

## **STEPHANIE M. SMALLEGAN, PH.D., P.E.**

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### **SUMMARY**

Dr. Stephanie Smallegan is an assistant professor of coastal engineering at the University of South Alabama with expertise in physical changes of sandy beaches, such as beach erosion and accretion, due to short-term and long-term processes. Smallegan has served on National Science Foundation Extreme Event Reconnaissance teams where she surveyed geotechnical and structural damage due to natural hazards. Smallegan also uses hydrodynamic and morphodynamic modeling to analyze the impacts of civil infrastructure on morphological changes on barrier islands during tropical cyclones.

### **EDUCATION**

<b>Virginia Tech</b> , Blacksburg, VA <b>Doctor of Philosophy in Civil Engineering</b> , Advisor: Dr. Jennifer L. Irish Dissertation: Investigation of Barrier Island Response to Hurricane Sandy	<b>May 2016</b>
<b>Georgia Institute of Technology</b> , Savannah, GA <b>Master of Science in Civil Engineering</b> , Advisor: Dr. Kevin A. Haas Thesis: Longshore Currents near Cape Hatteras, NC	<b>May 2012</b>
<b>Georgia Institute of Technology</b> , Savannah, GA <b>Bachelor of Science in Civil Engineering</b>	<b>May 2010</b>

### **LICENSURE**

**Professional Engineer**, State of Alabama, License No. 38141-E

### **AWARDS AND FELLOWSHIPS**

<b>Andy and Carol Denny National Alumni Association Excellence in Teaching Award</b>	<b>2021</b>
<b>Gulf Research Program Early-Career Faculty Fellowship</b>	<b>2020</b>
<b>College of Engineering “Excellence in Teaching” Award</b> , University of South Alabama	<b>2018</b>
<b>The Sally Steadman Azalea Chapter of Mortar Board Top Prof</b> , University of South Alabama	<b>2018</b>
<b>National Science Foundation Graduate Research Fellowship</b>	<b>2011 – 2016</b>
<b>Virginia Sea Grant Graduate Research Fellowship</b>	<b>2014 – 2016</b>
<b>Via Fellowship</b> , Virginia Tech	<b>2012 – 2016</b>

### **PROFESSIONAL EXPERIENCE**

<b>Assistant Professor, University of South Alabama</b> , Mobile, AL Department of Civil, Coastal, and Environmental Engineering	<b>Aug 2016 – Present</b>
<b>Consultant, Geosyntec Consultants, Inc.</b> , Daphne, AL Coastal Engineer Independent Contractor	<b>Oct 2019 – Present</b>
<b>Consultant, South Coast Engineers, LLC</b> , Fairhope, AL Coastal Engineer Independent Contractor	<b>Oct 2017 – Present</b>
<b>Instructor, University of South Alabama</b> , Mobile, AL Department of Civil, Coastal, and Environmental Engineering	<b>Jan 2016 – Aug 2016</b>

### **ACADEMIC GRANTS (Total: \$5,159,764; Smallegan: \$1,013,062)**

**Smallegan, S. M. (Principle)**, Sparks, E. (Co-Principal), Wofford, S. (Co-Principal), “Sustainability of current and future shoreline solutions under rising sea level scenarios,” Sponsored by the Dauphin Island Sea Lab Alabama Center of Excellence, \$421,767 (Smallegan: \$151,242). Oct 1, 2021 – Sept 30, 2024.

Puleo, J. (Principal), **Smallegan, S. M. (Co-Principle)**, Dietrich, C. (Co-Principal), Figlus, J. (Co-Principal), Nederhoff, K. (Co-Principal), Shi, F. (Co-Principal), Storlazzi, C. (Co-Principal), van Dongeren, A. (Co-Principal), “Comparative assessment of total water levels for coastal military facility readiness and resilience using numerical models,”

