

Texas A&M University-Corpus Christi  
Science & Engineering, Physical & Environmental Sciences  
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## **EDUCATION**

- **PhD Geology-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, Geology-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**

- **Program Coordinator, Coastal and Marine System Science**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, September 2019-Present
- **Associate Professor of Hydrogeology**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, September 2017-Present
- **Director, Center of Water Supply Studies**, Texas A&M University-Corpus Christi, September 2015-Present
- **Assistant Professor of Geology**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, August 2011-Present
- **Research Geologist**, Groundwater Assessment Program, Geological Survey of Alabama, January 2009-2011

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## **TEACHING**

GEOL 2102 - Undergrad Seminar in Geology; GEOL 3433- Environmental Geology; GEOL 4444/ESCI 4490-Introduction to Hydrogeology; GEOL 5490/ESCI 5490- ADVANCED TOPICS: Advanced Hydrogeology; GEOL 4490/ESCI 4490- Selected Topics: Introduction to Soil and Groundwater Restoration; GEOL 5490/ESCI 5490- ADVANCED TOPICS: 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-Directed Independent Study; GEOL 4496- Directed Independent Study.

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**PUBLICATIONS** (graduate students supervised are denoted by ‘\*’; undergraduate students supervised are denoted by ‘\*\*’)

### Peer-Reviewed Publications in International Journals

- 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>
- Lopez, C.\*, **Murgulet, D.**, Santos, I. (2020). 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>.
- Felix, J.D. and **Murgulet, D.** (2020). Nitrate isotopic composition of sequential Hurricane Harvey wet deposition: Low latitude NO<sub>x</sub> sources and oxidation chemistry. *Atmospheric Environment*, p.117748. <https://doi.org/10.1016/j.atmosenv.2020.117748>
- Douglas A.R.\*, **Murgulet, D.** and Montagna, P. (2020). Hydroclimatic variability drives submarine groundwater discharge and nutrient fluxes in an anthropogenically disturbed, semi-arid estuary. *Science and Total Environment Journal*, 142574. <https://doi.org/10.1016/j.scitotenv.2020.142574>.
- 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>
- 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>
- 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>
- 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>
- 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>
- 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>

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.

**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>

**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

**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

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.

\*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

**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>.

**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.

**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.

**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.

#### Submitted, In-review manuscripts

Douglas, A. R. \*, **Murgulet, D.**, and Abdulla, H.A.N. Seasonal trends and relationships between surface and porewater dissolved organic matter in a disturbed estuary using HPLC Fusion Orbitrap MS and multivariate statistical analyses. *Submitted to Marine Chemistry (December 2020)*.

Coeckelenbergh, K.\*, **Murgulet, D.**, Uhlman, K., and Vickers, C. \*. Oil and Gas exploration and impacts on shallow groundwater resources. *Submitted to Texas Water Journal (September 2020). In Revision.*

### **Book, Chapter in Scholarly Book**

**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](#)

**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](#)

**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>

### **In Preparation; Close to Submission**

Academic Journals: 2

### **Non-Refereed Publications**

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.

**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.

Lopez, C.\*, **Murgulet, D.**, Douglas, A\*, and Murgulet, V. (2018). Evaluating Groundwater Inflow and Nutrient Transport to Texas Coastal Embayments, Phase III (Baffin Bay). Scientific report submitted to Texas General Land Office, April 2018; p. 105. *GLO Contract No. 16-060-000-9104.*

Douglas, A\*, **Murgulet, D.**, Wetz, M., and Spalt, N\* (2017). Evaluating Groundwater Inflow and Nutrient Transport to Texas Coastal Embayments, Phase II (Mission-Aransas Estuary). Scientific report submitted to Texas General Land Office, April 2017; p. 103. *GLO Contract No. 15-047-000-8392.*

Douglas, A.\*, Spalt, N.\*, **Murgulet, D.**, 2016. Effects of naturally occurring radium activity and activity ratio heterogeneity on derived water mass ages and SGD: lessons learned from Nueces Bay, Texas. *Gulf Coast Association of Geological Societies Transactions.*

