James M. Kaihatu, Ph.D.

Environmental, Water Resources, and Coastal Engineering Division
Zachry Department of Civil & Environmental Engineering
Texas A&M University
3136 TAMU
College Station, TX 77843-3136
Ph: 979-862-3511; Fax: 979-862-8162; Email: jkaihatu@tamu.edu
Web: https://coasthaz.engr.tamu.edu/

Research Interests

Numerical and mathematical modeling of ocean wave propagation over regional and nearshore scales; nonlinear wave theories; nonlinear wave-wave interaction; wave breaking and surf zone dynamics; processes over cohesive sediments; wind wave generation; tsunamis and the impact on coastal waves and sediments; experimentation and data analysis; post-disaster surveys and reconnaissance; modeling of environmental and structural impacts of coastal hazards.

Education

- Doctor of Philosophy, Civil Engineering, University of Delaware, Newark, DE August 1994.
- Master of Science**,** Civil Engineering, University of California, Berkeley, CA May 1987.
- Bachelor of Science, Civil Engineering, California State Polytechnic University, Pomona, CA June 1986.

Professional Experience

- Professor, Zachry Department of Civil & Environmental Engineering, Texas A&M University, College Station, TX, September 2018-present.
- Associate Professor, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX, September 2012-August 2018.
- Assistant Professor, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX, August 2006 – August 2012.
- Adjunct Professor, Department of Marine Science, University of Southern Mississippi, Hattiesburg, MS, September 1998-August 2006.
- Oceanographer (to GS-14 equivalent), Ocean Dynamics and Prediction Branch, Naval Research Laboratory, Stennis Space Center, MS, October 1995-August 2006.
- Post-Doctoral Fellow, Hydrodynamics Branch, Remote Sensing Division, Naval Research Laboratory, Washington, DC, October 1994-September 1995.
- Research Assistant, Center for Applied Coastal Research, Department of Civil Engineering, University of Delaware, Newark, DE, September 1989-September 1994.
- Hydraulic Engineer, Oceanography Branch, Research Division, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS, September 1987-September 1989.

- Engineering Assistant, GVW Associates, Inc., Walnut, CA, September 1985-September 1987.
- Engineering Assistant, CC Buchanan, EE, Fullerton, CA, September 1982-August 1985.

Technical and Honor Societies

- Associate Member, American Society of Civil Engineers (from 2016)
- Member, Engineering Mechanics Institute, American Society of Civil Engineers (from 2016)
- Member, Coasts, Ocean, Ports, and Rivers Institute, American Society of Civil Engineers (from 2016)
- Member, American Geophysical Union (from 1988)
- Tau Beta Pi (California Nu Chapter) – National Engineering Honor Society (elected 1985)
- Chi Epsilon (California State Polytechnic University Chapter) – National Civil Engineering Honor Society (elected 1986)

Awards and Fellowships

- Co-awardee, Genesis Award, College of Engineering, Texas A&M University (2022).
- Leadership Impact Award, Zachry Department of Civil & Environmental Engineering, Texas A&M University (2021).
- Service Impact Award, Zachry Department of Civil Engineering, Texas A&M University (2016).
- Curriculum Fellow, Center for Teaching Excellence, Texas A&M University (2015-2016).
- Truman C. Jones Excellence in Graduate Teaching Award, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX (2013).
- Naval Research Laboratory Alan C. Berman Award for Best Publication, Oceanography Division, Naval Research Laboratory, Stennis Space Center, MS (2003).
- Joint Oceanographic Institutions Post-Doctoral Fellowship, Naval Research Laboratory, Washington, DC (1994-1995).
- National Defense Science and Engineering Graduate Fellowship, American Society of Engineering Education, Office of Naval Research (1991-1994).
- E.C. Davis Fellowship, Department of Civil Engineering, University of Delaware (1989-1990).

Certifications

- Engineer-in-Training, California (1985)

Research: Publications – Edited Volumes

1. Panchang, V., and Kaihatu, J.M. (ed.) *Advances in Coastal Hydraulics*, World Scientific, Singapore, 502p, 2018.
2. Irish, J.L., and Kaihatu, J.M. (ed.) "Part C: Coastal Design Section", in Dhanak, M.R., and Xiros, N. (ed.) Handbook of Ocean Engineering, Springer, 545-740, 2016.

