

**Texas Water Resources Institute
Texas A&M Institute of Renewable Natural Resources**

**Annual Technical Report
2019**

Products

G16AP00085 USGS 104b:

Entwistle, Clare and Nikki Dictson. (2019). Texas Riparian and Stream Ecosystem Training Booklet. EM 128. Texas Water Resources Institute, College Station.

Glavy, Nathan, Stephanie deVilleneuve, Allen Berthold. (2019). Coordinating Implementation of the Tres Palacios Watershed Protection Plan Final Report. TR-516. Texas Water Resources Institute, College Station.

Schramm, Michael and Achla Jha. (2019). Technical Support Document for One Total Maximum Daily Load for Indicator Bacteria in Hillebrandt Bayou. TCEQ Technical Support Document. Texas Water Resources Institute, College Station.

Glavy, Nathan, Stephanie deVilleneuve, Allen Berthold. (2019). Septic System Maintenance & Inspection Pocket Guide. TWRI EM-126. Texas Water Resources Institute, College Station.

deVilleneuve, Stephanie and Nathan Glavy. (2019). Mission and Aransas Rivers TMDL I-Plan Implementation Final Report. TWRI TR-515. Texas Water Resources Institute, College Station.

Schramm, Michael and Achla Jha. (2020). Technical Support Document for Two Total Maximum Daily Loads for Indicator Bacteria in Sandy Creek and Wolf Creek. TCEQ Technical Support Document. Texas Water Resources Institute, College Station.

deVilleneuve, Stephanie, Jacqueline Rambo, Luna Yang, Michael Schramm, Allen Berthold. (2020). Characterization of Middle Yegua, Davidson and Deer Creeks Watersheds. TWRI TR-523. Texas Water Resources Institute, College Station.

deVilleneuve, Stephanie. (2020). Characterizing the Middle Yegua, Davidson Creek and Deer Creek Watersheds Final Report. TWRI TR-524. Texas Water Resources Institute, College Station.

Schramm, Michael, Achla Jha. (2020). Technical Support Document for Four Total Maximum Daily Loads for Indicator Bacteria in Neches River Tidal. TCEQ Technical Support Document. Texas Water Resources Institute, College Station.

Gitter, Anna, Mohneesh Nayal, Jacqueline Rambo, Luna Yang, Lucas Gregory. (2020). Watershed Characterization of the Thompsons Creek Watershed. TWRI TR-526. Texas Water Resources Institute, College Station.

G17AC00440 TAAP:

Sanchez, R., & Tracy, J. (2020). [Introduction: Featured Collection on Transboundary Aquifers](#). JAWRA Journal of the American Water Resources Association.

Rodriguez, L., Sanchez, R., Zhan, H., & Knappett, P. S. (2020). [The Transboundary Nature of the Allende–Piedras Negras Aquifer Using a Numerical Model Approach](#). JAWRA Journal of the American Water Resources Association.

Sanchez, R., & Eckstein, G. (2020). [Groundwater management in the borderlands of Mexico and Texas: The beauty of the unknown, the negligence of the present, and the way forward](#). Water Resources Research, 56, e2019WR026068. <https://doi.org/10.1029/2019WR026068>

Sanchez, R., Rodriguez, L., & Tortajada, C. (2020). [Effective Transboundary Aquifer Areas: An Approach for Transboundary Groundwater Management](#). Journal of the American Water Resources Association 1– 19. <https://doi.org/10.1111/1752-1688.12836>.

Sanchez, R., & Eckstein, G. (2020). [The path towards groundwater management in the borderlands of Mexico and Texas](#). Wiley Interdisciplinary Reviews: Water, 7(1), e1399.

Information Transfer Program

Through our communications materials — txH2O magazine, Conservation Matters e-letter, Texas Water Journal online journal and social media — we are able to translate the technical research into understandable, interesting stories for other researchers and the public to read. The magazine and e-letter has a combined circulation of more than 7,580 readers.

