

Agenda

Introduction to Texas Groundwater

H. Collier

Aquifers of Texas
2022 State Water Plan

The ABCs of Texas Groundwater Regulation

A. McDonald

Groundwater Conservation Districts
Groundwater Management Areas
Regional water planning groups
Groundwater availability certifications
Texas Commission on Environmental Quality

Groundwater Use

G. Miller, M. Van Hattem

Exempt vs. non-exempt wells
Anatomy of a water well and groundwater system
Effects of groundwater pumping
Life cycle of a water well system

On the Horizon

D. Collazo, A. Collier

Brackish groundwater
Aquifer storage and recovery/ managed aquifer recharge

On the Horizon

A. McDonald, G. Miller

Water for oil and gas
Orphan wells
Funding sources for groundwater projects in Texas

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Texas Groundwater Conference

Live, Interactive Webinar - Thursday, January 18, 2024

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Learning Objectives

You'll be able to:

Examine Texas aquifers, and review the 2022 Texas State Water Plan.

Explore Texas Groundwater Conservation Districts and Management Areas.

Discuss groundwater availability certifications.

Consider problematic groundwater issues, including brackish groundwater and declining water levels in aquifers.

Explore the effect of the oil and gas industry, including orphan wells, on Texas groundwater.



HalfMoon Education Live Webinars Texas Groundwater Conference

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Identify Texas aquifers

Review the 2022 State Water Plan

Explore Texas Groundwater Conservation Districts and Management Areas

Consider how—and how much—groundwater is used in Texas

Examine the effect of the energy industry on groundwater quality and use

Discuss groundwater issues on the horizon

Continuing Education Credits

Engineers

6.0 PDHs

Geoscientists

6.0 PDHs

Attorneys

6.0 CLE Hours

Certified Planners

CM|6



Webinar Information

Log into Webinar

8:00 - 8:30 am CST

Break

11:45 am - 12:45 pm CST

Morning Session

8:30 - 11:45 am CST

Afternoon Session

12:45 - 4:00 pm CST

Tuition

\$319 for individual registration.

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Credit Information

This webinar is open to the public and is designed to qualify for 6.0 PDHs for professional engineers and geoscientists in Texas. The Texas Board of Professional Engineers and Land Surveyors and the Texas Board of Geoscientists do not pre-approve any courses or activities.

This webinar offers 6.0 CLE hours to Texas attorneys and paralegals. HalfMoon Education is an accredited CLE provider in the state of Texas and this course has been approved by the State Bar of Texas for 6.0 CLE hours.

HalfMoon Education is an approved CM Provider with the American Planning Association. This course is registered for CM|6 for certified planners.

Attendance will be monitored, and attendance certificates will be available after the webinar for those who attend the entire course and score a minimum 80% on the quiz that follows the course (multiple attempts allowed).

Faculty

Hughbert Collier, Ph.D., P.G. Sr. Vice-President at Collier Consulting

Mr. Collier's professional experience includes over 30 years of consulting, research, technical support for litigation and teaching throughout the U.S. Mr. Collier has conducted petrophysical and hydrogeological investigations of multiple aquifers throughout Texas and the U.S. He has also provided technical support, including field investigations, hydrogeological reports, petrophysical analyses of fresh and saline water aquifers, and reviews of technical reports for many clients. Mr. Collier has been the principal investigator for many research projects in which he was the geologist, hydrogeologist, and/or petrophysicist. One of his specialties is the hydrogeological characterization of aquifers determined by integrating various types of data (e.g., borehole geophysics, water analyses, pumping tests, cuttings, cores, and surface geophysics). This expertise has been applied to multiple groundwater studies, environmental litigation cases, and brackish water studies. Mr. Collier has authored a dozen papers, including a textbook, *Borehole Geophysical Techniques for Determining the Water Quality and Reservoir Parameters of Fresh and Saline Water Aquifers in Texas*. He has taught short courses for the National Ground Water Association and Environmental Education Enterprises. He has taught undergraduate and graduate geology and hydrogeology courses at Tarleton State University.

Alyson McDonald, Ph.D., P.G. Collier Consulting

Ms. McDonald specializes in ecohydrology of semi-arid environments. She has conducted a variety of water resource investigations across west Texas with the cooperation of landowners, as well as state and federal agencies. Surface water experience includes stream discharge measurements from the Pecos Valley and Yegua Jackson aquifers, baseflow recession analysis, and standard of identity study to assess hydraulic connection between groundwater and spring water in the Queen City and Sparta aquifers. Groundwater expertise includes rainfall recharge in the Edwards Trinity Plateau aquifer; low-flow sampling from the Queen City aquifer; borehole sampling, core logging, and packer testing in the Dockum aquifer; and installation and maintenance of monitoring well networks in the Pecos Valley aquifer and Rio Grande alluvium.

Gretchen Miller, Ph.D., P.E., P.G. Sr. Groundwater Engineer at Collier Consulting

Dr. Gretchen Miller has been working in environmental and water resources engineering for nearly 20 years. During that time, she has worked in academia and environmental consulting. Prior to joining Collier, she was an associate professor at Texas A&M University, where she taught fluid dynamics and groundwater engineering. She is an experienced project and program manager and has experience conducting major projects involving numerical modeling of groundwater flow and transport, plant-groundwater relations, and managed aquifer recharge. She has obtained over \$6 million in federal, state, and local grants, of which she directly managed over \$2 million. These grants included the prestigious National Science Foundation CAREER Award for early career investigators, state funds for the development of water conservation technologies such as aquifer storage and recovery, and an industry partnership to pilot test a managed aquifer recharge system.

Matt Van Hattem, EIT Sr. Engineer at Collier Consulting

Mr. Van Hattem's background includes experience with a wide variety of water resource engineering, geophysical surveys, and environmental investigations. He also has extensive experience in the design and construction of a variety of private and municipal water treatment and supply projects. Mr. Van Hattem's overall responsibilities include client development, project management, team leadership, preparation, and construction inspection and management. His diligence and experience allow him to deliver projects on time and within budget.

Daniel F. Collazo, P.G. Hydrogeologist

Mr. Collazo is a Hydrogeologist with Collier Consulting, Inc. and has 5 years of experience in hydrogeologic studies and public water supply. As a member of the Innovative Water Technologies department at the Texas Water Development Board he gained experience with research and planning related to alternative water supply projects in Texas, including ASR (aquifer storage and recovery), AR (aquifer recharge), and brackish groundwater production. While at the TWDB, he conducted outreach and research projects to advance the implementation of ASR in Texas. He was also responsible for responding to public and government requests for information related to alternative water supply strategies or groundwater. Mr. Collazo also spent a year with a private consulting firm in Colorado assisting with management and processing of monitoring data, data collection for groundwater flow model inputs, and preparation of figures and maps for mine dewatering projects and environmental studies.

Aaron Collier, P.G. Vice President at Collier Consulting

Mr. Collier is a geoscientist with 20 years of professional experience in all facets of subsurface investigations and engineering projects. During his career, Mr. Collier's responsibilities have ranged from on-site supervision of drilling and description of well cuttings in mixed carbonate and siliciclastic environments to technical lead/project management of several of Collier's geoscience projects. For the last seven years, Mr. Collier has overseen the operations of Collier Consulting and its sister company Collier Geophysics. Projects during Mr. Collier's tenure have included local and regional hydrogeological investigations throughout Texas, designing groundwater databases, groundwater modeling, and borehole and surface geophysical investigations throughout the United States. He has also worked on water resource engineering, and development of SAAS software for management of water assets, regulatory compliance, and environmental litigation.

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