

Jens Figlus, Ph.D.

Associate Professor
College of Engineering
Department of Ocean Engineering
Texas A&M University

200 Seawolf Pkwy
Galveston, TX 77554
T: 409-741-4317 | C: 609-992-2702
PMEC 218 | figlusj@tamu.edu

RESEARCH EXPERTISE and INTERESTS

- **Applied coastal research and engineering**
- **Hydraulic engineering and environmental fluid mechanics**
- **Field and laboratory experiments**
- **Process-based numerical modeling**
- Nearshore and estuary hydrodynamics, sediment transport, beach and barrier island morphodynamics, dune and structure wave overtopping, sediment overwash and beach recovery mechanisms, nature-based solutions to coastal risk reduction.

EDUCATION

- Ph.D. Civil Engineering (Coastal Engineering Major), University of Delaware, USA** *02/2007 – 08/2010*
Expertise: Coastal, hydraulic and environmental engineering, sediment transport.
Adviser: Prof. Nobuhisa Kobayashi
Dissertation: “Coastal morphological evolution in the wet and dry zone.”
- Master of Civil Engineering (M.C.E.), University of Delaware, USA** *02/2006 – 02/2007*
Fulbright scholarship for graduate studies.
Major: Coastal Engineering.
Adviser: Prof. Nobuhisa Kobayashi
Thesis: “Nourished beach evolution on the Delaware Atlantic coast”.
- Dipl.-Ing., Civil Engineering, University of Karlsruhe (now KIT), Germany** *10/2000 – 08/2005*
Tulla medal and award (department of civil & environmental engineering).
Major: Environmental fluid mechanics and hydraulic engineering.
Advisers: Prof. Wolfgang Rodi and Prof. Gerhard H. Jirka
- University of New South Wales, Sydney, Australia** *03/2005 – 08/2005*
German Academic Exchange Services (DAAD) scholarship to complete German Diploma thesis at the Water Research Laboratory (WRL) of the UNSW.
Advisers: Dr. Bill Peirson and Assoc. Prof. Ron Cox
Thesis: “Experimental investigation on steep rock protected slopes subject to overtopping flow.”

TEACHING and ADVISING EXPERIENCE

**Texas A&M University – Department of Ocean Engineering
(prior to 9/2015: Maritime Systems Engineering Department)**

*Associate Professor
since Fall 2019*

Courses taught:

OCEN 672 – Coastal Engineering (SP2020)
 OCEN 682 – Coastal Sediment Processes (FA2017, SP2022)
 OCEN 400 – Basic Coastal Engineering (FA2012-2019, FA2021-2022)
 OCEN 410 – Ocean Engineering Laboratory (SP2013-2023)
 MASE 482 – Seminar (SP2013)
 MASE 217 – Electrical Engineering: Circuits (SP2013)
 CVEN 365 / MASE 265 – Intro to Geotech. Engineering (SP2014, SP2015)
 CVEN 311 – Fluid Dynamics (SP2014, SP2015)
 MASE 406/407 – Capstone Design Group Adviser (FA & SP 2012-2017)

*Assistant Professor
2012 - 2019*

Graduate student committees chaired or co-chaired at TAMU:

Nick West (MS OCEN FA2014), Craig Harter (MS OCEN SU2015), Kevin Frost (MS OCEN FA2015), Jacob Sigren (PHD MARB IDP SU2017), Tariq Alrushaid (PHD OCNG FA2018), Badreyah Almarshed (PHD OCEN SP2019), Matthew Power (M.Sc. OCEN SP2019), Altaf Taqi (PHD OCEN FA2020), Andrew Whitley (PHD OCNG SP2021), William Fuller (MS OCEN FA2021), Fangzhou Tong (PHD OCEN FA2024), Jaclynn Turnbaugh (PHD OCEN FA2025), Delaney Doran (PHD OCEN FA2027)

Graduate student committees co-chaired or joined at other institutions:

Patricia Chardon-Maldonado (PHD Civil Engineering University of Delaware FA2016), Nina Wellmann (MS Civil Engineering University of Leipzig, Germany, FA2014), Olga Gloeckner (Dipl.-Ing. Leibniz University of Hannover, Germany, FA2013), Katherine Anarde (PHD Rice University FA2019), Malou van Schaijk (MS TU Delft FA2022)

Undergraduate student workers supervised:

Robert Tyler (OCSE, UG Research Scholar), Taylor Hennessy (OCSE), Melissa D'Amore (MARB), Adam Vaughn (OCSE), Michael Sager (OCSE), Clayton McNeal (OCSE), Matthew Power (OCSE, UG Research Scholar), Bryan Myres (OCSE, UG Research Scholar), William Prouse (OCSE, UG Research Scholar), Deidra Dittmar (OCSE), Zachary Hinojosa (OCSE), Trent Cooper (OCSE), Ryan Booth (OCEN), James Conner (AERO), Daniel Hill (OCEN), James Roddy (OCEN)

Dept. of Civil and Environmental Engineering, University of Delaware

*Teaching Assistant
2006 – 2009*

- Undergraduate course “Fluid Mechanics Laboratory”.
- Supervised student researchers including diploma and master theses.

RESEARCH and WORK EXPERIENCE

Texas A&M University – Department of Ocean Engineering

- Teaching, engineering research and service to the university, engineering profession, and community with an emphasis on water and coastal related issues.
- Head of the Coastal Engineering Laboratory (CEL).
- Faculty fellow with the Institute for a Disaster Resilient Texas (IDRT)

*Associate Professor
since Fall 2019*

*Assistant Professor
2012 - 2019*

Karlsruhe Institute of Technology (KIT) – Institute for Hydromechanics (IfH)

- Conducted PIV measurements of rigid stem patch and wake flows in open channel systems.