- Spalt, N.\*, Douglas, A.\*, **Murgulet, D., 2016.** Variation in SGD among Depositional Environments in a Semi-arid Coastal Area: Lessons Learned from South Texas Estuaries. *Gulf Coast Association of Geological Societies Transactions*.
- Murgulet, D.,** Wetz, MS, \*Douglas, A, \*Spalt, N, and \*Linares, K. (2015). Evaluating Groundwater Inflow and Nutrient Transport to Texas Coastal Embayments. Scientific report submitted to Texas General Land Office August 2015; p. 102; *GLO Contract No. 14-081-000-7949*.
- Murgulet, D.** and Hay, R. (2015). Technical Support document: Bacteria Total Maximum Daily Load for the Oso Creek Watershed, Texas. Submitted October 15, Contract No. 582-11-90501; Work Order No. 13
- Cook, M., **Murgulet, D.,** and Rogers, A., 2014, Hydrogeologic characterization of Thomas Spring, Jefferson county, Alabama. Edited by GSA (Tuscaloosa: Geological Survey of Alabama, 2014. <http://www.gsa.state.al.us/downloads/SGAP/Thomas%20Spring/Thomas%20Spring%20GSA%20Assessment%20Report.pdf>.
- \*Khan, R.H. and **Murgulet, D., 2013,** Analyses of salinity intrusion mechanisms in the south Texas coastal aquifers using multiple statistical techniques. *Geological Society of America Abstracts with Programs, Vol. 45, No. 7, p.397*.
- \*Khan, R.H. and **Murgulet, D., 2013,** Comparative study of the changes in climatic condition and seasonal drought in the north-western part of bangladesh. *Geological Society of America Abstracts with Programs, Vol. 45, No. 3, p.19*.
- Cook, M.R., **Murgulet, D.** and Moss, N., 2009, Potential for large-scale irrigation from groundwater sources in the Black Belt region of Alabama, *Geological Survey of Alabama, Open-file report: 0911*.
- Tick, G.R. and **Murgulet, D., 2009,** Sources and fate of nitrate in the aquifer system underlying southern Baldwin County, Alabama. *Geological Society of America Abstracts with Programs, Vol. 41, No. 7, p. 651*.
- Murgulet, D.** and Cook, M.R., 2009, Water-quality evaluation of the Choctawhatchee and Pea Rivers in southeast Alabama, *Geological Survey of Alabama, Open-file report: 0906*.
- Murgulet, D.** and Tick, G.R., 2009, Assessing sources of nitrate in groundwater and surface water using a dual isotope approach in southern Baldwin County, Alabama, Alabama Water Resources Research Institute (AWRRI) *Report UA 08-0295*.
- Murgulet, D.** and Tick, G.R., 2009, Characterization of groundwater resources in southern Baldwin County, Alabama: geophysical and geochemical surveys of saltwater intrusion and groundwater evolution” Alabama Department of Conservation Natural Resources (ADCNR) *Report UA 5-30402*.
- Murgulet, D.** and Cook, M.R., 2011, Groundwater hydrogeologic characterization, preservation, and development in the Trussville area, Jefferson and St. Clair Counties, *Geological Survey of Alabama, Open-file Report*.
- Murgulet, D.** and Cook, M.R., 2010, Water-quality evaluation of the Choctawhatchee and Pea Rivers in southeast Alabama, *Geological Survey of Alabama, Bulletin 182*.

Cook, M.R., Moss, N., and **Murgulet, D.**, 2009, Analysis of sediment loading rates for the Magnolia River Watershed, Baldwin County, Alabama 2009, *Geological Survey of Alabama, Open-file report: 0914*.

**Murgulet, D.** and Tick, G. R., 2008, Assessing the Extent of Saltwater Intrusion in the Aquifer System of Southern Baldwin County, Alabama, *Proceedings Paper of the 20th Saltwater Intrusion Meeting (SWIM)*, June 23-27.

