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BRIEF BIOGRAPHY

Jennifer Irish was born in Baltimore, Maryland. She attended Lehigh University from 1988 to 1994, where she received a B.S. and M.S. from the Department of Civil Engineering. In 1994, she took a research position at the U.S. Army Corps of Engineers Coastal and Hydraulics Laboratory (CHL, formerly Coastal Engineering Research Center), from 1994 to 2001, where she performed research on topics including lidar technology for measuring bathymetry and ocean waves, navigation channel shoaling, wetlands restoration, shore protection, and coastal processes. In 2001, she accepted an engineering specialist position at the U.S. Army Corps of Engineers New York District, from 2001 to 2006, where she led engineering and research on storm damage reduction, including numerical modeling and risk assessment of storm surge, waves, and morphological response. Irish received her Ph.D. from the University of Delaware in 2005 from the Department of Civil and Environmental Engineering. In 2006, Irish accepted the position of Assistant Professor of Civil Engineering at Texas A&M University, from 2006 to 2011. In 2011, Irish accepted the position of Associate Professor of Civil and Environmental Engineering at Virginia Tech. Irish's academic research is motivated by the societal need to improve and protect coastal infrastructure, and she researches coastal hazards, to include storm surge, tsunami, beach erosion, and sea-level rise; vegetated flow dynamics; and coastal processes. Since entering academia in 2006, as lead Principle Investigator (PI) or co-PI, Irish received research grants totaling \$3.4 million (\$2.0 million for Irish) from agencies including the National Science Foundation, the Department of Energy, the U.S. Army Corps of Engineers, the National Commission on Energy Policy, and the National Oceanic and Atmospheric Administration's Sea Grant Program. Established within the international and national coastal engineering communities, Irish is a member of the Coastal Engineering Research Council of the American Society of Civil Engineers (ASCE) and ASCE's Committee on Technical Advancement, and she served as Secretary of ASCE's Coasts, Oceans, Ports, and Rivers Institute Board of Governors from 2008-2012.

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

PROFESSIONAL EXPERIENCE

Associate Professor of Civil and Environmental Engineering, Virginia Tech	08/2011 – present
Assistant Professor of 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

SIGNIFICANT PROFESSIONAL SERVICE POSITIONS

Member, Coastal Engineering Research Council (CERC) of the American Society of Civil Engineers (ASCE)	2014 – present
Associate Editor, <i>Journal of Waterway, Port, Coastal, and Ocean Engineering-ASCE</i>	2014 – present
Executive Committee Member, ASCE Committee on Technical Advancement	2014 – present
Judge, ASCE John G. Moffatt–Frank E. Nichol Harbor and Coastal Engineering Award	2013 – present
Member, Board of Trustees, Academy of Coastal, Ocean, Port and Navigation Engineers	2012 – present
Member, ASCE COPRI Sustainability Committee	2012 – present
Member, ASCE COPRI Coastal and Estuarine Hydroscience Committee	2005 – present
Member, Strategic Sciences Group—Operational Group Sandy, U.S. Department of Interior	2013 – 2014
Secretary, Board of Governors of ASCE Coasts, Oceans, Ports, and Rivers Institute (COPRI)	2008 – 2012
Secretary, ASCE COPRI Coastal and Estuarine Hydroscience Committee	2005 – 2012
Member, ASCE COPRI Samoan Tsunami Assessment Team	2009 – 2010

SIGNIFICANT HONORS AND AWARDS

- 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 Twigg Memorial Scholarship*, Lehigh University.
- Chi Epsilon Honorary Society member.

JOURNAL PUBLICATIONS (42 published or in press and 3 in review)

*Indicates graduate student, **Indicates undergraduate student

Published and In Press

1. **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*, DOI: 10.1007/s11069-014-1286-1, in press.
2. 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.*, in press.
3. Truong*, M. K., Whilden*, K. A., Socolofsky, S. A., **Irish**, J. L., Experimental study of wave dynamics in coastal wetlands, *Environ. Fluid Mech.*, DOI: 10.1007/s10652-014-9384-x, in press.

4. 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.
5. 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.
6. 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.
7. **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.
8. Whilden*, K. A., Socolofsky, 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.