*Visiting Professor
2020 - 2021*

Gauff Engineering Group (Germany – USA)

- Business development, acquisition, contract execution and project management for the U.S. branch of the German Gauff Engineering Group.
- Project coordination and supervision for U.S. subsidiary company HKC.
- Technical lead for Organizational Change Management project with Metropolitan Atlanta Rapid Transit Authority (MARTA).
- Supervised personnel and lead project work groups.

*Sr. Civil Engineer,
Director of
Business Development USA
09/2010 – 6/2012*

Center for Applied Coastal Research, University of Delaware, Newark

- Experimental investigation and numerical program development related to sediment transport during wave-induced dune overwash and ridge-runnel migration in the coastal zone.
- Independently designed and conducted physical model tests.
- Analyzed field data on wave climate and beach morphology.

*Graduate
Research Assistant
01/2006 – 08/2010*

*Research Assistant
01/2004 – 06/2004*

Institute for Hydromechanics, University of Karlsruhe (TH), Germany

- Designed ocean outfall port (CORMIX and Delft3D hydrodynamic coupling).
- Conducted hydraulic model experiments for industrial water-cooling system.
- Participated in two joint projects funded by the German Research Foundation (DFG): “Experimental Investigation on Mass Transport in the Vicinity of Obstacles within a Flow” and “Large Turbulent Structures in Shallow Water Flows”.

*Graduate
Research Assistant
11/2004– 12/2005*

*Research Assistant
10/2002 – 08/2003*

Water Research Laboratory, University of New South Wales, Sydney, Australia

- Conducted experiments on rock protected slopes subject to overtopping flow (funded by DAAD scholarship).

*Professional Practicum
03/2005 – 08/2005*

SKILLS

Experimental Instrumentation	Acoustic Doppler velocimetry (ADV / ADCP), laser Doppler anemometry (LDA), laser induced fluorescence (LIF), optical backscatter (OBS), laser line scanner, current profiler, unmanned aerial vehicle and ground GPS surveying equipment, capacitance wave gauges, wave maker facilities, ferrimagnetic and fluorescent sediment tracer systems, 2D PIV
Computer	Windows / UNIX OS; MS Office applications, MATLAB, FORTRAN, LabView, Maple, Corel Draw, LaTeX, HYBEKA, STWAVE, CSHORE, XBeach, SMS, CORMIX, Delft3D, ArcGIS, FUNWAVE
Languages	German (native speaker), English (bilingual), French (intermediate), Spanish (intermediate)
Leadership	Acquired valuable expertise in personnel management and strategic company development as Director of Business Development USA for the Gauff Engineering Group.

GRANT FUNDING

National Science Foundation (NSF)	Collaborative Research: Ridge-Runnel Post-Storm Beach Recovery – Hydrodynamics, Sediment Transport, and Morphodynamics (PI)	\$110,641 <i>8/1/2013 – 7/31/2017</i>
	PIRE: Coastal Flood Risk Reduction Program: Integrated, Multi-Scale Approaches for Understanding How to Reduce Vulnerability to Damaging Events (Co-PI, PI: Sam Brody)	\$3,722,982 <i>10/1/2015 – 9/30/2023</i>
	RAPID: Hurricane Harvey Rapid Response: In-Situ Barrier Island Storm Impact and Recovery Measurements of Hydrodynamics, Morphodynamics, and Sedimentation across Hog and Follets Island, Texas (PI)	\$36,207 <i>10/1/2017 – 9/30/2018</i>
	US GO-SHIP 2018 (107N) Cruise (A. Whitley)	\$12,113 <i>7/1/2018 – 10/31/2018</i>
	IRES: Flood Resilience Program – Integrated Research Experiences to Foster Understanding on How to Increase Resilience in Flood-Prone Communities (Co-PI, PI: Sam Brody)	\$345,815 <i>9/1/2022 – 8/31/2025</i>
Department of Defense (DoD)	ESTCP: Comparative Assessment of Total Water Levels for Coastal Military Facility Readiness and Resilience using Numerical Models (Co-PI, PI: Jack Puleo, UD)	\$2,177,395 <i>4/13/2022 – 4/12/2027</i>
Texas Department of Transportation (TXDOT)	Port Aransas Ferry – Impact to Operation Analysis (PI)	\$77,154 <i>3/1/2020 – 12/31/2020</i>

US Army Corps of Engineers (DoD)	In-Situ Measurements of Physical Forces and Biological Parameters in Coastal and Estuarine Systems, Galveston District (PI)	\$99,972 9/1/2017 – 5/31/2019
	Sand Tracer Study of a Nearshore Berm in South Padre Island, Texas - Laboratory Tracer Analysis (PI)	\$46,969 4/1/2019 – 3/31/2020
	Hydrodynamic Field Measurements in the Corpus Christi Ship Channel (PI)	\$159,213 4/1/2019 – 3/31/2020
	Microbially-Induced Calcium Carbonate Precipitation (MICP) Supporting Nearshore Dellanera Reef Design for Galveston Island (PI)	\$109,988 9/16/2020 – 9/15/2021
	Sediment Dynamics in Shallow-Bay Ship Channels (PI)	\$199,965 7/16/2021 – 7/15/2022
National Oceanic and Atmospheric Administration (NOAA)	NTHMP: Implementing NTHMP-MMS Strategic Plan in Tsunami Hazard Mitigation Products for the Gulf of Mexico (Co-PI, PI: Juan Horrillo)	\$71,679 9/1/2014 – 8/31/2015
	NTHMP: Development of Two Additional Tsunami Inundation Maps and Updating Existing Ones with Maritime Hazard Mitigation Products (Co-PI, PI: Juan Horrillo)	\$178,277 9/1/2015– 8/31/2016
	NTHMP: Development of Two Additional Tsunami Inundation Maps and Updating Port Aransas, TX inundation maps with the full set of tsunami sources (Co-PI, PI: Juan Horrillo)	\$245,325 9/1/2016– 8/31/2017
	NTHMP: Development of Two Tsunami Inundation Maps in the Gulf of Mexico and inclusion of the USGS Yucatan landslide tsunami sources (Co-PI, PI: Juan Horrillo)	\$233,344 9/1/2017– 8/31/2018
	NTHMP: Development of Two Tsunami Inundation Maps in the Gulf of Mexico and inclusion of the Meteotsunami Characterization for Panama City, FL (Co-PI, PI: Juan Horrillo)	\$246,720 9/1/2018– 8/31/2019
Texas Sea Grant (NOAA / US Dept. of Commerce)	If We Lose Follet's Island, We Lose Coastal Communities and Christmas Bay: A Geological Framework and Numerical Model Study of the Sustainability of Follet's Island (PI)	\$261,793 2/1/2014 – 1/31/2018
	Guaranteeing Coastal Wetland Survival under Sea Level Rise through Nature-Based Beneficial-Use Dredged Sediment Placement: A Galveston Bay Living Laboratory (PI)	\$297,737 2/1/2020 – 1/31/2024