### **Presentations/Abstracts**

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,

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.

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.

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.

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>

**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***

**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***

**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.

**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***

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).

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).

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).

Dias, L., Hu, X., **Murgulet, D.**, **2018**. Factors influencing the alkalinity of a south Texas estuary," 2018 Gulf Estuarine Research Society Meeting, Gulf Estuarine Research Society, Galveston, TX. (November 8, 2018).

**Murgulet, D.**, Coeckelenbergh, K.\*, Uhlman, K., **2018**. Freshwater Withdrawals Associated with Oil and Gas Production in Texas - Dorina Murgulet, Texas A&M University-Corpus Christi; 2018 UCOWR/NIWR Annual Water Resources Conference.

Gyawali, B.\* and **Murgulet, D.**, **2018**. Prediction of Terrestrial Water Storage Using Different Modelling Approaches; 2018 UCOWR/NIWR Annual Water Resources Conference.

**Murgulet, D.**, **2017**. Submarine Groundwater Discharge and Solute Fluxes to a Semi-arid Coastal Area: Lessons Learned from South Texas Estuaries; Depto. de Recursos del Mar CINVESTAV-IPN, Unidad Mérida. *Invited talk*.

**Murgulet, D.**, Trevino, M.\*, Douglas, A.\*, Spalt, N.\*, Murgulet, V. and Hu, X., **2017** Groundwater-Derived Alkalinity Fluxes to a Secondary Bay: A Temporal and Spatial Perspective. Goldschmidt Geochemical Society Conference  
(<https://goldschmidt.info/2017/abstracts/abstractView?id=2017006238>)

Douglas A. \*, Abdulla H., Maupins M., Jemison C., and **Murgulet D.**, **2017**. Molecular characterization of dissolved organic matter in surface and groundwater in a highly disturbed semi-arid secondary bay (29227). Association for the Sciences of Limnology and Oceanography annual meeting (February 2017).

Murgulet V., Trevino M.\*, Douglas A.\*, Hu X., and **Murgulet D.**, **2017**. Alkalinity variation in a semi-arid and secondary bay of South Texas (29213). Association for the Sciences of Limnology and Oceanography annual meeting (February 2017).

Pena M.\*\*, Douglas A.\*, and **Murgulet D.**, **2017**. Assessment of historical oil-field brine discharge influences on sediment-supported radionuclide activities (29234). Association for the Sciences of Limnology and Oceanography annual meeting (February 2017).

Lopez, C.\*; Douglas, A.\*; Spalt, N.\*; **Murgulet, D.**, **2017**. Using radium isotopes to determine residence times in Baffin Bay, Texas (29197) Association for the Sciences of Limnology and Oceanography annual meeting (February 2017).

Gyawali, B.\*; **Murgulet, D.**, **2017**. Evaluation of coastal groundwater storage variability: implications on the effects of climate anomalies on submarine groundwater discharge (SGD) (29178). Association for the Sciences of Limnology and Oceanography annual meeting (February 2017).

Spalt, N.\*, Douglas, A.\*, **Murgulet, D.**, **2016**. Coupling  $^{222}\text{Rn}$  measurements and geophysical techniques to constrain SGD occurrences in relation to estuarine depositional environments. VI International Ra-Rn Workshop, Girona, Spain. (July 18, 2016).

Douglas, A.R.\* , Spalt, N.\* , **Murgulet, D.**, **2016**. Effects of naturally occurring radium and radon activity heterogeneity on derived water mass ages and SGD: lessons learned from a semi-arid south Texas estuary. VI International Ra-Rn Workshop, Girona, Spain. (July 18, 2016).

Trevino, M.\*, Hu, X., Douglas, A.\*, Spalt, N.\*, **Murgulet, D., 2016.** Alkalinity Dynamics in Groundwater Affected Secondary Bay in South Texas” Texas Bays and Estuaries Meeting, Port Aransas, Texas. (April 13, 2016).