9. Cox*, N., Dunkin*, L. M., **Irish**, J. L., An empirical model for infragravity swash on barred beaches, *Coast. Eng.*, 81, 44-50, 2013.
10. 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]
11. **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.
12. **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 2013 Outstanding Paper by journal's Editorial Board.**
13. 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.
14. Woodruff, J. D., **Irish**, J. L., Camargo, S. J., Coastal flooding by tropical cyclones and sea level rise, *Nature*, 504, 44-52, 2013.

15. **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.
16. 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.

17. **Irish**, J.L., Resio, D.T., Divoky, D., Statistical properties of hurricane surge along a coast, *J. Geophys. Res.*, 116, C10007, 2011.
18. **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].**
19. 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, *Coastal Eng.*, 58(3), 251-255, 2011.
20. 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.

21. 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, *J. Am. Water Resour. As.*, 46(5), 1049-1059, 2010.
22. **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.
23. **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.

24. **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.

25. 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. **Fifth most cited article published in Coastal Engineering since 2009.**
26. 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.
27. **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.
28. **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.
29. 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.
30. 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.

31. Cañizares, R., **Irish**, J. L., Simulation of storm-induced barrier-island morphodynamics and flooding, *Coast. Eng.*, 55(12), 1089-1101, 2008.
32. **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.
33. **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.

34. **Irish**, J. L., Wozencraft, J. M., Cunningham, A. G., Giroud, C., Non-intrusive measurement of waves: Lidar wave gage, *J. Atmos. Ocean. Tech.*, 23(11), 1559-1572, 2006.

35. **Irish**, J. L., McClung, J. K., Lillycrop, W. J., Airborne lidar bathymetry: The SHOALS system, *PIANC Bulletin*, 103-2000, 43-53, 2000.
36. 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.

37. **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.

38. **Irish**, J. L., White, T. E., Coastal engineering applications of high-resolution lidar bathymetry, *Coast. Eng.*, 35(1-2), 47-71, 1998.

39. **Irish**, J. L., Sensitivity of channel sedimentation prediction to wave-field characterization, *PIANC Bulletin*, 95-1997, 5-20, 1997. **International Gustav Willems Award Winner.**
40. **Irish**, J. L. and Lillycrop, W. J., Monitoring New Pass, Florida with high density lidar bathymetry, *J. Coastal Res.*, 13(4), 1130-1140, 1997.
41. Lillycrop, W. J., **Irish**, J. L., and Parson, L. E., SHOALS system, *Sea Technology*, 38(6), 17-25, 1997.

42. 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. 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*, in review.
2. Guikema, S. D., Udoh*, I., **Irish**, J. L., Nateghi*, R., The effects of hurricane surge in power system outage risk models, *Nat. Hazards*, in review.

REFEREED BOOK CHAPTERS (2 in press)

1. **Irish**, J. L., Weiss, R., Resio, D. T., Physical characteristics of coastal hazards, *Springer Handbook of Ocean Engineering*, M. Dhanak and N. Xiros, eds., in press.
2. 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., in press.

OTHER REFEREED PUBLICATIONS (2 published)

*Indicates graduate student

1. 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.
2. 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.

CONFERENCE PROCEEDINGS (33 published or accepted, refereed proceedings excluded)

*Indicates graduate student, **Indicates undergraduate student

1. **Irish**, J. L., Ferreira*, C. M., Resio, D. T., Olivera, F., Hsu*, C. H., Future tropical cyclone flooding probability and risk assessment: Considerations for sea-level rise and climate change, Proc. International Conference on Coastal Engineering 2012 in Santander, Spain, 2013.
2. 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.
3. 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.
4. **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.
5. 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.
6. 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.
7. **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.
8. 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.
9. **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.
10. 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.
11. **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.

12. **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.
13. **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.
14. 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.
15. 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.
16. **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.
17. **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.
18. 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.
19. **Irish, J. L.**, An introduction to coastal zone mapping with airborne lidar: The SHOALS system, Proc. 21 Corso di Aggiornamento in: Tecniche per la Difesa Dall'inquinamento, Cosenza, Italy, 2000.
20. **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.
21. 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.
22. 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.
23. Wozencraft, J. M., **Irish, J. L.**, SHOALS Surveys and Carbonate Beaches, Proc. Carbonate Beaches 2000 in Key Largo, FL, 24-37, 2000.
24. Wozencraft, J. M., **Irish, J. L.**, Wiggins, C. E., Stuppelbeen, 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.
25. **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.
26. **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.
27. **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.
28. 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.
29. 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.
30. 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.
31. **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.

