Jennifer Linnea Irish

Professor · Civil & Environmental Engineering · Virginia Tech
221E Patton Hall (0105) · 750 Drillfield Drive · Blacksburg, VA 24061
jirish@vt.edu · coastalhazardsvt.weebly.com

BIOGRAPHY

Dr. Jennifer L. Irish is a professor of coastal engineering at Virginia Tech and Associate Director Virginia Tech's Center for Coastal Studies. She is an expert in storm surge dynamics, coastal hazard assessment, and nature-based infrastructure for coastal hazard mitigation. Since entering academia in 2006, as lead Principal Investigator (PI) or co-PI, Irish received grants totaling $21.1 million ($3.4 million for Irish) from agencies including the National Science Foundation, U.S. Department of Energy, U.S. Army Corps of Engineers, National Commission on Energy Policy, and National Oceanic and Atmospheric Administration's Sea Grant Program. Prior to joining academia in 2006, Irish served as Regional Technical Specialist in coastal engineering for the U.S. Army Corps of Engineers. Irish has published over 60 journal articles, and her work has been cited more than 3500 times (Google Scholar). These contributions advanced understanding in four areas within coastal engineering and science: airborne lidar bathymetry in the coastal zone, nature-based infrastructure for coastal hazard mitigation, physics of storm surge and related probabilistic hazard assessment, and impacts of sea level rise at the coast. For these contributions, Irish was honored with U.S. Fulbright's Senior Scholar Fellowship and the Department of the Army's Superior Civilian Service Award, among other awards. Established within the international and national engineering communities, Irish is an elected member of the Virginia Academy of Science, Engineering and Medicine, an elected Fellow of the American Society of Civil Engineers (ASCE), and an elected member of ASCE's Coastal Engineering Research Council. She served as Chair of ASCE's standing Committee on Technical Advancement and as Secretary of ASCE's Coasts, Oceans, Ports, and Rivers Institute Board of Governors.

EDUCATION

Ph.D.	Civil Engineering, Coastal Engineering focus, University of Delaware	05/2005
M.S.	Civil Engineering, Hydraulic Engineering focus, Lehigh University	05/1994
B.S.	Civil Engineering, Hydraulic Engineering focus, Lehigh University	05/1992

APPOINTMENTS

Professor, Civil and Environmental Engineering, Virginia Tech	08/2016 – present
Faculty Athletics Representative to the ACC and NCAA, Virginia Tech (appointed by the President)	08/2021 – present
Visiting Scholar, University of Haifa	01/2019 – 05/2019
Visiting Scholar, Taylor Engineering Research Institute, University of North Florida	05/2017 – 07/2017
Associate Professor, Civil and Environmental Engineering, Virginia Tech	08/2011 – 08/2016
Assistant Professor, Civil Engineering, Texas A&M University	08/2006 – 08/2011
Coastal Engineering Regional Technical Specialist, U.S. Army Corps of Engineers North Atlantic Division and New York District	10/2001 – 07/2006
Research Coastal Engineer, U.S. Army Coastal and Hydraulics Laboratory	08/1998 – 09/2001
Coastal Engineer, U.S. Army Coastal Engineering Research Center	07/1994 – 08/1997

HONORS AND AWARDS

Member, Virginia Academy of Science, Engineering and Medicine (VASEM) (since 2019)
2018-2019 U.S. Fulbright Senior Scholar All-Disciplines Fellowship
Fellow, American Society of Civil Engineers (ASCE) (since 2017)
2015-2017 College of Engineering Faculty Fellow, Virginia Tech
2013 ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering Outstanding Paper (1 of 5) for "Method for estimating future hurricane flood probabilities and associated uncertainty" by Irish and Resio
2013 Scholar of the Week (October 21st), Virginia Tech
2010 Civil Engineering Excellence in Research Award, Texas A&M University
2008 Zachry Department of Civil Engineering Award for Excellence, Texas A&M University
2008 Department of the Army Superior Civilian Service Award, U.S. Army Director of Civil Works
2006 Department of the Army Achievement Medal, U.S. Army Corps of Engineers
2006 Department of the Army Commander's Award for Civilian Service, U.S. Army Corps of Engineers (New York District)
2006 Department of the Army Commander's Award for Civilian Service, U.S. Army Corps of Engineers (Mississippi Valley Division)
2004 Commander's Outstanding Scientific Achievement Award, U.S. Army Corps of Engineers
1997 Gustav Willems Award, PIANC International
1997 Gustav Willems Award, U.S. Section PIANC
1996 Best of Conference, 2nd International Airborne Remote Sensing Conference, Environmental Research Institute of Michigan
1994 Elizabeth Major Nevius Award, Lehigh University
1990 and 1991 Edward Twiggar Memorial Scholarship, Lehigh University
Chi Epsilon Honorary Society member

SIGNIFICANT PROFESSIONAL SERVICE

Member, Weather Impact Study Board of the Virginia General Assembly's Joint Commission on Technology and the Science & Virginia Academy of Science, Engineering and Medicine	2020 – 2021
Co-chair, Organizing Committee, Virginia Academy of Science, Engineering and Medicine's 2018 Summit on Securing Prosperity in the Coastal Zone, Richmond, VA, 2018	2018
Member, National Academies' Committee on Long-term Coastal Zone Dynamics: Interactions and Feedbacks between Natural and Human Processes and their Implications for the U.S. Coastline	2017 – 2018
Member, National Science Foundation's Natural Hazards Engineering Research Infrastructure (NHERI) Task Group: Five-Year Science Plan	2016 – present
Past Chair (2017-2018), Chair (2016-2017), Vice Chair (2015-2016), and Executive Committee Member, American Society of Civil Engineers' (ASCE) standing Committee on Technical Advancement	2014 – 2018
Vice Chair (2021-present) and Member, Coastal Engineering Research Council (CERC) of ASCE	2014 – present
Associate Editor, *Journal of Waterway, Port, Coastal, and Ocean Engineering-ASCE*	2014 – present
Advisory Editorial Board, *Coastal Engineering* (Elsevier)	2014 – present
Secretary (2005-2012) and Member, ASCE Coasts, Oceans, Ports, and Rivers Institute's (COPRI) Coastal and Estuarine Hydroscience Committee	2005 – 2019
Member, ASCE COPRI Sustainability Committee	2012 – 2016

Member, Board of Trustees, Academy of Coastal, Ocean, Port and Navigation Engineers 2012 – 2015
Member, Strategic Sciences Group—Operational Group Sandy, U.S. Department of Interior 2013 – 2014
Secretary, Board of Governors of ASCE COPRI 2008 – 2012

SIGNIFICANT EXPERT ADVISOR CONSULTANCY

Chair, 2023 Coastal Master Plan Predictive Models Technical Advisory Committee, Coastal Protection and Restoration Authority (CPRA) of Louisiana 2019 – present
Standing Member, External Review Board, Louisiana Center of Excellence (RESTORE Act), The Water Institute of the Gulf 2016 – 2019
Expert advisor to U.S. Nuclear Regulatory Commission (via Taylor Engineering) 2015 – present
Member, 2017 Coastal Master Plan Science and Engineering Board, Coastal Protection and Restoration Authority (CPRA) of Louisiana 2015 – 2017

PUBLICATION SUMMARY

- Number of journal and other refereed publications: 76
- Total citations (from Google Scholar): 4101
- h-index (from Google Scholar): 29
- i10-index (from Google Scholar): 60
- Five most highly cited papers (from Google Scholar, *indicates graduate student):
  1. **527 cites:** Woodruff, J. D., **Irish**, J. L., Camargo, S. J., Coastal flooding by tropical cyclones and sea level rise, *Nature*, 504, 44-52, 2013.
  2. **373 cites:** Augustin*, L. N., **Irish**, J. L., and Lynett, P. L., Laboratory and numerical studies of wave damping by emergent and near-emergent wetland vegetation, *Coast. Eng.*, 56(3), 332-340, 2009.
  3. **364 cites: Irish**, J. L., Resio, D. T., and Ratcliff, J. J., The influence of storm size on hurricane surge, *J. Phys. Oceanogr.*, 38, No. 9, 2003-2013, 2008.
  4. **321 cites: Irish**, J. L. and Lillycrop, W. J., Scanning laser mapping of the coastal zone: The SHOALS system, *ISPRS-J. Photogramm. Remote Sens.*, 54, 123-129, 1999.
  5. **247 cites:** Mousavi*, M. E., **Irish**, J. L., Frey*, A. E., Olivera, F., and Edge, B. L., Global warming and hurricanes: The potential impact of hurricane intensification and sea level rise on coastal flooding, *Clim. Change*, 104(3-4), 575-597, 2011.

JOURNAL PUBLICATIONS (65 published or in press and 3 in review)

*Indicates graduate student, **Indicates undergraduate student

Published and In Press

1. Weiss, R., **Irish**, J. L., Goodman Tchernov, B., Boulder dislodgement during coastal storms and tsunamis: Insights from a new ensemble model, *Geochem. Geophys.*, in press, DOI:10.1029/2021GC010266.
2. Allen, T., Behr, J., Bukvic, A., Calder., R. Caruson, K., Conner, C., D'Elia, C., Dismukes, D., Ersing, R., Franklin, R., Goldstein, J., Hemmerling, S., **Irish**, J., Goodall, J., Lazarus, S., Lottis, D., Luther, M., Leight McCallister, S., McGlathery, K., Mitchell, M., Moore, W., Nichols, C. R., Nunez, K., Reidenbach, M., Shortridge, J., Weisberg, R., Weiss, R., Wright, L. D., Cia, M., Xu, K., Young, D., Zarillo, G., Zinnert, J., Anticipating and adapting to the future impacts of climate change on the health, security and welfare of Low Elevation Coastal Zone (LECZ) communities in Southeastern USA, *J. Mar. Sci. Eng.*, 9, 1196, 2021. Click here to access.

