Dorina Murgulet, PhD, PG

6300 Ocean Dr. *+1-(361)-825-2309*
Corpus Christi, TX 78412 *dorina.murgulet@tamucc.edu*

Texas A&M University-Corpus Christi
College of Science
Center for Water Supply Studies
Department of Physical & Environmental Sciences
Office: Natural Resources Center 3103

EDUCATION

- **PhD Hydrogeology-December 2009**, The University of Alabama (UA), Tuscaloosa, AL. Dissertation topic: Groundwater flow dynamics and contaminant transport to coastal waters under low recharge conditions: regional-scale study of the aquifer system underlying southern Baldwin County, Alabama
- **MS, Hydrogeology-December 2007**, The University of Alabama (UA), Tuscaloosa, AL
- **MSc Geochemistry-June 2002**, Alexandru Ioan Cuza University, Iasi, Romania
- **BS Engineering Geology-June 2000**, Alexandru Ioan Cuza University, Iasi, Romania

PROFESSIONAL EXPERIENCE

Current Positions:

Director, Center of Water Supply Studies (CWSS), Texas A&M University-Corpus Christi, September 2015-Present

Example Duties and Accomplishments:

- Led the center in integrating scientific research with societal needs, particularly in enhancing coastal resiliency—mirroring TAMU-CC Coastal's mission.
- Strengthened community and regional partnerships, contributing to managing Texas's water resources through evidence-based research.
- Reformed the center's focus on enhancing coastal resiliency through partnerships with local stakeholders, NGOs, and state agencies, focusing on integrating scientific research with societal needs.
- Directed and expanded CWSS research expenditure significantly through strategic partnerships and successful grant applications.
- Promoted interdisciplinary collaboration among biologists, chemists, engineers, and policy experts to address water resource sustainability.
- Managed center allocations and budgets.
- Organized and led community and stakeholder workshops to co-develop knowledge and improve local water quality management, public health, and coastal resiliency.
- Actively participated in regional watershed protection plans, influencing policies and initiatives that directly impact communities.

- Engaged in extensive outreach efforts, delivering educational programs to local schools and community groups, focusing on environmental conservation and sustainable practices.

Professor of Hydrogeology, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, September 2022-Present

Example Duties and Accomplishments:

- Developed and delivered online courses.
- Secured multimillion-dollar sponsored research grants, demonstrating strong fundraising and resource acquisition capability.
- Advised and mentored a diverse group of students, fostering a supportive and inclusive educational environment.

Past Positions:

Graduate Program Coordinator, Coastal and Marine System Science, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, September 2019-August 2022

Example Duties and Accomplishments:

- Promoted and successfully recruited students for MS and PhD programs focused on coastal and marine system sciences, increasing program visibility and student enrollment.
- Managed graduate program planning and resources.
- Coordinated with departmental and college leadership to enhance program quality and compliance.
- Changed the program curriculum that draws on the convergence of systems science to train graduate students at a strategic nexus of human-natural-energy systems.

Associate Professor of Hydrogeology, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, September 2017-August 2022

Assistant Professor of Geology, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, August 2011-August 2017

Research Hydrogeologist, Groundwater Assessment Program, Geological Survey of Alabama, January 2009-2011

TEACHING

GEOL 4650 – Field Geology; GEOL 2102 - Undergrad Seminar in Geology; GEOL 3433- Environmental Geology; GEOL 4444/ESCI 4490-Introduction to Hydrogeology; GEOL 6490/ESCI 6490-ADVANCED TOPICS: Advanced Hydrogeology; GEOL/ESCI 4321: Introduction to Soil and Groundwater Restoration; GEOL 6321/ESCI 6321: Advanced Soil and Groundwater Restoration; GEOL 1303, Essentials of Geology; ESCI 5101: Environmental Research Seminar; CMSS-6102: Seminar in Coastal and Marine System Sciences; ESCI 5596 and GEOL: Directed Independent Study.

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PUBLICATIONS (graduate students supervised are denoted by '*'; undergraduate students supervised are denoted by '**')

Submitted, In-review manuscripts (1)

1. El-Kahawy, R.M., Ghandour, I.M., **Murgulet, D.,** Bantan, R.A., Althagaf, A.A., Aljahdali, M.H. (2024). Refining the Assessment of Ecological Quality: Benthic Foraminifera as Bioindicators in Sharm Obhur, Red Sea Coast, Saudi Arabia. *Submitted to STOTEN.*

