:00 p.m. -----Cultural Event #2 Glensheen Mansion Tour**
- 8:30 a.m. - 5:30 p.m. -----Technical Presentations - Harbor Side Rooms 203-205**
- 12:00 p.m. - 1:30 p.m. -----Buffet Lunch - Guest Speaker – Prehistoric Mining - Ballroom**
- 5:30 p.m. - 7:15 p.m. -----Poster Presentations - Harbor Side 2<sup>nd</sup> Floor Pre-Function Area**
- 7:30 p.m. - 9:00 p.m. -----Film Festival – Ballroom**

## TUESDAY, JUNE 14 EVENTS

### Glensheen Mansion Tour

9:00 a.m. - 12:00 noon - Cultural Tour #2

See the gilded-age, historic Congdon Estate in detail! Transportation to Glensheen is included. Revisit the gilded age in this magnificent mansion.



### Poster Session Networking Event

5:30 p.m. - 7:15 p.m. - Harbor Side 2nd Floor Pre-Function Area

Poster presentations will be on display with authors after the technical sessions. Food and cash bar available.

### Reclamation Film Festival

7:30 p.m. - 9:00 p.m. - Ballroom

Join us for the Second Annual Reclamation Film Festival. We will bring reclamation-related topics to you in short (~2-10 minute) films highlighting exciting and intriguing reclamation projects. Awards will be presented to the best in show in Pro and Amateur/Student categories. Classic movie snacks provided.



## TUESDAY, JUNE 14, TECHNICAL SESSIONS

Time	Watershed Characterization and Restoration SESSION 3A Harbor Side Room 203 Moderator – Gwen Geidel	Partnerships in Reclamation SESSION 3B Harbor Side Room 204 Moderator – Abbey Wick	Vegetation: Diverse Perspectives SESSION 3C Harbor Side Room 205 Moderator – Christopher Barton
8:30 a.m. - 9:00 a.m.	Analyzing Floodplain Reconnection as a Restoration Method <b>by Natalie Kruse Daniels</b>	Teaching Young and Old Pups New Tricks <b>by Terry Toy</b>	A "Two-Roads Approach" Evaluation of Oil Sands Mine Closure Plans for Traditional Land Uses <b>by Christine Daly*</b>
9:00 a.m. - 9:30 a.m.	The Use of the Palmiter Method of Stream Restoration, Adapted to Protect Infrastructure, and its Effect on Streams <b>by Jonathan Viti*</b>	Keeping the Research Relevant <b>by Lee Daniels</b>	Indigenous-Led Environmental Monitoring, Trends, and Best Practices Across Canada <b>by Alexandra Post*</b>
9:30 a.m. - 10:00 a.m.	Evaluating the Water Quantity and Quality of Mine Drainage Discharges in a Hydrologically and Topographically Challenging Location <b>by Nick Shepherd*</b>	Industry Applying Multiple Minds at the Mine <b>by Sarah Flath</b>	Abundance of Lichens and Mosses on the Restored Landscape in the Nickel-Copper City of Greater Sudbury, Ontario, Canada <b>by Peter Beckett</b>
<b>10:00 - 10:30 a.m. - Break - Ballroom</b>			
Time	Watershed Characterization and Restoration (Continued) SESSION 4A Harbor Side Room 203 Moderator – Nick Shepherd	Partnerships in Reclamation (Continued) SESSION 4B Harbor Side Room 204 Moderator – Brandon Holzbauer-Schweitzer	Reforestation SESSION 4C Harbor Side Room 205 Moderator – Jennifer Franklin
10:30 a.m. - 11:00 a.m.	Spatial Variations in Trace Metal Concentrations in Stream and Reservoir Sediments Downstream of the Tri-State Mining District, USA <b>by Carlton Folz*</b>	Extension Ain't Your Grandpa's Program Anymore <b>by Abbey Wick</b>	Forest Restoration on the Exposed Sediments Along the Elwha River: Assessing Riverbank Lupine's ( <i>Lupinus rivularis</i> ) Influence on Conifer Growth, Vegetation, and Mycorrhizal Fungi <b>by Jenise Bauman</b>
11:00 a.m. - 11:30 a.m.	Evaluating Sources, Mass Loadings, and Fate of Total and Dissolved Metals to Prioritize Restoration in a Mining-Impacted Watershed <b>by Robert Nairn</b>	Urban Reforestation as Reclamation: Exploring Effects of Forest Development on Plant Community Structure, Water Quality, and Soil <b>by Kenton Sena</b>	Bringing Back the Forest: Reforestation Provides Climate Mitigation Opportunities for Mining Regions of the World <b>by Christopher Barton</b>
11:30 a.m. - 12:00 p.m.	Water Quality of Reclaimed Mountaintop Removal Valley Fill Mine Site 15 Years After Final Reclamation - An Unexpected Remedy <b>by Amir Hass</b>	Partnerships in Reclamation <b>by Abbey Wick</b>	Overcoming Arrested Succession and Invasive Species on Older Reclaimed Surface Mines <b>by Jennifer Franklin</b>
<b>Engineering and Construction TD Meeting 11:30 - 12:00 p.m. Room 305</b>			
<b>12:00 - 1:30 p.m. - LUNCH - Ballroom - Regional Prehistoric Mining Presentation</b>			