TWRI's Communications Team publicizes TWRI projects, research results, resource materials and water resources news to the public through various vehicles, as appropriate for the particular content. Our txH2O magazine is published twice a year with (2,701 online subscribers, 1,906 non-TAMU print subscribers and 273 TAMU print subscribers for a total of) 4,880 subscribers. Conservation Matters is a monthly e-mail newsletter with 2,530 subscribers. Texas Water Journal is an online peer-reviewed journal we have co-published since 2010 and has 1,126 registered users on its website and 1,014 subscribers to its email announcements. We continue to jointly publish Texas+Water with two other organizations, with a subscriber list of 7,223. During this time period, 13 technical reports have been published, 2 educational materials, 52 news releases and 59 media mentions. Other information is pushed out through Facebook (2,402 followers), Twitter (4,212 followers), Instagram, Pinterest, LinkedIn and our institute website as well as more than 40 project-related webpages the institute hosts.

Student Support

G16AP00085: USGS 104b funds for FY2019 support two Ph.D. graduate student researchers and one communications Master's graduate student intern. Matching funds also include 4 Mills Scholarship graduate students.

G17AC00440: The TAAP project supports one Ph.D. student (half supported by the Water Management and Hydrological Science Program) and one M.S. student is supported.

Notable Achievements and Awards

G16AP00085 USGS 104b:

- We have hosted 14 watershed and riparian training programs during this reporting period for a total of 587 attendees and more than 4,390 contact hours.
- Due to COVID-19 travel restrictions, TWRI adapted and moved some of its programs to an online format, serving more than 100 participants through two programs. The online program offers CEUs and includes PowerPoint presentations and videos to replace the field portion of the training.
- Even during COVID-19 and working remotely, we've continued to strive and be productive in our efforts and carrying out project deliverables.

G17AC00440 TAAP: The development of the Permanent Forum of Binational Waters, which is a platform where around 200 experts, scientists, academics, public officials, private industry, NGOs meet to find opportunities for cooperation and community building through permanent programs, activities and initiatives that promote both, science development and the socialization of science to border communities. We have been invited as Co-Chairs of the Transboundary Aquifers Commission of the International Association of Hydrogeologists and also as part of the Technical Committee of the International Shared Aquifers Management Program hosted by UNESCO-IAH to organize the ISARM 2021 Transboundary Aquifers Conference.

Electrical Resistivity Tomography (ERT) Parameter Adaptation for Seasonal Variations

Project Type: Research

Project ID:

Project Impact:

Due to COVID-19 restrictions, access to equipment (AGI SuperSting R8) on campus and to the main site (Texas A&M Field Laboratory in Burleson County) was limited during 2020. We resumed fieldwork in November 2020 and completed fieldwork in February 2021. Data has not been analyzed yet. We expect to analyze the data and submit the results to a journal this calendar year.

Identifying and Assessing the Conditions of Transboundary Aquifers Between Texas and Mexico

Project Type: Program Administration

Project ID: G17AC00440

Project Impact:

We have published 5 peer-reviewed articles in the last year that have proven three main findings: we have scientific certainty that there are 33 hydrogeological units crossing the border between Mexico and Texas. We have performed field work that has provided guidance on stakeholders perspectives over transboundary groundwater management, and we have proven that the Allende-Piedras Negras Aquifer is a transboundary aquifer. We have created the first geological maps that cover the complete border between Mexico and the United States as well as the water quality component. We have been cited by the CRS twice in recognition of the high impact of our publications and the Texas Groundwater Subcommittee approved a white paper on transboundary aquifers that is available for the Legislature. Additionally, we have developed the most extensive network at binational level of experts, academics, authorities, NGOs and private industry that work on water issues in the border. We have developed a website platform that includes a clearinghouse of databases, programs and initiatives, educational and research resources, socialization of science and outreach engagement. We have developed a Transboundary Water Portal that is being considered as the official binational repository of the International Boundary and Water Commission. We are currently aiming at federal grants to expand our research and consolidate our community building efforts.