3. Lee*, J.-W., **Irish**, J. L., Bensi, M., Marcy, D., Rapid prediction of peak storm surge from tropical cyclone track time series using machine learning, *Coast. Eng.,* 170, 104024, 2021. Click here to access.
4. Lee*, J.-W., **Irish**, J. L., Weiss, R., Probabilistic near-field tsunami source and tsunami run-up distribution inferred from tsunami run-up records in northern Chile, *J. Geophys. Res.*, 126(6), e2021JC017289, 2021. Click here to access.
5. Berman, J., Wartman, J., Olsen, M., **Irish**, J., Miles, S., Tanner, T., Gurley, K. R., Lowes, L., Bostrom, A., Dafni, J., Grilliot, M., Lyda, A., Peltier, J., Natural hazards reconnaissance with the NHERI RAPID Facility, *Front. Built Environ.*, 6, 185, 2020. Click here to access.
6. Lee*, J.-W., **Irish**, J. L., Weiss, R., Rapid prediction of alongshore run-up distribution from near-field tsunamis, *Nat. Hazards*, 104(2), 1157-1180, 2020. Click here for free online access.
7. Wartman, J., Berman, J., Bostrom, A., Miles, S., Olsen, M., Gurley, K. R., Lowes, L., **Irish**, J., Tanner, T., Dafni, J., Grilliot, M., Lyda, A., Peltier, J., Research needs, challenges, and strategic approaches for natural hazards and disaster reconnaissance, *Front. Built Environ.*, 6, 182, 2020. Click here to access.
8. Bilskie*, M. V., Hagen, S. C., **Irish**, J. L., Development of return period stillwater floodplains for the northern Gulf of Mexico under the coastal dynamics of sea level rise, *J. Waterw. Port C.-ASCE*, 145(2), 04019001, 2019. Click here to access.
9. Liu*, Y., Asher, T., **Irish**, J. L., Physical drivers of changes in probabilistic surge hazard under sea level rise, *Earth's Future*, 7, 819-832, 2019. Click here to access.
10. Liu*, Y., **Irish**, J. L., Characterization and prediction of tropical cyclone forerunner surge, *Coast. Eng.*, 147, 34-42, 2019. Click here to access.
11. von Holle, B., **Irish**, J. L., Spivy*, A., Weishampel, J., Meylan, A., Godfrey, M., Dodd, M., Schweitzer, S., Keyes,T., Sanders, F., Bimbi, M., Earhart, L., Taylor*, N., The effects of future sea level rise on sea turtle, shorebird, and seabird habitat within the South Atlantic Bight, *J. Wildl. Manag.*, 83, 694-704, 2019. Click here to access.
12. Hsu*, C.-H., Olivera, F., **Irish**, J. L., A hurricane surge risk assessment framework using the joint probability method and surge response functions, *Nat. Hazards*, 91(S1), 7-28, 2018. Click here for free online access.
13. Keeler, A. G., McNamara, D. E., **Irish**, J. L., Responding to sea level rise: Does short-term risk reduction inhibit successful long-term adaptation?, *Earth's Future*, 6(4), 617-672, 2018. Click here for free access.
14. Yang*, Y., **Irish**, J. L., Evolution of wave spectra in mound-channel wetland systems, *Estuar. Coast. Shelf Sci.*, 207, 444-456, 2018. Click here to access.
15. Zainali*, A., Marivela*, R., Weiss, R., **Irish**, J. L., Yang*, Y., Numerical simulation of nonlinear long waves in the presence of discontinuous coastal vegetation, *Mar. Geol.*, 396, 142-149, 2018. Click here to access.
16. Resio, D. T., Asher, T., **Irish**, J. L., The effects of natural structure on estimated tropical cyclone surge extremes, *Nat. Hazards*, 88(3), 1609–1637, 2017. Click here for free access.
17. Smallegan*, S. M., **Irish**, J. L., Barrier island morphological change by bay side storm surge, *J. Waterw. Port C.-ASCE*, 143(5), 143(5), 04017025, 2017. Click here to access.
18. Smallegan*, S. M., **Irish**, J. L., van Dongeren, A., Developed barrier island adaptation strategies to hurricane forcing under rising sea levels, *Clim. Change*, 143(1-2), 173–184, 2017. Click here for free online access.
19. Yang*, Y., **Irish**, J. L., Weiss, R., Impact of patchy vegetation on tsunami dynamics, *J. Waterw. Port C.-ASCE*, 143(4), 04017005, 2017. Click here to access.
20. Smallegan*, S. M., **Irish**, J. L., van Dongeren, A. R., den Bieman, J. P., Morphological response of a sandy barrier island with a buried seawall during Hurricane Sandy, *Coast. Eng.*, 110, 102-110, 2016. Click here to access.

21. Resio, D. T., **Irish**, J. L., Tropical cyclone storm surge risk, *Curr. Clim. Change Rep.*, 1(2), 74-84, 2015. Click here for free access.
22. Taylor*, N. R., **Irish**, J. L., Udoh*, I. E., Bilskie*, M. V., Hagen, S. C., Development and uncertainty quantification of hurricane surge response functions for hazard assessment in coastal bays, *Nat. Hazards*, 77, 1103-1123, 2015. Click here for free online access.
23. Truong*, M. K., Whilden*, K. A., Socolofsky, S. A., **Irish**, J. L., Experimental study of wave dynamics in coastal wetlands, *Environ. Fluid Mech.*, 15(4), 851-880, 2015. Click here to access.
24. Yang*, Y., **Irish**, J. L., Socolofsky, S. A., Numerical investigation of wave-induced flow in mound-channel wetland systems, *Coast. Eng.*, 102, 1-12, 2015. Click here to access.
25. Ferreira*, C., **Irish**, J. L., Olivera, F., Quantifying the potential impact of land cover changes due to sea-level rise on storm surge on lower Texas coast bays, *Coast. Eng.*, 94, 102-111, 2014. Click here to access.
26. Ferreira*, C. M., **Irish**, J. L., Olivera, F., Uncertainty in hurricane surge simulation due to land cover specification, *J. Geophys. Res. Oceans*, 119, 1812-1827, 2014. Click here for free access.
27. Ferreira*, C. M., Olivera, F., and **Irish**, J. L., Arc StormSurge: Integrating hurricane storm surge modeling and GIS, *J. Am. Water Resour. As.*, 50(1), 219-233, 2014. Click here to access.
28. **Irish**, J. L., Sleath, A., Cialone, M. A., Knutson, T. R., Jensen, R. E., Simulations of Hurricane Katrina (2005) under sea level and climate conditions for 1900, *Clim. Change*, 122(4), 635-649, 2014. Click here to access.
29. **Irish**, J. L., Weiss, R., Yang*, Y., Song*, Y. K., Zainali*, A., Marivela-Colmenarejo*, R., Laboratory experiments of tsunami runup and withdrawal in patchy coastal forest on a steep beach, *Nat. Hazards*, 74(3), 1933-1949, 2014. Click here to access.
30. Passeri*, D. L., Hagen, S. C., **Irish**, J. L., Comparison of shoreline change rates along the South Atlantic Bight and Northern Gulf of Mexico coasts for better evaluation of future shoreline positions under sea level rise, *J. Coastal. Res.*, 68, 20-26, 2014. Click here to access.
31. Whilden*, K. A., Socolofksy, S., Chang, K.-A., **Irish**, J. L., Using surface drifter observations to measure tidal vortices and diffusion at Aransas Pass, Texas, *Environ. Fluid Mech.*, 14(5), 1147-1172, 2014.
32. Cox*, N., Dunkin*, L. M., **Irish**, J. L., An empirical model for infragravity swash on barred beaches, *Coast. Eng.*, 81, 44-50, 2013. Click here to access.
33. Hagen, S. C., **Irish**, J. L., Implications, planning, and design considerations for rising sea levels at the coast, *J. Waterw. Port C.-ASCE* [Focus Issue: Implications, planning, and design considerations for rising sea levels at the coast, S. Hagen and J. Irish (eds.)], 139, 81-81, 2013. [Issue Introduction]
34. **Irish**, J. L., Lynett, P. J., Weiss, R., Smallegan*, S. M., Cheng*, W., Buried relic seawall mitigates Hurricane Sandy's impacts, *Coast. Eng.*, 80, 79-82, 2013. Click here to access.
35. **Irish**, J. L., Resio, D. T., Method for estimating future hurricane flood probabilities and associated uncertainty, *J. Waterw. Port C.-ASCE* [Focus Issue: Implications, planning, and design considerations for rising sea levels at the coast, S. Hagen and J. Irish (eds.)], 139, 126-134, 2013. **Selected as a *J. Waterw. Port C.-ASCE* 2013 Outstanding Paper.** Click here to access.
36. Resio, D. T., **Irish**, J. L., Westerink, J. J., Powell, N., The effect of uncertainty on estimates of hurricane surge hazards, *Nat. Hazards* [Special Issue: Storm Surges, H. Kremer (ed.)], 66(3), 1443-1459, 2013. Click here to access.
37. Woodruff, J. D., Irish, J. L., Camargo, S. J., Coastal flooding by tropical cyclones and sea level rise, Nature, 504, 44-52, 2013. Click here to access.
38. **Irish**, J.L., Ewing, L.C., Jones, C.P., Observations from the 2009 Samoa Tsunami: Damage potential in coastal communities, *J. Waterw. Port C.-ASCE*, 138(2), 131-141, 2012. Click here to access.