Texas General Land Office (GLO)	CEPRA: Innovative Technology Seaweed Prototype Dunes (PI)	\$148,775 2/1/2014 – 8/31/2015
	CEPRA: Innovative Technology Sustaining Dune Growth with Seabales (PI)	\$239,461 2/1/2016 – 8/31/2017
	CMP: Geological Framework Study of Follet’s Island (Co-PI, PI: Tim Dellapenna)	\$92,712 10/1/2013 – 3/31/2015
	CEPRA: Carancahua Bay Habitat Preservation and Enhancement (TX), Including Full Surveys, Design, and Permitting (PI: Rusty Feagin)	\$30,872 11/19/2019 – 6/30/2021
	CMP: Quantifying erosion and pollution from rainfall runoff on urbanized beaches – Galveston Island study (PI)	\$59,483 10/1/2020 – 6/30/2023
	CMP: Prediction of wetland erosion through remote sensing, field surveys, and numerical modeling (Co-PI, PI: Kuang-An Chang)	\$714,742 10/1/2021 – 8/31/2023
Center for Texas Beaches & Shores	Physical Model Study of Hybrid Coastal Structure Design in 3D Wave Basin using Sediment-Covered Rubble Mound	\$15,000 1/1/2017 – 12/31/2017
Wortham Foundation	Process-Based Modeling of Hybrid Coastal Structures	\$25,000 12/1/2020 – 5/31/2021
Coastal Beach and Bay Foundation	Barrier Design and Landscape Integration for Galveston’s West End (Co-PI, PI: William Merrell)	\$25,000 4/1/2013 – 4/1/2015
State of Texas	Research Development Funding: Laboratory Acoustic Doppler Velocimeters and Wave Flume Instrumentation (PI)	\$51,462 FY2013
	Research Development Funding: Field Acoustic Doppler Velocimeter (PI)	\$15,000 FY2015
Texas Institute of Oceanography	Instrumentation Grant: Subsurface Wave Buoy and Current Profiler (PI)	\$15,000 FY2016
Texas A&M University	Global Initiatives 2021 – GEG Match: Flood Resilient Aggies Program (FRAP)	\$10,000 1/1/2021 – 12/31/2023
Since 2013 PI or Co-PI on grants totalling:		\$10,185,233

PUBLICATIONS

*Journal Publications (refereed, * denotes supervised student or post-doc):*

Figlus, J., McKee Smith, J., Tomiczek, T., and McFall, B. C. (2022). Editorial: Natural and nature-based features for flood risk management. *Frontiers in Built Environment – Coastal and Offshore Engineering*, <https://www.frontiersin.org/articles/10.3389/fbuil.2022.1128508/>

Figlus, J., *Sigren, J. M., Feagin, R. A., and Armitage, A. R. (2022). The unique ability of fine roots to reduce vegetated coastal dune erosion during wave collision. *Frontiers in Built Environment – Coastal and Offshore Engineering*, 8. <https://www.frontiersin.org/articles/10.3389/fbuil.2022.904837>

Huff, T. P., Feagin, R. A., and **Figlus, J.** (2022). Delft3D as a tool for living shoreline design selection by coastal managers. *Frontiers in Built Environment – Coastal and Offshore Engineering*, 8. <https://www.frontiersin.org/article/10.3389/fbuil.2022.926662>

Innocenti, R. A., Feagin, R. A., Charbonneau, B. R., **Figlus, J.**, Lomonaco, P., Wengrove, M., Puleo, J., Huff, T. P., Rafati, Y., Hsu, T.-J., Moragues, M. V., Tsai, B., Boutton, T., Pontiki, M., and Smith, J. (2021). The effects of plant structure and flow properties on the physical response of coastal dune plants to wind and wave run-up. *Estuarine, Coastal and Shelf Science*, 261: 107556.