Peer-Reviewed Publications in International Journals

1. Ruben, Z.*, **Murgulet, D**., Lopez, C. V., Marino-Tapia, I., Valle-Levinson, A., and Matthews, K. E. (2024). Influence of submarine groundwater discharge on the nutrient dynamics of a fringing-reef lagoon. *Journal of Hydrology: Regional Studies, volume 56, 2024, 101956, ISSN 2214-5818, https://doi.org/10.1016/j.ejrh.2024.101956.*
2. Jafarzadeh, A., Moghadam, S., Dhar, D., **Murgulet, D.,** Kapoor, V. (**2024**). Microbial contamination of surface water and groundwater in flood-impacted rural communities in south Texas following Hurricane Hanna. *ACS ES&T Water 2024 4 (8), 3244-3253. https://doi.org/10.1021/acsestwater.4c00143*
3. Qiu, Y., Joseph, F.**, Murgulet, D.,** Abdulla, H. (**2024**). Apportionment of NOx and NH3 Emission Sources in an Urban Coastal Airshed: Insights from Stable Isotopes and a Novel Approach to Intermittent Sources. *Atmospheric Environment. Volume 329, 2024, 120533, ISSN 1352-2310, https://doi.org/10.1016/j.atmosenv.2024.120533.*
4. Wilson, S. J. et al. (**Murgulet, D.** 18th of 71 authors). (**2024**). Global subterranean estuaries control groundwater nutrient loading to the ocean (reference number: NCOMMS-23-01966-T). Limnology and Oceanography Letters 9, 2024, 411–422 https://doi.org/10.1002/lol2.10390
5. Qiu, Y., Felix, J. D., **Murgulet**, D., Wetz, M., & Abdulla, H. (**2024**). Isotopic compositions of organic and inorganic nitrogen reveal processing and source dynamics at septic-influenced and undeveloped estuary sites. Science of The Total Environment, 925, 171749. https://doi.org/10.1016/j.scitotenv.2024.171749
6. **Murgulet, D.**, Lopez, C.V., Douglas, A.R., Eissa, M., and Das, K. **(2024).** Nitrogen and carbon cycling and relationships to radium behavior in porewater and surface water: Insight from a dry year sampling in a hypersaline estuary. *Marine Chemistry.* Volume 258, 2024, 104351, ISSN 0304-4203, https://doi.org/10.1016/j.marchem.2024.104351.
7. Qiu, Y., Felix, J. D. **Murgulet, D.**, Abdulla, H. **(2024)**. Determining organic nitrogen emission sources and secondary formations in an urban coastal airshed via stable isotope techniques, Environmental Pollution, Volume 343, 2024, 123152, ISSN 0269-7491, https://doi.org/10.1016/j.envpol.2023.123152.
8. Wolfe, W.*, **Murgulet, D.**, Gyawali, B.*, Sterba-Boatwright, B. **(2023)**. Long-Term Radon-222 (222Rn) and Hydroclimatic Dataset for a Coastal Estuary, Corpus Christi Bay, Texas. *Data In Brief. https://doi.org/10.1016/j.jhydrol.2023.130065.*
9. Wolfe, W.*, **Murgulet, D.**, Gyawali, B.*, Sterba-Boatwright, B. **(2023)**. Modeling time series radon inventory and constraints on the submarine groundwater discharge mass

balance of a well-mixed, highly dynamic estuary. *Journal of Hydrology. 625 (2023): 130065. https://doi.org/10.1016/j.dib.2023.109651.*

10. Douglas, A. R.*, **Murgulet, D.**, Das, K., Greige, M.*, Felix, J. D., Abdulla, H.A.N. (**2022**). Dissolved Organic Matter Composition and Inorganic Nitrogen Response to Hurricane Harvey's Negative Storm Surge in Corpus Christi Bay, Texas. *Frontiers in Marine Science. Sec. Coastal Ocean Processes.* *https://doi.org/10.3389/fmars.2022.961206*
11. Bordbar, M., Khosravi, K., **Murgulet, D.** Tsai, F. T. C., Golkarian, A. (**2022**) The use of hybrid machine learning models for improving the GALDIT model for coastal aquifer vulnerability mapping. *Environ Earth Sci* 81, 402. https://doi.org/10.1007/s12665-022-10534-2.
12. Gyawali B.*, Ahmed, M., **Murgulet, D**., Wiese, D.N. (**2022**). Filling Temporal Gaps Within and Between GRACE and GRACE-FO Records: Advances, Challenges, and Future Opportunities. *Remote Sensing, 14(7), 1565*. https://doi.org/10.3390/rs14071565
13. **Murgulet, D.**, Cody Lopez, and Audrey Douglas*. (**2022**). Temporal and Spatial Variation of Submarine Groundwater Discharge Across Estuaries with Variable Hydroclimatic Conditions. *Science of Total Environment. v. 823, 1 June 2022, 153814;* https://doi.org/10.1016/j.scitotenv.2022.153814
14. Gyawali, B*, **Murgulet, D.**, and Ahmed, M. **(2022).** Quantifying Changes in Groundwater Storage in the Coastal Region of Texas using Remote Sensing and Ground-based Measurements. *Remote Sens. 2022,* 14 *(3), 612;* https://doi.org/10.3390/rs14030612
15. Haley, M.; Ahmed, M.; Gebremichael, E.; **Murgulet, D.**; Starek, M. **(2022)**. Land Subsidence in the Texas Coastal Bend: Locations, Rates, Triggers, and Consequences. *Remote Sens.* 2022, *14*, 192. https://doi.org/10.3390/rs14010192
16. Coeckelenbergh, K.*, **Murgulet, D.**, Uhlman, K., & Vickers, C. **(2021)**. Groundwater Withdrawals Associated with Oil and Gas Production from Water Supply Aquifers in Texas: Implications for Water Management Practices. Texas Water Journal, 12(1), 151-201.
17. Douglas, A. R.*, **Murgulet, D.**, and Abdulla, H.A.N. (**2021**). Seasonal trends and relationships between surface and porewater dissolved organic matter in a disturbed estuary using HPLC Fusion Orbitrap MS and multivariate statistical analyses. *Marine Chemistry.* https://doi.org/10.1016/j.marchem.2021.104006
18. Chen, Y.; Ahmed, M.; Tangdamrongsub, N.; **Murgulet, D. (2021)**. Reservoir-Induced Land Deformation: Case Study from the Grand Ethiopian Renaissance Dam. *Remote Sens*. 13, 874. https://doi.org/10.3390/rs13050874
19. Scotch, C.G.*, **Murgulet, D.,** Constantz, J. **(2021)**. Characterization of stream-groundwater exchange in a low-flow coastal stream using temperature and geophysical methods. *Science of Total Environment*, v. 768:144367. https://doi.org/10.1016/j.scitotenv.2020.144367
20. Douglas A.R.*, **Murgulet, D.** and Montagna, P. **(2021)**. Hydroclimatic variability drives submarine groundwater discharge and nutrient fluxes in an anthropogenically disturbed, semi-arid estuary. *Science of Total Environment*, 142574. https://doi.org/10.1016/j.scitotenv.2020.142574.