Research: Publications – Refereed Book Chapters *Supervised graduate students are underlined.*

1. Kaihatu, J.M., Ardani, S., Goertz, J.T., Venkattaramanan, A., and Sheremet, A. (2018). "Wave dissipation mechanisms in spectral phase-resolving nonlinear wave models," in Panchang, V., and Kaihatu, J.M. (ed.) *Advances in Coastal Hydraulics*, World Scientific, 235-262.
2. Kaihatu, J.M. (2016). "Wind, wave and current modeling and prediction," in Carleton, J.C., Jukes, P., and Choo, Y.S. (ed.) *Encyclopedia of Marine and Offshore Engineering*, John Wiley and Sons, https://doi.org/10.1002/9781118476406.emoe123.
3. Kaihatu, J.M., and Ananthakrishnan, P. (2016). "Mechanics of ocean waves," in Dhanak, M., and Xiros, N. (ed). *Handbook of Ocean Engineering*, Springer, 77-100.
4. Lynett, P.J., and Kaihatu. J.M. (2016). "Modeling of coastal waves and hydrodynamics," in Dhanak, M., and Xiros, N. (ed). *Handbook of Ocean Engineering*, Springer, 597-610.
5. Hwang, P.A., Huang, N.E., Wang, D.W., and Kaihatu, J.M. (2005). "Hilbert spectra of nonlinear ocean waves" in Huang, N.E., and Shen, S.S. (ed.) *The Hilbert-Huang Transform and Its Applications*, World Scientific, Singapore, 211-225.
6. Hwang, P.A., Wang, D.W., and Kaihatu, J.M. (2005), "A comparison of the energy flux computation of shoaling waves using Hilbert and wavelet spectral analysis techniques," in Huang, N.E., and Attoh-Okine, N. (ed.) *Hilbert-Huang Transforms in Engineering*, CRC Press, 83-95.
7. Kaihatu, J.M. (2003), "Frequency domain wave models in the nearshore and surf zones," in Lakhan, V.C. (ed.) *Advances in Coastal Modeling*, Elsevier, 43-72.

Research: Publications – Refereed Journal Articles *Supervised graduate students are underlined.*

1. Kim, I.-C., and Kaihatu, J.M. (2022). "A modified frequency distribution function of wave breaking-induced energy dissipation." Journal of Geophysical Research, doi: 10.1029/2022JC018792.
2. Chen, Z., Jang, S., Kaihatu, J.M., Zhou, Y.-H., Wright, F.A., Chiu, W.A., and Rusyn, I. (2021). "Potential human health hazard of post-Hurricane Harvey sediments in Galveston Bay and Houston Ship Channel: a case study of using *in vitro* bioactivity data to inform risk management decisions." International Journal of Environmental Research and Public Health, doi: 10.3390/ijerph182413378.
3. Kim, I.-C., and Kaihatu, J.M. (2021). "A consistent nonlinear mild-slope equation model." Coastal Engineering, doi: 10.1016/j.coastaleng.2021.104006.
4. Kijewski-Correa, T., Roueche, D., Kennedy, A., Allen, D., Marshall, J., Kaihatu, J., Wood, R.L., Smith, D.J., Lester, H., Lochhead, M., Copp, A., McCarthy, A., Prevatt, D.O., and Robertson, I. (2021). "Impacts of Hurricane Dorian on the Bahamas: field observations of hazard intensity and performance of the built environment." Coastal Engineering Journal, doi: 10.1080/21664250.2021.1958613.
5. Kim, J.Y., Kaihatu, J.M., Chang, K.-A., Sun, S.-H., Huff, T.P., and Feagin, R.A. (2020). "Effect of cold-front induced waves along wetlands boundaries." Journal of Geophysical Research, doi: 10.1029/2020JC016603.