Feagin, R. A., Bridges, T. S., Bledsoe, B., Losos, E., Ferreira, S., Corwin, E., Lodder, Q., Beck, M. W., Reguero, B., Sutton-Grier, A., **Figlus, J.**, Palmer, R., Nelson, D. R., Smith, C., Olander, L., Silliman, B., Pietersen, H., Costanza, R., Gittman, R. K., Narayan, S., Pontee, N., Donahue, M., McNeill, D., and Guidry, T. (2021). Infrastructure investment must incorporate Nature's lessons in a rapidly changing world. *One Earth*, 4(10): 1361–1364. <https://doi.org/10.1016/j.oneear.2021.10.003>

*Whitley, A.E., **Figlus, J.**, Valsamidis, A., and Reeve, D.E. (2021). One-line modeling of mega-nourishment evolution. *Journal of Coastal Research*, online pre-print: <https://doi.org/10.2112/JCOASTRES-D-20-00157.1>

Figlus, J., Song, Y.-K., Maglio, C.K., Friend, P.L., Poleykett, J., Engel, F.L., Schnoebelen, D., and Boburka, K. (2021). Particle tracer analysis for submerged berm placement of dredged material near South Padre Island, Texas. *Journal of Dredging*, 19/1: 14–30.

Valsamidis, A., **Figlus, J.**, Ritt, B., and Reeve, D. E. (2021). Modelling the morphodynamic evolution of Galveston beach, Gulf of Mexico, following Hurricane Ike in 2008. *Continental Shelf Research*, 104373. <https://doi.org/10.1016/j.csr.2021.104373>

*Anarde, K., Cheng, W., Tissier, M., **Figlus, J.**, and Horrillo, J. (2021). Meteotsunamis accompanying tropical cyclone rainbands during Hurricane Harvey. *Journal of Geophysical Research: Oceans*, 126/1, e2020JC016347. <https://doi.org/10.1029/2020JC016347>

*Anarde, K., **Figlus, J.**, Sous, D., Tissier, A.M. (2020). Transformation of infragravity waves during hurricane overwash. *Journal of Marine Science and Engineering*, 8, 545.

Huff, T., Feagin, R., and **Figlus, J.** (2020). Enhanced Tide Model: Improving tidal predictions with integration of wind data. *Shore & Beach*, 88(2), 40–45.

Briggs, T. M. R., **Figlus, J.**, Torres-Freyermuth, A., Puleo, J. A., Warren, W., and *Alrushaid, T. (2020). Variability in onshore sediment transport on a natural beach during a Central American cold surge event. *Journal of Coastal Research*, 36/3, 487–497.

*Almarshed, B., **Figlus, J.**, Miller, J., and Verhagen, H. J. (2020). Innovative coastal risk reduction through hybrid design: combining sand cover and structural defenses. *Journal of Coastal Research*, 36/1:174–188.

Smallegan, S. M., **Figlus, J.**, Stark, N., Sasanakul, I., Monslave, L. G. A., Shafii, I., Jafari, N., Ravichandran, N., and Bassal, P. (2019). Post-2017 hurricane season assessment of civil infrastructure impacts on beach and near-beach environments. *International Journal of Geoengineering Case Histories*, 5/4, 47–61.

Stark, N., Smallegan, S., Jafari, N., Shafii, I., **Figlus, J.**, and Bassal, P. (2019). Scour at the seawall in Surfside, Texas, during Hurricane Harvey (2017). *International Journal of Geoengineering Case Histories*, 5/4, 62–76.

Feagin, R. A., *Furman, M., Salgado, K., Martinez, M. L., *Innocenti, R. A., Eubanks, K., **Figlus, J.**, *Huff, T. P., *Sigren, J., and Silva, R. (2019). The role of beach and sand dune vegetation in mediating wave run up erosion. *Estuarine, Coastal and Shelf Science*, 219: 97–106

Figlus, J., *Song, Y.-K., *Chardon-Maldonado, P., and Puleo, J. A. (2018). “Numerical simulation of post-storm recovery and time-averaged swash velocity on an engineered beach with ridge-runnel system.” *International Journal of Offshore and Polar Engineering*, 28/2, 143–153.

*Sigren, J.M., **Figlus, J.**, Highfield, W., Feagin R.A., and Armitage, A.R. (2018). “The Effects of Coastal Dune Volume and Vegetation on Storm-Induced Property Damage: A Hurricane Ike Case Study.” *Journal of Coastal Research*, 34/1, 164–173.

Torres-Freyermuth, A., Puleo, J. A., DiCosmo, N., Allende-Arandía, M. E., Chardón-Maldonado, P., López, J., Figueroa-Espinoza, B., de Alegria-Arzaburu, A. R., **Figlus, J.**, Roberts Briggs, T. M., de la Roza, J., and Candela, J. (2017). “Nearshore Circulation on a Sea Breeze Dominated Beach During Intense Wind Events.” *Continental Shelf Research*. <https://doi.org/10.1016/j.csr.2017.10.008>

Pieterse, A., Puleo, J. A., McKenna, T. E., and **Figlus, J.** (2017). “In situ measurements of shear stress, erosion and deposition in man-made tidal channels within a tidal saltmarsh.” *Estuarine, Coastal and Shelf Science*, 192: 29–41.

*Harter, C., and **Figlus, J.** (2017). “Numerical Modeling of the Morphodynamic Response of a Low-Lying Barrier Island Beach and Fore-dune System Inundated during Hurricane Ike Using XBeach and CSHORE.” *Coastal Engineering*, 120: 64–74.

Pampell-Manis, A., Horrillo, J., and **Figlus, J.** (2016). “Estimating Tsunami Inundation from Hurricane Storm Surge Predictions along the U.S. Gulf Coast.” *Ocean Dynamics*, 66/8, 1005–1024.

Feagin, R.A., **Figlus, J.**, Zinnert, J.C., *Sigren, J.M., Martinez, M.L., Silva, R., Smith, W.K., Cox, D., Young, D.R., and Carter, G. (2015). “Going With the Flow or Against the Grain? The Promise of Vegetation for Protecting Beaches, Dunes, and Barrier Islands from Erosion.” *Frontiers in Ecology and the Environment*, 13/4, 203–210.