21. Lopez, C.*, **Murgulet, D.**, Santos, I. (**2021**). Radioactive and Stable Isotope Measurements Reveal Saline Submarine Groundwater Discharge in a Semiarid Estuary. *Journal of Hydrology*, 125395. https://doi.org/10.1016/j.jhydrol.2020.125395.
22. Felix, J.D. and **Murgulet, D. (2020).** Nitrate isotopic composition of sequential Hurricane Harvey wet deposition: Low latitude NOx sources and oxidation chemistry. *Atmospheric Environment*, p.117748. https://doi.org/10.1016/j.atmosenv.2020.117748
23. **Murgulet, D.,** Douglas, A.R.*, Herrera Silveira, J.A., Mariño Tapia, I., Valle-Levinson, A. (**2020).** Submarine groundwater discharge along the northern coast of the Yucatán Peninsula. *Proceedings of the Sixteenth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impact of Karst, San Juan, Puerto Rico. National Cave and Karst Research Institute Symposium 8.* Carlsbad (NM): National Cave and Karst Research Institute. https://doi.org/10.5038/9781733375313.1060
24. Douglas, A. R.*, **Murgulet, D.**, & Peterson, R. N. (**2020**). The use of radon and radium isotopes to determine submarine groundwater discharge in an anthropogenically disturbed, semi-arid estuary. *Journal of Hydrology*, 124369. https://doi.org/10.1016/j.jhydrol.2019.124369
25. Spalt, N.*, Murgulet, D., and Abdulla, H. **(2019).** Spatial variation and availability of nutrients at an oyster reef in relation to submarine groundwater discharge. *Science of the Total Environment.* 136283. https://doi.org/10.1016/j.scitotenv.2019.136283
26. Spalt, N*, **Murgulet, D.,** and Hu, X., **(2018).** Relating estuarine geology to groundwater discharge at an oyster reef in Copano Bay, Texas. *Journal of Hydrology, 2980.* https://doi.org/10.1016/j.jhydrol.2018.07.048
27. **Murgulet, D.,** Trevino, M.*, Douglas, A.*, Spalt, N.*, Hu, X., and Murgulet, V. **(2018).** Temporal and spatial fluctuations of groundwater-derived alkalinity fluxes to a semiarid coastal embayment. *Science of the Total Environment* 630 (2018) 1343–1359. https://doi.org/10.1016/j.scitotenv.2018.02.333
28. **Murgulet, D.,** Murgulet, V., Hay, R., Mestas-Nunez, A., and Tissot, P. (**2017**) Relationships between Sea Surface Temperature Changes in the Pacific and Atlantic Oceans and South Texas Precipitation and Streamflow Variability. *Journal* of *Hydrology* (550 (2017) 726-739. https://doi.org/10.1016/j.jhydrol.2017.05.041
29. Khan, R. H. *, Smith-Engle J.M., and Tissot, P., **Murgulet D.,** (**2016**). Temporal Spatial and Depth Variations of Ground Water Chemistry: An Indicator of Hydro-Geochemical Evolution in Shallow Coastal Aquifers, South Texas. *Gulf Coast Association of Geological Societies (GCAGS) Journal.*
30. **Murgulet, D.**, Murgulet, V., Spalt, N.*, Douglas, A.*, Hay, R.G. **(2016)** Impact of hydrological alterations on river-groundwater exchange and water quality in a semi-arid area. *Science of the Total Environment.* Volume 572, 1 December 2016, Pages 595-607. http://dx.doi.org/10.1016/j.scitotenv.2016.07.198
31. **Murgulet D.,** Cook M., and Murgulet V. **(2016)** Groundwater Mixing Between Different Aquifer Types in a Complex Structural Setting Discerned by Elemental and Stable Isotope Geochemistry. *Journal of Hydrological Processes*. DOI: 10.1002/hyp.10589
32. **Murgulet, D**. and Tick, G.R. **(2015)** Effect of variable-density groundwater flow on nitrate flux to coastal waters. *Journal of Hydrological Processes.* DOI: 10.1002/hyp.10580
33. Tick, G.R., Harvell, J.R., and **Murgulet, D. (2015)** Intermediate-Scale Investigation of Enhanced-Solubilization Agents on the Dissolution and Removal of a Multicomponent

Dense Nonaqueous Phase Liquid (DNAPL) Source. *Water Air and Soil Pollution*, doi: 10.1007/s11270-015-2636-7.

34. *Bighash, P. and **Murgulet, D. (2015)** Application of factor analysis and electrical resistivity to understand groundwater contributions to coastal embayments in semi-arid and hypersaline coastal settings. *Science of the Total Environment.* 532:688-701. doi: 10.1016/j.scitotenv.2015.06.077
35. **Murgulet, D.** and Tick, G.R., **2014,** Understanding Sources and Fate of Nitrate in a Highly Developed Coastal Aquifer System, *Journal of Contaminant Hydrology*, v. 155, 69-81, ISSN 0169-7722, http://dx.doi.org/10.1016/j.jconhyd.2013.09.004.
36. **Murgulet, D.** and Tick, G.R., **2013**, Integrating multi-isotope techniques to characterize groundwater flow dynamics and aquifer vulnerability, *Groundwater,* doi:10.1111/gwat.12020.
37. **Murgulet, D.** and Tick, G. R**.**, **2009,** Assessing the extent and sources of nitrate contamination in the aquifer system of southern Baldwin County, Alabama. *Environmental Geology*, doi 10.1007/s00254-008-1585-5.
38. **Murgulet, D.** and Tick, G.R**.**, **2008**, The extent of saltwater intrusion in southern Baldwin County, Alabama. *Environmental Geology;* doi 10.1007/s00254-007-1068-0.