## TUESDAY, JUNE 14, TECHNICAL SESSIONS

Time	Reclamation Innovations SESSION 5A Harbor Side Room 203 Moderator - Cody Neely	Teaching in Reclamation SESSION 5B Harbor Side Room 204 Moderator - Kenton Sena	Advancements in Reclamation Technologies SESSION 5C Harbor Side Room 205 Moderator - Allen Wellborn
1:30 p.m. - 2:00 p.m.	Applied Research: Biogeochemical Response of PAG Mine Waste to Bactericides and Vegetation <b>by James Gusek</b>	Teaching Reclamation to Non-Majors: Experiences from Silviculture and Honors Natural Science Courses <b>by Brad Pinno and Kenton Sena</b>	Characterizing Subsurface Heterogeneity on Gold Post-Mining Sites <b>by Adegbite Adesipo*</b>
2:00 p.m. - 2:30 p.m.	Sorption of Metals from Mining Polluted Water Bodies and Reusability in Land Reclamation Using Hydrochar <b>by Benjamin Quardey*</b>	Using Experiential Learning in an Upper-Level Forestry Class to Teach Reclamation Techniques <b>by Jennifer Franklin</b>	Peat Mine Restoration, New Monitoring Technologies, and 7 Years of Progress at the Superior Wetland Bank <b>by Natalie White</b>
2:30 p.m. - 3:00 p.m.	Evaluation of Peat Sorption Media for Metal Removal from Stormwater from a Mineral Processing Facility <b>by Paul Eger</b>	"Reclamation of Disturbed Soils" - A West Virginia University Senior-Level Course <b>by Jeff Skousen</b>	Using sUAS for the Development and Validation of Surface Water Quality Models in Optically Deep Mine Waters <b>by Brandon Holzbauer-Schweitzer</b>
<b>3:00 - 3:30 p.m. - Break - Ballroom</b>			
Time	Reclamation Innovations (Continued) SESSION 6A Harbor Side Room 203 Moderator - Eric Cavazza	Teaching in Reclamation (Continued) SESSION 6B Harbor Side Room 204 Moderator - Brad Pinno	Advancements in Reclamation Technologies (Continued) SESSION 6C Harbor Side Room 205 Moderator - Michael Curran
3:30 p.m. - 4:00 p.m.	Advances in the Electro-Biochemical Reactor Design for Denitrification <b>by Ola Opara</b>	Teaching Reclamation Through Applied Curricular and Co-Curricula Experiences <b>by Natalie Kruse Daniels</b>	Prioritization of Site Selection for Subsidence Mitigation of Abandoned Mine Lands Using GIS and Attribute Criteria Hierarchy <b>by Harry Plendl</b>
4:00 p.m. - 4:30 p.m.	Heavy Metal Recovery Using Manganese-Oxidizing Microbes and Recycled Carpet Fiber <b>by Brandy Stewart</b>	Eighteen Years of Natural Infrastructure Research Partnerships Through the Center for Restoration of Ecosystems and Watersheds at the University of Oklahoma <b>by Robert Nairn</b>	Implementation of an Enterprise Geographic Information System (GIS) for Abandoned Mine Land Reclamation Project Data Collection and Efficiency of Client Reporting <b>by Harry Plendl</b>
4:30 p.m. - 5:00 p.m.	Opportunities for Carbon Sequestration in Mined Materials <b>by Joel Bandstra</b>	Translating International Experience to Graduate School <b>by Apsana Kafle*</b>	Drone Use Along with Spatially Balanced Sampling and Route Optimization for Rapid Monitoring of Reclaimed Areas <b>by Michael Curran</b>
5:00 p.m. - 5:30 p.m.	Case-Study - the Gladden Acid Mine Drainage (AMD) Treatment Facility Project <b>by Eric Cavazza</b>	My Experience as a MSC Candidate Studying Reclamation <b>by Keana Trudel*</b>	Remote Sensing and Benefits for Abandoned Mine Subsidence Investigation and Mitigation <b>by Ike Isaacson</b>
Vegetation TD Meeting 4:30 - 5:00 p.m. Room 305 Soils TD Meeting 5:00 - 5:30 p.m. Room 305			
5:30 - 7:15 p.m. - Poster Session - Harbor Side 2nd Floor Pre-Function Area			
7:30 - 9:00 p.m. - Film Festival - Harbor Side Ballroom			

## Poster Session and Networking Event

POSTER SESSION - TUESDAY, JUNE 14 - 5:30 - 7:30 - Harbor Side 2 <sup>nd</sup> Floor Foyer	
1	The Use of Agricultural Waste to Remove Heavy Metals from Mine Water <b>By: Edward Abbiw* and Natalie Kruse Daniels</b>
2	Particle Tracking Velocimetry Employing Aerial Thermography <b>By: Peter Assaf,* Jenna Beitel,* Marlena Jacobs,* and Br. Marius Strom</b>
3	High School Students are the Next Generation of Environmental Stewards and Can Play a Part in Mine Reclamation Projects <b>By: Mason Beiswenger,* James Eckenrode, Ben Roman, Rachel Wagner, and Travis Tasker</b>
4	Determining the Effect of Mine Drainage Residuals on Phosphorus Sequestration and Rye Grass Yield <b>By: Mathew Berzonsky,* James Eckenrode, Robert Hedin, William Strosnider, and Travis Tasker</b>
5	Treating Mine Drainage in Batch Using BOLTS (Batch Operating Limestone Treatment System) Limestone Beds Can Lower Treatment Costs <b>By: Griffin Burt,* Jared Oakes,* Tim Danehy, Buck Neely, Cliff Denholm, William Strosnider, Julie LaBar, James Eckenrode, and Travis Tasker</b>
6	Treating Mine Drainage in the Middle of a City Where Space is Limited <b>By: Ashlyn Campagna,* James Eckenrode, and Travis Tasker</b>
7	Excel Macro for Continuous Instream Monitor (CIM) Data Correction <b>By: Rachel Gibson,* James Eckenrode, Travis Tasker, and Joel Bandstra</b>
8	Low-Cost Pressure Sensor for Quantifying Flowrates from Mine Discharges <b>By: Thomas Hockensmith,* Br. Marius Strom, James Eckenrode, and Travis Tasker</b>
9	Hydrology and Agricultural Sediment Pollution in the Bloody Run Swamp of Ohio <b>By: Kehinde Ositimehin* and Natalie Kruse Daniels</b>
10	BOD and Phosphate Removal Rates of Wastewater Co-Treated with Acid-Mine Drainage <b>By: Victoria LaRosa,* Benjamín Roman, B. Roman, C.D. Spellman Jr., T. Tasker, W.H.J. Strosnider, and J.E. Goodwill</b>
11	Overcoming Matrix Effects in Acid Mine Drainage Samples Analyzed for Metal Concentrations with ICP-OES <b>By: Kevin Rowland,* James Eckenrode, and Travis Tasker</b>
12	Coarse Woody Debris as a Reclamation Amendment in the Athabasca Oil Sands <b>By: Keana Trudel* and B. Pinno</b>
13	Novel Biogeochemical Approach for Removing Nutrients from Eutrophic Retention Ponds <b>By: L. McKercher,* T.L. Messer, A.R. Mittelstet, and S.D. Comfort</b>
14	Avenues for Indigenous Influence of Oil Sands Reclamation <b>By: Skylar L. Lipman* and John R. Parkins</b>
* Denotes Student	