*Sigren, J.M., **Figlus, J.**, and Armitage, A.R. (2014). “Coastal Sand Dunes and Dune Vegetation: Restoration, Erosion, and Storm Protection.” *Shore and Beach*, 82/4, Fall 2014, 5–12.

Ma, G., Kirby, J.T., Su, S-F., **Figlus, J.**, and Shi, F. (2013). “Numerical study of turbulence and wave attenuation induced by vegetation canopies.” *Coastal Engineering*, 80, 68–78

Figlus, J., Kobayashi, N., and Gralher, C. (2012). “Onshore Migration of Emerged Ridge and Ponged Runnel.” *Journal of Waterway, Port, Coastal and Ocean Engineering*, 138/5, 331–338.

Kobayashi, N., Hicks, B.S., and **Figlus, J.** (2011). “Evolution of Gravel Beach Profiles.” *Journal of Waterway, Port, Coastal and Ocean Engineering*, 137/5, 258–262.

Figlus, J., Kobayashi, N., Gralher, C., and Iranzo, V. (2011). “Wave Overtopping and Overwash of Dunes.” *Journal of Waterway, Port, Coastal and Ocean Engineering*, 137/1, 26–33.

Figlus, J. and Kobayashi, N. (2008). “Inverse Estimation of Sand Transport Rates on Nourished Delaware Beaches.” *Journal of Waterway, Port, Coastal and Ocean Engineering*, 134/4, 218–225.

Peirson, W.L., **Figlus, J.**, Pells, S.E., Cox, R.J. (2008). “Placed Rock as Protection Against Erosion by Flow Down Steep Slopes.” *Journal of Hydraulic Engineering*, 134/9, pp. 1370–1375.

Book Chapters:

Figlus, J. (2022). Chapter 4 – Modeling the movement of water and sediment in coastal environments. In S. Brody, Y. Lee, & B. B. Kothuis (Eds.), *Coastal Flood Risk Reduction* (pp. 33–45). Elsevier. <https://doi.org/10.1016/B978-0-323-85251-7.00004-4>

Figlus, J. (2022). Chapter 21 – Designing and implementing coastal dunes for flood risk reduction. In S. Brody, Y. Lee, & B. B. Kothuis (Eds.), *Coastal Flood Risk Reduction* (pp. 287–301). Elsevier. <https://doi.org/10.1016/B978-0-323-85251-7.00021-4>

*Conference Proceedings Publications (* denotes supervised student or post-doc):*

Figlus, J., *Joubert, J. J., and Dellapenna, T. M. (2023). Field investigation of enhanced ship channel shoaling in a shallow bay system. In *Proceedings of Coastal Sediments 2023*. New Orleans, LA. [accepted]

Dellapenna, T. M., Wellbrock, N., Hoelscher, C., Schenk, R., Sudduth, S., and **Figlus, J.** (2023). Cyclone driven sediment flux within a large urban estuary: impact of Hurricane Harvey on Galveston Bay and subsequent recovery/dispersal. In *Proceedings of Coastal Sediments 2023*. New Orleans, LA. [accepted]

Figlus, J., and *Almarshed, B. (2019). Wave overtopping over sand-covered rubble mound structures. In *Proceedings of Coastal Structures 2019*. Hannover, Germany: ASCE.

*Taqi, A., and **Figlus, J.** (2019). A 3D physical model study of reinforced dune evolution during storm conditions. In *Proceedings of Coastal Structures 2019*. Hannover, Germany: ASCE.

Valsamidis, A., Reeve, D., **Figlus, J.**, Behera, M. R., and Chowdhury, P. (2019). A semi-analytical shoreline model, with an application at Galveston beach in Texas, USA. In *Proceedings of Coastal Sediments 2019*. St. Pete, FL.

*Muller, J. R. M., **Figlus, J.**, and Vries, S. de. (2018). “XBeach simulation of a hybrid coastal risk-reduction measure: a Galveston seawall test case.” *Coastal Engineering Proceedings*, 1(36): 100.

Tucker, R., Trevion, R., Welp, T., Maglio, C., Moya, J., Tyler, Z., Weber, C., **Figlus, J.**, and *Fuller, W. (2018). “Evolution of an innovative dredging technology for harvesting coarse-grained sediment; from riverine to marine applications.” In *Proceedings of the Western Dredging Association Summit*. Norfolk, VA: WEDA.

Figlus, J., *Song, Y. K., *Chardon-Maldonado, P., and Puleo, J. A. (2017). “Ridge-Runnel and Swash Dynamics Field Experiment on a Steep Meso-Tidal Engineered Beach: Numerical Model Simulation of Ridge Accretion.” In *Proceedings of International Society of Polar and Ocean Engineers*. San Francisco, CA: ISOPE.

Figlus, J., *Sigren, J. M., *Power, M. J., and Armitage, A. R. (2017). “Physical model experiment investigating interactions between different dune vegetation and morphology changes under wave impact.” In *Proceedings of Coastal Dynamics 2017*. Helsingor, Denmark.

*Anarde, K., and **Figlus, J.** (2017). “Tilt current meters in the surf zone: benchmarking utility in high-frequency oscillatory flow.” In *Proceedings of Coastal Dynamics 2017*. Helsingor, Denmark.

Figlus, J. and *Harter, C. F. (2016). “Storm Impact on Barrier Island Subaerial Morphology and Subsequent Recovery.” In *Proceedings of the 26th International Ocean and Polar Engineering Conference*. Rhodes, Greece.

Pampell-Manis, A., Horrillo, J., and **Figlus, J.** (2015). “Tsunami Hazard and Inundation Modeling and Assessment for the U.S. Gulf Coast.” *14th International Workshop on Wave Hindcasting and Forecasting / Coastal Hazards Symposium 2015*, Key West.