39. Song*, Y. K., **Irish**, J. L., and Udoh*, I. E., Regional attributes of hurricane surge response functions for hazard assessment, *Nat. Hazards*, 64(2), 1475-1490, 2012. Click here to access.
40. **Irish**, J.L., Resio, D.T., Divoky, D., Statistical properties of hurricane surge along a coast, *J. Geophys. Res.*, 116, C10007, 2011. Click here for free access.
41. **Irish**, J. L., Song*, Y. K., Chang, K.-A., Probabilistic hurricane surge forecasting using parameterized surge response functions, *Geophys. Res. Lett.*, 38, L03606, 2011. **Selected as an AGU Research Spotlight and featured in Eos [92(12), 108].** Click here for free access.
42. Feagin, R., **Irish**, J. L., Möller, I., Williams*, A., Colón-Rivera, R. J., Mousavi*, M. E., Short communication: Engineering properties of wetland plants with application to wave attenuation, *Coast. Eng.*, 58(3), 251-255, 2011. Click here to access.
43. Mousavi*, M. E., **Irish**, J. L., Frey*, A. E., Olivera, F., Edge, B. L., Global warming and hurricanes: The potential impact of hurricane intensification and sea level rise on coastal flooding, *Clim. Change*, 104(3-4), 575-597, 2011. Click here to access.
44. Frey*, A. E., Olivera, F., **Irish**, J. L., Dunkin*, L. M., Kaihatu, J. M., Ferreira*, C. M., Edge, B. L., Potential impact of climate change on hurricane flooding inundation, population affected, and property damages in Corpus Christi, *J. Am. Water Resour. As.*, 46(5), 1049-1059, 2010. Click here to access.
45. **Irish**, J. L., Frey*, A. E., Rosati, J. D., Olivera, F., Dunkin*, L. M., Kaihatu, J. M., Ferreira*, C. M., Edge, B. L., Potential implications of global warming and barrier island degradation on future hurricane inundation, property damages, and population impacted, *Ocean Coast. Manage.*, 53, 645-657, 2010. Click here to access.
46. **Irish**, J. L., Resio, D. T., Reply to Discussion of 'A hydrodynamics-based surge scale for hurricanes', *Ocean Eng.*, 37(11-12), 1085-1088, 2010. Click here to access.
47. **Irish**, J. L., Resio, D. T., A hydrodynamics-based surge scale for hurricanes, *Ocean Eng.* [Special Issue, Interagency Performance Evaluation TaskForce (Hurricane Katrina), Z. Demerbilik, (ed.)], 37(1), 69-81, 2010. Click here to access.
48. Augustin*, L. N., **Irish**, J. L., Lynett, P. L., Laboratory and numerical studies of wave damping by emergent and near-emergent wetland vegetation, *Coast. Eng.*, 56(3), 332-340, 2009. Click here to access.
49. Humbyrd**, C. J., **Irish**, J. L., Rahoy, D. S., Alpern, R. L., Rackmales, D. N., Variable-height bulkhead design concept for storm flood protection, *J. Waterw. Port C.-ASCE*, 135(6), 296-300, 2009. Click here to access.
50. **Irish**, J. L., and Cañizares, R., Storm wave flow through tidal inlets and its influence on bay flooding, *J. Waterw. Port C.-ASCE*, 135(2), 52-60, 2009. Click here to access.
51. **Irish**, J. L., Resio, D. T., Cialone, M. C., A surge response function approach to coastal hazard assessment. Part 2: Quantification of spatial attributes of response functions, *Nat. Hazards* [Special Issue, Numerical modelling of storm surges, the latest developments, V. Swail (ed.)], 51(1), 183-205, 2009. Click here to access.
52. Loder*, N. L., **Irish**, J. L., Cialone, M. A., Wamsley, T. V., Sensitivity of hurricane surge to morphological parameters of coastal wetlands, *Estuar. Coast. Shelf Sci.*, 84, 625-636, 2009. Click here to access.
53. Resio, D. T., **Irish**, J. L., Cialone, M. C., A surge response function approach to coastal hazard assessment. Part 1: Basic concepts, *Nat. Hazards* [Special Issue, Numerical modelling of storm surges - the latest developments, V. Swail (ed.)], 51(1), 163-182, 2009. Click here to access.
54. Cañizares, R., **Irish**, J. L., Simulation of storm-induced barrier-island morphodynamics and flooding, *Coast. Eng.*, 55(12), 1089-1101, 2008. Click here to access.
55. **Irish**, J. L., Augustin*, L. N., Balsmeier*, G. E., Kaihatu, J. M., Wave dynamics in coastal wetlands: A state-of-knowledge review with emphasis on wetland functionality for storm damage reduction, *Shore and Beach*, 76(3), 52-56, 2008.

56. **Irish**, J. L., Resio, D. T., Ratcliff, J. J., The influence of storm size on hurricane surge, *J. Phys. Oceanogr.*, 38(9), 2003-2013, 2008. Click here for free access.
57. **Irish**, J. L., Wozencraft, J. M., Cunningham, A. G., Giroud, C., Nonintrusive measurement of waves: Lidar wave gage, *J. Atmos. Ocean. Tech.*, 23(11), 1559-1572, 2006. Click here for free access.
58. **Irish**, J. L., McClung, J. K., Lillycrop, W. J., Airborne lidar bathymetry: The SHOALS system, *PIANC Bulletin*, 103–2000, 43-53, 2000.
59. Lillycrop, W. J., **Irish**, J. L., Pope, R. W., West, G. R., GPS sends in the Marines: Rapid Environmental Assessment with lidar, *GPS World*, 11(11), 12-28, 2000.
60. **Irish**, J. L., Lillycrop, W. J., Scanning laser mapping of the coastal zone: The SHOALS system, *ISPRS-J. Photogramm. Remote Sens.*, 54, 123-129, 1999. Click here to access.
61. **Irish**, J. L., White, T. E., Coastal engineering applications of high-resolution lidar bathymetry, *Coast. Eng.*, 35(1-2), 47-71, 1998. Click here to access.
62. **Irish**, J. L., Sensitivity of channel sedimentation prediction to wave-field characterization, *PIANC Bulletin*, 95-1997, 5-20, 1997. **International Gustav Willems Award Winner**.
63. **Irish**, J. L., Lillycrop, W. J., Monitoring New Pass, Florida with high density lidar bathymetry, *J. Coastal Res.*, 13(4), 1130-1140, 1997. Click here to access.
64. Lillycrop, W. J., **Irish**, J. L., Parson, L. E., SHOALS system, *Sea Technology*, 38(6), 17-25, 1997.
65. Estep, L., Oriol, S., Parson, L., **Irish**, J., Lillycrop, J., Arnone, R., Lanier, K., An optical database for planning Airborne Lidar Hydrographic (ALH) missions, *Hydrographic Journal*, 80, 25-28, 1996.

In Review

1. Hoagland*, S. W. H., Jeffries*, C. R., **Irish**, J. L., Weiss, R., Mandli, K., Vitousek, S., Johnson, C. R., Cialone, M. A., Advances in understanding and modeling of barrier island evolution: A review, *J. Waterw. Port C.-ASCE*, in review.
2. Mitchell*, A., Bukvic, A., Shao, Y., **Irish**, J. L., McLaughlin, D., Toward collaborative adaptation: Assessing impacts of coastal flooding at the watershed scale, *Environ. Manage.*, in review.
3. Weiss, R., Dura, T., **Irish**, J. L., Modeling coastal environmental change and the tsunami hazard, *Front. Mar. Sci.*, in review.

REFEREED BOOK CHAPTERS (3 published)

1. Resio, D. T., **Irish**, J. L., Tropical cyclone storm surge risk (Reprinted from *Curr. Clim. Change Rep.*, 1(2), 7484, 2015), *Handbook of Coastal Engineering* 2nd Edition, Y. Kim, eds., World Scientific, 2018.
2. **Irish**, J. L., Weiss, R., Resio, D. T., Physical characteristics of coastal hazards, *Springer Handbook of Ocean Engineering*, M. Dhanak and N. Xiros, eds., Springer, 2016.
3. Resio, D. T., Tumeo, M., **Irish**, J. L., Foundations for hazard/risk assessment in coastal areas, *Springer Handbook of Ocean Engineering*, M. Dhanak and N. Xiros, eds., Springer, 2016.

OTHER REFEREED PUBLICATIONS (9 published or in press, 1 in review)

*Indicates graduate student

1. Haque*, A., Pamukçu*, D., Xie*, R., Duygu*, Zaker Esteghamati*, M., Cowell, M., **Irish**, J., Cascading effects of mass gatherings on COVID-19 infections from a multi-hazard perspective: A case study of New York City, Proc. ISCRAM (Information Systems for Crisis Response And Management) 2021 Conference in Blacksburg, VA, 2021.

2. Mosuela*, K. A., **Irish**, J. L., Wave attenuation from living shorelines: A parameter study, Proc. 10th International Conference on Scour and Erosion (ICSE-10, virtual, Rice, J., Liu, X., McIlroy, M., Sasanakul, I., and Xiao, M. (Eds), 2021.
3. Wartman, J., Berman, J. W., Olsen, M., **Irish**, J., Gurley, K., Miles, S. Lowes, L., Tanner, T., Bostrom, A., Grilliot, M., Lyda, A., Peltier, J., Capturing geotechnical extreme event performance with the NHERI RAPID, Proc. Geo-Extreme 2021 : Case Histories and Best Practices in Savannah, GA, 2021. Click here to access.
4. Kennedy, A., Cox, D, **Irish**, J. Kaihatu, J., Lynett, P., Tomiczek, T., *Envisioning the Future Coast: Coastal Engineering Research in the Coming Decades. A report from the Coastal Engineering Research Framework Workshop, November 13–14, 2018, Arlington, VA*, 2020, DesignSafe-CI. https://doi.org/10.17603/ds2-32yf-s071.
5. Deters*, J., Paretti, M., Zobel, C., Cowell, M., **Irish**, J. L., Assessing interdisciplinary competency in the Disaster Resilience and Risk Management graduate program using concept maps, Proc. American Society for Engineering Education's 126th Annual Conference and Exposition in Tampa, FL, Paper ID #25796, 2019. Click here for free access.
6. National Academies of Sciences, Engineering, and Medicine, *Understanding the Long-term Evolution of the Coupled Natural-Human Coastal System. The Future of the U.S. Gulf Coast*, The National Academies Press, Washington, DC, 2018. Click here for free access.
7. Flint, M. M., Dhulipala*, L.N.S., Shahtaheri*, Y., Tahir*, H., Ladipo*, T., Eatherton, M. R., **Irish**, J. L., Olgun, C.G ., Reichard, G., Rodriguez-Marek, A., Zobel, C., Developing a decision framework for multi-hazard design of resilient, sustainable buildings, Proc. 1st Int. Conf. on Natural Hazards and Infrastructure (ICONHIC2016), Earthquake Engineering Research Institute (EERI) in El Cerrito, CA, 2016.
8. Guikema, S. D., Udoh*, I., **Irish**, J., Nateghi*, R., The effects of hurricane surge in power system outage risk models, Proc. Probabilistic Safety Assessment and Management 2012, Helsinki, Finland, 2012.
9. Lillycrop, W. J., Parson, L. E., **Irish**, J. L., Development and operation of the SHOALS airborne lidar hydrographic system, *SPIE – CIS Selected Papers: Laser Remote Sensing of Natural Waters: From Theory to Practice* (V. I. Feigels, Y. I. Kopilevich [eds.]), 2964, 26-37, 1996.