32. **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.
33. **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.

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

*Indicates graduate student, **Indicates undergraduate student

1. Smallegan*, S., **Irish**, J. L., Wave force reduction due to buried and exposed seawalls, Ocean Sciences 2014, 2014.
2. **Irish**, J. L., Resio, D. T., The importance of spatial scales in coastal flood risk assessment, 13th International Workshop on Wave Hindcasting and Forecasting and 4th Coastal Hazards Symposium, Banff, Canada, 2013.
3. **Irish**, J. L., Weiss, R., Tsunami runup and withdrawal dynamics on a sloping beach with discontinuous macro-roughness: Physical and numerical modeling, Quake Summit 2013, Reno, NV, 2013.
4. **Irish**, J. L., Weiss, R., Lynett, P. J., MacInnes, B. T., Cheng*, W., Smallegan*, S. M., Observations of erosion and damage along barrier islands following Hurricane Sandy, American Geophysical Union 2013 Fall Meeting, San Francisco, CA, 2013.
5. McLaughlin*, P. W., Kaihatu, J. M., **Irish**, J. L., Taylor*, N. R., Slinn, D., Development of physics-based hurricane wave response functions: Application to selected sites on the U.S. Gulf coast, American Geophysical Union 2013 Fall Meeting, San Francisco, CA, 2013.
6. Passeri*, D., Hagen, S. C., **Irish**, J., Impacts of sea level rise on shoreline changes: applying the Bruun Rule along the South Atlantic Bight, Coastal Hazards Summit, St. Augustine, FL, 2013.
7. Smallegan*, S., **Irish**, J., Effects of longshore pressure gradient on nearshore current, 2013 World Environmental and Water Resources Congress, Cincinnati, OH, 2013.
8. Taylor*, N. R., **Irish**, J. L., Hagen, S. C., Kaihatu, J. M., McLaughlin*, P., Development of dimensionless surge response functions at Panama City, Florida, American Geophysical Union 2013 Fall Meeting, San Francisco, CA, 2013.
9. Yang*, Y., **Irish**, J. L., Weiss, R., Song*, Y. K., Zainali*, A., Marivela-Colmenarejo*, R., Smallegan*, S., Potential of coastal vegetation in damping tsunami inundation on a sloping beach, American Geophysical Union 2013 Fall Meeting, San Francisco, CA, 2013.
10. Cox*, N., **Irish**, J. L., The influence of nearshore bars on infragravity energy at the shoreline, Ocean Sciences 2012, Salt Lake City, UT, 2012.
11. Ferreira*, C., **Irish**, J. L., Olivera, F., Potential effects of SLR and land-cover changes on hurricane surge and damage, American Geophysical Union 2012 Fall Meeting, San Francisco, CA, 2012.
12. Ferreira*, C., Olivera, F., **Irish**, J. L., Integration of high performance computational fluid dynamics to GIS, 2012 ESRI International User Conference, San Diego, CA, 2012.
13. Ferreira*, C., Olivera, F., **Irish**, J. L., A geospatial framework to support hurricane coastal surge flood mapping, American Water Resources Association GIS Specialty Conference, New Orleans, LA, 2012.
14. Udoh*, I., Taylor*, A., **Irish**, J. L., Kaihatu, J. M., The influence of hurricane parameters on hurricane surge and waves in complex coastal zones, American Geophysical Union 2012 Fall Meeting, San Francisco, CA, 2012.
15. Weiss, R., and **Irish**, J. L., Tsunami damage potential in coastal communities: Unconfined and confined topographic settings, International Conference on Coastal Engineering 2012, Santander, Spain, 2012.
16. **Irish**, J. L., and Resio, D., A statistical method for estimating future hurricane flood hazards, Chesapeake Modeling Symposium 2012, Baltimore, MD, 2012.
17. Ferreira*, C., **Irish**, J. L., Olivera, F., Impact of sea level rise on the attenuation of hurricane storm surge by wetlands in Corpus Christi, TX, American Geophysical Union 2011 Fall Meeting in San Francisco, CA, 2011.