In Preparation; Close to Submission

Academic Journals: **2**

Book, Chapter in Scholarly Book

1. **Murgulet D., (2016)** Volume I, Chapter 4, Groundwater Management (Aquifer storage and recovery, Overdraft). In Optimum, Sustainable, & Integrated Water Treatment/Usage. CRC Water Sustainability Handbook, Editor, Daniel H. Chen, Taylor & Francis/CRC Press, Boca Raton, FL; ISBN 9781482215182 - CAT# K21789
2. **Murgulet D. (2016)** Volume II, Chapter 2, Groundwater Contaminant Transport Mechanisms and Pollution Prevention**.** In Optimum, Sustainable, & Integrated Water Treatment/Usage. CRC Water Sustainability Handbook, Editor, Daniel H. Chen, Taylor & Francis/CRC Press, Boca Raton, FL; ISBN 9781482215106 - CAT# K21786
3. **Murgulet D. (2016)** Chapter 12. Effects of Climate Change and Sea Level Rise on Coastal Water Resources. *In Emerging Issues in Groundwater*, the first book in the newly initiated Advances in Water Security book series with Springer publishing. Available through: http://link.springer.com/book/10.1007/978-3-319-32008-3
4. Douglas, A.R., and **Murgulet, D**. (**2024**). Book Chapter "The Subterranean Estuary and Submarine Groundwater Discharge." *In Freshwater Inflows to Texas Bays and Estuaries*. Estuaries of the World. *Springer Nature.*
5. Narimani, R., Murgulet, I.T., **Murgulet, D.** (**2024**). Book Chapter "Emerging Contaminant in Groundwater: Challenges, Management, and Policy Perspectives". In Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment. *UNESCO and Springer Nature*.

McNair Mentored Undergraduate Scholar Research Manuscripts (past 5 years)

1. Laura Button, **2023,** Comparison of Texas Colonias Water Availability to Coastal Unincorporated Communities in the U.S.. Mentor: **Dorina Murgulet**; 2023 Texas A&M University-Corpus Christi McNair Scholars Journal.
2. Kathleen Mathews, **2022,** Nutrient Inputs associated with groundwater near coral reefs along a stretch of the Caribbean coast. Mentor: **Dorina Murgulet**; 2022 Texas A&M University-Corpus Christi McNair Scholars Journal.
3. Megan Greige, **2020**, Estuarine DOM composition response to Hurricane Harvey: lessons learned from Corpus Christi Bay, Texas. Mentor: **Dorina Murgulet**; 2020 Texas A&M University-Corpus Christi McNair Scholars Journal.
4. Loren Walker**, 2020,** Temporal changes in the radiogenic signature of shallow groundwater and its potential implications in the SGD estimates in a semiarid area. Mentor: **Dorina Murgulet**; 2020 Texas A&M University-Corpus Christi McNair Scholars Journal.
5. Melissa Pena, **2017,** Assessment of historical oil-field brine discharge influences on sediment-supported radionuclide activities. Mentor: **Dorina Murgulet**; 2017 Texas A&M University-Corpus Christi McNair Scholars Journal.

Last Five Year Non-Refereed Publications (Total 23)

1. **Murgulet D.**, Felix, J., Lopez, C., Qui, Y. and other graduate and undergraduate students, 2022. Nonpoint Source Nutrient Pollution Study in Baffin Bay Texas, Phase I. Scientific report submitted to Texas General Land office October 2021; p. 71; GLO Contract No. 20-036-000-B744.
2. J. Felix, Y.Qui, Field, A. Cox, and **D. Murgulet**, Quantifying Septic Effluent Nitrogen Loading and Processing in the Baffin Bay Watershed. Final scientific report to the Coastal Bend Bays & Estuaries Program.
3. H. Abdulla and **D. Murgulet**, Assessment of Organic Pollutants in Nueces Bay's Petroleum Brine Impacted Sediments. Final scientific report to the Coastal Bend Bays & Estuaries Program.
4. X. Hu, M.R. McCutcheon, **D. Murgulet**, A. Douglas, C.V. Lopez. 2019. Evaluating groundwater exported acidity in Copano Bay. Scientific report submitted to Texas General Land office October 2019; p. 50; GLO Contract No. 17-180-000-9817.
5. **Murgulet, D.,** Douglas, A*, Lopez, C.V., Gyawali, B., Murgulet, V., Wolfe, W., Ruben, Z., Greige, M. (**2019).** Impacts of Temporal and Spatial Variation of Submarine Groundwater Discharge on Nutrient Fluxes to Texas Coastal Embayments. Scientific report submitted to Texas General Land Office, Sept. 2019; p. 76. NOAA award number: NA16NOS4190174; TGLO contract number: 17-182-000-9819.

Last Five Years Presentations/Abstracts (Total 92)

1. **Murgulet, D., 2024**, Hidden Hazards: Water Table Flooding and Coastal Contamination. Clean Coast Texas Lunch & Learn series, The Meadows Center for Water and the Environment (https://www.youtube.com/watch?v=q_8kDmai1Kc). *Invited*
2. **Murgulet, D., 2023**, The Coastal Hydrologic Harmony: The forces Shaping Submarine Groundwater Discharge, Nearshore Water table Flooding and the Transport of Pollutants.

Clean Coast Texas Lunch & Learn series, The Meadows Center for Water and the Environment (https://www.youtube.com/watch?v=YjxSm3VrPLw). *Invited*

