AMERICAN GROUND WATER TRUST NEWSLETTER

Winter 2022-2023

A 501(c)(3) non-profit education organization

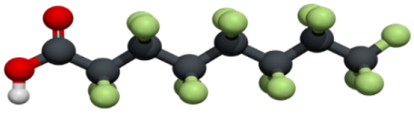
American Ground Water Trust - convening water issues programs and providing groundwater education since 1986

NEW AMERICAN GROUND WATER TRUST STAFF ADDITION

Sara Chudnoff has joined the AGWT as a Staff Hydrogeologist and will be a key player in the expansion of groundwater education program activity planned for 2023 and beyond. Sara has a Master of Water Resources Degree from the University of New Mexico and a Geology Degree from the New Mexico Institute of Mining and Technology. Sara has a strong background in many aspects of groundwater science and policy and is a certified Professional Geologist (PG).

In New Mexico, Sara worked as a hydrogeologist for Bernalillo County, the Office of the State Engineer-Hydrology Bureau, and the aquifer mapping program at the NM Bureau of Geology and Mineral Resources. In 2018 she moved to southeastern Arizona and became an independent consultant working on water planning and hydrogeology projects in both Arizona and New Mexico. Sara has coordinated programs for early career hydrogeologists at National Ground Water Association Groundwater Week and she is an active volunteer with her local Jr. High and High School as an advisor for the science club, helping students identify and quantify water quality and water quantity in the local watershed.

AGWT PFAS WEBINARS FOR 2023



The AGWT is planning a series of state focused webinars to provide updates on the constantly changing issues related to per- and polyfluoroalkyl (PFAS) contamination and the challenges faced by water providers and community leaders to ensure safe drinking water. The motivation for this webinar is the AGWT's education mission to provide objective information to facilitate water management decisions. Recent state and federal regulatory changes for managing PFAS have brought renewed public attention to the health risks from PFAS and other legacy chemical compounds in the environment. The AGWT spring PFAS webinar schedule will include **Michigan** and **Wisconsin** in April and **Pennsylvania** in May. Details will be posted at www.agwt.org/events.

The 90-minute PFAS webinars via Zoom will feature technical and legal experts and will include the following topics:

- How PFAS enters, moves, and is stored in the environment
- Technological updates on PFAS treatment equipment options
- Costs for equipment installation, operation, and maintenance
- Status of research on PFAS destruction technologies
- Outline of federal and state regulations and compliance challenges
- The EPA PFAS Action Plan and the PFAS Strategic Roadmap
- Financing options for treatment and/or alternative supply sources
- Route map for seeking a legal route to cost recovery

Winter photo 1 - Handpump in the front yard of the AGWT Executive Director
Winter photo 2 - Mount Washington, NH - highest peak in the Northeast (6,289 feet) (1,917 meters)

AGWT 2023 Education Event Calendar

(More to come!)

Feb 6 - **Lakewood, CA**
Workshop on wells, pumps and water treatment technology

Feb 7 & 8 - **Ontario, CA**
Annual California Groundwater Conference
A partnership with the Association of Ground Water Agencies

March 6 & 7- **Pasco, WA**
Northwest Groundwater Conference

May 16 & 17- **Concord, NH**
Source Water Protection Conference/workshop
A partnership with NH Dept of Environmental Services

June 6 & 7- **Austin, TX**
Annual Texas Groundwater Conference

July 12 &13- **Albuquerque, NM**
Annual New Mexico Groundwater Conference

Fall Conferences
August 29 & 30 - **Orlando, FL**
Annual Florida Groundwater Conference

Virginia Beach, VA
Mid-Atlantic Groundwater Conference

Denver, CO
Annual Colorado Groundwater Conference

Salt Lake City, UT
Utah Groundwater Conference

www.agwt.org/events
For all AGWT program details

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THREE NEW AMERICAN GROUND WATER TRUST BOARD MEMBERS

Since the last AGWT Newsletter, three new directors have been elected to serve on the AGWT Board

Marian Singer, CEO, Wellntel, Milwaukee, WI

Marian is a co-founder of Wellntel, a Milwaukee based team of scientists and problem solvers who work throughout the US to create a more sustainable future for water-intensive businesses, farms and their communities. Through a broad portfolio of real-time groundwater sensors, analysis and reporting tools, Wellntel helps customers monitor and manage their critical groundwater resources.

"I believe in the importance of the groundwater education mission of the American Ground Water Trust and I'm looking forward to helping the organization expand its educational impact outreach to citizens and water policy decision-makers."