## Reclamation Film Festival

FILM FESTIVAL - TUESDAY, JUNE 14 - 7:30 - 9:00 PM - Ballroom	
1.*	Is it Really Irreversible? Using Natural Infrastructure to Remediate and Restore Degraded Landscapes <b>By: Alissa Meek* with David Wilcox, Nick Shepherd, M'Kenzie Dorman, Justine McCann, Peter Wolbach, Cheyenne Morgan, Olivia Overton, Steinar Dahle, and Robert W. Nairn</b>
2.	Two Bull Channel Restoration - Usibelli Coal Mine, Alaska <b>By: Richard Sivils</b>
3.	Restoring Legacy Mined Lands in Appalachia <b>By: Ed Akselrud with Michael French and Anna Branduzzi - One Tree Planted</b>
4.	Mine Subsidence with Structural Home Damage in PA <b>By: Eric E. Cavazza - PA Department of Environmental Protection</b>
5.	Reclaimed: The Redhead Story <b>By: Pete Kero - MN Department of Iron Range Resources &amp; Rehabilitation</b>
* Denotes Amateur/Student	



# WEDNESDAY, JUNE 15, 2022 AGENDA

- 6:30 a.m. - 7:30 a.m.----- Haulin' ASRS - Meet in Hampton Inn Lobby
- 7:30 a.m. - 8:15 a.m.----- Student Breakfast - Harbor Side Room 305
- 7:30 a.m. - 5:00 p.m.----- Registration - Harbor Side 2<sup>nd</sup> Floor Lobby
- 8:00 a.m. - 2:00 p.m.----- Exhibitors - Harbor Side Ballroom - (Out by 2:00 p.m. on Thursday)
- 8:00 a.m. - 11:00 a.m. ----- Silent Auction Last Day - Room 202 - Winners announced at lunch
- 8:30 a.m. - 12:00 p.m.----- Technical Presentations - Harbor Side Rooms 203-205
- 12:00 p.m. - 1:30 p.m.----- Buffet Lunch - Student Awards/Silent Auction - Ballroom
- 12:30 p.m. - 2:30 p.m.----- Cultural Event #3 - North Shore Scenic Railroad
- 2:00 p.m. - 4:00 p.m. ----- Duluth Stream Restoration Tour
- 4:15 p.m. - 5:15 p.m. ----- NEC Meeting - Room 202
- 6:00 p.m. - 9:00 p.m. ----- Early Career Professional Event - Hoops Bar

A NOTE ABOUT TECHNICAL DIVISIONS: TDs help advance the initiatives of ASRS. We have recently revised our TDs - please plan on attending the TD meetings that fit your interests in Harbor Side Room 305:

Water	MON.	4:30 p.m. - 5:00 p.m.
Technology	MON.	5:00 p.m. - 5:30 p.m.
Engineering and Construction	TUES.	11:30 a.m. - 12:00 p.m.
Vegetation	TUES.	4:30 p.m. - 5:00 p.m.
Soils	TUES.	5:00 p.m. - 5:30 p.m.
Wildlife	WED.	11:30 a.m. - 12:00 p.m.

## WEDNESDAY, JUNE 15 EVENTS

### North Shore Scenic Railroad Train Excursion

**12:30 p.m. - 2:30 p.m. - Cultural Event #3**

Ride the Duluth Zephyr, which brings you through downtown Duluth, a little way up the North Shore through Congdon Park, and to the neighborhood of Lakeside for spectacular lake viewing.



### 6:00 p.m. - 9:00 p.m. - EARLY CAREER PROFESSIONAL EVENT: HOOPS BAR

This event will bring together early career professionals and experienced professionals for valuable mentorship. The event will include food, beverages, and fun ways for early career professionals and mentors to interact.