- Sponsored by the Department of Defense Environmental Security Technology Certification Program, \$2,177,000 (Smallegan: \$245,070). Oct 1, 2021 – Sept 30, 2025.
- Webb, B. M. (Principal), **Smallegan, S. M. (Co-Principle)**, “Systems Engineering Approaches for Resilience to Coastal Hazards,” Sponsored by U.S. Army Corps of Engineers, \$826,657 (Smallegan: \$362,120). October 1, 2020 – September 30, 2023.
- Collini, R. C. (Principal), **Smallegan, S. M. (Co-Principle)**, Sparks, E. (Co-Principal), Sempier, T. (Co-Principal), Miller-Way, T. (Co-Principal), Rellinger, A. (Co-Principal), “Environmental Literacy Grants: Supporting the education of K-12 students and the public for community resilience,” Sponsored by the National Oceanic and Atmospheric Administration, \$499,557 (Smallegan: \$16,215). October 1, 2020 – September 30, 2023.
- Smallegan, S. M. (Principal)**, Collini, R. (Co-Principal), “Coastal Adaptation Pathways for Barrier Island Communities,” Sponsored by U.S. Army Corps of Engineers, \$200,262 (Smallegan: \$117,636). October 15, 2019 – October 14, 2021.
- Webb, B. M. (Principal), **Smallegan, S. M. (Co-Principle)**, Puleo, J. A. (Co-Principal), “Barrier Island Hydrodynamics and Morphodynamics DURING an Extreme Event,” Sponsored by U.S. Army Corps of Engineers, \$499,822 (Smallegan: \$19,760). October 1, 2019 – September 30, 2022.
- Collini, R. (Principal), **Smallegan, S. M. (Co-Principal)**, Sparks, E. (Co-Principal), Hodde, H. (Co-Principal), Miller-Way, T. (Co-Principal), Rellinger, A. (Co-Principal), "Building Sea-level Rise and Flood Resilience Capacity in the Northern Gulf through Students and Teachers," Sponsored by National Academies of Sciences, \$391,537 (Smallegan: \$32,853). January 1, 2019 - December 31, 2020.
- Smallegan, S. M. (Principal)**, Spurgeon, S. (Supporting), "Summer Undergraduate Research Fellowship," Sponsored by Office of Undergraduate Research, University of South Alabama, Internal to the University, \$2,000. May 2019 - August 2019.
- Smallegan, S. M. (Principal)**, "Morphological Change of Developed Barrier Islands to Future Tropical Cyclones," Sponsored by University of South Alabama, \$5,000. February 1, 2019 - January 31, 2020.
- Smallegan, S. M. (Principal)**, Collini, R. (Co-Principal), Lester, H. D., "Life Cycle Cost Analyses of Adaptive Strategies on Dauphin Island to Rising Sea Levels," Sponsored by University of South Alabama, \$19,204. July 15, 2018 - January 31, 2020.
- Beebe, D. (Principal), Webb, B. M. (Co-Principal), Dzwonkowski, B. (Co-Principal), **Smallegan, S. M. (Co-Principal)**, "Fowl River Marsh Study," Sponsored by Mobile Bay National Estuary Program, External to the University, \$84,394 (Smallegan: \$9,450). March 6, 2018 - March 31, 2019.
- Smallegan, S. M. (Principal)**, "Post-2017 Hurricane Season Assessment of Critical Beach Access Infrastructure Vulnerabilities," Sponsored by University of South Alabama, \$24,720. April 1, 2018 - March 31, 2019.
- Smallegan, S. M. (Principal)**, "Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making," Sponsored by National Oceanic and Atmospheric Administration, \$2,500. May 2017 - May 2017).
- Smallegan, S. M. (Principal)**, Posey, S. P. (Supporting), "Summer Undergraduate Research Fellowship," Sponsored by Office of Undergraduate Research, University of South Alabama, Internal to the University, \$2,000. May 2018 - August 2018.
- Smallegan, S. M. (Principal)**, "Geotechnical Extreme Event Reconnaissance," Sponsored by National Science Foundation, External to the University, \$1,344. September 2, 2017 - September 5, 2017.
- Smallegan, S. M. (Principal)**, Mazur, E. (Supporting), "Summer Undergraduate Research Fellowship," Sponsored by Office of Undergraduate Research, University of South Alabama, Internal to the University, \$2,000. May 2017 - August 2017.

## **JOURNAL PUBLICATIONS**

\* Indicates graduate student; \*\* Indicates undergraduate student

- Pennison, G. P\*, Webb, B. M., Cloutier, R. J., **Smallegan, S. M.**, Steward, E. J., Padgett, J. E. (submitted). Assessing coastal road system failures using celerity dispersion functions. *Coastal Engineering*. Special Issue: Coastal Hazards and Risks due to Tropical Cyclones.