Jeremy Kuhn, Director, Roscoe Moss Company, Los Angeles, CA

Jeremy is a director at Roscoe Moss Company and is based in Phoenix, AZ. He has been in the water well industry for more than 20 years and has worked with customers on various well projects throughout North America. He has held roles in safety, operations, contracting, design and estimating for drilling in many different geological conditions. Roscoe Moss Co., a manufacturer of water well screen and casing products, is based in Los Angeles and has been a proud supporter of the AGWT since it was established.

"I am excited to join the AGWT Board, where I have an opportunity to support and promote the mission of bringing together science, technology, and policy to help strengthen the ground water industry through education and knowledge sharing."

K. Scott King, Senior Associate Hydrogeologist, WSP, Buffalo, NY

Scott is a Senior Associate hydrogeologist with WSP and has been a consultant since 1983. His professional experience has included environmental and remedial investigations and significant groundwater projects associated with impacts due to mining and water supply in the US and Canada. In recent years he has been involved with major projects in the Alberta oil sands region. Scott was the 2019 President of the National Ground Water Association.

"I'm very proud to support AGWT's education mission. We all need to understand and take better care of groundwater, which is a critical resource for the economy and the environment."

WATER WELL EXPERTISE RECOGNIZED

Fred Rothauge, one of the United States best known water well drilling experts, is the current Chairman of the American Ground Water Trust's Board of Directors. Fred is employed as technical advisor on water well construction for Hydro Resources (corporate office in Sugar Land, Texas) and is a licensed water well driller in eight states. He has been selected to present the National Ground Water Association McEllhiney Distinguished Lecture Series in Water Well Technology for 2023. The lecture series serves to foster professional excellence in water well technology. The 2023 lecture is titled *"Are We Creating Long-term Groundwater Assets or Just Installing Wells?"* and will be delivered during 2023 to dozens of professional organizations. The essence of the lecture subject matter is that the value of a water well, like any other asset, must be assessed within a long-term life cycle that includes the planning, design, selection of construction options and must include operation and maintenance costs. Fred Rothauge is the fourth groundwater industry expert from the AGWT Board to be honored by selection as the McEllhiney Lecturer. Current AGWT Board members who have demonstrated their expertise in water well technology as past McEllhiney Lecturers are David Kill (2005), Ron Peterson (2015), and Kevin McGinnis (2021).

MANAGED AQUIFER RECHARGE (MAR)

With increasing aridification and changing weather patterns, augmenting the natural recharge of aquifers is a hot-topic among water managers and groundwater professionals. Virtually every groundwater conference (including AGWT events) has presentations covering applications of modeling and engineering to increase stores of subsurface water. The publications featured in the illustration are a selection of the growing body of literature available on the topic.

(These are publications on the shelf at the AGWT office.)

Sources available for groundwater recharge:

- Capturing storm water and floodwater
- Desalination of brackish groundwater or ocean water
- Reusing water from municipal treatment systems
- Using water released during oil & gas operations

Aquifer recharge can be achieved via wells, engineered surface infiltration, and deliberate flooding of agricultural fields. Removing turbidity from storm water is crucial for recharge via wells in order to avoid clogging. Water supply availability via MAR is a growing worldwide water management strategy. MAR used to be called *artificial recharge* but MAR is now most commonly used.

AMERICAN GROUND WATER TRUST SCHOLARSHIPS

We encourage entry level college students intending to pursue a career in the field of groundwater to apply for an American Ground Water Trust Scholarship.
Application Deadline: May 31, 2023 https://agwt.org/content/scholarship-opportunities

Thank you to our current Scholarship Sponsors:

www.baroididp.com

www.flexconind.com

www.stetsonengineers.com

Since its inception, the American Ground Water Trust has awarded a total of $250,000 in scholarships, all funded by companies involved with the groundwater industry. The AGWT Scholarship Program seeks to:

- stimulate interest in groundwater related study and research projects in the junior and senior years of high school.
- encourage high school students to consider careers in the provision and protection of groundwater resources.
- focus attention on the need for specialists to maximize the environmental and economic benefits of groundwater

2022 Scholarship Recipients:

Liam McCann of Conway, South Carolina received the Flexcon Industries Scholarship of $2,000 and is attending the University of Florida at Gainesville

Griffin Storm of Norman, Oklahoma received the Baroid Scholarship of $2,000 and is attending Duke University, Durham, North Carolina

Jack Marshall of Henderson, Nevada received the Thomas A. Stetson Scholarship of $2,000 and is attending Cal Poly University, San Luis Obispo, California

If you are interested in offering a scholarship in your company name, please contact AGWT. We will administer the program, advertise the scholarship and select award winners. The amount funded for a scholarship is awarded in full.

