

AGENDA ITEM MEMO

BOARD MEETING DATE: November 9, 2023

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
Ashley Harden, General Counsel
Rebecca Trevino, Chief Financial Officer
John T. Dupnik, P.G., Deputy Executive Administrator, Water Science & Conservation

FROM: Natalie Ballew, P.G., Director, Groundwater
Daryn Hardwick, Ph.D., Manager, Groundwater Modeling

SUBJECT: Groundwater Modeling Program Research Project

ACTION REQUESTED

Consider authorizing the Executive Administrator to publish solicitations, and award and execute a contract in a total amount not to exceed \$430,000 for a groundwater modeling project.

BACKGROUND

In 2023, the 88th Texas Legislature appropriated a total of \$1,680,000 for Fiscal Years 2024 and 2025 to the Texas Water Development Board (TWDB) for conducting studies regarding groundwater modeling. Each fiscal year, \$840,000 of these funds must be transferred to the Water Assistance Fund No. 480 to fulfil this purpose. The Board approved two projects in September 2023 using these funds.

These appropriations are related to a directive from the Texas Legislature in 2001 for the TWDB to obtain or develop groundwater availability models for all major and minor aquifers in Texas, and to do so in coordination with groundwater conservation districts and regional water planning groups. Pursuant to this directive, the Groundwater Modeling Program funds are used to develop, update, and continuously improve groundwater models and to advance the program objective of providing the best available science by generating relevant applied hydrologic data and methods that are key to the management of groundwater resources within the state.

Our Mission

Leading the state's efforts
in ensuring a secure

Board Members

Brooke T. Paup, Chairwoman | George B. Peyton V, Board Member | L'Oreal Stepney, P.E., Board Member

Board Members
November 9, 2023
Page 2

KEY ISSUES

The following proposed project has been identified for funding after reviewing current groundwater availability models and evaluating the hydrologic data and modeling needs of the program. In proposing the project listed below, we considered research needs identified internally, project ideas solicited from external stakeholders, and policy recommendations provided by regional water planning groups.

Project Description: Investigate the Interaction between the Devils River and the Edwards-Trinity (Plateau) Aquifer (not to exceed \$430,000)

Understanding interactions between the aquifer and the river, and how those interactions change over time, is important to improve the usefulness and accuracy of the groundwater availability model. Areas where groundwater discharges to surface water bodies and surface water seeps into the ground can be identified through several techniques. Both the spatial and temporal aspects of these interactions will be characterized by this project. Results will be verified where possible through the use of various field methods and efforts will be made to discern where anthropogenic discharges to surface water are occurring. Areas will be identified where the Devils River overlies the Edwards-Trinity (Plateau) Aquifer exposed at land surface. Currently, the TWDB is funding a similar study along the Brazos River, a sedimentary system. Focusing on a river segment in a karst system will allow for the comparison of results across a variety of geologic environments as well as deepen our understanding of these interactions and how those interactions may be applied in future groundwater availability model updates.

If approved, the TWDB will publish a solicitation for this project and may execute one or more interagency contracts with state or federal agencies.

RECOMMENDATION

The Executive Administrator recommends approval of this item to improve our understanding of groundwater-surface water interactions in karst systems and to support research to improve modeling inputs and assumptions that can be applied to future model updates and enhancements.