Figlus, J., *West, N., *Almarshed, B., and Jonkman, S.N. (2015). “Conceptual Design and Physical Model Study of Core-Enhanced Dunes as Hybrid Coastal Defense Structures.” In *Proceedings of Coastal Structures and Solutions to Coastal Disasters 2015*, Boston.

*Sigren, J.M., **Figlus, J.**, Highfield, W., Armitage, A.R., and Feagin R. (2015). “Evaluating the Economic Effects of Coastal Dunes in Reducing Storm-Induced Property Damage: Hurricane Ike and Texas Coast Case Study.” In *Proceedings of Coastal Structures and Solutions to Coastal Disasters 2015*, Boston.

*Harter, C., **Figlus, J.**, and Dellapenna, T. (2015). “Hurricane Impact on the Morphological Evolution of a Sediment-Starved Barrier Island along the Upper Texas Coast.” *Coastal Sediments 2015*, San Diego.

Carlin, J., Dellapenna, T., **Figlus, J.**, and *Harter, C. (2015). “Investigating Morphological and Sedimentological Changes to the Shoreface on a Transgressive Barrier Island.” *Coastal Sediments 2015*, San Diego.

Figlus, J., *Sigren, J., Armitage, A., and *Tyler, R. (2014). “Erosion of Vegetated Coastal Dunes.” *Coastal Engineering Proceedings*, 1(34), Seoul, Korea.

Figlus, J., Kobayashi, N., and Gralher, C. (2012). “Ridge-Runnel Migration.” *Coastal Engineering Proceedings*, 1(33), Santander, Spain.

Kobayashi, N., Jung, H., and **Figlus, J.** (2011). “Maintenance of Beach and Dune for Coastal Flooding Reduction.” *Coastal Structures 2011*, Yokohama, Japan.

Figlus, J., Kobayashi, N., Gralher, C., and Iranzo, V. (2010). “Wave-Induced Overwash and Destruction of Sand Dunes.” *Coastal Engineering Proceedings*, 1(32), Shanghai, China.

Figlus, J. and Kobayashi, N. (2008). “Two-Line Model for Inverse Estimation of Cross-Shore and Longshore Transport Rates on Nourished Beaches.” *Coastal Engineering Proceedings*, 1(31), Hamburg, Germany.

Kobayashi, N., **Figlus, J.**, Buck, M. (2008). “Beach Nourishment and Dune Erosion.” *Proceedings of 3rd International Short Course and Workshop on Applied Coastal Research*, Lecce, Italy.

*Research and Technical Reports (* denotes supervised student or post-doc):*

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*Conference Posters and Presentations (* denotes supervised student or post-doc):*

*Tong, F., **Figlus, J.**, Chang, K.-A., Gao, H., Kaihatu, J. M., Socolofsky, S. A., Bae, S. B., Kim, J.-Y., Huang, C.-H., Li, Y., and Zhang, S. (2022). “Hurricane, cold-front, and vessel-wake hydrodynamic impacts on wetland edges in Galveston Bay, Texas.” AGU Fall Meeting, Chicago, IL.

Huang, C.-H., Li, Y., Zhang, S., Bae, S. B., Kim, J.-Y., *Tong, F., Chang, K.-A., Kaihatu, J. M., **Figlus, J.**, Socolofsky, S. A., and Gao, H. (2022). “High resolution mapping of Texas wetland evolution using Landsat and CubeSat images.” AGU Fall Meeting, Chicago, IL.

Bae, S. B., Kim, J.-Y., Huang, C.-H., Li, Y., *Tong, F., Chang, K.-A., **Figlus, J.**, Gao, H., Kaihatu, J. M., and Socolofsky, S. A. (2022). “Application of particle image velocimetry to UAS orthoimagery over wetlands in Galveston, Texas.” AGU Fall Meeting, Chicago, IL.

Figlus, J., *Tong, F., and Fuller, W. (2022). “Vessel wake induced dynamics in a shallow-bay environment.” International Conference on Coastal Engineering (ICCE), Sydney, Australia.