In Review

1. Mosuela*, K., **Irish**, J. L., A parameterized approach to estimating wave attenuation from living shorelines, 2022 World Environmental and Water Resources Congress, in review.

CONFERENCE PROCEEDINGS (35 published, refereed proceedings excluded)

*Indicates graduate student, **Indicates undergraduate student

1. Liu*, Y., **Irish**, J. L., Predicting tropical cyclone forerunner surge, Proc. Coastal Dynamics 2017 in Helsingor, Denmark, 2017. Click here for free access.
2. Smallegan*, S. M., **Irish**, J. L., den Bieman, J. P., van Dongeren, A. R., Numerical investigation of developed and undeveloped barrier island response to Hurricane Sandy, Proc. Solutions to Coastal Disasters 2015 in Boston, MA, 2015.
3. **Irish**, J. L., Ferreira*, C. M., Resio, D. T., Olivera, F., Hsu*, C. H., Hurricane hazard assessment: Considerations for sea-level rise and climate change, Proc. International Conference on Coastal Engineering 2012 in Santander, Spain, 2013.
4. Rooney*, E. A., **Irish**, J. L., Weiss, R., Dalrymple, R. A., Hérault, A., Bilotta, G., Testing accuracy and convergence of GPUSPH for free-surface flows, Proc. 6th SPHERIC SPH-Workshop, Hamburg, Germany, 2011.

5. Udoh*, I. E., **Irish**, J. L., Improvements in hurricane surge response functions: Incorporating the effects of forward speed, approach angle, and sea level rise, Proc. 1st International Conference on Vulnerability and Risk Analysis and Management, College Park, MD, 2011.
6. **Irish**, J. L., Ferreira*, C. M., Song*, Y. K., Udoh*, I., Olivera, F., Chang, K.-A., Rapid probabilistic hurricane surge and damage forecasting using hydrodynamics-based surge response functions, Proc. International Conference on Coastal Engineering 2010 in Shanghai, China, No. 32(2010), Paper # currents.20, 2011.
7. Song*, Y. K., **Irish**, J. L., Vittone**, C., Barkdull**, M., Tsunami-like long wave inundation in forested regions: Laboratory observations of bore propagation through discontinuous macro-roughness, 2011 CMMI Grantee Conference, Atlanta, GA, 2011.
8. Augustin*, L. N., Balsmeier*, G., **Irish**, J., Kaihatu, J., Laboratory measurements of wave attenuation and wave setup by vegetation, Proc. International Conference on Coastal Engineering 2008 in Hamburg, Germany, 1, 324-330, 2009.
9. **Irish**, J. L., Frey*, A. E., Mousavi*, M. E., Olivera, F., Edge, B. L., Kaihatu, J., Dunkin*, L. M., Song*, Y. K., Predicting the influence of climate change on hurricane flooding, Proc. International Conference on Coastal Engineering 2008 in Hamburg, Germany, 2, 1050-1059, 2009.
10. Loder*, N. M., Cialone, M. A., **Irish**, J. L., Sleath, A., Reducing storm impacts through marshland restoration along the Gulf of Mexico, Proc. International Conference on Coastal Engineering 2008 in Hamburg, Germany, 2, 1024-1036, 2009.
11. **Irish**, J. L., Mousavi*, M. E., Frey*, A., Edge, B., Olivera, F., Quantification of climate change impacts on hurricane flooding, ASCE Texas Chapter Annual Meeting in Corpus Christi, TX, 2008.
12. Resio, D. T., **Irish**, J., Hurricane characteristics along the northern US Gulf of Mexico coast for surge prediction, Proc. Solutions to Coastal Disasters 2008 in Oahu, HI, 170-184, 2008.
13. **Irish**, J. L., Cañizares, R., The role of wave setup in predicting back-bay storm water levels: Long Island, New York, USA, Proc. International Conference on Coastal Engineering 2006 in San Diego, CA, 2, 1395-1406, 2007.
14. **Irish**, J. L., Williams, B. P., Militello, A., Mark, D. J., Regional-scale storm-surge modeling of Long Island, New York, USA, Proc. International Conference on Coastal Engineering 2004 in Lisbon, Portugal, 2, 1565-1577, 2005.
15. **Irish**, J. L., Cañizares, R., Grosskopf, W. G., The effect of hindcasted waves on coastal storm water levels during the blizzard of 2003, Proc. 8th International Workshop on Wave Hindcasting and Forecasting in Oahu, HI, O3, 2004.
16. Cañizares, R., Alfageme, S., **Irish**, J. L., Modeling of morphological changes at Shinnecock Inlet, New York, USA, Proc. Coastal Sediments 2003 in Clearwater Beach, FL, IV-B-5, 2003.
17. Pope, J., Curtis, W., Morang, A., **Irish**, J., Natale, L., Regional shore processes and sediment management along a heavily modified coastline: Lessons from Calabria, Italy, Proc. Coastal Sediments 2003 in Clearwater Beach, FL, II-C-2, 2003.
18. **Irish**, J. L., Lillycrop, W. J., Pope, R. W., Support for rapid environmental assessment using airborne lidar technology, Proc. 22nd Army Science Conference in Baltimore, MD, on CD-ROM (E), 2001.
19. **Irish**, J. L., Wozencraft, J. M., Cunningham, A. G., Water wave measurement with lidar from a fixed platform, Proc. Coastal Dynamics 2001 in Lund, Sweden, 998-1006, 2001.
20. Wozencraft, J. M., **Irish**, J. L., Lillycrop, L. S., Sand volumes and transport pathways for Gulf of Mexico regional sediment management, Proc. Coastal Dynamics 2001 in Lund, Sweden, 693-702, 2001.

21. **Irish**, J. L., An introduction to coastal zone mapping with airborne lidar: The SHOALS system, Proc. 21 Corso di Aggiomamento in: Techniche per la Diffesa Dallinquinamento, Cosenza, Italy, 2000.
22. **Irish**, J. L., Wozencraft, J. M., Cunningham, A. G., Lidar sensor for measuring directional-spectral characteristics of water waves, Proc. 2000 EARSeL: Lidar Remote Sensing of Land and Sea in Dresden, Germany, Paper 2-2, 2000.
23. Smith, R. A., **Irish**, J. L., Smith, M. Q., Airborne lidar and airborne hyperspectral imagery: a fusion of two proven sensors for improved hydrographic surveying, Proc. Canadian Hydrographic Conference 2000 in Montreal, Canada, on CD-ROM, 2000.
24. Wozencraft, J. M., **Irish**, J. L., Airborne lidar surveys and regional sediment management, Proc. 2000 EARSeL: Lidar Remote Sensing of Land and Sea in Dresden, Germany, Paper 1-2, 2000.
25. Wozencraft, J. M., **Irish**, J. L., SHOALS Surveys and Carbonate Beaches, Proc. Carbonate Beaches 2000 in Key Largo, FL, 24-37, 2000.
26. Wozencraft, J. M., **Irish**, J. L., Wiggins, C. E., Stupplebeen, H., Chavez, P. S., Regional mapping for coastal management, Maui and Kauai, Hawaii, Proc. National Beach Preservation Conference 2000 in Maui, HI, on CD-ROM, 2000.
27. **Irish**, J. L., Lillycrop, W. J., Parson, L. E., Accuracy of sand volumes as a function of survey density, Proc. International Conference on Coastal Engineering 1996 in Orlando, FL, 3, 3736-3749, 1997.
28. **Irish**, J. L., Truitt, C. L., Lillycrop, W. J., Using high-resolution bathymetry to determine sediment budgets: New Pass, Florida, Proc. 1997 National Conference on Beach Preservation Technology in St. Petersburg, FL, 183-198, 1997.
29. **Irish**, J. L., Thomas, E. J., Parson, L. E., Lillycrop, W. J., Monitoring storm response with high density lidar bathymetry: the effects of Hurricane Opal on Florida's panhandle, Proc. 2nd International Airborne Remote Sensing Conference and Exhibition in San Francisco, CA, III, 723-732, 1996.
30. Lillycrop, W. J., Parson, L. E., **Irish**, J. L., Brooks, M. W., Hydrographic surveying with an airborne lidar survey system, Proc. 2nd International Airborne Remote Sensing Conference and Exhibition in San Francisco, CA, I, 279-285, 1996.
31. Morang, A., **Irish**, J. L., and Pope, J., Hurricane Opal morphodynamic impacts on East Pass, Florida: Preliminary findings, Proc. 1996 National Conference on Beach Preservation Technology in St. Petersburg, FL, 192-208, 1996.
32. Parson, L. E., Lillycrop W. J., **Irish**, J. L., Surveying Florida Bay using airborne lidar technology, Proc. 2nd International Airborne Remote Sensing Conference and Exhibition in San Francisco, CA, 1996.
33. **Irish**, J. L., Parson, L. E, Lillycrop, W. J., Detailed bathymetry of four Florida inlets, Proc. 1995 National Conference on Beach Preservation Technology in St. Petersburg, FL, 243-258, 1995.
34. **Irish**, J. L., Truitt, C. L., Beach fill storm response at Longboat Key, Florida, Proc. 1995 National Conference on Beach Preservation Technology in St. Petersburg, FL, 103-117, 1995.
35. **Irish**, J. L., Lillycrop, W. J., Parson, L. E., Brooks, M. W., SHOALS system capabilities for hydrographic surveying, Proc. 2nd International Conference on Dredging and Dredged Material Placement in Lake Buena Vista, FL, 1, 314-321, 1994.

PUBLICATIONS IN POPULAR MEDIA (1 commentary)

1. Keeler, A. G., McNamara, D., **Irish**, J. L., Far-sighted adaptation to rising seas is blocked by just fixing eroded beaches, *The Conversation*, 27 August 2018. Article republished by *Chicago Tribune*, *Houston Chronicle, Idaho Press-Tribune*, *Los Angeles Times*, *San Antonio Express-News*, *San Francisco Chronicle*, among others. Click here for free access.