3. **Murgulet, D.,** Vickers, C., Eissa, M., Murgulet, V., Jafarzadeh, A., and Kapoor, V., **2023**, Mobilization and Transport of Contaminants to a Water Table Aquifer in Response to Extreme Wet Weather Events. Goldschmidt Conference, Lyon, France.
4. **Murgulet, D.,** Majors, S., and Lopez, C., **2023.** Groundwater Pollution Mechanisms. Texas Watershed Coordination Roundtable, April 2023. *Invited*
5. Taylor, E., Felix, J.D., and **Murgulet, D., 2022**. Determining Nitrogen Loading Sources and Processing Along the Texas (USA) Coast and Potential Impacts Due to Sea-Level Variations. AGU Fall 2022 meeting.
6. Qiu, Y., Felix, J. D., **Murgulet, D.**, Wetz, M., Abdulla, H.A.N., **2022.** High-resolution Spatial Sampling Reveals DIN and DON Sources and Processing from Groundwaters to Surface Waters in a Semi-arid Estuary and Tributaries. AGU Fall 2022 meeting.
7. Eissa, M., **Murgulet, D.**, and Nasr, A., **2022**. Characterization of Seawater Upconning in a Arid Coastal Regional Aquifer Using a Combination of Geophysical, Geochemical and Stable Isotopes. AGU Fall 2022 meeting.
8. Eissa, M., **Murgulet, D.**, Lopez, C., and Das, K., **2022**. Understanding processes driving ammonium accumulation within the subterranean estuary of a hypersaline bay. AGU Fall 2022 meeting.
9. Vickers, C*., **Murgulet, D.**, Jafarzadeh, A., Vedadi, M. S. and Kapoor, V. **2022**. Groundwater Quality Response to Flooding Following Hurricane Hanna Constrained by Geochemical and Biological Indicators. GSA 2022 South-Central Online Section Meeting.
10. Jafarzadeh, A., Vickers, C*, Vedadi Moghadam, S., Lopez, C., Murgulet, D. and Kapoor, V. **2022**. Using Molecular Tools and Microbiology Testing to Study the Impact of Hurricane Hanna on Microbial Contamination in South Texas Water Resources. GSA 2022 South-Central Online Section Meeting.
11. Matarrita, J., Vickers, C.*, **Murgulet, D.** And Abdulla, H. **2022**. Distribution of Pesticides in Groundwater Flood-Impacted Unconnected Communities in South Texas Following Hurricane Hanna. GSA 2022 South-Central Online Section Meeting.
12. Das, K., **Murgulet, D.** and Lopez, C. **2022**. Tracing Nutrient Fluxes Associated with Saline Submarine Groundwater Discharge in a Semi-Arid Estuary Using Stable and Radioactive Isotopes. GSA 2022 South-Central Online Section Meeting.
13. **Murgulet, D. 2022**. Groundwater Withdrawals Associated with Oil and Gas Production from Water Supply Aquifers in Texas. American Ground Water Trust Annual Texas Groundwater Conference. *Invited*
14. **Murgulet, D.,** Douglas, A., Murgulet, I., and Wolfe, W*., **2021.** Nitrogen Distribution Along a River Course from Spring-fed Headwaters to the Sea. AGU, New Orleans, LA, Dec. 2021. AGU Fall 2021.
15. Rodriguez M.J.*, Vickers, C.*; **Murgulet, D.,** Hussain, A., **2021**. Combining Ion Chromatography and Liquid Chromatography Coupled to High-Resolution Mass Spectrometry for Suspect Screening of Pesticides and Transformation Products. 2021 ASMS Conference on Mass Spectrometry and Allied Topics
16. Vickers, C., V.*, **Murgulet, D.**, Jafarzadeh, A., Moghadam, S.V., Kapoor, V., Lopez, C.V., Douglas, A.R., **2021**. Alluvial coastal aquifer recharge response to Hurricane

Hanna flooding constrained by chemical and biological indicators. AGU, New Orleans, LA, Dec. 2021.AGU Fall 2021.

17. Gyawali, B.*, Ahmed, M., **Murgulet, D.**, Wiese, D., **2021**. Integrated Approach for Filling Temporal Gaps Within and Between GRACE and GRACE-FO Terrestrial Water Storage Records: AGU, New Orleans, LA, Dec. 2021.AGU Fall 2021.
18. Haley, M., Ahmed, M., Gebermichael, E, **Murgulet, D.**, Starek, M., **2021**. Locations, Rates, Triggers, and Consequences of Land Subsidence in Coastal Texas: AGU, New Orleans, LA, Dec. 2021. AGU Fall 2021.
19. Qiu, Y., Felix, J. D., Cox, A., **Murgulet, D., 2021**. Using Stable Isotopes to Determine Sources and Processing of Inorganic and Organic Nitrogen in a Septic System Dominated versus Undeveloped Estuary Coastline. AGU, New Orleans, LA, Dec. 2021.AGU Fall 2021.
20. Ahmed, M., Haley, M., Gebermichael, E, **Murgulet, D.**, Starek, M., **2021**. Land Subsidence in Costal Texas: Locations, Rates, Triggers, and Consequences: GSA, Portland, OR, Oct. 2021.
21. Wolfe, W.* and **Murgulet, D.**, **2021.** Constraints on Radon and SGD Temporal Variability in a Semiarid, Well-Mixed Estuary 2. Goldschmidt virtual meeting. https://www.youtube.com/watch?v=zwTZeaY3K_A
22. **Murgulet, D.,** Lopez, C.V., Barrera C.*, **2021.** Spatial variation of submarine groundwater discharge and nutrient fluxes across a 125-km coastal area spanning variable hydroclimatic conditions: south Texas estuaries. Goldschmidt virtual meeting.
23. Vickers C.M. *, Murgulet, D., Jafarzadeh, A., Moghadam, S.V., Kapoor, V., Lopez C.V., Douglas A.R., **2021**. Mobilization and transport of contaminants to groundwater in flood-impacted South Texas following Hurricane Hanna. 2021 Virtual UCOWR/NIWR Annual Water Resources Conference. https://ucowr.org/conference/past-conferences/
24. Gyawali, B. *, **Murgulet, D.**, and Ahmed, M., **2020**. Estimation of Groundwater Discharge Variability to the Gulf of Mexico Using Remote Sensing and Field Observations. AGU Fall 2020 Virtual Meeting.
25. Wolfe, W.* and **Murgulet, D., 2020**. Constraints on Radon and SGD Temporal Variability in a Semi-arid, Well Mixed Estuary. AGU Fall 2020 Virtual Meeting.
26. McCutchen, M.M., Hu, X., **Murgulet, D**., Douglas, A.R.*, and Lopez, C.V., **2020**: Examining the relationship between alkalinity and submarine groundwater discharge in a semi-arid estuary. Ocean Sciences Meeting 2020.
27. Vickers, C.*, **Dorina, M.**, Felix, J.D., Douglas, A.R., and Wolfe, W., 2020. Groundwater contribution of elevated nutrients to a hypersaline estuary: Laguna Salada (Baffin Bay), Texas. AGU Fall 2020 Virtual Meeting.
28. Wolfe, W.* and **Murgulet, D.**, 2020, Constraints on Radon and SGD Temporal Variability in a Semiarid, Well-Mixed Estuary. Goldschmidt virtual meeting. https://doi.org/10.46427/gold2020.2875.
29. Walker, L.**, **Murgulet, D.,** Lopez, C.V., and Douglas, A.*, **2019.** Temporal changes in the radiogenic signature of shallow groundwater and its potential implications in the SGD estimates in a semiarid area. American Geophysical Union Fall Meeting. H41K-1862,
30. Gyawali, B.* and **Murgulet, D.**, and Ahmed, M., **2019**. Quantifying change in groundwater storage in the coastal region of Texas. American Geophysical Union Fall Meeting. H43M-2239.