18. Ferreira*, C., Olivera, F., **Irish**, J. L., ArcStormSurge: Geodatamodel for hurricane storm surge and GIS interface for ADCIRC, 2011 International ESRI User Conference in San Diego, CA, 2011.
19. Ferreira*, C., Olivera, F., **Irish**, J. L., The role of wetlands in reducing hurricane related coastal flooding: Can wetlands help reduce coastal disaster damage in Corpus Christi, TX?, 2011 Solutions to Coastal Disasters, Anchorage, AK, 2011.
20. Ferreira*, C., Olivera, F., **Irish**, J. L., Quantification of hurricane surge damage in Corpus Christi, Texas as a function of wetland characteristics with application to restoration and climate change, World Environmental and Water Resources Congress 2011, Palm Springs, CA, 2011.
21. **Irish**, J. L., Resio, D. T., Integration of sea-level rise and climate change into extreme-value hurricane flood statistics, 12th International Workshop on Wave Hindcasting and Forecasting and 3rd Coastal Hazards Symposium in Waikoloa Village, HI, 2011.
22. Ferreira*, C., **Irish**, J. L., Olivera, F., The influence of coastal wetlands on hurricane surge in Corpus Christi, TX, American Geophysical Union 2010 Fall Meeting in San Francisco, CA, 2010.
23. **Irish**, J. L., Resio, D. T., Udoh*, I., Quantifying the Impact of Future Sea Level Rise, Climate Change, and Climate Variability on Tropical Storm Flood Level Statistics, Storm Surges Congress in Hamburg, Germany, 2010.
24. Song*, Y. K., **Irish**, J. L., Vittone**, C., Barkdull**, M., Long wave inundation in discontinuous macro-roughness with application to tsunamis in forested regions, American Geophysical Union Fall Meeting in San Francisco, CA, 2010.
25. Anderson*, M. E., **Irish**, J. L., Smith, J. M., Mousavi*, M. E., Numerical simulations of vegetated hydrodynamics for practical applications, 11th International Workshop on Wave Hindcasting and Forecasting and 2nd Coastal Hazards Symposium in Halifax, Canada, 2009.
26. Dengler, L. A., Ewing, L., Brandt, J., **Irish**, J. L., Jones, C., Long, K., Lazrus, H., McCullough, N., 2009 Samoa tsunami: Factors that exacerbated or reduced impacts in Samoa and American Samoa, American Geophysical Union Fall Meeting in San Francisco, CA, 2009.
27. Dunkin*, L. M., **Irish**, J. L., Variability in long-wave runup as a function of nearshore bathymetric features, American Shore and Beach Preservation Association 2009 in St. Petersburg, FL, 2009.
28. **Irish**, J. L., Resio, D. T., Divoky, D., Statistical properties of hurricane surge along an idealized coast, 11th International Workshop on Wave Hindcasting and Forecasting and Coastal Hazards Symposium in Halifax, Canada, 2009.
29. Katyal*, R., **Irish**, J. L., Development of parameterized surge response functions for coastal bays, Coastal and Estuarine Research Federation 20th Biennial Conference: Estuaries and Coasts in a Changing World in Portland, OR, 2009.
30. Katyal*, R., **Irish**, J. L., Parameterization of hurricane surge for the State of Texas coastline, 9th Biennial State of the Bay Symposium in Galveston, TX, 2009.
31. Song*, Y. K., **Irish**, J. L., Chang, K.-A., Improvements of surge response function methodology, 11th International Workshop on Wave Hindcasting and Forecasting and 2nd Coastal Hazards Symposium in Halifax, Canada, 2009.
32. Frey*, A. E., Olivera, F., **Irish**, J. L., Mousavi*, M. E., Kaihatu, J. M., Song*, Y. K., Edge, B. L., Assessment of the economic damages of hurricane coastal flooding under global warming conditions, Severe Storm Prediction and Global Climate Impact on the Gulf Coast Conference in Houston, TX, 2008.
33. Frey*, A. E., Olivera, F., **Irish**, J. L., Mousavi*, M. E., Song*, Y. K., Edge, B. L., The impact of climate change on hurricane flooding inundation and economic damages, PIANC Gulf Coast Hurricane Conference in Mobile, AL, 2008.
34. **Irish**, J. L., Mousavi*, M.E., Edge, B. L., Olivera, F., Frey*, A. E., Quantification of climate change impacts on hurricane flooding, Int. Symp. on the Effects of Climate Change on the World's Oceans in Gijón, Spain, 2008.
35. Mousavi*, M. E., **Irish**, J. L., Frey*, A. E., Edge, B. L., Olivera, F., Prediction of the impact of climate change on hurricane flooding, PACON 2008 Energy and Climate Change: Innovative Approaches to Solving Today's Problems in Oahu, HI, 2008.