INVITED CONFERENCE PRESENTATIONS

1. Recent advances and future challenges in coastal storm inundation (invited keynote), *Coastal Dynamics 2021*, virtual and in-person, Delft, The Netherlands, 2021.
2. Cross-sectoral collaboration in responding to disasters (invited panelist), *12th Annual International Science of Team Science (SciTS) Conference*, virtual, 2021.
3. Hurricane surge characterization (invited), *2020 National Academy of Engineering Annual Meeting*, virtual, 2020.
4. Using physical insights in spatial decomposition approaches to surge hazard assessment (invited), *Probabilistic Flood Hazard Assessment (PFHA) Research Workshop*, Rockville, MD, 2020.
5. Using physical insights to minimize error and maximize efficiency in spatial decomposition approaches to surge hazard assessment (invited), *American Geophysical Union Fall Meeting*, San Francisco, CA, 2019.
6. Error characterization in spatial-decomposition-based response functions for storm surge hazard assessment (invited), *American Geophysical Union Fall Meeting*, Washington, DC, 2018.
7. Hurricane surge hazard assessment (invited), *Clifford Lectures*, Tulane University, New Orleans, LA, 2017.
8. Optimization of computational simulation set for quantification of hurricane surge extreme-value statistics (invited), *SIAM Conference on Computational Science and Engineering 2015*, Salt Lake City, UT, 2015.
9. Implications of climate change in coastal areas (invited), *Building Climate Solutions—14th National Conference and Global Forum on Science, Policy, and the Environment*, National Council for Science and the Environment, Washington, DC, 2014.
10. Coastal inundation risk assessment (invited), *Workshop on Probabilistic Flood Hazard Assessment (PFHA)*, U.S. Nuclear Regulatory Commission, Rockville, MD, 2013.
11. Physical attributes of hurricane surges and their role in hazard assessment (invited), *American Geophysical Union 2012 Fall Meeting*, San Francisco, CA, 2012.
12. Treatment of climate change and sea-level rise in hurricane flood statistics (invited), *American Geophysical Union 2011 Fall Meeting*, San Francisco, CA, 2011.
13. Integrating sea level rise with flood level statistics (invited), *International Conference on Sea Level Rise in the Gulf of Mexico*, Corpus Christi, TX, 2010.
14. Integrating sea level rise and climate change with flood level statistics in estuarine environments (invited), *Mini-symposium on Sea Level Rise at the 11th International Conference on Estuarine and Coastal Modeling*, Seattle, WA, 2009.
15. ADCIRC applications: Development of surge response functions for hurricane flood probability assessment (invited), *ISEC/NEES/NSF Workshop*, Corvallis, OR, 2009.
16. Application of surge response functions for coastal flood risk assessment (invited). *Coastal Cities Summit*, St. Petersburg, FL, 2008.
17. Wave attenuation and breaking in wetland vegetation (invited). *Florida Shore and Beach Preservation Association Estuarine Design and Research Needs Workshop*, Sarasota, FL, 2008.
18. Hurricane surge classification for the northern Gulf of Mexico coastline (invited). *Galveston Bay Estuary Program's 8th State of the Bay Symposium*, Galveston, TX, 2007.
19. Hurricane surge parameterization (invited). *Workshop on Modeling Relevant Physics of Sedimentation in Three Dimensions (MORPHOS)*, Vicksburg, MS, 2006.
20. Parameterization of hurricane surge for risk assessment (invited). *Louisiana Coastal Protection and Restoration Risk Assessment Group Workshop*, Asheville, NC, 2006.
21. An introduction to coastal zone mapping with airborne lidar (invited). *Corso di Aggiomamento in: Techniche per la Diffesa Dallinquinamento*, University of Calabria, Cosenza, Italy, 2000.
22. Airborne lidar bathymetry (invited). *American Congress on Surveying and Mapping - American Society for Photogrammetry Annual Meeting*, 1996.

RECENT CONFERENCE ABSTRACTS (no paper published; invited presentations excluded)

*Indicates graduate student, ✧Indicates postdoctoral scholar, **Indicates undergraduate student

1. Hoagland*, S. W. H., **Irish**, J. L., Coastal resource valuation in a barrier island system, 2022 UCOWR/NIWR Annual Water Resources Conference, Greenville, accepted.
2. Hoagland*, S. W. H., **Irish**, J. L., Weiss, R., Insights from a long-term morphodynamic model into barrier system sensitivities, American Geophysical Union Fall Meeting, New Orleans and virtual, 2021.
3. Lee✧, J.-W., **Irish**, J. L., Weiss, R., Inferring tsunami source and run-up distribution from run-up observations: A tsunami inversion model, American Geophysical Union Fall Meeting, New Orleans and virtual, 2021.
4. Lee*, J.-W., **Irish**, J. L., Bensi, M. T., Marcy D., Modeling of peak storm surges in coastal Virginia using machine learning, Coastal Dynamics 2021, Delft, 2021.
5. Mosuela*, K., **Irish**, J. L., Wave attenuation from living shorelines: A parameter study, World Environmental and Water Resources Congress 2021 (postponed from 2020), Milwaukee, 2021.
6. Nourali*, Z., Shortridge, J. E., Bukvic, A., Shao, Y., Mitchell, A., **Irish**, J. L., Assessing the impact of flood-induced relocation on municipal viability across the rural-urban spectrum: An agent-based model of coastal Virginia under sea level rise, American Geophysical Union Fall Meeting, New Orleans and virtual, 2021.
7. Wang*, Q., Cousins*, T., and Lightner*, T., Cowell, M., **Irish**, J. L., Not everyone can social distance, 46th Annual Natural Hazards Research and Applications Workshop, Bloomfield, 2021.
8. Asher*, T. G., Luettich, R. A., **Irish**, J. L., Ma, P., Bensi, M. T., Resio, D. T., Addressing needs in observed and simulated storm surge data for uncertainty quantification, Ocean Sciences 2020, San Diego, 2020.
9. Haque*, A., **Irish**, J. L., Zhang, Y., Interdependencies between physical and social vulnerability in a storm risk assessment framework applied to Hampton Roads, Virginia, International Conference on Coastal Engineering, virtual meeting, 2020.
10. Haque*, A., **Irish**, J. L., Zhang, Y., An idealized post-disaster recovery study of a coastal community to storm hazards, 45th Annual Natural Hazards Workshop, Boulder, CO, 2020.
11. Hoagland*, S. W. H., **Irish**, J. L., Weiss, R., Uncertainty in long-term projections of barrier island morphology considering impacts of coastal restoration practices, American Geophysical Union Fall Meeting 2020, virtual meeting, 2020.
12. **Irish**, J. L., Weiss, R., Goodman-Tchernov, B., A Monte-Carlo model for caisson overturning by tsunamis, International Conference on Coastal Engineering, virtual meeting, 2020.
13. Lee*, J.-W., **Irish**, J. L., Marcy, D., Development of a neural network model to estimate the maximum elevation of storm surge in coastal Virginia, American Geophysical Union Fall Meeting 2020, virtual meeting, 2020.
14. Lee*, J.-W., **Irish**, J. L., Weiss, R., Near-field tsunami forecasting based on tsunami run-up response function, International Conference on Coastal Engineering, virtual meeting, 2020.
15. Mosuela*, K., **Irish**, J. L., Generalizing wave attenuation from living shorelines, 16th Annual Maryland Association of Floodplain and Stormwater Managers Conference, virtual, 2020.
16. Mosuela*, K., **Irish**, J. L., Assessing living shorelines: Using friction to estimate wave attenuation, American Shore and Beach Preservation Association 2020 National Coastal Conference, virtual, 2020.
17. Jeffries*, C., Weiss, R., **Irish**, J. L., Impacts of barrier-island breaching on mainland flooding during storm events, American Geophysical Union Fall Meeting 2019, San Francisco.

18. Glickson, D., Ozkan-Haller, H. T., Carter, G. A., Cebrian, J., Dalrymple, R. A., Fischbach, J. R., **Irish**, J. L., Misra, S., Kolker, A., Smith, M., Biel, R., Kreidler, H., Devane, C., Tornqvist, T., Wong-Parodi, G., Understanding the long-term evolution of the coupled natural-human coastal system: The future of the U.S. Gulf Coast, American Geophysical Union Fall Meeting 2018, Washington, DC, 2018.
19. Lee*, J.-W., **Irish**, J. L., Weiss, R., Development of a tsunami run-up response function and application to northern Puerto Rico, American Geophysical Union Fall Meeting 2018, Washington, DC, 2018.
20. Asher, T. G., **Irish**, J. L., Resio, D. T., Advances and issues in uncertainty quantification for coastal flood hazards, International Conference on Coastal Engineering, Baltimore, 2018.
21. **Irish**, J. L., Resio, D. T., Asher, T. G., Liu*, Y., Characterization of spatial variation in hurricane surge, International Conference on Coastal Engineering, Baltimore, 2018.
22. Hagen, S. C., Bilskie*, M. V., **Irish**, J. L., Development of future return period stillwater floodplains for the coasts of Mississippi, Alabama, and the Florida panhandle, International Conference on Coastal Engineering, Baltimore, MD, 2018.
23. **Irish**, J. L., Yang*, Y., Zainali*, A., Weiss, R., Marivela*, R., Song*, Y. K., Wave propagation and runup in patchy vegetation, 8th International Symposium on Environmental Hydraulics, South Bend, IN, 2018.
24. Weiss, R., **Irish**, J. L., The evolution of the barrier-island-lagoon system under rising sea levels, European Geophysical Union General Assembly, Vienna, 2018.
25. Bilskie*, M. V., Hagen, S. C., **Irish**, J. L., Yoskowitz, D., Del Angel, D. C., Development and Application of Percent Annual Chance Coastal Inundation Maps to Support Decision-Making in the Northern Gulf of Mexico, American Geophysical Union Fall Meeting, New Orleans, 2017.
26. **Irish**, J. L., Resio, D. Y., Asher, T. G., Liu*, Y., Spatial attributes of hurricane surge, 1st Workshop on Waves, Storm Surges, and Coastal Hazards, Liverpool, 2017.
27. Weiss, R., Cheng*✧, W., **Irish**, J. L., A computational parameter study of vegetated barrier island storm dynamics with application to topographic lidar and hyperspectral imagery, 18th Annual JALBTCX Airborne Coastal Mapping and Charting Technical Workshop, Savannah, GA, 2017.
28. Bilskie*, M. V., Hagen, S. C., **Irish**, J. L., Development of return period inundation maps in a changing climate using a systems of systems approach, American Geophysical Union Fall Meeting 2016, San Francisco, CA, 2016.
29. **Irish**, J. L., Liu*, Y., Resio, D. T., Bilskie, M., Hagen, S. C., The importance of landscape change in the prediction of future tropical cyclone flood statistics, 14th International Workshop on Wave Hindcasting and Forecasting and 5th Coastal Hazards Symposium, Key West, FL, 2015.
30. Liu*, Y., **Irish**, J. L., Development of time-evolving surge response functions (TSRFs) in Galveston, TX, Solutions to Coastal Disasters/Coastal Structures, Boston, MA, 2015.
31. Smallegan*, S. M., **Irish**, J. L., van Dongeren, A., den Bieman, J., Numerical investigations of developed and undeveloped barrier island response to Hurricane Sandy, Solutions to Coastal Disasters/Coastal Structures, Boston, MA, 2015.
32. Yang*, Y., **Irish**, J. L., Weiss, R., Optical and numerical study of tsunami impact through discontinuous vegetation patches, Solutions to Coastal Disasters/Coastal Structures, Boston, MA, 2015.
33. **Irish**, J. L., Hagen, S. C., Bilskie*, M., On quantification of future tropical cyclone floodplains under sea-level rise, 36th IAHR World Congress, The Hague, The Netherlands, 2015.
34. Hsu*, C.-H., Olivera, F., **Irish**, J., Assessing the Expected Economic Losses Caused by Hurricane Inundation, EWRI 2015 Congress, Austin, TX, 2015.
35. Olivera, F., Hsu*, A., **Irish**, J. L., Flood risk due to hurricane flooding, European Geosciences Union General Assembly 2015, Vienna, Austria, 2015.