6. Aly, N.A., Luo, Y.-S., Casillas, G., McDonald, T.J., Kaihatu, J.M., Jun, M., Ellis, N., Gossett, S., Dodds, J.N., Baker, E.S., Bhandari, S., Chiu, W., and Rusyn, I. (2020). "Temporal and spatial analysis of per and polyfluoroalkyl substances in surface waters of Houston ship channel following a large-scale industrial fire incident." Environmental Pollution, doi:10.1016/j.envpol.2020.115009.
7. Chuang, W.-L., Chang, K.-A., Kaihatu, J., Cienfuegos, R., and Mokrani, C. (2020). "Experimental study of force, pressure, and fluid velocity on a simplified coastal building under tsunami bore impact." *Natural Hazard*, doi: 10.1007/s11096-020-04027-3.
8. Kennedy, A., Copp, A., Florence, M., Gradel, A., Gurley, K., Janssen, M., Kaihatu, J., Krafft, D., Lynett, P., Owensby, M., Pinelli, J.-P., Prevatt, D., Rogers, S., Rouche, D., and Silver, Z. (2020). "Hurricane Michael (2018) in the area of Mexico, Beach, Florida." *Journal of Waterway, Port, Coastal and Ocean Engineering*, in press.
9. Ardani, S., and Kaihatu, J.M. (2019). "Evolution of high frequency waves in shoaling and breaking wave spectra." *Physics of Fluids*, 31(8), doi: 10.1063/1.5096179.
10. Sun, S.-H., Chuang, W.-L., Chang, K.-A., Young, J.Y., Kaihatu, J.M., Huff, T., and Feagin, R. (2019). "Imaging based nearshore bathymetry measurement using an unmanned aircraft system." *Journal of Waterway, Port, Coastal and Ocean Engineering*, doi: 10.1061/(ASCE)WW/1943-5460.0000502.
11. Ardani, S., and Kaihatu, J.M. (2018). "Optimization of bathymetry estimates for near-shore hydrodynamic models using Bayesian methods," *Journal of Waterway, Port, Coastal and Ocean Engineering*, doi: 10.1061/(ASCE)WW.1943-5460.0000472.
12. Sandeepan, B.S., Panchang, V., Nayak, S., Krishna Kumar, K., and Kaihatu, J.M. (2018). "Performance of the WRF model for surface wind prediction around Qatar," *Journal of Atmospheric and Oceanic Technology*, doi: 10.1175/JTECH-D-17-0125.1.
13. Safak, I., Sheremet, A., Davis, J.R., and Kaihatu, J.M. (2017). "Nonlinear wave dynamics in the presence of mud-induced dissipation on Atchafalaya Shelf, Louisiana, USA," *Coastal Engineering*, 130, 52-64.
14. Lee, W., McLaughlin, P.W., and Kaihatu, J.M. (2017). "Parameterization of maximum significant wave heights in coastal regions due to hurricanes," *Journal of Waterway, Port, Coastal and Ocean Engineering*, doi: 10.1061/(ASCE)WW.1943-5460.0000362.
15. Tahvildari, N., Kaihatu, J.M., and Saric, W. (2016). "Generation of long subharmonic internal waves by surface waves," *Ocean Modelling*, **106**, 12-26.
16. Liao, Y.-P. and Kaihatu, J.M. (2016). "The effect of domain size and wind variability in the Persian Gulf on predicting nearshore wave energy near Doha, Qatar," *Applied Ocean Research*, **55**, 18-36.
17. Liao, Y.-P., and Kaihatu, J.M. (2016). "Numerical investigation of wind waves in the Persian Gulf: bathymetry effects," *Journal of Atmospheric and Oceanic Technology*, **33**, 17-31.
18. Liu, K., Chen, Q.J., and Kaihatu, J.M. (2016). "Modeling wind effects on shallow water waves," *Journal of Waterway, Port, Coastal and Ocean Engineering*, doi: 10.1061/(ASCE)ww.1943-5460.0000314