- Collini, R. C., **Smallegan, S. M.** (2021). Foundations for a practical approach to considering sea-level rise in coastal projects. *Marine Technology Society*. DOI: <https://doi.org/10.4031/MTSJ.55.4.1>
- Smallegan, S. M.**, Figlus, J., Stark, N., Sasanakul I., Arboleda Monsalve, L.G., Shafii, I., Jafari, N., Ravichandran, N., Bassal, P., 2020. Post-2017 hurricane season assessment of civil infrastructure impacts on geomorphology. *International Journal of Geoengineering Case Histories*. DOI: <http://dx.doi.org/10.4417/IJGCH-05-04-03>
- Stark, N., Shafii, I., Jafari, N., Ravichandran, N., Figlus, J., **Smallegan, S. M.**, Bassal P., 2020. Scour at the Seawall in Surfside, Texas, during Hurricane Harvey (2017). *International Journal of Geoengineering Case Histories*. DOI: <http://dx.doi.org/10.4417/IJGCH-05-04-04>
- Khosravi, M., Leon-Corwin, M., Ritchie, L., **Smallegan, S. M.**, Stark, N., Stephens, M., Sutley, E. J., Athanasopoulos-Zekkos, A. 2020. Measuring User Satisfaction for the Natural Hazards Engineering Research Infrastructure Consortium. *Frontiers in Built Environment*. 6:101. DOI: <http://dx.doi.org/10.3389/fbuil.2020.00101>
- Coogan, J. S., Webb, B. M., **Smallegan, S. M.**, Puleo, J. A. 2019. Geomorphic Changes Measured on Dauphin Island, AL, during Hurricane Nate. *Shore & Beach*, 87(4), p.15. DOI: <http://doi.org/10.34237/1008742>
- Smallegan, S. M.**, Irish, J. L., van Dongeren, A. R., 2017. Developed barrier island adaptation strategies to hurricane forcing under rising sea levels. *Climatic Change*, 1-12. DOI: <http://doi.org/10.1007/s10584-017-1988-y>
- Smallegan, S. M.**, Irish, J. L., 2017. Barrier island morphological change by bay-side storm surge. *Journal of Waterway, Port, Coastal, and Ocean Engineering*, 143(5). DOI: [https://doi.org/10.1061/\(ASCE\)WW.1943-5460.0000413](https://doi.org/10.1061/(ASCE)WW.1943-5460.0000413)
- Smallegan, S. M.**, Irish, J. L., van Dongeren, A. R., den Bieman, J. P., 2016. Morphological response of a sandy barrier island with a buried seawall during Hurricane Sandy. *Coastal Engineering*, 110, 102-110. DOI: <https://doi.org/10.1016/j.coastaleng.2016.01.005>
- Irish, J. L., Lynett, P. J., Weiss, R., **Smallegan, S. M.**, Cheng, W., 2013. Buried relic seawall mitigates Hurricane Sandy's impacts. *Coastal Engineering*, 80, 79-82. DOI: <https://doi.org/10.1016/j.coastaleng.2013.06.001>

### **INVITED PRESENTATIONS**

- Smallegan, S. M.**, 2021. Coupling engineering with education to reduce vulnerability of coastal communities to flooding and sea level rise. *Collaboration Symposium*, USACE Engineer Research and Development Center. Virtual.
- Smallegan, S. M.**, 2021. Engineering and engagement: adapting to an uncertain future. *Environmental and Water Resources Seminar*, Virginia Tech. Virtual.
- Smallegan, S. M.**, 2021. Coastal Engineering in a changing climate: adapting to an uncertain future. *Florida Engineering Society*. Virtual.
- Smallegan, S. M.**, 2020. Community-informed, scientifically-based adaptation to sea level rise. *VTech2020*. Coasts, Oceans, Ports, and Rivers Institute, American Society of Civil Engineers.
- Smallegan, S. M.**, 2019. What is Coastal Engineering? *Odyssey Seminar Series*, University of South Alabama, Mobile, AL.
- Smallegan, S. M.**, 2018. Impacts of Coastal Infrastructure on Geomorphology and Vulnerability during Hurricanes. *U.S. Naval Research Laboratory Seminar Series*, John C. Stennis Space Center, MS.
- Smallegan, S. M.**, 2018. Geotechnical damage caused by Hurricane Harvey and Hurricane Nate. *Chi Epsilon Conclave*, Chi Epsilon Civil Engineering Honor Society, Arlington, TX.
- Smallegan, S. M.**, McMillan, B., Mazur, E., Posey, P., 2018. An Engineered Pathway to Increase Resiliency of a Barrier Island under Sea Level Rise. *College of Engineering Research Seminar Series*, University of South Alabama, Mobile, AL.
- Smallegan, S. M.**, 2017. Impacts of bay side hydrodynamics on barrier island morphological change during a hurricane. *University of Delaware Center for Applied Coastal Research Seminar Series*, Newark, DE.
- Smallegan, S. M.**, 2017. Hurricane Harvey impacts on coastal cities in Texas. *International Council on Systems Engineering Blues Student Chapter September Meeting*, Mobile, AL.