31. Greige, M.**, **Murgulet, D.,** Douglas, A.R.*, Abdulla, H.A., 2019. Hurricane Harvey's impact on the DOM composition on the south shore of Corpus Christi Bay, Texas**.** American Geophysical Union Fall Meeting. B23A-05.
32. Douglas, A.R.*, **Murgulet, D.,** Abdulla, H.A., **2019.** Seasonal trends and relationships between surface and porewater dissolved organic matter in a disturbed semi-arid estuary**.** American Geophysical Union Fall Meeting. B13G-2581.
33. Stearns, J* and **Murgulet, D., 2019**. An evaluation of the feasibility of the time-lapse electrical resistivity tomography method in quantifying submarine groundwater discharge in fine sediment and highly saline embayments. SEG Technical Program Expanded Abstracts 2019. https://doi.org/10.1190/segam2019-3216805.1
34. **Murgulet, D., 2019.** What does groundwater have to do with phytoplankton growth and hypoxia in South Texas estuaries? Geological Sciences Seminar, University of Texas at San Antonio. ***Invited talk***
35. **Murgulet, D., 2019.** The impacts on groundwater from mining and "natural" occurrences of radium (Where does uranium occur in groundwater, how serious is the problem and what is the best course of action?). 2019 Texas Groundwater Conference, Austin. ***Invited talk***
36. **Murgulet, D.,** Lopez, C.*, **2019**. Submarine Groundwater Discharge and Nutrient Input to a Semiarid and Hypersaline Estuary: Baffin Bay, Texas. Goldschmidt Geochemical Society Conference. Goldschmidt Abstracts, 2019 2377.
37. **Murgulet, D.,** Murgulet, V., Trevino, M.*, Douglas, A.*, and Hu, X., **2019.** Alkalinity variation in a semi-arid and secondary bay of south Texas. 2019 Texas Sea Grant Research Symposium (April 2019). ***Invited talk***
38. Gyawali, B.* and **Murgulet, D.**, Ruben, Z.*, and Stearns, J.*, **2019.** Quantifying temporal variation in groundwater storage and submarine groundwater discharge in the coastal region of Texas; 2019 Texas Sea Grant Research Symposium (April 2019).
39. Douglas, A.*, **Murgulet, D.,** Abdulla. H., and Montagna, P., **2019**. Molecular characterization of dissolved organic matter in a highly disturbed semi-arid bay. 2019 Texas Sea Grant Research Symposium (April 2019).
40. Ruben, Z.**, **Murgulet, D.,** Douglas, A.*, **2019**. The presence and significance of radium and radon isotopes in south Texas estuaries; ASLO 2019 Aquatic Sciences Meeting, Puerto Rico. (February 2019).

PROFESSIONAL DEVELOPMENT & SERVICE

- Editor, Texas Water Journal (ongoing)
- Panelist for NSF multidisciplinary programs on coastal and environmental issues (ongoing)
- Media Engagement: Invited for more than 20 TV and news interviews to discuss coastal and environmental issues and water resources, demonstrating the ability to

communicate complex scientific topics to a broad audience and enhance public understanding of coastal research and policies.

- Member of regional watershed protection plans (Texas and Alabama) and technical advisory boards (Texas) emphasizing coastal resiliency (ongoing
- Promoting collaborative and inclusive research environments; panelist at TAMU-CC Research and Innovation Office on interdisciplinary research and student inclusion in research.
- Fostering a nurturing and productive research culture: faculty mentor and panelist for TAMU-CC College of Science, advising on best practices for faculty-student research collaboration.
- Community engagement and co-development of knowledge

FUNDED CONTRACTS, GRANTS AND SPONSORED RESEARCH

External-Pending (Total TAMU-CC: $4,107,350)

Jay Banner (UT Austin, lead Institution), **Dorina Murgulet (TAMU-CC Principal**), and Chu-Lin Cheng (UTRGV). Water resource resilience via community-based research. U.S. Environmental Protection Agency (EPA). Lead University-University of Texas Austin, PI - Jay Nanner. Grant total $5,985,776. TAMU-CC Share $1,390,000. ***Pending***

Dorina Murgulet (Principal), Ioana Pavel (CO-PI), Isabel Araiza (Del Mar College (CO-PI). Quenching Thirst: Water Equity in Coastal Colonias. U.S. Environmental Protection Agency (EPA). $ 2,499,994. ***Received Notice of Intent to Fund (Funding expected before September 1, 2024)***

Dorina Murgulet (Principal), Joseph Felix (Co-PI), Vikram Kapoor (UTSA) (Co-PI). Tracing Fecal and Nutrient Pollution to Corpus Christi Bay and Laguna Madre. Coastal Bend Bays Estuary Program $167,356. In-kind form City of Corpus Christi ($50,000).

External-Current (Total: $ 5,746,004; Murgulet share: $3,834,832-excludes in-kind)

Joseph Felix (Principal) and **Dorina Murgulet (Co-PI):** REU SITE: Summer Undergraduate Research focus (SURF): Anthropogenic Impacts on Coastal and Marine Systems. Sponsor: National Science Foundation $ 403,791 (Jan 2024-Dec 2026).

Dorina Murgulet (Principal), Frauke Seemann (Co-PI), and Ioana Pavel (Co-PI), Isabel Araiza (Del Mar Collage Collaborator), Vikram Kapoor (UTSA, Collaborator) and Ioana Pavel (Collaborator). DISES: Through the Prism of Groundwater Pollution: The Interplay of Extreme Wet Events, Socio-Economic Well-Being, and Polity in Unincorporated Communities. National Science Foundation. $1,599,931.