Spalt, N.\*, Douglas, A.\*, Trevino, M.\*, **Murgulet, D., 2016.** Postulating Hydrodynamic and Geochemical Processes Associated with Nutrient Delivery in Copano Bay, Texas. Texas Bays and Estuaries Meeting, Port Aransas, Texas. (April 13, 2016).

Douglas, A.\*, Spalt, N.\*, Trevino, M.\*, **Murgulet, D., 2016.** The role of submarine groundwater discharge (SGD) as a pathway for nutrient discharge to Nueces Bay, Texas. Texas Bays and Estuaries Meeting, Port Aransas, Texas. (April 13, 2016).

**Murgulet, D., 2015.** Submarine Groundwater Discharge and Nutrient Fluxes in a Semi-arid area: Lessons Learned from coastal South Texas; Texas A&M University-Kingsville, Environmental Engineering Department Seminar Series *Invited talk*.

Douglas, A.\*, Spalt, N.\*, **Murgulet, D., 2015.** Identifying Groundwater Discharge Sources and Associated Geochemical Influences Using Resistivity and Geochemical Tracers in a Semi-Arid Estuary in South Texas”. American Geophysical Union, San Francisco, California. (December 16, 2015).

Spalt, N.\*, Douglas, A.\*, **Murgulet, D., 2015.** Groundwater and Associated Solute Contribution to a Pristine Semi-Arid Estuary Using Resistivity Imaging, Naturally Occurring Radioactive Tracers, and Geochemical Methods”. American Geophysical Union, San Francisco, California. (December 16, 2015).

**Murgulet, D.,** Douglas, A.\*, Spalt, N.\*, **2015.** Processes Driving Submarine Groundwater Discharge and Nutrient Fluxes in a Semi-arid Coastal Area: Coastal South Texas, American Geophysical Union, San Francisco. (December 16, 2015).

Murgulet, V., Hay, R. G., **Murgulet, D.,** Groundwater Discharge and Salinity Sources to an Impaired Major River in a Semi-Arid Coastal Region: Nueces River, Texas, American Geophysical Union, San Francisco. (December 16, 2015).

**Murgulet, D.,** Audrey, D. \*, Nicholas, S. \*, **2015.** Processes Driving Submarine Groundwater Discharge and Nutrient Fluxes in a Semi-arid Coastal Area: Coastal South Texas, American Geophysical Union, San Francisco. (December 16, 2015).

Douglas, A.\*, Scotch, C.\*, McBee, W.\*, **Murgulet, D., 2015.** Linking seasonal variation of submarine groundwater discharge to nutrient fluxes in Nueces Bay, Texas," National Groundwater Summit, NGWA, San Antonio.

**Murgulet, D.,** Audrey, D.\*, **2015.** The Role of Groundwater and Submarine Groundwater Discharge in Coastal Systems” Teachers on the Estuary Workshop and Mission-Aransas NERR (June 2015) (*Invited*).

**Murgulet, D.,** Coffin, R., Rose, P., Hay, R. G., **2014.** Shallow Aquifer Methane Gas Source Assessment, American Geophysical Union, AGU, San Francisco.

**Murgulet, D.,** Douglass, A.\*, Scotch, C.\*, McBee, W.\*, Hay, R. G., **2014.** Linking groundwater discharge to increased salinities in a semi-arid coastal area, Geological Society of America *Abstracts with Programs*. Vol. 46, No. 6, p.411.

Murgulet, V., Cook, M., **Murgulet, D., 2014.** Groundwater mixing along solution-enhanced fractures discerned by elemental and stable isotope geochemistry, Geological Society of America *Abstracts with Programs*. Vol. 46, No. 6, p.119.

McBee, W.\*, Scotch, C. G.\*, Douglas, A.\*, **Murgulet, D., 2014.** Linking Seasonal Variation of Submarine Groundwater Discharge to Hypoxia in Corpus Christi Bay, Geological Society of America, *Abstracts with Programs*. Vol. 46, No. 6, p.116.