ACADEMIC GRANTS ($21.1 million, with $3.4 million for Irish [since 2006])

Natural Hazards Engineering Research Infrastructure: Natural Hazard and Disaster Reconnaissance (RAPID) Facility (renewal), **National Science Foundation**, September 2021 - September 2025, PI: J. Wartman (University of Washington [UW]), Co-PIs: J. Berman [UW], N. Errett [UW], J. Irish, M. Olsen (Oregon State University), $6,082,174 as a Cooperative Agreement ($83,600 for J. Irish).

Academic research study: Impact of coastal restoration on barrier-island evolution and future flooding, Topic 6, **U.S. Coastal Research Program** (with funding from U.S. Army Corps of Engineers), December 2019 - December 2022, PI: Irish, CoPIs: R. Weiss, K. Mandli (Columbia University), $250,000 ($125,000 for J. Irish).

Assessing the impacts of coastal flood-induced relocation on local jurisdictions, **National Science Foundation**, July 2019 - August 2022, PI: A. Bukvic, Co-PIs: J. Irish, J. Shortridge, C. Zobel, $325,000 ($79,112 for J. Irish).

Workshop: Coastal Engineering Research Framework, **National Science Foundation**, July 2018 - June 2019, PI: A. Kennedy (University of Notre Dame), Co-PIs: Daniel Cox (Oregon State University), J. Irish, P. Lynett (University of Southern California), Tori Tomiczek (U.S. Naval Academy), $50,000 in participant support.

NRT: Disaster Resilience and Risk Management (DRRM) - Creating quantitative decision making frameworks for multi-dimensional and multi-scale analysis of hazard impact, **National Science Foundation**, September 2017 - August 2023, PI: R. Weiss, Co-PIs: M. Paretti, J. Irish, C. Zobel, Y. Zhang, M. Cowell, G. Olgun, $2,999,782 ($419,970 for J. Irish).

Natural Hazards Engineering Research Infrastructure (NHERI): Post-disaster, rapid response research (RAPID) facility, **National Science Foundation**, September 2016 - August 2021, PI: J. Wartman (University of Washington [UW]), Co-PIs: J. Berman [UW], J. Irish, S. Miles [UW], M. Olsen (Oregon State University), $5,853,000 as a Cooperative Agreement ($109,785 for J. Irish).

Collaborative research: Tsunami and tropical storm sediment dynamics and products, **National Science Foundation**, August 2016 – August 2022, PI: R. Weiss, Co-PIs: J. Irish, J. Woodruff (University of Massachusetts-Amherst), $498,932 ($159,318 for J. Irish).

RSB: Performance based decision support system for resilient and sustainable multi-hazard building design, **National Science Foundation**, February 2015 – September 2021, PI: M. Flint, Co-PIs: J. de la Garza, M. Eatherton, J. Irish, R. Leon, C. Olgun, G. Reichard, A. Rodriguez-Marek, $1,260,000 ($138,600 for J. Irish).

The Role of Shoreline and Bottom Type Dynamics in Understanding Barrier Island Vulnerability and Resiliency—Phase 1: Episodic Events, **Joint Airborne Lidar Bathymetry Technical Center of Expertise** (U.S. Army Corps of Engineers) via Northrup Grumman, September 2014 – August 2016, PI: J. Irish, Co-PI: R. Weiss. $132,467 ($100,499 for J. Irish).

RAPID: Observations of physical impacts following Hurricane Sandy, **National Science Foundation**, April 2013 – March 2014, PI: R. Weiss (Geosciences), Co-PI: J. Irish. $27,910 ($7,000 for J. Irish).

NEESR: Tsunami runup and withdrawal dynamics on a sloping beach with discontinuous macro-roughness, **National Science Foundation**, August 2012 – July 2018, PI: J. Irish, Co-PI: R. Weiss (Geosciences). $658,373 plus $28,000 as REU supplement ($368,010 for J. Irish).

Development of a Web-Based Hurricane Hazard Communication Document with Interactive Tools for Texas Planners, **State of Texas Department of Public Safety**, January 2012 – August 2014, PI: J. Irish, Co-PI: S. Quiring (Texas A&M University), $80,000 ($40,000 for J. Irish).

Investigation of the effects of sea level rise on sea turtle, shorebird, seabird, and beach mouse nesting distribution within the South Atlantic Landscape Conservation Cooperative region, **South Atlantic Landscape Conservation Cooperative**, September 2011- August 2014, PI: B. Von Holle (University of Central Florida [UCF]), Co-PIs: A. Bard (UCF), J. Brush (UCF), J. DeVivo (UCF), M.

Dodd (UCF), L. Ehrhart (UCF), M. Godfrey (UCF), S. Hagen (UCF), J. Irish, T. Keyes (UCF), K. Madani (UCF), F. Sanders (UCF), J. Stiner (UCF), J. Stout (UCF), J. Weishampel (UCF). $150,000 ($40,661 for J. Irish).

A parameterized climate change projection model for hurricane flooding, wave action, economic damages, and population dynamics, **NOAA Sea Grant**, July 2010 – August 2014. PI: J. Irish. Co-PIs: C. Giusti (Texas A&M University [TAMU]) J. Kaihatu (TAMU), F. Olivera (TAMU), and D. Jourdan (University of Florida). $600,000 ($200,000 in cost-sharing; $97,736 of Sea Grant funds for J. Irish).

Wave hydrodynamics in segmented wetlands with application to hurricane damage reduction and wetlands restoration, **NOAA Sea Grant**, July 2010 – August 2014. PI: J. Irish. Co-PI: S. Socolofsky (Texas A&M University). $300,000 ($100,000 in cost-sharing; $100,000 of Sea Grant funds for J. Irish).

Collaborative proposal: Climate-induced changes in hurricane winds, surge, and risk to electric power systems, **U.S. Department of Energy**, December 2008 – August 2012. PIs: J. Irish and S. Guikema (Johns Hopkins University). Co-PI: S. Quiring (Texas A&M University). $450,000 ($150,000 for J. Irish).

Predicting beach and barrier island vulnerability as a function of three-dimensional bathymetric conditions, **Joint Airborne Lidar Bathymetry Technical Center of Expertise** (U.S. Army Corps of Engineers, U.S. Naval Meteorology and Oceanography Command, National Oceanic and Atmospheric Administration, U.S. Geological Survey) via 3001 Inc., August 2008 – December 2011. PI: J. Irish. $270,478.

NEESR Payload: Dissipation of Long-Wave Energy by Discontinuous Macro-Roughness Representing Forested Areas, **National Science Foundation**, August 2009 – July 2011. PI: J. Irish. $100,000 plus $6,678 as Research Experience for Undergraduates (REU) supplement.

Quantification of hurricane surge damage in coastal bays as a function of dune and wetland characteristics with application to restoration and climate change, **Coastal Management Program (NOAA) of Texas General Land Office (TXGLO)**, November 2009 – June 2011. PI: J. Irish. Co-PI: F. Olivera (Texas A&M University). $131,921 ($52,772 in cost-sharing; $39,575 of TXGLO funds for J. Irish).

Storm surge modeling investigations for hurricane surge risk assessment, **U.S. Army Corps of Engineers**, September 2007 – March 2011. PI: J. Irish. $266,878.

Quantification of hurricane flooding reduction by vegetation along the Texas coast, **NOAA Sea Grant**, June 2008 – January 2011. PI: J. Irish. Co-PI: R. Feagin (Texas A&M University). $307,765 ($102,655 in cost-sharing; $114,905 of Sea Grant funds for J. Irish).

Field and numerical investigations of tidal vortices for exchange flows through inlets on the Texas coast, **NOAA Sea Grant**, June 2008 – January 2011. PI: S. Socolofsky (Texas A&M University [TAMU]). Co-PIs: K.-A. Chang (TAMU), J. Irish, and P. Lynett (currently University of Southern California). $294,706 ($98,238 in cost-sharing; $8,127 of Sea Grant funds for J. Irish).

Double-wall impact protection levee project: Laboratory and numerical testing of levee performance under wave action at varying flood levels, **SZS Consultants, Inc.**, July 2008 – May 2009. PI: J. Irish. Co-PIs: G. Biscontin (currently National Science Foundation) and B. Edge (currently North Carolina State University).