**Smallegan, S. M.**, 2017. Hurricane Harvey impacts on coastal cities in Texas. *American Society of Civil Engineers Student Chapter September Meeting*, Mobile, AL.

**Smallegan, S. M.**, 2017. Engineering the pathway to a resilient barrier island under sea level rise. *Young Coastal Scientists and Engineers Conference*, Keynote speaker. Dauphin Island, AL.

**Smallegan, S. M.**, 2017. Improving coastal resiliency on developed barrier islands. *Dauphin Island Sea Lab Seminar Series*, Dauphin Island, AL.

**Smallegan, S. M.**, 2016. Improving coastal resiliency on developed barrier islands. *American Society of Civil Engineers June Meeting*, Mobile, AL.

## **CONFERENCE PROCEEDINGS**

\* Indicates graduate student; \*\* Indicates undergraduate student

Collini, R. C., **Smallegan, S. M.**, 2020. Berms, Floodwalls, and Dunes – How High? Considering sea-level rise in coastal projects. *OCEANS 2020*.

**Smallegan, S. M.**, Mazur, E.\*\*, 2018. Adaptation pathway for a barrier island to future hurricanes. *Coastal Engineering Proceedings*, 1(36), papers.52. doi:<https://doi.org/10.9753/icce.v36.papers.52>.

Mazur, E.\*\*, **Smallegan, S.M.**, 2018. Parameters Governing Impact and Damage Due to Erosion of Barrier Islands by Hurricanes. *NCUR Proceedings*.

**Smallegan, S. M.**, Irish, J. L., den Bieman, J. P., van Dongeren, A. R., 2015. Numerical investigation of developed and undeveloped barrier island response to Hurricane Sandy. *Coastal Structures & Solutions to Coastal Disasters Joint Conference*, Boston, MA. Oral Presentation and Conference Paper.

## **CONFERENCE PRESENTATIONS**

\* Indicates graduate student; \*\* Indicates undergraduate student

**Smallegan, S. M.**, Collini, R. C., Vedral, S., Posey, S. P.\*, Bellais, K.\*, Delaney, B.\*, 2021. Informing and preparing coastal communities to reduce coastal vulnerability to flooding and sea-level rise through education and application. *Connects 2021*, Geological Society of America. Oral Presentation.

**Smallegan, S. M.**, Vedral, S., Collini, R., Miller-Way, T., Rellinger, A., Sempier, T., Sparks, E., 2021. Educating next generations of coastal scientists with a sea-level rise in the classroom curriculum for Alabama and Mississippi schools. *National Coastal Conference*, American Shore and Beach Preservation Association. New Orleans, LA. Oral Presentation.

McMillan, B.\*, Templeton, W., **Smallegan, S. M.**, Burcham, W., Sanchez, T., Jones, M., 2021. Coastal modeling the Dauphin Island Causeway to resiliency. *National Coastal Conference*, American Shore and Beach Preservation Association. New Orleans, LA. Oral Presentation.

Delaney, B. R.\*, **Smallegan, S. M.**, 2021. Adaptation Strategies to Mitigate Morphological Damage from Future Storms on Dauphin Island. *National Coastal Conference*, American Shore and Beach Preservation Association. New Orleans, LA. Poster Presentation.

Bellais, K.\*, **Smallegan, S. M.**, 2021. Adaptation Strategies to Mitigate Impacts of Sea Level Rise on a Freshwater Aquifer Supply on a Barrier Island. *National Coastal Conference*, American Shore and Beach Preservation Association. New Orleans, LA. Poster Presentation.

**Smallegan, S. M.**, Collini, R. C., Heming, M. C., Posey, S. P.\*, Delaney, B.\*, Bellais, K.\*, 2021. Dauphin Island adaptation pathway: navigating sea-level rise uncertainty on barrier islands. *Workshop on Modeling, Prediction, and Sensor Networks for Coastal Flooding in the Gulf of Mexico*, Ocean Visions. Oral Presentation.

Mazur, E.\*, Amante, O.\*, Puleo, J., Shi, F., **Smallegan, S. M.**, Webb, B., 2021. Urban coastal flooding pathways during storm events. *Coastal Dynamics*, TU Delft. Poster Presentation.

Amante, O.\*, Mazur, E.\*, Puleo, J., **Smallegan, S. M.**, Webb, B., 2021. Measurement and modeling of intra-event processes on a steep beach. *Coastal Dynamics*, TU Delft. Poster Presentation.