## WEDNESDAY, JUNE 15, TECHNICAL SESSIONS

Time	Passive Treatment: Past, Present, Future SESSION 7A Harbor Side Room 203 Moderator – <b>Charles Spellman</b>	Better Living Through Design and Construction SESSION 7B Harbor Side Room 204 Moderator – <b>Natalie Kruse Daniels</b>	Soil Health: Impact on Vegetation SESSION 7C Harbor Side Room 205 Moderator – <b>Dennis Oakley</b>
8:30 a.m. - 9:00 a.m.	Early Discoveries and Development of Passive Treatment Systems <b>by Jeff Skousen</b>	Abandoned Coal Mine Mitigation in High Pressure Artesian Conditions <b>by Josh Zimmermann</b>	Beneficial Use of Dredge Sediment for Reclamation of Mining Sites <b>by Marsha Patelke</b>
9:00 a.m. - 9:30 a.m.	Mine Drainage Co-Treatment in Municipal Wastewater Sequencing Batch Reactors <b>by Charles Spellman*</b>	Design and Construction of Barrier Berms Using Innovative Reclamation Techniques to Benefit Mineland Operational Safety and Community Viewshed <b>by Joel Asp</b>	An Examination of Pipeline Site Preparation Methods for Improving Plant Establishment <b>by Jarrett Lardy*</b>
9:30 a.m. - 10:00 a.m.	The Use of Solar-Powered Float Mix Aerators to Increase Iron Retention in Topographically Limited Passive Treatment Oxidation Ponds <b>by Dayton Dorman*</b>	Techniques and Challenges for Material Stabilization Within Historically Mitigated Underground Abandoned Coal Mines <b>by Joel James</b>	Calcium Acetate: An Alternative for Gypsum in Improving Water Flow in Oilfield, Brine Impacted Soils <b>by Annalie Peterson*</b>
<b>10:00 - 10:30 a.m. - Break – Ballroom</b>			
Time	Passive Treatment: Past, Present, Future (Continued) SESSION 8A Harbor Side Room 203 Moderator – <b>Dan Guy</b>	Better Living Through Design and Construction (Continued) SESSION 8B Harbor Side Room 204 Moderator – <b>Benjamin Quardey</b>	Soil Health: Impact on Vegetation (Continued) SESSION 8C Harbor Side Room 205 Moderator – <b>Summer King</b>
10:30 a.m.- 11:00 a.m.	Passive Removal of Mn from Mine Water by Heterogeneous Mn Oxidation <b>by Robert Hedin</b>	Mitigation of Rock Springs No. 9 Mine Below Pipeline Utility Corridor <b>by Harold Hutson</b>	Vegetation Response to Surface Soil Undulation Height <b>by Gwen Geidel</b>
11:00 a.m.- 11:30 a.m.	Passive Treatment of Manganese Bearing Postmining Discharge <b>by Tim Danehy</b>	Converting a Former Mine to a Winter Wonderland <b>by Dale Kolstad</b>	Mine Soil Health on 2- to 32-Year-Old Reclaimed Pasturelands <b>by Jeff Skousen</b>
11:30 a.m.- 12:00 p.m.	Treating Extreme Acid Mine Drainage with Passive Techniques <b>by Shaun Busler</b>	Alaskan Active Coal Mine Reclamation - Two Bull Ridge <b>by Rich Sivils</b>	Superfund Remediation at Tar Creek <b>by Summer King</b>
<b>Wildlife TD Meeting 11:30 – 12:00 p.m. Room 305</b>			
<b>12:00-1:30 p.m. - Lunch and Student Presentation Awards – Harbor Side Ballroom</b>			

## KEYNOTE SPEAKERS



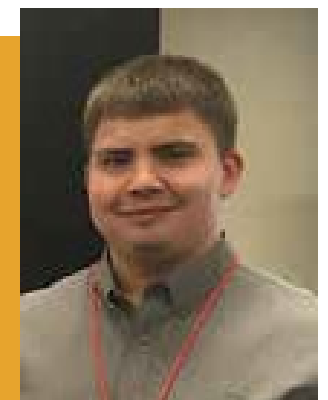
**PETE KERO** is a senior environmental engineer and Vice President for Barr Engineering Company in Hibbing, Minnesota. Over the past 28 years, he has worked on remediating, restoring, and repurposing more than 20 mine sites across the Midwest and Western United States. His recent experiences include the creation of the Redhead Mountain Bike Park on 1,225 acres of idled iron mining land in Chisholm, Minnesota and the hydraulic restoration of the Hector Mine outlet and Embarrass River Diversion Channel following the breach of an earthen berm and sediment washout. Pete is writing a book for the Minnesota Historical Society Press, tentatively titled *Minescapes: Reclaiming Minnesota's Mined Lands* that is scheduled for publication in Spring 2023.

**MELISSA SJOLUND** supervises the Minnesota Department of Natural Resources St. Louis River and Lake Superior Program and also serves as the agency's Area of Concern Coordinator. She has participated in past ASRS conferences, first as a Montana State University graduate student in Land Rehabilitation, and later as a consultant in reclamation and permitting specialist for the Montana Department of Environmental Quality's Coal Program. Since moving to Duluth five years ago, Melissa has been working hard with the Area of Concern team to remove the St. Louis River from an international list of degraded waterbodies.



**CHRIS LENHART** has over twenty years' experience in ecological restoration, water resources management and research. Currently the president of the Society for Ecological Restoration Midwest-Great Lakes Chapter he works with Barr on stream and wetland restoration projects. He has served as a research professor in the Bioproducts & Biosystems Engineering Department at the University of Minnesota for 12 years and contributes to restoration and science planning for the Nature Conservancy.

**RYAN EDWARD PETERSON** is an archaeology doctoral candidate in Indiana University's Department of Anthropology. His research focuses on native copper production and metal-working techniques in the Northern Lake Superior Basin during the Nipissing high paleo-lake level event (4,000-6,000 years ago). Mr. Peterson has conducted archaeological field work on multiple islands and coastlines throughout the Great Lakes, including Beaver Island, Isle Royale, as well as the north and south shores of Lake Superior. His most recent field work in the summer of 2021 uncovered several native copper working sites on Isle Royale.



## STUDENT SCHOLARSHIP AWARDS

2020

### Bachelor of Science



**Kristen Socheck** has long held an interest in nature and conservation. This led her to pursue a degree in Environmental Engineering at the University of Oklahoma. She became interested in soil and groundwater remediation while completing an internship with Geosyntec Consultants. Through undergraduate research with the Center for Restoration of Ecosystems and Watersheds, she has further explored this interest by studying the connectivity of mine pool waters. Upon graduation, she plans to complete a Master's in Environmental Engineering at the University of Oklahoma and eventually work in remediation consulting.

### Master of Science



**M'Kenzie (Dayton) Dorman** received her MS in Environmental Engineering at the University of Oklahoma in December 2019. She is currently a doctoral student and a graduate research assistant under Dr. Robert Nairn and a research member of the Center for Restoration of Ecosystems and Watersheds (CREW). Her master's research focused on reviewing the effectiveness of novel float-mix aerators to increase dissolved oxygen, degas carbon dioxide, and promote iron oxidation and retention in passive treatment oxidation ponds. M'Kenzie hopes to earn her professional engineering license and enter academia following graduation to further promote diversity in STEM.