Parameterization of hurricane surge for the State of Texas coastline, **Coastal Management Program (NOAA) of Texas General Land Office (TXGLO)**, April 2008 – September 2009. PI: J. Irish. $97,954 ($39,183 in cost-sharing).

Development of near-maximum hurricane conditions for risk assessment, **Moffatt & Nichol**, November 2007 – April 2008. PI: J. Irish.

Predicting the influence of climate change on hurricane flooding, **National Commission on Energy Policy**, August 2007 – August 2008. PI: J. Irish. Co-PIs: B. Edge (currently North Carolina State University) and F. Olivera (Texas A&M University). $99,918 ($80,114 for J. Irish).

Boussinesq modeling of directional spectra and surge overtopping of levees, **U.S. Army Corps of Engineers**, October 2006 – August 2007. PI: P. Lynett (currently University of Southern California). Co-PI: J. Irish. $75,339 ($20,793 for J. Irish).

TEACHING [average course evaluation of 5.43 out of 6.00]

CEE 4384 – Coastal Engineering (undergraduate)
CEE 3304 – Fluid Mechanics for Civil and Environmental Engineers (undergraduate)
CEE 2804 – Introduction to Civil Engineering (undergraduate)
CEE 5844/AOE 5844 – Ocean and Coastal Wave Mechanics (graduate)
CEE 5854G – Advanced Coastal Engineering (graduate, taught with CEE 4384)
CEE 5984 – Advanced Coastal Engineering (graduate, different from CEE 5854G)
CEE 6844 – Current Topics in Coastal Engineering (graduate)
GRAD 5134 – Principles of Disaster Resilience and Risk Management
GRAD 5984 – Transdisciplinary Thinking Seminar
CVEN 311 (at Texas A&M University) – Fluid Dynamics (undergraduate)
OCEN 400 (at Texas A&M University) – Basic Coastal Engineering (undergraduate)
OCEN 410 (at Texas A&M University) – Ocean Engineering Laboratory (undergraduate)
OCEN 481/681 (at Texas A&M University) – Seminar (undergraduate and graduate)
OCEN 672 (at Texas A&M University) – Coastal Engineering (graduate)
OCEN 683 (at Texas A&M University) – Estuary Hydrodynamics (graduate)

INSTITUTIONS USING EDUCATIONAL MATERIALS DEVELOPED

University of New Hampshire, OCEN 672 (Coastal Engineering [graduate]) course notes
Jackson State University, OCEN 672 (Coastal Engineering [graduate]) course notes
Texas A&M University at Galveston, CVEN 311 (Fluid Dynamics [undergraduate]) board notes, website content, and in-class activities
Texas A&M University at Galveston, OCEN 410 (Ocean Engineering Laboratory [undergraduate]) laboratory assignments
University of South Alabama, OCEN 672 (Coastal Engineering [graduate]) course notes
University of South Alabama, CEE 3304 (Fluid Dynamics [undergraduate]) course notes

ACADEMIC RESEARCH ADVISING

Postdoctoral Scholars

Jun-Whan Lee, Ph.D. (2021 - present)
Wei Cheng, Ph.D. (2016)
Stephanie Smallegan, Ph.D. (2016)

Doctoral Students

Megan Beever (Ph.D.., estimated 2026). Thesis: To be determined.
Steven Hoagland (Ph.D., estimated 2023). Thesis: To be determined.
Celso Ferreira (Ph.D., 2012). Co-advised with F. Olivera. Thesis: Quantification of hurricane surge damage in coastal bays as a function of dune and wetland characteristics with application to climate change. ***Current position: Associate Professor, George Mason University.***
Jun-Whan Lee (Ph.D., 2021). Virginia Sea Grant Graduate Research Fellow. Thesis: Rapid prediction of tsunamis and storm surges using machine learning. Current position: Postdoctoral scholar, Virginia Tech's Center for Coastal Studies.

Yi Liu (Ph.D., 2018). Mid-Atlantic Sea Grant Graduate Research Fellow. Thesis: Investigation of the spatiotemporal evolution of tropical cyclone storm surge under sea level rise. Current position: Flood Data Scientist, One Concern.

Stephanie Smallegan (Ph.D., 2016). Virginia Sea Grant Graduate Research Fellow. Thesis: Morphological change of a developed barrier island due to hurricane forcing. ***Current position: Assistant Professor, University of South Alabama.***

Youn Kyung Song (Ph.D., 2013). Co-advised with K.A. Chang. Thesis topic: Long wave dynamics in the presence of macro-roughness. ***Current position: Research Assistant Professor, Texas A&M University-Galveston.***

Ikpoto Udoh (Ph.D., 2012). Thesis: Robust hurricane surge response functions. Current position: Offshore engineer, Houston Offshore Engineering.

Yongqian Yang (Ph.D., 2016). Virginia Sea Grant Graduate Research Fellow. Thesis: Impact of patchy vegetation on wave and runup dynamics. Current position: Software engineer, Facebook.

Masters Students

Sarah Adams (M.S., scheduled fall 2022). Project and Report: To be determined

Harrison Jaehn (M.S., scheduled spring 2023). Project and Report: To be determined

Kyutae Kim (M.S., scheduled spring 2023). Thesis: To be determined.

Rebecca Naurath (M.S., scheduled 2024). Thesis: To be determined.

Mary Anderson (M.S., 2010). Thesis: Numerical and experimental investigations to understand the effects of coastal vegetation of wave propagation. Current position: Research coastal engineer, U.S. Army Engineer Coastal and Hydraulics Laboratory.

Lauren Augustin (M.S., 2007). Co-advised with P. Lynett. Thesis: Laboratory experiments and numerical modeling of wave attenuation through artificial vegetation. Last position: Coastal engineer, HDR Shiner Moseley (deceased).

Gregery Balsmeier (M.E., 2007). Co-advised with J. Kaihatu. Research Report: Physical model of wave damping by vegetation following wave breaking. Current position: Manager, Fluor Marine Propulsion.

Nicholas Cox (M.S., 2011). Thesis: The influence of nearshore bars on infragravity energy at the shoreline. Current position: Coastal engineer, Moffatt and Nichol.

Lauren McNeill Dunkin (M.S., 2010). Thesis: Variability in long wave runup as a function of nearshore bathymetric features. Current position: Branch Chief, U.S. Army Engineer Coastal and Hydraulics Laboratory.

Ashley Frey (M.S., 2009). Thesis: The impact of climate change on hurricane flooding, inundation, property damages, and population affected. Current position: Branch Chief, U.S. Army Engineer Coastal and Hydraulics Laboratory.

Anmol Haque (M.S., 2021). Thesis: Impact of interdependent physical and social characteristics on housing recovery following tropical cyclones.

Emma Helfrich (M.S., 2020). Project and Report: Nondimensional storm surge response functions for bypassing hurricanes along the U.S. North Atlantic coast. Current position: Coastal engineer, Dewberry.

Rajat Katyal (M.S., 2009). Thesis: Development of parameterized surge response functions for coastal bays. Current position: Lead engineer, Ramboll Oil and Gas.

Nicholas Loder (M.S., 2008). Thesis: An evaluation of the potential of coastal wetlands for hurricane surge and wave attenuation reduction. Current position: Civil engineer; Reynolds, Smith, and Hills.

Kristine Mosuela (M.S., 2021). Thesis: A parameterized approach to estimating wave attenuation from living shorelines.

Mir Emad Mousavi (M.E., 2009). Research Report: Wave dynamics in random cylinder arrays analogous to wetland vegetation. Current position: President, Architectural Gig.

Erin Rooney (M.S., 2011). Thesis topic: Testing accuracy and convergence of GPUSPH (Graphical Processing Unit Smoothed Particle Hydrodynamics) for free surface flows. Current position: Coastal project manager, HDR.

Abhishek Sharma (M.S. [Texas A&M University at Galveston], 2010). Co-advised with V. Panchang. Thesis: Comparison of different radiation stress forcing formulations and their effect on wave-induced circulation. Current position: Ph.D. student of Maritime Systems Engineering at Texas A&M University at Galveston.

Youn Kyung Song (M.S., 2009). Co-advised with K.-A. Chang. Thesis: Storm surge assessment at Texas coastal bridges with improved surge response functions. Current position: Research Assistant Professor, Texas A&M University-Galveston.

Nicholas Taylor (M.S., 2014). Thesis: Development and uncertainty quantification of hurricane surge response functions and sea-level rise adjustments for coastal bays. Current position: Project engineer, CDM Smith.

Undergraduate Students

Nicole Abramson (Summer 2012 – Fall 2012). Research topic: Dynamics of vegetated islands.

Charles Babbitt (Spring 2008 – Spring 2010). Research topic: Wave damping by vegetation.

Mallory Barkdull (Summer 2010; NSF Research Experience for Undergraduates). Research topic: Long wave runup in discontinuous macro-roughness.

Megan Beever (Fall 2018 - Fall 2020). Research topic: Impact of barrier-island breaching on back-bay flooding.

Philip Blackmar (Fall 2010 – Spring 2011). Research topic: Sea level rise and hurricane flooding.

Brock Bosack (Fall 2015). Research topic: Storm surge timing in Houston/Galveston, TX.

Michael Brown (Spring 2009; NSF Louis Stokes Alliance for Minority Participation). Research topic: Hurricane surge prediction.

Haley Canham (Summer 2015; NSF Research Experience for Undergraduates). Research topic: Barrier island response to storms and tsunamis.

Brandon Cooper (Fall 2013 – Spring 2014). Research topic: Development of a still-camera remote sensing tool for measuring coastal features.

Rachel Corrigan (Fall 2013; NSF Research Experience for Undergraduates). Research topic: Tsunami bore front velocities in patchy forest on a sloping beach.

Samuel Dellinger (Spring 2012 – Spring 2013). Research topic: Future shoreline vulnerability.

Jose DeLuna (Fall 2009 – Spring 2010; NSF Louis Stokes Alliance for Minority Participation). Research topic: Impact of climate change on hurricane surge.

Sunil Divikar (Spring 2017 - Spring 2018). Research topic: Risk assessment for bridge damage during hurricanes.Adi Fine (Spring 2015). Research topic: Tsunami inundation in vegetation.

Sean Finn (Summer 2008 – Fall 2008). Research topic: Climate change and coastal flooding.