**Murgulet, D., \*Scotch, C. G., Hay, R. G., 2014.** Quantifying Groundwater Discharge Using Statistical Analysis of Temperature Time-Series and Resistivity Methods, Geological Society of America, *Abstracts with Programs*. Vol. 46, No. 6, p.743.

Hampton, C.\*\*, Rose, P., Coffin, R., Boyd, T., **Murgulet, D., 2013.** Eagle Ford Shale Play Methane Source and Fate Assessment, American Geophysical Union, San Francisco.

Scotch, C. G.\*, Hay, R. G., and **Murgulet, D. 2013.** Delineation of Surface-Groundwater Interactions Using Statistical Analysis of Temperature Time-Series and Resistivity Methods," American Geophysical Union, San Francisco.

Khan, R.H.\* and **Murgulet, D., 2013.** Analyses of salinity intrusion mechanisms in the south Texas coastal aquifers using multiple statistical techniques. *Geological Society of America Abstracts with Programs*, Vol. 45, No. 7, p.397.

**Murgulet, D., Bighash, P.\*, Scotch, C. G., Khan, R.\*, Hay, R. G., 2013.** Evaluating groundwater inflow to Texas coastal embayments," *Oceanography* 2013.

**Murgulet, D., Khan, R.\*, Hay, R. G., Scotch, C. G., Minnich, B., 2013.** Applied Geophysical Concepts for Salinity Source Evaluation in the Tidal Nueces River, Texas, 2013 NGWA Summit — The National and International Conference on Groundwater, National Groundwater Association, San Antonio, Texas.

**Murgulet, D., Bighash, P.\*, Scotch, C. G., 2013.** Evaluation of groundwater inflows to a semiarid coastal bay in south Texas, ASLO Aquatic Science Meeting 2013, New Orleans.

**Murgulet, D., Tick, G. R., Cook, M., Bighash, P.\*, Scotch, C. G., Khan, R. H.\*, 2013.** Combined use of gis, hydrostratigraphic, geochemical, and multi-isotope analysis for groundwater source evaluation, South Texas Geological Society, San Antonio (*Invited*).

**Murgulet, D. and Tick, G. R., 2012.** Understanding the Sources and Fate of Nitrate in a Highly Developed Aquifer System," American Geophysical union (AGU), San Francisco.

Bighash, P.\* and **Murgulet, D., 2012.** Utilizing Resistivity Soundings and Forensic Geochemistry to Better Understand the Groundwater Contributions and the Interaction with Surface Water in a Streambed in the Texas Gulf Coast Area, AGU, San Francisco.

Scotch, C. G. \*, Hay, R. G., **Murgulet, D., 2012.** Utilizing Temperature and Resistivity Data as a Way to Characterize Water and Solute Movement and Groundwater-Surface Water Interaction in Variably Saturated Porous Media, American Geophysical union (AGU), San Francisco.

Bighash, P.\*and **Murgulet, D., 2012.** Utilizing Resistivity Soundings and Forensic Geochemistry to Better Understand the Groundwater Contributions and the Interaction with Surface Water in a Streambed in the Texas Gulf Coast Area, SACNAS, Seattle.

**Murgulet, D. (2012)**, Current and projected coastal aquifer vulnerability, Seawater Intrusion and Coastal Aquifer Vulnerability Workshop, Alabama, Alabama Department of Conservation and Natural Resources and Weeks Bay Reserve, Weeks Bay Reserve, AL (*Invited*).

**Murgulet, D.** and Cook, M., **2011**. Combined use of GIS, hydrostratigraphic, geochemical, and multi-isotope analysis for groundwater preservation and development in a complex karst setting, AGU, San Francisco.

**Murgulet, D., 2011**. Using isotope geochemistry tools in hydrogeologic investigations, **2011** Groundwater Conference, Alabama Department of Environmental Agency, Montgomery, AL.

Cook, M. R. and **Murgulet, D., 2011**. Hydrogeologic investigation of fractured karst aquifers in an urban Alabama Valley and Ridge Setting, 2011 Ground Water Summit and Ground Water Protection Council Spring Meeting, National Groundwater Association, Baltimore.