36. Song*, Y. K., Irish, J. L., Chang, K.-A., Edge, B. L., Evaluating the risk to structures along the Texas coastal zone due to the effect of storm surge, PIANC Gulf Coast Hurricane Conference in Mobile, AL, November 2008.

ACADEMIC RESEARCH GRANTS (\$3.4 million, with \$2.0 million for Irish [since 2006])

- 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, U.S. Naval Meteorology and Oceanography Command, National Oceanic and Atmospheric Administration, U.S. Geological Survey) via Northrup Grumman, September 2014 – August 2015. PI: J. Irish, Co-PI: R. Weiss. \$60,407.
- 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.
- NEESR: Tsunami runup and withdrawal dynamics on a sloping beach with discontinuous macro-roughness, *National Science Foundation*, August 2012 – July 2015, PI: J. Irish, Co-PI: R. Weiss (Geosciences). \$658,373 plus \$18,000 as Research Experience for Undergraduates (REU) supplement (\$363,010 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 (Texas A&M University) 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 5.05 out of 6.00]

- CEE 4984 – Introduction to Coastal Engineering (undergraduate)
- CEE 3304 – Fluid Mechanics for Civil and Environmental Engineers (undergraduate)
- CEE 2804 – Introduction to Civil Engineering (undergraduate)
- CEE 5984 – Coastal Engineering (graduate)
- CEE 5984 – Advanced Coastal Engineering (graduate)
- 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.

STUDENT RESEARCH ADVISING

Doctoral Students

- Yi Liu (Ph.D., scheduled spring 2018). Thesis: To be determined.
- Stephanie Smallegan (Ph.D., scheduled spring 2016). Thesis: To be determined.
- Yongqian Yang (Ph.D., scheduled spring 2017). 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: Assistant Professor of civil engineering at George Mason University.**
- 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: family leave.
- Ikpoto Udoh (Ph.D., 2012). Thesis: Robust hurricane surge response functions. Current position: Offshore engineer Houston Offshore Engineering.

Masters Students

- Mary Anderson (M.S., 2010). Thesis: Numerical and experimental investigations to understand the effects of coastal vegetation of wave propagation. Current position: 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).
- Gregory Balsmeier (M.E., 2007). Co-advised with J. Kaihatu. Research Report: Physical model of wave damping by vegetation following wave breaking. Current position: Lt.j.g. U.S. Navy.
- 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: Coastal engineer U.S. Army Engineer Coastal and Hydraulics Laboratory (Joint Airborne Lidar Technical Center of Expertise).
- Ashley Frey (M.S., 2009). Thesis: The impact of climate change on hurricane flooding, inundation, property damages, and population affected. Current position: Coastal engineer U.S. Army Engineer Coastal and Hydraulics Laboratory.
- Rajat Katyal (M.S., 2009). Thesis: Development of parameterized surge response functions for coastal bays. Current position: Offshore 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.
- Mir Emad Mousavi (M.E., 2009). Research Report: Wave dynamics in random cylinder arrays analogous to wetland vegetation. Current position: Graduate student at Texas A&M University.
- 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 engineer 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: Ph.D. candidate of Civil Engineering at Texas A&M University.
- 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: Engineer CDM Smith.

Undergraduate Students

- Adrian Santiago Tate (Fall 2013 – present). Research topic: Tsunami inundation in vegetation.
- Nicholas Zinck (Fall 2013 – present; NSF Research Experience for Undergraduates). Research topic: Numerical simulations of tsunami inundation.
- 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.
- Philip Blackmar (Fall 2010 – Spring 2011). Research topic: Sea level rise and hurricane flooding.
- Michael Brown (Spring 2009; NSF Louis Stokes Alliance for Minority Participation). Research topic: Hurricane surge prediction.
- 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.
- Sean Finn (Summer 2008 – Fall 2008). Research topic: Climate change and coastal flooding.
- Kathryn Hagan (Fall 2007). Research topic: Climate change and coastal flooding.
- Jacob Heisey (Spring 2012 – Spring 2013). Research topic: Future shoreline vulnerability.
- Chelsea Humbyrd (Spring 2008). Research topic: Evaluation of variable height bulkhead.
- Steven Keith (Summer 2014; NSF Research Experience for Undergraduates). Research topic: Simulation of barrier-island response to storms and tsunamis.
- 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.
- 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.