Dorina Murgulet (Principal), Joseph Felix (Co-PI), Vikram Kapoor (UTSA) (Co-PI). Hydroclimatic Modulations of Bacteria/Nutrient Input to Texas Coastal Water. Texas General Land Office; $1,088,477.00. NOAA pass through funding.

Dorina Murgulet (Principal), Chuntao Liu (Co-PI), Xinping Hu (Co-PI), Jennifer Pollack (Co-PI), and Phillipe Tissot (Co-PI). NRT-HDR: Stakeholder-Guided Environmental Science (STAGES). Sponsor: National Science Foundation. $2,000,000 (Murgulet share $1,600,000).

Dorina Murgulet (Principal), Mohamed Ahmed (Co-PI), David Felix (Co-PI), Hussain Abdulla (Co-PI); Hua Zhang (Co-PI); MRI: Acquisition of a Leading-edge Portable Geoprobe System with Subsurface Sampling, Logging and Imaging Capabilities for Geoscience Research and Education; National Science Foundation; $ 330,818 (August 2021-July 2023).

Dorina Murgulet (Principal), Joseph Felix (Co-PI), Vikram Kapoor (UTSA) (Co-PI) and Mohamed Ahmed (Co-PI). Threat of Rising Sea Level & Water Tables to Texas Coastal Septic Systems: An Integrated Study. Sponsor: Texas General Land Office; $ 927,634.00 (Murgulet share $727,000) (June 1, 2021-May 31, 2024).

Colleen Fitzgerald (Principal)**, Dorina Murgulet (Co-PI),** Hua Zhang (Co-PI), Philippe Tissot (Co-PI). SAI: Strengthening Coastal Bend Infrastructure through the Improvement of Science Communication. Sponsor: National Science Foundation $ 49,900 (Murgulet share $12,500) (May 2021-April 2024).

Mohamed Ahmed (Principal) and **Dorina Murgulet (Co-PI)**. Mapping Optimal Locations for Oyster Aquaculture A Substrate, Geochemical and Solute Flux Analyses. Sponsor: Texas General Land Office; $ 99,304.00 (Murgulet share $8,133) (October 2020-June 2024).

Past funded Projects ***(Murgulet share $960,994, excludes in-kind)***

Michael Wetz (Principal), **Dorina Murgulet (Principal),** Hussain Abdula (Principal), Mohamed Ahmed (Principal), and Joseph Felix (Principal). An integrated assessment of nutrient loadings to Baffin Bay, Texas; Lead Organization: TAMUCC; Sponsor: Texas General Land Office; NOAA pass-through funding. $ 1,189,411 (Murgulet share $360,000) (October 2019-August 2023).

Dorina Murgulet (Principal), Supplement for "RAPID: Collaborative Research - Mobilization and transport of contaminants to groundwater in flood-impacted unconnected communities in South Texas following Hurricane Hanna". Sponsor: National Science Foundation $ 23,560 (May 2021-December 2022).

Dorina Murgulet (Principal), Vikram Kapoor (UTSA) (Co-PI) and Abdulla Hussain (CO-PI). RAPID: Collaborative Research - Mobilization and transport of contaminants to groundwater in flood-impacted unconnected communities in South Texas following Hurricane Hanna. Sponsor: National Science Foundation $ 49,999 (Murgulet share $37,000) (October 2020-December 2022). ***Awarded***

Joseph Felix (Principal) and **Dorina Murgulet (Co-PI)**. Quantifying septic effluent nitrogen loading and processing in the Baffin Bay Watershed. $51,750 (Murgulet share $10,000) (November 2018-March 2021).

Hussain Abdulla (Principal) and **Dorina Murgulet (Co-PI):** Assessment of organic pollutants in Nueces Bay's petroleum brine impacted; Sponsor: Coastal Bend Bays and Estuaries Foundation (CBBEP)/TCEQ. $48,290 (Murgulet share $5,000) (March 2019-March 2021).

Xinping Hu (Principal) and **Dorina Murgulet (Co-Principal)**, " Evaluating Groundwater Exported Acidity in the Copano Bay," Sponsored by Texas General Land Office (NOAA-CMP), $98,205.00 (Murgulet share $49,000). (October 2016 – September 2019).

Dorina Murgulet (Principal), " Impacts of Temporal and Spatial Variation of Submarine Groundwater Discharge on Nutrient Fluxes to Texas Coastal Embayments," Sponsored by Texas General Land Office (NOAA-CMP), $92,747.00. (October 2016 – September 2019).

Dorina Murgulet (Principal), Lee W. Clapp (Principal), "Evaluation of Alternative Reductants for Stimulating Uranium Reduction and Immobilization," Sponsored by TAMUS-AGAP, $14,000.00. (2015 and 2017).

Eugene Billiot (Principal), Feri Billiot (Co-Principal), **Dorina Murgulet (Co-Principal),** "MRI: Acquisition of an Agilent 7100 Capillary Electrophoresis Instrument for the Enhancement of Research/Teaching at Texas A&M University-Corpus Christi" Sponsored by National Science Foundation, $61,137.00. (Sept. 2015 – August 2016).

Dorina Murgulet (Principal), "Evaluating groundwater inflow and nutrient transport to Texas coastal embayments, Phase III," Sponsored by Texas General Land Office (NOAA-CMP), $99,500.00. (October 2015 – March 2017).

Dorina Murgulet (Principal), Hay, Richard George (Supporting), "Support for a Total Maximum Daily Load (TMDL) for Indicator Bacteria in Oso Creek, Phase II" Sponsored by Texas Commission on Environmental Quality (TCEQ), $65,000.00.

Dorina Murgulet (Principal), Hay, Richard George (Co-Principal), "Nueces River salinity source evaluation," Sponsored by Lyondellbasell Corpus Christi Plant Site, Private, $13,000.00. (November 2014 – August 2016).