### Doctor of Philosophy (tie)



**Michelle Valkanas** received her B.S. in Biology at Duquesne University in Pittsburgh, PA. She then worked for RJ Lee Group (Monroeville, PA) for two years as an analytical chemistry technician before returning to Duquesne University to earn her Ph.D. in Biological Sciences. She is currently a Ph.D. Candidate in Dr. Nancy Trun's lab studying bioremediation of abandoned coal mine drainage. Michelle looks at how microbial communities' impact passive remediation systems built to treat abandoned coal mine drainage. Her work has led to several publications and has been presented 31 times, including at the last three Annual ASMR Meetings. Additionally, she serves as an Associate Editor of the JASMR and the Chair of the Ecology Technical Division. Michelle is a Duquesne University Bayer Graduate Fellow and a National Center for Science Education Graduate Fellow. She has received two research grants from the Geological Society of America, including the Honorary Gould Research Grant, and from the Scientific Research Society, Sigma Xi. Upon completion of her dissertation, Michelle plans to obtain a post-doc position in engineering so that she can continue to study passive system design and efficiency before ultimately working for an environmental consulting firm.



## Doctor of Philosophy (tie)



**Michael Curran** grew up in Manasquan, NJ, the heart of the Jersey Shore where he was exposed to ecosystems ranging from rivers, oceans, forests, and farmlands. He attended the University of Delaware and earned BS degrees in Biological Science, Geography, and Foreign Languages and Literature (concentration: Ancient Greek/Roman Studies). During that time, Mike worked as a technician on an NSF grant to study how native vs. alien plants impacted food webs in suburban ecosystems. Upon graduating from Delaware, Mike spent some time traveling along the east coast and Appalachian Mountains before returning to New Jersey to work in a plant nursery. He realized that restoration ecology was a passion of his and

found an offer for a graduate research assistantship at University of Wyoming to study land reclamation and ecosystem restoration on oil and gas well pads. Prior to receiving his MS in Rangeland Ecology and Watershed Management in 2014, he was offered a Ph.D. position in Ecology to expand his research. After graduation, Mike plans to stay closely involved with reclamation throughout his career but has not closed the door on any potential avenues. Currently, he is applying for jobs in consulting and for post-doctoral research positions. He is grateful for the network he has been able to meet through ASRS and regardless of where he winds up geographically, he plans to stay active within the society.

## 2021

### Bachelor of Science



**Hannah Curtis** is a senior at the University of Oklahoma from Norman, Oklahoma. She graduated in December 2021 with a double major in environmental engineering and cello performance and a minor in environmental sustainability. Hannah currently works as an undergraduate research assistant at both the OU Center for Risk and Crisis Management and the Oklahoma Water Survey and as a writing assistant for the OU Honors College. She conducts research with the Center for Restoration of Ecosystems and Watersheds, performs with the OU Symphony Orchestra, and is involved in OU's Integrity Council. Hannah is passionate about solving

water quality issues with sustainable solutions and plans to pursue a master's degree in environmental science starting in fall 2022.

### Master of Science



**Brianna Soother** is a graduate research assistant working at Caesar Kleberg Wildlife Research Institute while attending Texas A&M University-Kingsville. In 2019, Brianna received her bachelor's degree in Fire Ecology and Management at University of Idaho. Her current project is evaluating the establishment of native grasses with an annual cover crop on a recently installed pipeline in south Texas. Upon completion of her master's degree in Range and Wildlife Management, Brianna would like to pursue a career in research and restoration. When she is not at work, Brianna enjoys exploring with her husband, collecting plants, and tending to her pet cat and lizard.



## Doctor of Philosophy



**Brandon Holzbauer-Sweitzer** received his undergraduate degree in Environmental Geoscience from Winona State University in 2014. He then moved to Oklahoma and completed two Environmental Science graduate degrees. His master's work focused on utilizing low-impact development, best management practices as alternatives to traditional urban stormwater management. During his doctoral program, which he completed in May 2021, his work centered on using drones and spectral data to evaluate and predict surface water quality in passive treatment systems. He hopes to continue this work in a more applied setting when he starts a position with Linkan Engineering in June 2021. In his free time, Brandon enjoys cooking, being outdoors, relaxing with his wife, two dogs, and cat. Brandon is thrilled to be awarded the ASRS Scholarship at the Ph.D. level and hopes to continue participating and presenting at in-person meetings for years to come.

## 2022

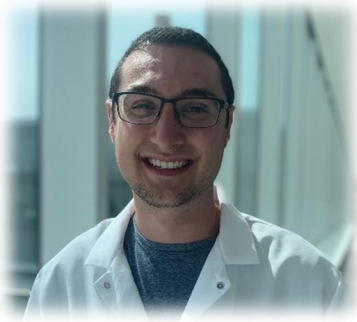
### Bachelor of Science

**Matthew Berzonsky** is a senior environmental engineering student at Saint Francis University where he actively participates in research with the Center for Watershed Research and Service. He also enjoys fly fishing and backpacking in his free time.



### Master of Science

**Loren Gormley** is a Master's student at West Virginia University studying Environmental, Soil and Water Sciences. She is working on a thesis that studies the effects of acidic soils in the Monongahela National Forest four years after an aerial lime application in 2018. She is very passionate about the outdoors and loves learning about different reclamation practices that can help restore nature back to its original beauty and function. After graduate school, she would like to do water quality work to help reclaim impaired streams and water bodies throughout our nation. When she is not working, she enjoys running, walking her two dogs, or sewing new projects.



## Doctor of Philosophy

**Charles "C.J." Spellman** is a fifth year Ph.D. student in the Civil & Environmental Engineering program at the University of Rhode Island and is expecting to graduate this August. C.J. is a member of the Water for the World research lab at URI. His research focuses on innovative iron-based water and wastewater treatment technologies, with specific aims of bringing these technologies closer to full scale implementation. C.J. earned a bachelor's degree in Environmental Engineering from Saint Francis University and a master's in Civil & Environmental Engineering from URI. A primary focus of his graduate studies has been the active co-treatment of mine drainage in municipal wastewater treatment plants.

This research has resulted in several peer-reviewed publications, an article in the Water Environment Federation trade journal, and a presentation award at a prior ASRS conference. C.J. has also used this research to expose undergraduate students to mine reclamation topics, a field of study generally overlooked and not discussed in most New England college engineering curriculums. Congratulations to C.J. on this well-deserved honor.