- Posey, S. P.\*, Heming, M. C., Collini, R. C., **Smallegan, S. M.**, 2020. Developing an adaptation pathway for Dauphin Island, Alabama. *Coastal and Islands Conference*, Center for Watershed Protection. Oral Presentation.
- Smallegan, S. M.**, Collini, R. C., Heming, M. C., Posey, S. P.\*, 2020. Developing a community-informed adaptation pathway through virtual meetings during the COVID-19 pandemic. *National Coastal Conference*, American Shore and Beach Preservation Association. Oral Presentation.
- Posey, S. P.\*, **Smallegan, S. M.**, 2020. Simulating Hurricane Nate impacts on Dauphin Island, AL using XBeach. *National Coastal Conference*, American Shore and Beach Preservation Association. Oral Presentation.
- Collini, R. C., **Smallegan, S. M.**, 2020. Berms, Floodwalls, and Dunes – How High? Considering sea-level rise in coastal projects. *OCEANS 2020*. Oral Presentation.
- Smallegan, S. M.**, Collini, R. Vedral, S., Rellinger, A., Miller-Way, T., Sparks, E., Sempier, T., 2020. TD Education: Increasing coastal resiliency by informing and preparing citizens of the northern Gulf of Mexico through hands-on, multidisciplinary K12 education. *Ocean Sciences*, American Geophysical Union, San Diego, CA. Poster Presentation.
- Webb, B., Coogan, J., **Smallegan, S. M.**, Puleo, J., McQuagge, S.\*, 2020. Observations of storm tides, waves, and erosion on a low-lying barrier island during Hurricane Nate. *Ocean Sciences*, American Geophysical Union, San Diego, CA. Poster Presentation.
- Stark, N., Jafari, N., Ravichandran, N., **Smallegan, S. M.**, Figlus, J., Shafii, I., Bassal, P., Sasanakul, I., Monsolve, L. A., 2019. A geotechnical perspective on coastal erosion processes during hurricanes: lessons learned from Harvey and Irma in 2017. *National Coastal Conference*, American Shore and Beach Preservation Association, Myrtle Beach, SC. Oral Presentation.
- Spurgeon, S.\*\*, **Smallegan, S. M.**, 2019. Correlating synthetic storm characteristics with morphological changes on a developed barrier island. *National Coastal Conference*, American Shore and Beach Preservation Association, Myrtle Beach, SC. Poster Presentation.
- Webb, B. M., Beebe, D., Carmichael, R. H., Cebrian, J., Coogan, J., Cook, M., Dzwonkowski, B., Goff, J., Hieb, E., Horne, H., Kudulis, J., Lehrter, J. C., **Smallegan, S. M.**, Thibaut, T., 2019. An interdisciplinary collaboration leads to an assessment of marsh health in Fowl River, Alabama. *32<sup>nd</sup> Alabama Water Resources Conference and Symposium*, Auburn University, Orange Beach, AL. Oral Presentation.
- Beebe, D., Carmichael, R. H., Cebrian, J., Cook, M., Dzwonkowski, B., Kudulis, J., Lehrter, J. C., **Smallegan, S. M.**, Thibaut, T., Vittor, B., Webb, B. M., 2019. Fowl River Marsh Study: If you try sometimes you just might find you get what you need. *32<sup>nd</sup> Alabama Water Resources Conference and Symposium*, Auburn University, Orange Beach, AL. Oral Presentation.
- Smallegan, S. M.**, 2019. Adaptation pathways as a responsive planning tool for developed barrier islands impacted by sea level rise. *Sustainability Summit*, Alabama Coastal Foundation, Mobile, AL. Oral Presentation.
- Webb, B. M., **Smallegan, S. M.**, Mazur, E.\*\*, Lamonte, L., 2018. Incident boat wake energy and implications for restoration design. *Bays and Bayous Symposium*, Mobile Bay National Estuary Program, Mobile, AL. Oral Presentation.
- Dzwonkowski, B., Coogan, J., Lehrter, J. C., Webb, B. M., **Smallegan, S. M.**, Cebrian, J., 2018. Salinity dynamics in Fowl River and their potential impact on marsh health. *Bays and Bayous Symposium*, Mobile Bay National Estuary Program, Mobile, AL. Oral Presentation.
- Smallegan, S. M.**, Webb, B. M., Coogan, J., 2018. Impacts of Beach Access Points on the Vulnerability of Coastal Communities during Hurricanes. *National Coastal Conference*, American Shore and Beach Preservation Association, Galveston, TX. Oral Presentation.
- McMillan, B.\*, **Smallegan, S. M.**, 2018. Modeling the Vulnerability of Dauphin Island to Hurricanes. *National Coastal Conference*, American Shore and Beach Preservation Association, Galveston, TX. Oral Presentation.
- Posey, S. P.\*\*, **Smallegan, S. M.**, 2018. Site Characterizations and Effect of Beach Access Points of Locations in Texas, Florida, and Alabama Impacted by Hurricanes Harvey, Irma, and Nate. *National Coastal Conference*, American Shore and Beach Preservation Association, Galveston, TX. Poster Presentation.
- Smallegan, S. M.**, Mazur, E.\*\*, 2018. Adaptation Pathway for a barrier island to future hurricanes. *International Conference on Coastal Engineering*, Baltimore, MD. Oral Presentation and Conference Proceeding.

