ORGANIZATION ROLE
Research Earth Scientist

PROJECT ROLE / FOCUS AREAS
Coastal, marine, and fluvial geology
Regional Sediment Management
Large Scale Landscape Evolution
Applied Sedimentology
Marine Geophysics
Lidar and high-resolution topography analysis

EDUCATION
Ph.D., Geological Science, The University of Texas at Austin, 2019
MS, Geological Sciences, University of Texas at Austin, 2014
BS, Geology, University of Pittsburgh, 2012

PROFESSIONAL MEMBERSHIP
American Geophysical Union, Earth and Planetary Surface Processes Section
Geological Society of America
International Association of Sedimentologists
American Association of Petroleum Geologists

JOHN SWARTZ, PH.D.

Research Earth Scientist

John Swartz, Ph.D., research scientist, joined the Institute from University of Texas at Austin where he was a postdoctoral fellow with expertise in applied sedimentology, geomorphology, and water resources. John works on understanding of the topography of rivers, floodplains, and coasts and has done extensive work characterizing the dynamics of these systems using combined field, remote sensing, and historical data. In addition, John's work includes projects identifying potential sand resources along the Texas coast and the use of applied sedimentology to connect research to policy makers and communities for better coastal restoration.

As a visiting scholar with University of Colorado's Community Surface Dynamics Modeling System, John continues to work with a community of scientists focused on developing and improving models of earth surface processes. Before joining the Institute, John's experience included working as a geologist at ConocoPhillips, the U.S. Geological Survey, and the Woods Hole Oceanographic Institution.

PROFESSIONAL EXPERIENCE

2021–Present: Research Scientist, The Water Institute

2020–Present: Visiting Scholar, University of Colorado-Boulder

2020–2021: Postdoctoral Fellow, University of Texas at Austin

2020–2021: Postdoctoral Fellow, Boise State University

2015–2019: Graduate Research Fellow, University of Texas Austin

2018: Geology Intern, Equinor US

2014–2015: Sedimentologist, ConocoPhillips Company

2013: Geoscience Intern, ConocoPhillips Company

2012–2014: Graduate Research Fellow, University of Texas Austin

2012: Geologist, United States Geological Survey

2011–2012: Research Assistant, Woods Hole Oceanographic Institution

2010: Summer Fellow, Woods Hole Oceanographic Institution

SELECTED PROJECTS

Louisiana Sediment Management Program Project Manager. *Coastal Protection and Restoration Authority. (Ongoing)***.** Research Earth Scientist. For the Coastal Protection and Restoration Authority, project is developing a regional sediment inventory to match resources with future coastal restoration projects and conducting numerical modeling of sediment borrow areas to understand environmental impacts of use.

Texas Offshore Sediment Management Plan Surveys: Data Interpretation and Development of Geologic Models. *Texas General Lands Office. (Ongoing).* Co-Principal Investigator. Providing technical, subject matter expertise, and field support on an offshore sand resources identification project for Texas General Lands Office (GLO). This work is an important step in identifying and grading sediment resources reserves to support future coastal restoration projects, as well as inform coastal models of accretion and erosion.

Lowermost Mississippi River Management Program. *Coastal Protection and Restoration. (Ongoing).* Task Lead*.* The project aims to identify future (100 yrs) scenarios of sediment and water management that provides holistic value across coastal protection, navigation, and ecosystem restoration. A modeling framework for evaluating river geomorphic evolution, physical outcomes and the costs and benefits of alternative management strategies is being developed.

Natural and Anthropogenic Drivers of Lower Rio Grande River Morphodynamics. *University of Texas at Austin. (2016–2019).* The project was developed to assess the sediment transport and hydrologic dynamics of the lower river along the US-Mexico border over the last ~130 years. The river and delta have been subject to anthropogenic stresses due to a combination of dam and levee construction, water use, and sand mining. This work provides a foundation to inform future efforts to restore natural sediment and ecosystem functions to the Rio Grande delta.

Texas Offshore Sediment Resources Inventory: Development and Application of Geophysical Processing Workflows for Sand Resource Evaluation. *Texas General Lands Office. (2016–2019).* The project provided new estimations of offshore sand/sediment resources near the Texas coast and create new workflows and approaches to offshore sediment prospecting. The project was designed to test the utility of new processing workflows for marine geophysical data to enhance imaging and delineation of potential sediment resources on the continental shelf, to create a new assessment of potential resources within the Trinity River paleo-valley offshore Galveston, TX, and to digitize and archive legacy geologic and geophysical datasets across the Texas continental shelf.

Identification and Characterization of Floodplain Channel Networks on the Gulf Coastal Plain. *(2017–2019).* Lowland coastal plains are vulnerable to significant fluvial, pluvial, and compound flooding. To better characterize the detailed topography of these floodplains and help improve predictions of flood inundation and extent a novel compilation of over 125,000km2 of lidar data was assembled and analyzed to delineate small-scale channel networks that exist in between the larger river systems.

SELECTED PUBLICATIONS

1. Swartz, JM, Goudge, TA, and Mohrig, DC., Quantifying Coastal Fluvial Morphodynamics over the Last 100 Years on the Lower Rio Grande, USA and Mexico, Journal of Geophysical Research-Earth Surface. 2020.
2. Goff, JA, Swartz, JM, Gulick, SPS, Dawson, CN, and Alegria-Arzaburu, R., An outflow event on the left side of Hurricane Harvey: Erosion of barrier sand and seaward transport through Aransas Pass, Texas, Geomorphology. 2019.
3. Kohut, JT., Kustka, AB., Hiscock, MR, Lam, PJ, Measures, C, Milligan, A, White, A, Carvalho, F, Hatta, M, Jones, BM, Ohnemus, DC, and Swartz, JM., Mesoscale variability of the summer bloom over the northern Ross Sea shelf: A tale of two bank, Journal of Marine Systems. 2016.
4. Gulick, SPS, Jaeger, JM, Mix, AC, Expedition 341 Science Team… and Swartz, JM., Mid Pleistocene climate transition drives net mass loss from rapidly uplifting St. Elias Mountains, Alaska, Proceedings of the National Academy of Sciences. 2015.
5. Swartz, JM, Gulick, SPS, and Goff, JA., Gulf of Alaska continental slope morphology: Evidence for recent trough mouth fan formation, Geochemistry, Geophysics, Geosystems. 2015.