Kelli Gallt (Summer 2015 – Fall 2015; NSF Research Experience for Undergraduates). Research topic: Overwash and breaching of a vegetated dune.

Kathryn Hagan (Fall 2007). Research topic: Climate change and coastal flooding.

Jacob Heisey (Spring 2012 – Spring 2013). Research topic: Future shoreline vulnerability.

Emma Helfrich (Fall 2017 - 2018). Research topic: Storm surge from bypassing hurricanes.

Chelsea Humbyrd (Spring 2008). Research topic: Evaluation of variable height bulkhead.

Harrison Jaehn (Spring 2020 - Fall 2021). Research topic: Tsunami inundation hazard characterization.

Steven Keith (Summer 2014; NSF Research Experience for Undergraduates). Research topic: Simulation of barrier-island response to storms and tsunamis.

Will McHugh (Spring 2015). Research topic: Forecasting storm surge timing.
Ryan Mieras (Fall 2010 – Spring 2011). Research topic: Sea level rise and hurricane flooding.
Joseph Mullenax (Fall 2008 – Spring 2009). Research topic: Field velocity profile measurements.
Robert Noble (Fall 2008). Research topic: Wave damping by vegetation.
Drake Oaks (Summer 2008). Research topic: Post Hurricane Dolly beach assessment.
Evan Pearce (Fall 2013 – Spring 2014). Research topic: Storm surge features in coastal Alabama.
David Piazza (Spring 2007). Research topic: Experiments of wave attenuation by vegetation.
Leah Potts (Spring 2014; NSF Research Experience for Undergraduates). Research topic: Analysis of tsunami inundation in vegetation.
Benjamin Roston (Fall 2018). Research topic: Role of waterborne debris in damage during coastal hazards.
Adrian Santiago Tate (Fall 2013 – Summer 2016). Research topic: Tsunami inundation in vegetation.
Nancy Streu (Summer 2013; NSF Research Experience for Undergraduates). Research topic: Development of a still-camera remote sensing tool for measuring coastal features.
Jordan Schaefer (Summer 2009 – Spring 2011). Research topic: Beach response during hurricanes.
Cynthia Vittone (Fall 2008 – Spring 2011; NSF Research Experience for Undergraduates). Research topic: Long and short wave dynamics in vegetation.
Nicholas Zinck (Fall 2013 – Spring 2015; NSF Research Experience for Undergraduates). Research topic: Numerical simulations of tsunami inundation.

PROFESSIONAL SERVICE (Excludes positions listed previously, except where noted)

Affiliations

Elected Member, Virginia Academy of Science, Engineering and Medicine (VASEM) (listed previously)
Elected Fellow, American Society of Civil Engineers (ASCE) (listed previously)
Member, ASCE Coasts, Oceans, Ports, and Rivers Institute (COPRI)
Member, American Geophysical Union
Member, American Shore and Beach Preservation Association
Member, PIANC:
Young Professionals Task Group, U.S. Section Representative (2002 – 2004)
Member, Engineers Without Borders

Editorships

Part Editor, *Springer Handbook of Ocean Engineering*, Part C: Coastal Design, 2011 – 2016
Guest Editor, Focus Issue on "Implications, planning, and design considerations for rising sea levels at the coast", *J. Waterw. Port C.-ASCE*, 2011 – 2013.

Conference Committees, Session Organizer or Chair

Member, Competition Advisory Committee, Coastal and Estuarine Research Federation (CERF) 2021 Design Competition: Coastal Virginia, virtual, upcoming in November 2021.
Local Organizing Committee, International Conference on Coastal Engineering, Baltimore, MD, 2018.
Session Chair, Tsunami Inundation Modeling, International Conference on Coastal Engineering, Baltimore, MD, 2018.
Session Chair, Extreme Water Levels at the Coast session, 1st Workshop on Waves, Storm Surges, and Coastal Hazards, Liverpool, 2017.
Technical Committee, Coastal Structures / Solutions to Coastal Disasters, Boston, MA, 2015.
Co-organizer, Living shorelines session, 14th International Workshop on Wave Hindcasting and Forecasting and 5th Coastal Hazards Symposium, Key West, 2015.

Co-organizer, Coastal inundation and its impacts in a changing climate, CERF 2015 Conference, Portland, OR, 2015.
Co-organizer, Sustainability Short Course, Ports 2013, Seattle, WA, 2013.
Co-organizer, Climate Change and Storm Surge session at the International Offshore and Polar Engineering Conference in Rhodes, Greece, 2012.
Co-convenor, Nearshore Processes session (7 oral sessions plus 1 poster session totaling 107 presentations) at Ocean Sciences in Salt Lake City, UT, 2012.
Session chair, Wave-Vegetation Interaction at International Conference on Coastal Engineering in Santander, Spain, 2012.
Session organizer, Risk at 12th International Workshop on Wave Hindcasting and Forecasting and 3rd Coastal Hazards Symposium in Waikoloa, HI in 2011.
Session chair, Waves and Surges at 12th International Workshop on Wave Hindcasting and Forecasting and 3rd Coastal Hazards Symposium in Waikoloa, HI in 2011.
Organizer, Grant Writing Workshop at ASCE COPRI Congress in Memphis, TN, 2010.
Co-organizer, Research Needs in Coastal, Ocean, Port, and Navigation Engineering at ASCE COPRI Congress in Memphis, TN, 2010.
Co-organizer, Water Resources Policies & Authorities Incorporating Sea Level Change Considerations in Civil Works Programs at ASCE COPRI Congress in Memphis, TN, 2010.
Session chair, Tropical Cyclone Waves at International Conference on Coastal Engineering in Shanghai, China, 2010.
Co-organizer, Mini Symposium on Sea Level Rise at 11th International Conference on Estuarine and Coastal Modeling in Seattle, WA, 2009.
Co-organizer, Environmental Impacts of Hurricane Ike on the Western Gulf Coast at Coastal and Estuarine Research Federation Conference in Portland, OR, 2009.
Session chair, Nearshore and Coastal Waves 1 at 11th International Workshop on Wave Hindcasting and Forecasting and 2nd Coastal Hazards Symposium in Halifax, Canada, 2009.

Awards Committees

Via ASCE's Committee on Technical Advancement Awards Subcommittee:
Member, ASCE Excellence in Journalism Award Committee, 2015 - 2016
Member (Chair 2016-2017), ASCE Paper Review Committee, 2014 – 2017
Member (Chair 2016-2017), ASCE Torrens Award and ASCE Associate Editor Award Committee, 2014 – 2018
Member (Chair 2016-2018), ASCE Huber Prize Committee, 2014 – 2018
Judge, ASCE John G. Moffatt–Frank E. Nichol Harbor and Coastal Engineering Award, 2013 – 2018

Journal, Proposal, and Technical Report Reviews

Bulletin of the American Meteorological Society
Climatic Change
Coastal Engineering
Coastal Engineering Journal
Environmental Modeling and Software
Estuarine, Coastal, and Shelf Science
Geophysical Research Letters
GeoResJ
International Society of Offshore and Polar Engineers
Journal of Applied Meteorology and Climatology
Journal of Coastal Research

Journal of Engineering Mechanics - ASCE
Journal of Geophysical Research
Journal of Hydraulic Engineering - ASCE
Journal of Physical Oceanography
Journal of Waterway, Port, Coastal, and Ocean Engineering - ASCE
Monthly Weather Review
Natural Hazards
Natural Hazards and Earth System Sciences
Nature Climate Change
Ocean and Coastal Management
Ocean Engineering
Photogrammetric Engineering and Remote Sensing
Quarterly Journal of the Royal Meteorological Society
Risk Analysis
Weather, Climate, and Society
National Oceanic and Atmospheric Administration (NOAA)
National Research Council
National Science Foundation (NSF) proposals, Geoenvironmental Engineering and Geohazard Mitigation, Geomorphology and Land Use Dynamics, Marine Geology and Geophysics, Mathematical Geosciences, Physical Oceanography
Natural Sciences and Engineering Research Council of Canada
NOAA Sea Grant
Romanian National Research Council
Technology Foundation STW, The Netherlands
U.S. Army Corps of Engineers research and design reports
U.S. Department of Homeland Security reports
U.S. Geological Survey reports
U.S. Naval Research Laboratory reports
U.S. Nuclear Regulatory Commission reports
Member of American Association of University Women (AAUW) Fellowships and Grants review panel
Member of multiple NSF review panels
Member of U.S. Department of Energy review panel, Integrated Assessment of Global Climate Change
Member of U.S. Department of Homeland Security review panel, Coastal Hazards Center of Excellence

Other

Member, ASCE COPRI Samoan Tsunami Assessment Team, 2009 – 2010

SELECTED UNIVERSITY LEADERSHIP AND SERVICE (Excludes positions listed previously)

- Associate Director (2019-present). Virginia Tech's Center for Coastal Studies:
    - The Center for Coastal Studies is the culmination of a grass-roots effort (co-initiated by Irish) started in 2011 to bring Virginia Tech faculty together around complex issues in the coupled natural-human coastal system. The Center includes more than 50 faculty affiliates from eight of Virginia Tech's Colleges.
- Chair (elected, 2017-2018), Vice Chair (elected, 2016-2017), and College of Engineering Representative (elected, 2014-2018). Virginia Tech's Commission on Research.

    - Chair (2015-2016) and Member (2014-2017) of Committee on Research Competitiveness.
- Founder and Faculty Advisor (2011-present). Virginia Tech American Society of Civil Engineers (ASCE) Environmental and Water Resources Institute (EWRI) – Coasts, Oceans, Ports, and Rivers Institute (COPRI) graduate student chapter. Faculty Advisor, Department, 2011 – present. I founded this chapter on arrival at Virginia Tech in 2011.
- Founder and Faculty Advisor (2010-2011). Texas A&M University ASCE COPRI graduate student chapter. Initiated formation of ASCE COPRI first student chapter, at Texas A&M University.

LICENSES AND CERTIFICATIONS

- *Licensed Professional Engineer*, New York (License Number 16-082488, 2005 – 2018) and Virginia (License Number 0402056974, 2016 – present)
- *Diplomate of Coastal Engineering*, Academy of Coastal, Port, Ocean, and Navigation Engineers (D.CE 69), 2011 – present