- Posey, S. P.\*\*\*, **Smallegan, S. M.**, 2018. Site Characterizations of Locations in Texas, Florida, and Alabama impacted by Hurricanes Harvey, Irma, and Nate. *20<sup>th</sup> Annual Undergraduate Symposium*, University of South Alabama, Mobile, AL. Oral and Poster Presentations. Awarded Best Paper/Portfolio Award.
- van Dongeren, A., Roelvink, D., McCall, R., **Smallegan, S. M.**, Wesselman, D., Hoonhout, B., Nederhoff, C., 2018. Morphodynamic Modelling of Barrier Islands with Complex Topographies. *Ocean Sciences Meeting*, American Geophysical Union, Portland, OR. Oral Presentation.
- Mazur, E.\*\*\*, **Smallegan, S. M.**, 2017. Parameter governing impact and damage due to erosion of barrier islands by hurricanes. *National Conference on Undergraduate Research*, Oklahoma City, OK. Oral Presentation and Conference Proceeding.
- Smallegan, S. M.**, Stark, N., Jafari, N., Ravichandran, N., Shafii, I., Bassal, P., Figlus, J., 2017. Geotechnical impacts of Hurricane Harvey along the Texas, USA coast. *American Geophysical Union Fall Meeting*, New Orleans, LA. Poster Presentation.
- McMillan, B. M.\*\*, **Smallegan, S. M.**, 2017. Life cycle cost analyses of beach nourishment on Dauphin Island. *American Shore & Beach Preservation Association National Coastal Conference*. Ft. Lauderdale, FL. Poster Presentation.
- Mazur, E.\*\*\*, **Smallegan, S. M.**, 2017. Barrier island impact by hurricanes and the parameters governing damage due to erosion. *19<sup>th</sup> Annual Undergraduate Symposium*, University of South Alabama, Mobile, AL. Oral and Poster Presentations. Awarded Best Paper/Portfolio Award.
- McMillan, B. M.\*\*, **Smallegan, S. M.**, 2017. Effects of sea level rise on Dauphin Island. *Young Coastal Scientists and Engineers Conference*. Dauphin Island, AL. Oral Presentation.
- Smallegan, S. M.**, Irish, J. L., 2016. Bay side flooding on a developed barrier island during a hurricane. *Alabama Water Resources Conference*, Orange Beach, AL. Oral Presentation.
- Smallegan, S. M.**, Irish, J. L., van Dongeren, A. R., 2016. Seawall fronted barrier island response to hurricane forcing under rising sea level. *Ocean Sciences*, New Orleans, LA. Poster Presentation.
- Smallegan, S. M.**, Irish, J. L., den Bieman, J. P., van Dongeren, A. R., 2015. Numerical investigation of developed and undeveloped barrier island response to Hurricane Sandy. *Coastal Structures & Solutions to Coastal Disasters Joint Conference*, Boston, MA. Oral Presentation and Conference Paper.
- Smallegan, S. M.**, Keith, S. T.\*\*\*, Cheng, W., Weiss, R., Irish, J. L., 2014. Quantification of distinguishing features of tsunami versus hurricane sediment overwash events. *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster Presentation.
- Smallegan, S. M.**, Irish, J. L., den Bieman, J. P., van Dongeren, A. R., 2014. Effects of coastal infrastructure on morphology during Hurricane Sandy. *Young Coastal Scientists and Engineers Conference*, Newark, DE. Oral Presentation.
- Smallegan, S. M.**, Irish, J. L., den Bieman, J. P., van Dongeren, A. R., 2014. Wave force reduction due to buried seawall. *Ocean Sciences*, Honolulu, HI. Poster Presentation.
- Smallegan, S. M.**, Irish, J. L., 2013. Effects of longshore pressure gradient on nearshore current. *World Environmental and Water Resources Congress*, Cincinnati, OH. Oral Presentation.
- Irish, J. L., Weiss, R., Lynett, P. J., MacInnes, B. T., Cheng, W., **Smallegan, S. M.**, 2013. Observations of erosion and damage along barrier islands following Hurricane Sandy. *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster Presentation.
- Smallegan, S.**, Haas, K., List, J., 2012. Effects of longshore non-uniformities in a bar trough system on longshore currents. *Ocean Sciences*, Salt Lake City, UT. Oral Presentation.
- Smallegan, S. M.**, Haas, K. A., Warner, J. C., List, J. H., 2010. Observations of longshore currents at Cape Hatteras, NC. *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster Presentation.