## PROFESSIONAL AWARDS

2020



### William T. Plass Award - Christopher Barton; Nominated by Kenton Sena

Dr. Chris Barton has led an incredibly productive career in research, practice, and teaching of mine land reforestation, both in the eastern United States and internationally in Australia. His contributions are highlighted by over 20 years of research and teaching at the University of Kentucky. Dr. Barton earned his BS at Centre College at Danville, KY, and his MS and Ph.D. at the University of Kentucky at Lexington. While at The University of Kentucky, Dr. Barton has advised 27 graduate students and 5 post-doctoral scholars as well as mentoring many under-graduates and other faculty members. He always takes the time to share

his knowledge and experience with others. He serves as an associate editor of 2 international journals and co-authored multiple chapters in 2 books. He was also one of the researchers who established the five steps of the Forestry Reclamation Approach that has gone onto a best management practice for reforestation on disturbed mine sites. As the founder and president of Green Forests Work, a non-profit organization dedicated to the reforestation of legacy mine lands, he has directed over 17,000 volunteers to plant over 2.8 million trees on nearly 4,500 acres on legacy mine sites in Appalachia. Dr. Barton is one of the founding members of the Appalachia Region Reforestation Initiative (ARRI) Science Team. He has also collaborated his knowledge and practical experience in FRA and experimental mine reforestation with multiple mines in eastern Australia. This led to award-winning mine reclamation programs in Hunter Valley and Bowen Basins regions of eastern Australia. His list of honors and awards is long and includes the ASMR Reclamation Researcher of the Year award. Congratulations to Dr. Barton on this well-deserved honor.



### **Distinction in Reclamation Award - BioMost Inc.; Nominated by Robert Nairn**

The Tar Creek Superfund Site in Northeast Oklahoma has provided multiple challenges to the restoration of a severely disturbed ecosystem. Shortly after listing, the impacts to surface waters were deemed to be “irreversible manmade damages” and were considered untreatable. The Southeast Commerce passive water treatment system, which was designed and constructed by BioMost Inc., has proven this statement false. The resulting water treatment quality has led to ecological recovery and significantly increased fish species

diversity and abundance. BioMost Inc. designed and provided pioneering innovations in the water treatment process that addressed several site-specific issues that were complicated challenges, with the resulting outcomes being demonstrably positive. BioMost Inc. met these challenges and exceeded expectations showing a true reflection of the practical side of “excellence in reclamation.” Congratulations to BioMost Inc. on this outstanding accomplishment.



### **Barnhisel Reclamation Researcher Award - Dr. Neil Humphries; Nominated by Richard Barnhisel**

Dr. Humphries has shown outstanding leadership in reclamation research while focusing on soil ecology as well as reclamation ecosystems in the mining industries throughout the United Kingdom. Dr. Humphries’ education started a long career (42 years) in research and development which can be summarized as management, restoration, and re-creation of soil-based ecosystems and biodiversity after drastic disturbances. Dr. Humphries received his BS from University of Exeter, his BA from Cambridge University, and his Ph.D. from the University of Liverpool. Activities by his companies always have maintained high standards to ensure that the research on soils and agricultural use of

disturbed sites be conducted in a meaningful manner. Dr. Humphries and his associates always maintained a desire to make sure the findings were reported so others could benefit from their experiences. Dr. Humphries first published articles in the Proceedings of ASMR in 1994 and has since published 18 articles in other ASMR proceedings and 7 articles in JASMR. Dr. Humphries has sought cutting-edge technology and practices to find practical and meaningful advancements in reclamation of disturbed ecosystems. His outstanding research has led to a large array of honors and awards including the ASMR William T. Plass award in 2013. Congratulations to Dr. Humphries on another outstanding honor for your dedication to reclamation research.



### **Reclamationist Award – William Zeaman; Nominated by Mariah O’Brien**

Bill Zeaman received his BS and MS degrees from the University of Southern Illinois Carbondale in Forestry. He also received a BA in Sociology from Southern Illinois University and has earned multiple credits in many diverse courses that have continued throughout his career. He is an Environmental Supervisor with Missouri Department of Natural Resources, Land Reclamation Program in Jefferson City, MO. Bill has been a significant asset during his 24 years of service with the Department and has offered oversight and guidance to more than 250 mine operators for successful reclamation standards in Missouri. Bill has implemented multiple different

technological advancements that streamline and simplify regulatory oversight inspections and

communications. This allows for better compliance and for quicker remediation to any potential issues within the regulated community. Bill was a critical resource in the development and implementation of the Department's online environmental portal. There was also a new online permitting system developed under Bill's guidance, which allows regulated entities to easily manage their mining permits online. As a mentor, Bill has ensured that his staff's professionalism and quality of work has resulted in improved reclamation that protects the environment and can be enjoyed by the landowners. Along with his busy schedule at work, Bill is involved in his local community and is often sought to share his knowledge and experience. Congratulations to Bill on this outstanding achievement.



### **Pioneer in Reclamation Award - Bill Locke; Nominated by Doug Beahm**

Bill Locke has led a career in land reclamation that's left a memorable impression with all those who have been touched by his passion for ecosystem restoration. He received a BS degree from Norwich University and is a Register Professional Engineer in the State of Wyoming. Bill's career in reclamation as the Program Manager with the Wyoming Abandoned Mine Lands Program has exemplified his drive and passion to return these disturbed sites back to usable and enjoyable parcels. During Bill's 18 years, the Wyoming AML Division has supported mine land reclamation research, when allowed by funding, within the Abandoned Coal Mine Reclamation Research Project at the University of

Wyoming. Many reclamation projects using geomorphic surface designs were implemented during Bill's tenure. His work in the arena of geomorphic mine reclamation in the Gas Hill's Region of Central Wyoming has initiated and supported interest in a variety of mine land research projects related to ecosystem diversity. Recently this research was published in the Journal of Environmental Management and highlighted with the Special Award in Reclamation by ASMR in 2014. While at the Wyoming AML program, Bill guided reclamation at over 18,000 acres of disturbed mine lands and oversaw the elimination of more than 460,000 feet of dangerous abandoned mine highwalls. More than 1800 underground mine portals, shafts, and subsidence features were also closed during Bill's oversight. Under Bill's direction a field mapping program using a GIS platform set the standard for databases for the Abandoned Mine Lands Inventory System nationwide. Many of reclamation projects during Bill's oversight resulted in national honors and awards from the Office of Surface Mining. Congratulations to Bill for receiving this award.