**Murgulet, D., 2010**. Coastal groundwater contamination in relation to flow dynamics, *24th Annual Alabama Water Resources Conference and Symposium*, Fall 2010.

**Murgulet, D, 2009**. Groundwater flow characterization under severe drought conditions using multi-isotope data, *Geological Sciences Advisory Board Fall Meeting*, The University of Alabama.

Tick, G.R. and **Murgulet, D., 2009**. Sources and fate of nitrate in the aquifer system underlying southern Baldwin County, Alabama. *Geological Society of America Abstracts with Programs*, Vol. 41, No. 7, p. 651.

**Murgulet, D.** and Tick, G.R., **2009**. Characterization of the groundwater flow system of Southern Baldwin County, Alabama using multi-isotope data, 24th Annual Alabama Water Resources Conference and Symposium, Fall 2009.

**Murgulet, D.** and Tick, G.R., **2008**. Evaluation of the origin and fate of nitrate in the aquifer system of southern Baldwin County, Alabama using multi-isotope data. American Geophysical Union Fall Meeting.

**Murgulet, D.** and Tick, G. R., **2008**. Assessing the Extent of Saltwater Intrusion in the Aquifer System of Southern Baldwin County, Alabama, Proceedings Paper of the 20th Salt Water Intrusion Meeting (SWIM), June 23-27.

**Murgulet, D.** and Tick, G.R., **2006**. The extent of saltwater intrusion, Southern Baldwin County. American Geophysical Union Fall Meeting.

**Murgulet, D.** and Tick, G.R., **2006**. The extent of saltwater intrusion, Southern Baldwin County. Bama Grad Expo (November 2006).

**Murgulet, D.** and Tick, G.R., **2006**. "Preliminary Results for the Extent of Saltwater Intrusion in Southern Baldwin County, Alabama." 2006 Geological Sciences Advisory Board Spring Meeting.

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## PROFESSIONAL DEVELOPMENT

- Women in Geoscience TAMU-CC Chapter Faculty Advisor
- PI panelist for NSF Grant-Writing Bootcamp, TAMU-CC
- Developed and lead a workshop for the Rockport citizens on "Free Well Disinfection and

Water Quality Workshop for Private Well Owners” in collaboration with Sea Grant and AgriLife Extension

- Facilitator for the 2018 “Connecting Texas Water Data Workshop”
  - Mentor and Scientific Advisor for the NASA Develop National Program (2015)
  - Aquifer Storage and Recovery, TAMU system team expert
  - Seawater Intrusion and Coastal Aquifer Vulnerability Workshop
  - Early Career Geoscience Faculty workshop participant, National Science Foundation.)
  - Professional Development and Review of eLearning workshop participant, TAMUCC.
  - Research Coordination Network for Science, Engineering and Education for Sustainability on Climate, Energy, Environment and Engagement in Semiarid Regions RCN CE3SAR Charrette workshop participant
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## FUNDED CONTRACTS, GRANTS AND SPONSORED RESEARCH

### External

**Dorina Murgulet (Principal)**, Mohamed Ahmed (Co-PI), David Felix (Co-PI), Hussain Abdulla (Co-PI); Hua Zhang (Co-PI); Project/Proposal Title: MRI: Acquisition of a Leading-edge Portable Geoprobe System with Subsurface Sampling, Logging and Imaging Capabilities for Geoscience Research and Education; National Science Foundation; \$344,000 (January 2021). *Under Review*

**Dorina Murgulet (Co-PI)**, SAI: Strengthening Coastal Bend Infrastructure through the Improvement of Science Communication. Sponsor: National Science Foundation \$ 49,900 (October 2020). *Under Review*

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

**Dorina Murgulet (Principal)**, David Felix (Co-PI), Hussain Abdulla (Co-PI); Vikram Kapoor (Co-PI, UTSA); Project/Proposal Title: HS: Collaborative Research: Coupled hydrologic processes and biogeochemical transformations in a coastal karst environment; National Science Foundation; \$ 565,658 (August 2020). *Under Review*