- *Joubert, J. J., **Figlus, J.**, and Dellapenna, T. (2022). “Investigation into Houston ship channel shoaling at the Bayport flare in Galveston Bay.” International Conference on Coastal Engineering (ICCE), Sydney, Australia.
- Kerr, P. C., Ritz, M., Brownell, L., Dellapenna, T., **Figlus, J.**, McAlpin, J., Maglio, C., and Garrett, J. (2022). “Mechanics of shoaling at the Houston ship channel’s Bayport flare.” International Conference on Coastal Engineering (ICCE), Sydney, Australia.
- Maglio, C., Green, D., Frenzel, K., Williams, T., Kartman, C., Brooks, K., McCutcheon, M., Oyer, J., Payne, T., Burkes-Copes, K., Kerr, P. C., Das, H., Thies, J., Mallindine, J., **Figlus, J.**, and Goff, J. (2022). “A path towards holistic coastal zone management in Texas leveraging significant investments in data collection, planning, and implementation.” International Conference on Coastal Engineering (ICCE), Sydney, Australia.
- *Joubert, J. J., **Figlus, J.**, Dellapenna, T., Hamilton, P., Kerr, P. C., Maglio, C., and McAlpin, J. (2022). “Investigation into Houston ship channel shoaling at the Bayport flare in Galveston Bay.” Western Dredging Association (WEDA) Conference, Houston, TX.
- *Anarde, K., **Figlus, J.**, Cheng, W., Horrillo, J., Tissier, M., Lynett, P., and Shi, F. (2020). “Data-model comparisons of storm processes during Hurricane Harvey.” Virtual International Conference on Coastal Engineering (vICCE), ASCE, COPRI.
- *Anarde, K., Cheng, W., Tissier, M., **Figlus, J.**, and Horrillo, J. (2020). “Field and numerical assessment of meteotsunamis associated with tropical cyclone rainbands in the Gulf of Mexico.” AGU Ocean Sciences Meeting, San Diego, CA.
- Figlus, J.**, and *Almarshed, B. (2019). Wave overtopping over sand-covered rubble mound structures. Coastal Structures 2019. Hannover, Germany: ASCE.
- *Taqi, A., and **Figlus, J.** (2019). A 3D physical model study of reinforced dune evolution during storm conditions. Coastal Structures 2019. Hannover, Germany: ASCE.
- *Whitley, A., **Figlus, J.**, and Valsamidis, A. (2019). “One-line numerical modeling of mega nourishment shoreline interactions with a groin field.” EGU General Assembly Conference, Vienna, Austria.
- *Anarde, K., **Figlus, J.**, and Tissier, M. (2018). “On the importance and origin of very low frequency waves in the nearshore during Hurricane Harvey.” AGU Fall Meeting, Washington, DC.
- Houser, C., **Figlus, J.**, and Hammond, B. (2018). “Post-storm recovery of the foredune: Implications for barrier island resiliency.” AGU Fall Meeting, Washington, DC.
- *Whitley, A. and **Figlus, J.** (2018). “Shoreline evolution of mega-nourishments: a one-line numerical model case study for the Texas Gulf coast.” EGU General Assembly Conference, Vienna, Austria.
- *Fuller, W. and **Figlus, J.** (2018). “Hydrodynamic forcing on a mud dike adjacent to a shipping channel.” Young Coastal Scientists and Engineers Conference North America (YCSEC-NA), Mérida, Yucatán, México
- *Prouse, W., *Anarde, K., and **Figlus, J.** (2018). “Removing the vegetative signature from digital elevation models of coastal areas surveyed by unmanned aerial system photogrammetry.” Presented at the American Shore and Beach Preservation Association National Conference, Galveston, TX.
- Figlus, J.**, *Anarde, K., and Dellapenna, T. (2018). “COASTRR: Coastal storm rapid response measurements of Hurricane Harvey impact and recovery on two Texas barrier islands.” International Conference on Coastal Engineering (ICCE), Baltimore, MD.
- *Anarde, K., **Figlus, J.**, Fang, N., Dellapenna, T., and Bedient, P. (2018). “Hurricane Harvey rapid response: Field measurements of hydrodynamic forcing and morphological evolution on Matagorda Peninsula and Follets Island, TX.” AGU Ocean Science Meeting, Portland, OR.
- *Alrushaid, T., **Figlus, J.**, and Dellapenna, T. (2018). “Field measurements of nearshore currents, waves, and sediment dynamics on a microtidal beach during fluctuating onshore and offshore winds.” AGU Ocean Science Meeting, Portland, OR.
- *Anarde, K., **Figlus, J.**, Dellapenna, T., and Bedient, P. (2017). “Hurricane Harvey rapid response: observations of infragravity wave dynamics and morphological change during inundation of a barrier island cut.” AGU Fall Meeting, New Orleans, LA.
- Smallegan, S. M., Stark, N., Jafari, N., Ravichandran, N., Shafii, I., Bassal, P., and **Figlus, J.** (2017). “Geotechnical impacts of Hurricane Harvey along the Texas, USA coast.” AGU Fall Meeting, New Orleans, LA.

Figlus, J., *Song, Y. K., *Chardon-Maldonado, P., and Puleo, J. A. (2017). "Ridge-runnel and swash dynamics field experiment on a steep meso-tidal engineered beach: numerical model simulation of ridge accretion." 27th International Society of Polar and Ocean Engineers Conference (ISOPE), San Francisco, CA.

Figlus, J., *Sigren, J.M., *Power, M. J., and Armitage, A.R. (2017). "Physical model experiment investigating interactions between different dune vegetation and morphology changes under wave impact." Coastal Dynamics 2017. Helsingør, Denmark.

*Anarde, K., and **Figlus, J.** (2017). "Tilt current meters in the surf zone: benchmarking utility in high-frequency oscillatory flow." Coastal Dynamics 2017. Helsingør, Denmark.

*Song, Y.-K., **Figlus, J.,** Chardon-Maldonado, P., and Puleo, J.A. (2017). "Inner surf/swash zone morphodynamic numerical model simulation of an accreting ridge during low-energy wave conditions." European Geophysical Union (EGU) Annual Conference, Vienna, Austria.

*Myres, B.H., *Anarde, K., & **Figlus, J.** (2016). "Tilt Current Meter Field Validation in the Surf Zone." AGU Fall Meeting, San Francisco, CA.

*Do, C., *Anarde, K., **Figlus, J.,** *Prouse, W., and Bedient, P. (2016). "UAS photogrammetry for rapid response characterization of subaerial coastal change." AGU Fall Meeting, San Francisco, CA.

Figlus, J. and *Harter C.F. (2016). XBeach and CSHORE Numerical Model Assessment of the Beach and Fore-dune Morphodynamic Response of a Barrier Island during Hurricane Storm Surge Inundation: Follet's Island Case Study." AGU Ocean Science Meeting, New Orleans, LA.

Figlus, J. (2016). "Modeling storm-induced subaerial barrier island morphology changes along the upper Texas coast. American Shore and Beach Preservation Association (ASBPA) National Conference, Long Branch, NJ.

Figlus, J. and Harter, C. (2016). "Storm impact on barrier island subaerial morphology and subsequent recovery." 26th International Society of Ocean and Polar Engineers Conference. Rhodes, Greece: ISOPE.