Dorina Murgulet (Institutional PI), Gretchen Miller (Principal), Calvin Finch (Co-I), Michael Martin (Co-I), Brenda Rushing (Co-PI/Collaborator), Aquifer Storage and Recovery for Texas – A Research and Extension Initiative " Sponsored by Research, Engineering, and Extension: Creation and Deployment of Water-Use Efficient Technology Platforms FY'14-FY'15, $221,113.00. (June 2014 - December 2015).

Dorina Murgulet (Co-Principal), Richard George Hay (Principal), "Support for a Total Maximum Daily Load (TMDL) for Indicator Bacteria in Oso Creek," Sponsored by Texas Commission on Environmental Quality (TCEQ), $85,000.00.

Dorina Murgulet (Principal), Richard George Hay (Principal), "Nueces River salinity source evaluation," Sponsored by Lyondellbasell Corpus Christi Plant Site, Private, $3,000.00. (November 2013 – August 2014).

Dorina Murgulet (Principal), Michael S. Wetz (Co-Principal), "Evaluating groundwater inflow and nutrient transport to Texas coastal embayments, Phase II," Sponsored by Texas General Land Office (NOAA-CMP), $94,924.00. (October 2014 – September 2017).

Dorina Murgulet (Principal), Paul A. Montagna (Co-Principal), Kristine Uhlman (Supporting), "Evaluating Groundwater Surface-Water Inflow and Nutrient Transport to Texas Coastal Embayments," Sponsored by Texas Sea Grant College Programs, $217,000.00. (2014-2017).

Dorina Murgulet (Principal), Michael S. Wetz (Co-Principal), "Evaluating groundwater inflow and nutrient transport to Texas coastal embayments," Sponsored by Texas General Land Office (NOAA CMP), $85,686.00. (October 2013 - March 2015).

Funded Internal Grants ($25,400)

Dorina Murgulet (Principal), " Constraints on submarine groundwater discharge inputs from a karst aquifer to the Gulf of Mexico using a novel combination of naturally occurring isotopic tracers", Research Enhancement Grant, Texas A&M University-Corpus Christi, $10,000.00. (November 2022 - August 31, 2023)

Joseph Phelix (Principal) and Dorina Murgulet (Co-Principal).

Dorina Murgulet (Principal), " Groundwater/Surface-Water Transport of Nutrients Contributing to Gulf of Mexico Coastal Margin Hypoxia and Ecosystem Degradation", Proposal resubmission incentive, Sponsored by TRDF, Texas A&M University-Corpus Christi, $2,500.00. (October 2013 - August 31, 2014).

Dorina Murgulet (Principal), " No3-N Trading as Part of Life Cycle Systems to Assure Upstream Agricultural Sustainability and Mitigate Downstream Coastal Ecosystems Risk," Proposal resubmission incentive, Sponsored by TRDF, Texas A&M University-Corpus Christi, $2,500.00. (October 2013 - August 31, 2014).

Dorina Murgulet (Principal), "Thermal Remote Sensing and Resistivity Soundings for Freshwater Availability and Drought Mitigation Thermal Remote Sensing and Resistivity Soundings for Freshwater Availability and Drought Mitigation," Sponsored by College of Science and Engineering-Faculty Research Enhancement Grant, Texas A&M University-Corpus Christi, $2,300.00. (October 2012 - August 2013).

Dorina Murgulet (Principal), "University Level Research Enhancement Grant-Groundwater Inflows and Salinity Source Evaluation in a Tidal Riverine System," Texas Research Development Fund (TRDF), State, $5,000.00. (December 15, 2012 - August 15, 2013).

Dorina Murgulet (Principal), "New Faculty Development Program Awards," Texas A&M University-Corpus Christi, $2,500.00. (January 2012 - August 2012).

Dorina Murgulet (Principal), "Groundwater Resources Research using Resistivity Imaging Techniques," Sponsored by TRDF, Texas A&M University-Corpus Christi, $2,500.00. (November 2011 - August 30, 2012).

Dorina Murgulet (Principal), "College Level Faculty Research Fund-An Evaluation of Drought Impacts on Freshwater Resources Using Thermal Remote Sensing and Resistivity Soundings," Sponsored by TRDF, Texas A&M University-Corpus Christi, $2,249.00. (July 2012 - August 31, 2013).

Dorina Murgulet (Principal), "Management of coastal water resources," New Investigator Initiative, Sponsored by TRDF, Texas A&M University-Corpus Christi, $1,250.00. (June 7, 2012 - August 31, 2012).

Dorina Murgulet (Principal), "Thermal Remote Sensing," Proposal resubmission incentive, Sponsored by TRDF, Texas A&M University-Corpus Christi, $2,500 .00. (June 6, 2012 - August 31, 2012).

THESIS, PROJECT, OR DISSERTATION SUPERVISION

Directed Individual/Independent Study

Supervised 19 diverse projects for graduate and undergraduate students in areas ranging from coastal systems science to environmental geology, emphasizing a personalized approach to academic mentorship.

Visiting Faculty Supervision

Hosted 2 international visiting faculty members, facilitating global academic exchange, which enhanced the department's research capabilities and international collaborations.

Postdoctoral Advising

Mentored 2 postdoctoral researchers, fostering their professional growth and enhancing their expertise in environmental sciences.

Thesis and Dissertation Committee Leadership

Chaired committees for 8 doctoral candidates and 17 master's students, overseeing their research from initiation to completion in Coastal & Marine Systems Science and Environmental Science.

Served as a committee member for 24 additional doctoral and master's students, ensuring high standards and rigorous research methodologies were maintained.

Comprehensive Undergraduate and Graduate Mentoring

Mentored 13 McNair and LSAMP Scholars in conducting undergraduate research projects that prepared them for future academic and professional endeavors.

Provided academic and professional advising to 77 students (50 undergraduates and 33 graduates), with a strong commitment to supporting diversity in STEM through dedicated mentorship of minority students.