**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; \$ 914,634.00 (June 1, 2021-May 31, 2023). *Pending*

Michael Wetz (Principal), **Dorina Murgulet (Principal)**, Hussain Abdulla (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; \$ 1,189,411 (October 2019). *Awarded*

**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 \$ 49,900 (October 2020).

*Awarded*

David Felix (Principal) and **Dorina Murgulet (Co-PI)**. Quantifying septic effluent nitrogen loading and processing in the Baffin Bay Watershed. \$51,750 (November 2018).

*Awarded*

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-March 2019). *Awarded*

***Past funded Projects***

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. (October 2016 – September 2019). *Awarded*

**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). *Awarded*

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

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 2015). *Awarded*

**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). *Awarded*

**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. *Awarded*

**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). *Awarded*

**Dorina Murgulet (Institutional PI)**, Gretchen Miller (Principal), Calvin Finch (Co-I), Michael Martin (Co-I), Brenda Rushing (Co-PI/Collaborator), Evaluating groundwater inflow and nutrient transport to Texas coastal embayments, 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).

*Awarded*

**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. *Awarded*

**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). *Awarded*

**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 – Present). *Awarded*

**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. (April 2014 – Present). *Awarded*

**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). *Awarded*

#### **Funded Internal Grants**

**Dorina Murgulet (Principal)**, " Groundwater/Surface-Water Transport o 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). *Awarded*

**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). *Awarded*

**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). *Awarded*

**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). *Awarded*

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

**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). *Awarded*

**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). *Awarded*

**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). *Awarded*

**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). *Awarded*

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## THESIS, PROJECT, OR DISSERTATION SUPERVISION

### Directed Individual/Independent Study (Graduate and undergraduate)

Bimal Gyawali, Joseph Stearns, Cody Lopez, Katie Coeckelenbergh, William McBee; Melissa Trevino; Nicholas Spalt; Alex Wade; Luis Lugo; Chester Scotch; Neil Rosales; Kellie Rulong; Dawn Yandle.

### Doctoral Advisory Committee Chair

Chrissy Barrera (Coastal & Marine Systems Science) In-Process (August 2020- Present)  
*- in progress.*

Bimal Gyawali (Coastal & Marine Systems Science) In-Process (June 2016- Present)  
*- in progress; written qualifying exam passed.*

Audrey Douglas (Coastal & Marine Systems Science) In-Process (January 2014- Present)  
*- successfully defended dissertation, summer 2020*

Riaz Khan (Coastal & Marine Systems Science) - (August 2012 – December 2014)  
*-graduated with MS*

### Master's Thesis Committee Chair

William Wooten (Environmental Science, Spring 2021-Present)

William Wolfe (Coastal and Marine System Science, Fall 2019-Present)

Christopher Vickers (Coastal and Marine System Science, Spring 2020-Present)

Allison Corcoran (Environmental Science, Spring 2014 – Spring 2020) In-Process (out of campus full-time job). *Graduated*

Joseph Stearns (Environmental Science, Fall 2017 – Fall 2019) *Graduated.*

Cody Lopez (Environmental Science, Fall 2016 – Summer 2018) *Graduated.*

Melanie Lynch (Environmental Science, Summer 2016 - Present). Leave of absence since 2018.

Katie Coeckelenbergh (Environmental Science, Spring 2016-December 2017) (out of campus full-time job). *Graduated*

William McBee (Environmental Science, Spring 2013 – December 2017) (out of campus full-time job) *Graduated*

Nicholas Spalt (Environmental Science, January 2015 – December 2016). *Graduated*

Melissa Trevino (Environmental Science, Fall 2014 – August 2016). *Graduated*

Alex Wade (Environmental Science, August 2012 – May 2014) – *Graduated*

Chester Gene Scotch (Environmental Science, Spring 2012 – December 2016) In-Process: *Proposal submitted Fall 2014; (out of campus full-time job); Graduated*