FEBRUARY 7 & 8 CALIFORNIA GROUNDWATER CONFERENCE

2023 Keynote Presenters:

CALIFORNIA STATE WATER SUPPLY STRATEGY

Jonathan Bishop,
Chief Deputy Director, California Water Resources Control Board

HOW MET IS HELPING THE REGION MEET CHALLENGES OF CLIMATE CHANGE AND EXTENDED DROUGHT

Adán Ortega,
Chairman, Metropolitan Water District of Southern California

NORTHWEST GROUNDWATER CONFERENCE, MARCH 6-7, 2023

The AGWT Northwest Conference to be held in Pasco, eastern Washington, has water research organizations from WA, OR and ID serving as conference cooperators. The American Ground Water Trust is grateful for their involvement and hopes for good student participation.

Students graduating from universities in WA, OR and ID will soon be entering the job market. The water industry has an aging professional structure, and agencies, utilities and consultants are looking for potential employees. The conference can serve as a great networking opportunity for students looking for future employment and employers looking for future employees.

Institute for Water & Watersheds, Oregon State University · WRC State of Washington Water Research Center · University of Idaho, Idaho Water Resources Research Institute

Another great feature of the Northwest conference is the field tour opportunity on Sunday, March 5th.

FIELD TOUR—LEADING EDGE ON-FARM WATER MANAGEMENT
Sunday, March 5th - 1:00pm – 4:30pm - lunch provided
Madison Ranches, Echo, Oregon
A unique opportunity to view first-hand, the integration of managed aquifer recharge, aquifer storage recovery and ASR electricity generation. Field tour leader, farm owner and renowned aquifer recharge innovator, Kent Madison.

CHANGING WEATHER PATTERNS - DID YOU KNOW?

Global warming was first recognized in the 1820s

French Mathematician Jean Baptiste Fourier (1768-1830) demonstrated 200 years ago that thermal energy emissions were being trapped inside the Earth's atmosphere. He realized that the planet would be significantly colder if it lacked an atmosphere. Fourier described the atmosphere as acting like the glass in a greenhouse and his comparison was likely the origin of the term "greenhouse effect" describing heat trapped by the atmosphere.

AMERICAN GROUND WATER TRUST'S MISSION

To increase awareness about water resource issues, particularly those that involve groundwater.

By convening and organizing conferences, workshops, webinars and focused training programs, the AGWT:

- **Promotes efficient and effective groundwater management**
- **Showcases groundwater science and technology solutions**
- **Increases citizen, community and decision-maker awareness**
- **Facilitates stakeholder participation in water resource decisions**
- **Communicates environmental and economic value of groundwater**
- **Provides a safe haven to discuss "difficult" water issues**

The AGWT mantra ….. *"Science as the basis for water issues policy"*

WAYS TO SUPPORT GROUNDWATER EDUCATION

AGWT has been providing objective information about groundwater and water resources for over 30 years. Because it is a hidden resource, groundwater is often misunderstood and undervalued. In local, state and national issues regarding water policy, allocation authority, and protection regulations there can sometimes be exaggeration and spin from vested interests. **In objectively framing the issues for AGWT education programs, and in our inclusive basis for inviting presenters, the AGWT strives to maintain balanced presentation of all points of view.**

Some of our educational outreach is grant funded, but in order to meet our mission and provide an independent voice over groundwater issues, we also rely on the generosity of individuals and companies. You can help increase our educational impact in several different ways:

- **Registering to attend one of our conferences**
- **Becoming an individual or corporate member**
- **Sponsoring and exhibiting at an AGWT program or event**
- **Sponsoring our Newsletter**
- **Hosting a program for teachers (We have trained over 2,000)**

HOW WATER WELLS ARE DRILLED:

Check out the American Ground Water Trust's well drilling video on YouTube. **(LINK)**, it has received over 3,900,000 views. One of the methods described in the video is Cable Tool Drilling. Here is some information about the method:

- Cable tool drilling is also called percussion drilling, or jumper rig drilling
- A cable tool rig is less expensive and easier to operate than a rotary drill rig
- The drilling rate can be slow but can be used for most geologic conditions
- The percussion drilling method was used 2,000 years ago in China using bamboo
- World wide there are millions of water wells in use that have been drilled by cable tool
- The method uses a drill bit suspended on a drill rod that is pounded up & down to cut into the rock. (The rig is sometimes called a pounder rig.)
- Broken pieces are "bailed" out using a cylinder with a flap-valve before more pounding
- In loose rock or sands, steel casing is driven down as the hole is deepened to keep the hole open. The drilling continues inside the casing until firm rock is reached.

[Drill rig painting by William MacGregor]

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AGWT Members at $5,000+ level

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(The electronic version has a nation-wide circulation of over 20,000)