Haas, K. A., Warner, J. C., **Smallegan S. M.**, 2010. Three-dimensional modeling of ocean currents during the passage of weather fronts. *Ocean Sciences*, Portland, OR. Oral Presentation.

## **TECHNICAL REPORTS**

Heming, M., Collini, R., Schafer, C., **Smallegan, S. M.**, Posey, P., 2021. Report for the Dauphin Island adaptation pathway virtual engagement. The Northern Gulf of Mexico Sentinel Site Cooperative, Technical Report.

Collini, R., **Smallegan, S. M.**, Heming, M., Posey, P., Collier, J., Wood, C., Edwards, P., Fleming, H., Murril, S., 2020. Report for the Dauphin Island adaptation pathway meeting. The Northern Gulf of Mexico Sentinel Site Cooperative, Technical Report.

Webb, B., **Smallegan, S. M.**, 2019. Characterization of Impacts of Waves and Boat Wakes on Marsh Spits in the Transitional Zone of Fowl River. Mobile Bay National Estuary Program, Fowl River Marsh Study Technical Report.

Roueché, D., Cleary, J. C., Barnes, R., Davis, B., Marshall, J., Rittelmeyer, B., **Smallegan, S. M.**, Guo, Y., Hodges, C., Kijewski-Correa, T., Salman, A., Turner, K., Merschman, E., Mulchandani, H., Prevatt, D., Robertson, I., 2019. March 3, 2019 Tornadoes in Southeast United States: Early Access Reconnaissance Report (EARR). DesignSafe-CI.

Stark, N., Tech, V., Jafari, N., Ravichandran, N., Shafii, I., **Smallegan, S. M.**, Bassal, P., Figlus, J., 2017. The Geotechnical Aspects of Coastal Impacts during Hurricane Harvey. GEER Association Report No. GEER-054.

**Smallegan, S.**, Haas, K., Work, P. and Warren, D., 2012. Lead and PAHs in Sediments Surrounding the Skeet Range at U.S. Marine Corps Air Station Beaufort, Beaufort, SC. Project Report to US Marine Corps Headquarters.

**Smallegan, S.**, Gay, T., Haas, K., Work, P. and Warren, D., 2011. Heavy Metals and Sediment Analyses: Small Arms Firing Ranges, US Marine Corps Base Camp Lejeune, NC. Project Report to US Marine Corps Headquarters.

## **ACADEMIC RESEARCH ADVISING**

### **Graduate Students**

Kaylyn Bellais, M.S.C.E., estimated 2021. Thesis: Vulnerability of a freshwater aquifer on Dauphin Island, AL

Benji Delaney, M.S.C.E., estimated 2022. Thesis: Adaptation Pathway for Dauphin Island, AL

Ashley Elkins, M.S.C.E., estimated 2022. Thesis: Dune evolution on Lake Michigan

Scott Spurgeon, M.S.C.E., estimated 2022. Thesis: Relating a coastal vulnerability index to beach nourishment projects

Peyton Posey, M.S.C.E., 2021. Thesis: Hurricane impacts on a barrier island under sea level rise scenarios using a calibrated model

Brittany McMillan, M.S.C.E., 2019. Thesis: Analysis of performance and cost of a beach nourishment on Dauphin Island as sea levels rise

### **Undergraduate Students**

Garrett Jacobs, B.S.C.E. estimated May 2022. Research Topic: Lab observations of dune erosion caused by Hurricane Nate waves and storm surge

Tyler Jacobs, B.S.C.E. estimated May 2022. Research Topic: Dune erosion to storm waves and surge and its relationship to vegetation density and dune configuration

Benji Delaney, B.S.C.E. May 2020. Research Topic: Developing a low-resolution grid for Dauphin Island, AL

Evan Mazur, B.S.C.E. May 2020. Research Topic: Method development for determining relationships between hurricane characteristics and morphological change

Scott Spurgeon, B.S.M.E. May 2020. Research Topic: Analyzing the relationship between hurricane hydrodynamic characteristics and morphological change

## **PROFESSIONAL AFFILIATIONS AND SERVICE**

### **Committees**

**National:** Technical Advisory Committee (2020 – Present), American Shore and Beach Preservation Association (ASBPA); Elected Chair (2020 – 2021) and Secretary (2019 – 2020), NSF Natural Hazards Engineering Research Infrastructure (NHERI).