PROFESSIONAL SERVICE (Excludes positions listed previously)

Licensed Professional Engineer, New York State (License Number 16-082488), 2005 – present

Diplomate of Coastal Engineering, Academy of Coastal, Port, Ocean, and Navigation Engineers (D.CE 69), 2011 – present

Affiliations:

- Member, American Society of Civil Engineers (ASCE)
- 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 – present
- 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 Session Organizer or Chair:

- Local Organizing Committee, International Conference on Coastal Engineering, Baltimore, MD, 2018.
- Technical Committee, Coastal Structures / Solutions to Coastal Disasters, Boston, MA, 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.

Invited Conference Presentations and Seminars:

- Tsunami inundation in patchy macro-roughness on a steep beach, Oregon State University, Corvallis, OR, 2014.
- 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.
- Hurricane flood damages: Observations and trends, Department of Geography, Virginia Tech, Blacksburg, VA, 2014.
- Tsunami runup and withdrawal in patchy macro-roughness on a steep beach, Deltares, Delft, The Netherlands, 2013.
- Coastal inundation risk assessment (invited), Workshop on Probabilistic Flood Hazard Assessment (PFHA), U.S. Nuclear Regulatory Commission, Rockville, MD, 2013.
- Physical attributes of hurricane surges and their role in hazard assessment (invited), American Geophysical Union 2012 Fall Meeting in San Francisco, CA, 2012.
- Physical attributes of hurricane surges and their role in hazard assessment, Stanford University, Stanford, CA, 2012.
- Scaling hurricane surge for hazard forecasting, NOAA Pacific Marine Environmental Laboratory, Seattle, WA, 2012.
- Coastal hazard damage potential and forecasting, University of Washington, Seattle, WA, 2012.

- “Two roads diverged in a wood, and I, I took the one less traveled by, and that has made all the difference” My not-so-straight road to tenure in a top-10 engineering department, North Carolina State University, Raleigh, NC, 2012.
- A method for estimating future hurricane flood hazards and associated uncertainty, Stony Brook University, Stony Brook, NY, 2012.
- Treatment of climate change and sea-level rise in hurricane flood statistics (invited), American Geophysical Union 2011 Fall Meeting in San Francisco, CA, 2011.
- Scaling hurricane surge for hazard assessment, Virginia Polytechnic Institute and State University, Blacksburg, VA, 2011.
- Quantification of the impact of climate change on hurricane flood statistics, University of Notre Dame, South Bend, IN, 2010.
- Quantification of the impact of climate change on hurricane flood statistics, University of Texas – Arlington, Arlington, TX, 2010.
- Integrating sea level rise with flood level statistics, International Conference on Sea Level Rise in the Gulf of Mexico, Corpus Christi, TX, 2010.
- Integrating sea level rise and climate change with flood level statistics in estuarine environments, Mini-symposium on Sea Level Rise at the 11th International Conference on Estuarine and Coastal Modeling, Seattle, WA, 2009.
- Potential implications of climate change on hurricane flooding along the Texas coast, presentation to the Coastal Bend Bays Foundation, Corpus Christi, TX, 2009.
- ADCIRC applications: Development of surge response functions for hurricane flood probability assessment, ISEC/NEES/NSF Workshop, Corvallis, OR, 2009.
- Potential implications of climate change on hurricane flooding in Corpus Christi, TX. Presentation to Mayor and City of Corpus Christi, TX, 2009.
- Hurricane hazard assessment using dimensionless surge response functions. Scripps Institution of Oceanography, LaJolla, CA, May 2009.
- Application of surge response functions for coastal flood risk assessment. Coastal Cities Summit, St. Petersburg, FL, 2008.
- A surge response function approach to coastal hazard assessment. Johns Hopkins University, Baltimore, MD, 2008.
- Predicting the influence of climate change on hurricane flooding and damages. Lehigh University, Bethlehem, PA, 2008.
- The impact of climate change on hurricane flooding. Texas A&M University, Department of Oceanography, College Station, TX, 2008.
- Quantification of climate change impacts on hurricane flooding. Institute for Baltic Sea Research (IOW), University of Rostock, Warnemünde, Germany, 2008.
- Hurricane surge characteristics: Surge parameterization and climate change impacts, Deltares (formerly Delft Hydraulics), Delft, The Netherlands, 2008.
- Wave attenuation and breaking in wetland vegetation. Florida Shore and Beach Preservation Association Estuarine Design and Research Needs Workshop, Sarasota, FL, 2008.
- Hurricane surge classification. Texas A&M University at Galveston, Galveston, TX, 2007.
- Hurricane surge classification for the northern Gulf of Mexico coastline. Galveston Bay Estuary Program’s 8th State of the Bay Symposium, Galveston, TX, 2007.
- Hurricane surge parameterization. Workshop on Modeling Relevant Physics of Sedimentation in Three Dimensions (MORPHOS), Vicksburg, MS, 2006.
- Parameterization of hurricane surge for risk assessment. Louisiana Coastal Protection and Restoration Risk Assessment Group Workshop, Asheville, NC, 2006.
- An introduction to coastal zone mapping with airborne lidar. Corso di Aggiornamento in: *Techniche per la Difesa Dall'inquinamento*, University of Calabria, Cosenza, Italy, 2000.