19. Liao, Y.-P., Safak, I., Kaihatu, J.M., and Sheremet, A. (2015). "Nonlinear and directional effects on wave predictions over muddy bottoms: central chenier plain coast, western Louisiana shelf, USA," *Ocean Dynamics*, 65, 1567-1581.
20. Tian, M., Sheremet, A., Kaihatu, J.M., and Ma, G. (2015). "On the shoaling of solitary waves in the presence of short random swells," *Journal of Physical Oceanography*, **45**, 792-806.
21. Sharma, A.**,** Panchang, V., and Kaihatu, J.M. (2014). "Modeling nonlinear wave-wave interactions with the elliptic mild slope equations." *Applied Ocean Research*, **48**, 114-125.
22. Safak, I., Sahin, C., Kaihatu, J.M., and Sheremet, A. (2013). "Modeling wave-mud interaction on the Atchafalaya shelf, Louisiana, USA," *Ocean Modelling*, **70**, 75-84.
23. Tolman, H.L., Banner, M.L., and Kaihatu, J.M. (2013). "The NOPP operational wave model improvement project," *Ocean Modelling*, **70**, 2-10.
24. Kaihatu, J.M., and Tahvildari, N. (2012). "The combined effect of wave-current interaction and mud-induced damping on nonlinear wave evolution," *Ocean Modelling*, **41**, 22-34.
25. Manian, D., Kaihatu, J.M., and Zechman, E.M. (2012). "Using genetic algorithms to optimize bathymetric sampling for predictive model input," *Journal of Atmospheric and Oceanic Technology*, **29**, 464-477.
26. Tahvildari, N., and Kaihatu, J.M. (2011). "Optimized determination of viscous mud properties using a nonlinear wave-mud interaction model," *Journal of Atmospheric and Oceanic Technology*, **28**, 1486-1503.
27. Sheremet, A., Kaihatu, J.M., Su, S.-F., Smith, E.R., and Smith, J.M. (2011). "Nonlinear modeling of wave propagation over fringing reefs," *Coastal Engineering*, **58**, 1125-1137.
28. Xu, K., Harris, C.K., Hetland, R.D., and Kaihatu, J.M. (2011). "Dispersal of Mississippi and Atchafalaya sediment on the Texas-Louisiana shelf; model estimates for the year 1993." *Continental Shelf Research*, **31**, 1558-1575.
29. Frey, A.E., Olivera, F., Irish, J.L., Dunkin, L.M., Kaihatu, J.M., Ferreira, C.M., and Edge, B.L. (2010). "The impact of climate change on hurricane flooding inundation, population affected, and property damages in Corpus Christi," *Journal of American Water Resources Association*, **46**, 1049-1059.
30. Irish, J.L., Frey, A.E., Rosati, J.D., Olivera, F., Dunkin, L.M., Kaihatu, J.M., Ferreira, C.M., and Edge, B.L. (2010). "Potential implications of global warming and barrier island degradation on future hurricane inundation, property damages, and population impacted," *Ocean and Coastal Management*, **53**, 645-657.
31. Ewing, L.C., Stauble, D.K., Work, P.A., Edge, B.L., Rogers, S.M., Loeffler, M.U., Kaihatu, J.M., Overton, M.D., Waters, J.P., Suzuki, K., Dean, R.G., Wiggins, C.E., and Gregory, G.H. (2009). "Field investigation of Hurricane Ike impacts to the upper Texas coast," *Shore and Beach*, **77**, 9-23.
32. Plant, N.G., Edwards, K.L., Kaihatu, J.M., Veeramony, J., and Holland, K.T. (2009). "The effect of bathymetric filtering on nearshore processes model results," *Coastal Engineering*, **56**, 484-493.