**University:** Goldwater Fellowship Committee (2018 – Present); Library Committee (2017 – Present); Sustainability Committee (2017 – Present).

**College:** Computing Committee (2019 – Present); Excellence in Teaching Committee (2019 – Present); Faculty Search Committees (2021, 2020, 2018, 2017); Research Committee (2020 – Present).

**Department:** Faculty Search Committee (2021).

### Memberships

Student Chapter Faculty Advisor and Member, Society of American Military Engineers (SAME)

Member, National Science Foundation (NSF) GEER, StEER, and NEER associations

Member, American Society of Civil Engineers

Member, American Geophysical Union

Member, Tau Beta Pi Engineering Honor Society

Member, Chi Epsilon Civil Engineering Honor Society

### Journal, Proposal, and Technical Reviews

**Manuscript Reviewer:** *Ocean & Coastal Management* (2021); *Water Research Bulletin* (2021); *GeoExtreme* (2021); *Estuaries and Coasts* (2019); *African Journal of Marine Sciences* (2019); *Climatic Change* (2018); *Coastal Engineering* (2017, 2020); *National Conference on Undergraduate Research* (2017); *Risk Analysis* (2017, 2018); *Thalassas: An International Journal of Marine Sciences* (2017); *Journal of Waterway, Port, Coastal, and Ocean Engineering* (2016, 2018, 2020).

**Proposal Reviewer:** National Science Foundation (2020); RESTORE (2020); Louisiana Sea Grant (2019); New York Sea Grant (2019); Delaware Sea Grant (2017); Texas Sea Grant (2017).

### Synergistic Activities

Co-organizer, NHERI Researchers Meeting, Washington, D.C. expected Fall 2022.

Co-organizer, Ocean Visions Conference and Gulf Coast Coastal Solutions Workshop. Virtual.

Social Event Coordinator for the 2019 25<sup>th</sup> Biennial Conference, Coastal and Estuarine Research Federation

Workshop Organizer, Science Center Public Forum, Mobile, AL.

Panelist, National Science Foundation Graduate Research Fellowship Program. (2016 - Present).

### TEACHING EXPERIENCE

**Instructor of Record:** Fluid Mechanics (undergraduate), Water Resources Engineering (undergraduate), Hydraulic Engineering Laboratory (undergraduate), Senior Design (undergraduate), Coastal and Harbor Engineering (undergraduate and graduate), Hydrodynamic Modeling (undergraduate and graduate), Civil Engineering in the Coastal Environment (undergraduate and graduate), Littoral Processes (graduate), Scholarship/Fellowship Preparation (undergraduate Honors)

**Guest Lectures:** Fluid Mechanics for Civil and Environmental Engineers (undergraduate), Oceanography (undergraduate), Coastal Engineering (undergraduate and graduate)

**Courses Taken:** National Effective Teaching Institute's NETI-3D (online-focused); ASCE's Excellence in Civil Engineering Education (ExCEED); Preparing the Future Professoriate, Contemporary Pedagogy, Practicum in the Engineering Classroom, Principles of Engineering Education

**Certificates:** Future Professoriate Graduate Certificate, Engineering Education Graduate Certificate

### LEADERSHIP AND OUTREACH

**Conference Moderator:** National Coastal Conference 2019, 2021 American Shore and Beach Preservation Association; Young Coastal Scientists and Engineers Conference 2014

**Invited Workshops and Seminars:** Coastal Engineering Research Workshop, Arlington, VA; NSF CAREER Proposal Writing Workshop, Arlington, VA; 2018 Summer Institute, San Antonio, TX; Strategic Risk Scenario Planning workshop, Washington D.C and Blacksburg, VA; Student Transition Engineering Program (STEP) seminar, Blacksburg, VA

**Outreach Events:** Summer Engineering Academy, University of South Alabama, Mobile, AL; Girls Get IT! Summer Technology Camp Coordinator, New River Community College, Dublin, VA; Career Days and College Days at one



middle school and two high schools; Tsunami risk awareness tours, O.H. Hindsdale Tsunami Wave Basin, Oregon State University, Corvallis, OR