Paniz Bighash (Environmental Science, October 2011 - October 2013)-*Graduated*

### **Doctoral and Master's Thesis Committee Member**

Tejaswini Penchala, Master's thesis committee member, Texas A&M University-Corpus Christi. In-Process (Spring 2020 - Present)

Michael Haley, Master's thesis committee member, Texas A&M University-Corpus Christi. In-Process (Fall 2019 - Present)

Dias, Larissa, Dissertation committee member, Texas A&M University-Corpus Christi. In-Process (Summer 2017 - Present)

Sagar Shrestha, Dissertation committee member, Texas A&M University-Corpus Christi. In-Process (Spring 2016 - Present)

Osia Nebechi, Dissertation committee member, Texas A&M University at Kingsville, Environmental Engineering Department (Spring 2015 – Summer 2019). *Graduated*

Brian Brathovd, Master's thesis committee member, University of Alabama, Department of Geological Sciences (Spring 2016-Summer 2018). *Graduated*

Cheyenne Olson, Master's thesis committee member, Texas A&M University-Corpus Christi. *Graduated*

Onyinyechi Anyanso, Master's thesis committee member, Texas A&M University at Kingsville, Environmental Engineering Department. *Graduated*.

Kelly Brieden, Master's thesis committee member; Texas A&M University-Corpus Christi. *Graduated*

### **Supervised Research/ McNair Scholars**

*Lauren Williams* (Environmental Science and Geology; McNair); *Zoe Ruben* (Environmental Science; LSAMP), *Loren Walker* (Geology; McNair), *Megan Greige* (Environmental Science; McNair) "Groundwater chemistry response to aquifer recharge following precipitation events; Post-Hurricane Harvey organic matter molecular characterization of Corpus Christi Bay water; Spatial and temporal SGD variability along the South Texas estuaries" In-Process (January 2018 - 2020).

*Garret Arnett* (Environmental Science; LSAMP): Development of a conceptual groundwater model for desalinization practices (Fall 2017-Summer 2018).

*Melissa Pena* (Geology major, Math Minor) "Assessment of Historical Oil-Field Brine Discharge Influences on Sediment-supported Radionuclide Activities" In progress (Summer 2016 - 2017).

*Courtne Hampton* (Environmental Sciences major, Chemistry Minor) "Groundwater methane source evaluation in South Texas" Completed (Spring 2013 - Fall 2013)

*Kellie Rulong* (Geology) "Porosity and Hydraulic Conductivity of Sediments in a Semi-Arid Environment in Relation to Groundwater – Surface-water Interactions" Completed (Spring 2013 - Fall 2013)

*Luis Lugo* (Geology) "Application of hydrologic field measurements for improved understanding of groundwater-surface water interaction" In-Process (Spring 2014 – fall 2015)

**Academic Advising/Mentoring**

**2011-2015**

Number of Undergraduate Advisees	21	Number of Graduate Advisees	22
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**COLLABORATORS AND CO-EDITORS (underlined if currently or formerly a student)**

Mariño Tapia Ismael De Jesus (Depto. de Recursos del Mar CINVESTAV-IPN, Unidad Mérida); Geoffrey R. Tick (Univ. of Alabama); Uhlman, Kristine (Univ. of Texas at Austin, Bureau of Economic Geology); DeFord, J. P. (Univ. of Texas at Austin, Bureau of Economic Geology) Paula Rose (Texas A&M University-Corpus Christi); Richard Coffin (Texas A&M University-Corpus Christi); Miller, Gretchen (Texas A&M University-College Station); Langevin, C. (USGS); Wetz, M. (Texas A&M University-Corpus Christi); Montagna, P. (Texas A&M University-Corpus Christi); Paul Cizmas (Texas A&M University-College Station); Adrian Stanica (National Institute for Marine Geology and Geoecology - GeoEcoMar, Romania); Danny Hardin (University of Alabama-Huntsville); Paniz Bighash, Audrey Douglas, Coly Lopez, Nicholas Spalt.