### **Early Career Award - Wu Xiao "Jeremy;" Nominated by Brenda Schladweiler**

Dr. Wu Xiao has completed all his education through the China University of Mining and Technology in Beijing, while receiving a Bachelor of Engineering, Master of Engineering, and Ph.D. The Ph.D. was a joint program with Southern Illinois University in Carbondale IL. He is now a Senior Research Fellow and Doctoral supervisor in the Department of Land Management, at the School of Public Affairs at Zhejiang University. Based on his letters of recommendations, he was strongly recommended for teaching and research based on his work ethics and performance at SIU, Carbondale. His research performance has been exceptional, with over 26 journal articles, multiple proceeding papers, and book chapters.

He has been honored with a vast range of research and talent awards throughout various programs in China. His latest achievement was in 2018 when he was honored Outstanding Young Scientific and Technological Talents through the Ministry of Natural Resources in China. He is also the Scientific Editor of the International Journal of Coal Science and Technology. Dr. Wu Xiao's future looks bright and promising. Congratulations and keep up the good work!





**William T. Plass Award - Dr. Louis M. McDonald; Nominated by Jeff Skousen**

Dr. Louis McDonald has been involved in a distinguished career in research, teaching, and practicing of mine land reclamation for over 30 years. Contributions to the field of mine land reclamation is highlighted by over 24 years of research and teaching at West Virginia University. While at WVU, he was very involved in acid mine drainage (AMD) research as well as soil science and environmental chemistry work. Dr. McDonald earned his BS at California Polytechnic State University in Economics and his MS from Louisiana State University in Agronomy while his Ph.D. in Soil Science was earned at the University of Kentucky at Lexington. Since then, while at WVU, Dr. McDonald published 58 peer-reviewed journal articles and authored or co-authored 7 book chapters including a chapter in "Appalachia's Coal-Mined Landscapes," recently released, and has published more than 65 abstracts at international and national meetings. He has advised numerous graduate and undergraduate students while completing 28 projects with \$1.5M in funding. Dr. McDonald continues to host international scientists at WVU while excelling in teaching. He continues to add new courses and majors to the curriculum and is involved in multiple advisory committees at WVU. Dr. McDonald is very active in ASRS as well as ARRI and the WV Mine Drainage Task Force. In 2017, he co-organized the ASRS/Task Force/ARRI conference in Morgantown WV. His list of honors and awards is long and includes the ASRS Richard I. and Lela M. Barnhisel Reclamation Researcher of the Year award in 2016. Congratulations to Dr. McDonald on this well-deserved honor.



**Barnhisel Reclamation Researcher Award - Dr. William H. Strosnider; Nominated by Natalie Kruse-Daniels**

Dr. Strosnider has shown outstanding leadership in reclamation research while focusing on acid mine drainage chemistry as well as reclamation ecosystems in the mining industries in Pennsylvania and South America. Bill's education background resulted in a career in research and development which can be highlighted by the development of the accredited environmental engineering program at St. Francis University and the founding of the Center for Watershed Research and Service (CWRS). As a faculty member while directing this program at St. Francis he continued his research while mentoring many students in the reclamation sciences. Bill received his BS from University of Dayton, his MS from The College of Charleston, and his Ph.D. from the University of Oklahoma. Currently Bill is the Director/Associate Research Professor at the University of South Carolina's Baruch Marine Field Laboratory. His research in AMD in Bolivia for his doctoral dissertation resulted in 12 refereed journal articles and over 20 conference proceedings/presentations alone. He has since published 23 more journal articles and added 88 conference proceedings/presentations. His outstanding research has led to a large array of honors and awards. Bill was selected as the ASMR ECR award winner in 2017 and his accomplishments since then have shown that he continues to contribute to the reclamation sciences field through research and development in an absolutely positive manner. Congratulations to Dr. Strosnider on another outstanding honor for your dedication to reclamation research.





### **Reclamationist Award - Joshua Sorenson; Nominated by Pete Stahl**

Josh Sorenson received his BS degree from the University of Wyoming and MS degree from Texas A&M University. Josh currently works for Jonah Energy LLC as a reclamation specialist and has spent time working for the USFS as a rangeland and natural resource specialist. Josh has been a significant asset during his time at Jonah Energy by developing and advancing the reclamation process of the ecosystem disturbance of over 1900 oil and gas wellsites and associated transportation right of ways. He has implemented a management program to control invasive plant species while reducing pesticide applications and increasing native pollinator plants. This process has significantly improved the ecosystem and reduced costs to the company. This practice has helped allow for the rollover of hundreds of acres of successful reclamation back to the BLM for public use. Josh works closely with the regulatory and state wildlife officials in helping improve a habitat that is declining for numerous endangered wildlife and plant species. His management practices have resulted in improved reclamation that protects the environment and can be enjoyed by the landowners. Along with his busy schedule at work, Josh is involved in his local community and is often sought to share his knowledge and experience. Congratulations to Josh on this outstanding achievement and his persistence to improve a difficult ecosystem.



### **Early Career Award - Dr. Kenton L. Sena; Nominated by Chris Barton**

Dr. Kenton Sena has started the early stages of his career with a passion to help others with their advanced learning endeavors. He obtained his Bachelor of Arts from Asbury University, his Master of Science and Ph.D. from The University of Kentucky. He is now a Lecturer in the Lewis Honors College at the University of Kentucky. Based on his letters of recommendations, he was strongly recommended for his teaching and research based on his work ethic and performance at U K. His research performance has been exceptional, with over 16 journal articles, along with multiple proceeding papers and book chapters. He has been honored with a vast range of research and talent awards throughout various programs involved in Forestry Research including close to \$300,000 in grants and fellowships. He is very involved with ARRI and the Green Forests Work program, with Forestry Reclamation advisories, and mentoring programs. Kenton has also been a very active member of ASRS while co-chairing the Forestry and Wildlife TD and serving as an associate editor of the Journal of ASRS. Dr. Sena has made outstanding contributions to reclamation sciences in his early career profession while his future looks bright and promising. Congratulations and keep up the good work!