- Airborne lidar bathymetry. American Congress on Surveying and Mapping - American Society for Photogrammetry Annual Meeting, 1996.

Journal, Proposal, and Technical Report Reviews:

- Bulletin of the American Meteorological Society
- Climatic Change
- Coastal Engineering
- 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
- NOAA Sea Grant
- 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 NSF review panel, Coastal SEES
- Member of NSF review panel, Physical Oceanography
- Member of NSF review panel, Fluid Dynamics
- 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

SUPPLEMENTARY INFORMATION

Journal Publication Summary

- Journal and other refereed publications: 46
- Total citations (as of September 2014):
 - From Web of Knowledge and Scopus: 509 [Journals only]
 - From Google Scholar: 1128 [All publications]
- h-index (as of September 2014):
 - From Web of Knowledge and Scopus: 12 [Journals only]
 - From Google Scholar: 16 [All publications]
- i10-index (as of September 2014):
 - From Web of Knowledge and Scopus: 14 [Journals only]
 - From Google Scholar: 25 [All publications]
- Top five most cited refereed publications (from Web of Knowledge and Scopus [Google Scholar] in September 2014):
 - **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. **92 [168] 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. **72 [92] cites.****
 - **Irish, J. L. and White, T. E., Coastal engineering applications of high-resolution lidar bathymetry, *Coast. Eng.*, 35, No. 1-2, 47-71, 1998. **65 [94] 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. **53 [87] cites. Fifth most cited article published in *Coastal Engineering* since 2009.****
 - 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. **30 [57] cites.****

Journal Information (as of August 2014)

- Impact Factors for Science-focused journals, from Journal Citation Reports 5-year data:
 - Nature: 40.783
 - Climatic Change: 4.732
 - Geophysical Research Letters: 4.410
 - ISPRS Journal of Photogrammetry and Remote Sensing: 4.202
 - Journal of Geophysical Research: 3.712
 - Journal of Physical Oceanography: 3.132
 - Estuarine, Coastal, and Shelf Science: 2.782
 - Journal of Atmospheric and Oceanic Technology: 2.673
 - Natural Hazards: 2.126
 - Environmental Fluid Mechanics: 1.775
 - Journal of Coastal Research: 0.755 (impact factor, 5-year impact factor not available)
- Impact Factors for Engineering-focused journals, from Journal Citation Reports 5-year data:
 - Coastal Engineering: 2.343
 - Journal of the American Water Resources Association: 2.133
 - Ocean and Coastal Management: 2.029
 - Ocean Engineering: 1.615
 - Journal of Waterway, Port, Coastal, and Ocean Engineering: 1.179
 - Sea Technology: 0.123
 - The following journals do not have impact factors: GPS World, Hydrographic Journal, PIANC Bulletin, Shore and Beach