*Alrushaid, T., **Figlus, J.,** Puleo, J., Torres-Freyermuth, A., and Dellapenna, T. (2016). "Surf Zone Sediment Size Variation and Morphodynamics Comparing Sea/Land Breeze and El-Norte Events in Sisal, Yucatan, Mexico." AGU Ocean Science Meeting, New Orleans, LA.

Figlus, J., *West, N., *Almarshed, B., and Jonkman, S.N. (2015). "Conceptual Design and Physical Model Study of Core-Enhanced Dunes as Hybrid Coastal Defense Structures." Coastal Structures and Solutions to Coastal Disasters 2015, Boston, MA.

*Sigren, J.M., **Figlus, J.,** Highfield, W., Armitage, A.R., and Feagin R. (2015). "Evaluating the Economic Effects of Coastal Dunes in Reducing Storm-Induced Property Damage: Hurricane Ike and Texas Coast Case Study." Coastal Structures and Solutions to Coastal Disasters 2015, Boston, MA.

Figlus, J., Webster, R., *Sigren, J.M., and Linton, T. (2015). "Seaweed-Enhanced Sand Dunes – A Prototype Study on Galveston Island, TX." Young Coastal Scientists and Engineers Conference – North America, Newark, DE

*Harter, C., **Figlus, J.,** and Dellapenna, T. (2015). "Hurricane Impact on the Morphological Evolution of a Sediment-Starved Barrier Island along the Upper Texas Coast." Coastal Sediments 2015, San Diego.

Carlin, J., Dellapenna, T., **Figlus, J.,** and *Harter, C. (2015). "Investigating Morphological and Sedimentological Changes to the Shoreface on a Transgressive Barrier Island." Coastal Sediments 2015, San Diego.

*Chardon-Maldonado, P., Puleo, J., and **Figlus, J.** (2014). "In-Situ Observations of Swash Flow Velocities and Sediment Transport on a High-Sloped Beach." AGU Fall Meeting, San Francisco, CA.

*Tyler, R.T., **Figlus, J.,** Linton, T., Webster R., and *Sigren, J.M. (2014). "Reinforcing Coastal Dunes with Seaweed Bales." ASBPA National Coastal Conference Oct. 15-17, 2014, Virginia Beach, VA

*Chardon-Maldonado, P., Puleo, J.A., and **Figlus, J.** (2014). "Field Study of Swash-Zone Dynamics at South Bethany Beach, Delaware." American Shore and Beach Preservation Association (ASBPA) National Conference, Virginia Beach, VA.

Figlus, J., *Sigren, J.M., Armitage, A.R., and *Tyler, R.C. (2014). "Erosion of Vegetated Coastal Dunes." 34th International Conference on Coastal Engineering (ICCE), Seoul, Korea

Torres-Freyermuth, A., Puleo, J.A., Ruiz de Alegría-Arzaburu, A., **Figlus, J.,** Mendoza, T., Pintado-Patino, J.C., Pieterse, A., *Chardon-Maldonado, P., DiCosmo, N.R., *Wellman, N., Garcia-Nava, H., Palemón-Arcos, L., Roberts, T., López-González, J., Bravo, M., Ojeda, E., Medellín, G., Appendini, C.M., Figueroa, B., González-Leija,

M., Enriquez, C., Pedrozo-Acuña, A., Salles, P., and de la Roza, J. (2014). "Nearshore Coastal Dynamics on a Sea-Breeze Dominated Micro-Tidal Beach (NCSAL)." AGU Fall Meeting, San Francisco, CA.

*Sigren, J.M., **Figlus, J.**, and Armitage, A.R. (2013). "The role of coastal dune vegetation in erosion and wave resistance." American Shore and Beach Preservation Association (ASBPA) National Conference, South Padre Island, TX

Figlus, J. (2013). "Seabale dunes - innovative surge and wave protection for Galveston Island - a first look." American Society of Civil Engineers (ASCE) Engineering Mechanics Institute (EMI) Conference, Evanston, IL

Figlus, J., Kobayashi, N., and Gralher, C. (2012). "Ridge-Runnel Migration." 33rd International Conference on Coastal Engineering (ICCE), Santander, Spain.

AWARDS, MEMBERSHIPS and SERVICE

- TEES Young Faculty Fellow Award (Texas A&M University College of Engineering) 2018
- Fulbright Alumni
- Member ASCE, COPRI, ASBPA, ISOPE
- Review Editor for Frontiers in Built Environment *since 1/2021*
- Member of the Scientific Advisory Board for the Journal of Coastal and Offshore Science and Engineering (JCOSE) *since 2/2021*
- Reviewer for a variety of scientific and engineering journals as well as federal and state agency research proposals including NSF panels
- Member of the International Society of Ocean and Polar Engineers (ISOPE) International Coastal Engineering Committee *since 9/2015*
- Member Local Organizing Committee for International Conference on Coastal Engineering (ICCE) 2018 in Baltimore, MD
- Voting Member Beach Maintenance Advisory Committee (BMAC) for the Galveston Park Board of Trustees *9/2012 – 9/2018*
- Recipient of Tulla Medal and Award for best graduate 2005 (Department of Civil and Environmental Engineering, University of Karlsruhe, Germany). *01/2006*
- Recipient of German Academic Exchange Services (DAAD) scholarship to complete diploma thesis at the Water Research Laboratory (WRL) of the University of New South Wales, Sydney, Australia. *03/2005 – 08/2005*
- Recipient of Fulbright scholarship for graduate studies in the United States. *08/2003 – 06/2004*
- ASCE Excellence in Civil Engineering Education (ExCEED) Fellow
- Faculty fellow of the Institute for a Disaster Resilient Texas (IDRT)

This CV is the most current and is correct as of the date of the below signature.



Jens Figlus

1-9-2023

Date