## **Distinction in Reclamation Award - Teck American Inc. and Halliburton; Nominated by Mariah O' Brien**

The Magmont Mine is in Southeast Missouri in the Viburnum Trend Lead District located in the Ozark-St. Francois Mountain range. The facilities extracted lead, zinc, and copper from the mined ore. This underground mine was in operation from 1968 to 1994 leaving a 24,500,000-ton tailings deposit impoundment to be mitigated starting in 1992. The Teck American Inc. and joint venture partner Halliburton took on the challenge of this large-scale tailings impoundment reclamation mitigation with notable

success. The native wildlife species did not take long to return to this reclaimed ecosystem including amphibian and migratory waterfowl as well as raptors and larger ungulates. Sixty-six native vegetative species are now found on site and there is minimal routine maintenance required of the self-sustaining ecosystem. In December of 2017, the site was released from regulatory oversight, so this allows the landowner to manage the property without regulatory control. The challenges were overcome, and the results show a true reflection of the practical side of "excellence in reclamation." Congratulations to Teck American Inc. and Halliburton on this outstanding accomplishment.

## **2022**



## **Barnhisel Reclamation Researcher Award - Brad Pinno; Nominated by Dick Barnhisel**

**Dr. Brad Pinno** is an Associate Professor in the Department of Renewable Resources at the University of Alberta in Edmonton. His research focuses on the management of boreal forest ecosystems, in particular the relationships between trees, site characteristics, and operational management practices. Dr. Pinno's background is in forestry and soil science which has been a perfect fit for forest land reclamation research. He obtained his BS and MS in Forestry from the U of Alberta, and his Ph.D. from the U of Saskatchewan. For the past decade he has worked extensively in the

mineable oil sands region of northern Alberta studying the impacts of different reclamation soils and techniques on ecosystem development. Dr. Pinno's research has been supported by industry, government, and multi-stakeholder organizations with the goal of improving forest land reclamation. He has authored many publications (32 in the past 5 years), and co-authored publications with his students and post-doctoral candidates. Past reclamation MS graduates from his research group have gone on to careers with industry, consulting, and government agencies. One of the things that he really enjoys about reclamation research is how we can balance operational land management questions, essentially what we can be doing with a specific piece of land, with important scientific questions related to understanding the ecological relationships. Congratulations to Dr. Pinno on an outstanding career in reclamation research and his continuing success in his industry endeavors.



## **Reclamationist Award - Richard Sivils; Self-Nominated**

**Rich Sivils** P.E. is the Reclamation Engineer at the Usibelli Coal Mine and has worked there since 2013. He graduated in 2008 from the University of Arizona with a BS in Mining Engineering. His first position after graduation was with Kiewit Mining as a reclamation engineer at the Decker Coal Mine in Montana, a surface mine producing 4 million tons per year. He then spent 4 years working for Freeport McMoRan Copper and Gold as a mining engineer in Arizona before being hired in his current role with Usibelli in Healy, Alaska. At Usibelli, he directs reclamation efforts in the form of dozer regrade, works with federal and state representatives to keep the mine

operations in compliance with over 70 active permits and directs special projects around the mine site related to reclamation. During his tenure at UCM he has adapted reclamation techniques and best management practices to reduce UCM's bond liability by more than 20% in the last eight years! An outstanding achievement for a complex ecosystem in the middle of the vast interior region of Alaska. He has a wonderful wife and three kids and enjoys hunting and flying in Alaska. Congratulations Rich Sivils on your recognition for outstanding contributions to the reclamation of the disturbed ecosystem in your picturesque region.



### **Early Career Award - Abhishek RoyChowdhury; Nominated by Jim Gusek**

**Dr. Abhishek RoyChowdhury** is an Assistant Professor of Environmental Science and Natural Resources at Navajo Technical University. He earned his BS and MS from University of Calcutta, India. He pursued his Ph.D. from Montclair State University, and his Ph.D. research was geared towards developing a "green" remediation technology for remediation of Acid Mine Drainage (AMD)-impacted soil and water. He has received over \$2M in grants from federal and non-federal sources including NSF, NASA, USDA, USDOI-OSMRE, USDOI-BIA, First Americans Land-Grant Consortium (FALCON), and Alfred P. Sloan Foundation. His research projects include reclamation of abandoned mine sites, helping Native American communities to access clean water, and creating economic opportunities for them. One of his ongoing research projects, funded by the OSMRE Applied Science Program, involves demonstration of a field-scale sustainable reclamation technology for revegetation and stabilization of gob piles of mine spoils in the Carthage coalfield in New Mexico. His other ongoing research project involves evaluation of stream "health" in the San Juan River system impacted by 2015 Gold King Mine Spill. He has published 18 peer-reviewed journal articles, one book chapter, and 38 conference proceedings. He is serving as an Associate Editor of International Journal of Environmental Science and Technology (IJEST), and as an Academic Editor of PLOS Water. He is the elected Secretary/Treasurer of the Geology and Health Division of The Geological Society of America. He has received multiple awards and honors including the ASMR 2015 Memorial Scholarship Award (Ph.D. level). Congratulations to Abhishek RoyChowdhury on an outstanding early career in disturbed ecosystem reclamation and keep up the good work.



June 4-8, 2023



Boise, Idaho

# 40TH ANNUAL MEETING

American Society of Reclamation Sciences

Boise Centre | 850 W Front Street



## QUESTIONS?

**Dustin Wasley, PE, Haley & Aldrich**  
2023 Annual Meeting Chair  
[asrs2023.boise@gmail.com](mailto:asrs2023.boise@gmail.com)



## PLANNING COMMITTEE

GeoEngineers • Perpetua Resources  
Hecla Mining Company • Montana Rail Link  
JR Simplot • Trihydro Corporation  
Haley & Aldrich • Brown and Caldwell  
Pace Analytical • Morrison-Maierle  
KC Harvey • Idaho Mining Association  
Integra Resources