33. Kaihatu, J.M. (2009). "Application of a nonlinear frequency-domain wave-current interaction model to shallow water recurrence effects in random waves," *Ocean Modelling*, **26**, 190-205.
34. Irish, J.L., Augustin, L.N., Balsmeier, G.E., and Kaihatu, J.M. (2008). "Wave dynamics in coastal wetlands: a state-of-the-art review with emphasis on wetland functionality for storm damage reduction," *Shore and Beach*, **76**, 52-56.
35. Allard, R.A., Dykes, J.D., Hsu, Y.L., Kaihatu, J.M., and Conley, D.C. (2008). "A real-time nearshore wave and current prediction system," *Journal of Marine Systems*, **69**, 37-58.
36. Kaihatu, J.M., Sheremet, A., and Holland, K.T. (2007). "A model for the propagation of nonlinear surface waves over dissipative muds," *Coastal Engineering*, **54**, 752-764.
37. Keen, T.R., Rogers, W.E., Dykes, J.D., Kaihatu, J.M., and Holland, K.T. (2007). "Determining heterogeneous bottom friction distributions using a numerical wave model," *Journal of Geophysical Research*, **112**, doi: 10.1029/2005JC003309.
38. Kaihatu, J.M., Veeramony, J., Edwards, K.L., and Kirby, J.T. (2007). "Asymptotic behavior of frequency and wavenumber spectra of nearshore shoaling and breaking waves," *Journal of Geophysical Research*, **112**, doi: 10.1029/2006JC003817.
39. Rogers, W.E., Kaihatu, J.M., Hsu, Y.L., Jensen, R.E., Dykes, J.D., and Holland, K.T. (2007). "Forecasting and hindcasting with the SWAN model in the Southern California Bight," *Coastal Engineering*, **54**, 1-15.
40. Chen, Q.J., Kaihatu, J.M., and Hwang, P.A. (2004). "Incorporation of the wind effects into a Boussinesq model," *Journal of Waterway, Ports, Coastal and Ocean Engineering*, **130**, ASCE, 312-321.
41. Narayanan, C., Rama Rao, V.N., and Kaihatu, J.M. (2004). "Model parameterization and experimental design issues in nearshore bathymetry inversion," *Journal of Geophysical Research*, **109**, doi: 10.1029/2002JC001756.
42. Allard, R.A., Kaihatu, J.M., Hsu, Y.L., and Dykes, J.D. (2002). "The Integrated Ocean Prediction System (IOPS)," *Oceanography*, **15**, 67-76.
43. Rogers, W.E., Kaihatu, J.M., Petit, H.A.H., Booij, N., and Holthuijsen, L.H. (2002). "Diffusion reduction in an arbitrary scale third generation wave model," *Ocean Engineering*, **29**, 1357-1390. (*Winner of 2003 Alan C. Berman Award for Best Research Publication – Naval Research Laboratory*)
44. Kaihatu, J.M. (2001). "Improvement of parabolic nonlinear dispersive wave model," *Journal of Waterway, Ports, Coastal and Ocean Engineering*, **127**, ASCE, 113-121.
45. Kaihatu, J.M., Handler, R.A., Marmorino, G.O., and Shay, L.K. (1998). "Empirical orthogonal function analysis of ocean surface currents using complex and real-vector methods," *Journal of Atmospheric and Oceanic Technology*, **15**, 927-941.
46. Kaihatu, J.M., and Kirby, J.T. (1998). "Two-dimensional parabolic modeling of extended Boussinesq equations," *Journal of Waterway, Ports, Coastal and Ocean Engineering*, **124**, ASCE, 57-67.
47. Work, P.A., and Kaihatu, J.M. (1997). "Wave transformation at Pensacola Pass, FL," *Journal of Waterway, Ports, Coastal and Ocean Engineering*, **123**, ASCE, 314-321.

48. Kaihatu, J.M., and Kirby, J.T. (1995). "Nonlinear transformation of waves in finite water depth," *Physics of Fluids*, **7**, 1903-1914.

Research: Publications – Conference Proceedings *Supervised graduate students are underlined and supervised undergraduates are denoted with an asterisk.*

1. Han, S., Kaihatu, J.M., Lynett, P.J., and Synolakis, C.E. (2020). "Tsunami runup amplification of breaking and non-breaking error function waves over a sloping beach in shadow zone by a small island." Proceedings of the virtual International Conference on Coastal Engineering (36v), papers.13, doi: 10.9753/icce.v36v.papers.13
2. Chuang, W.-L., Chang, K.-A., Kaihatu, J.M., Cienfuegos, R., and Mokrani, C. (2019). "Experimental modeling of tsunami bore impingement on a simplified coastal building." Proceedings of the 36th International Conference on Coastal Engineering, Baltimore, MD, USA. Paper No.: currents.43. Retrieved from https://journals.tdl.org/ICCE/.
3. Ardani, S., and Kaihatu, J.M. (2019). "A model in frequency domain for transformation of fully dispersive nonlinear waves," *Proceedings of the 36th International Conference on Coastal Engineering*, Baltimore, MD, USA. Paper No.: papers.60. Retrieved from https://journals.tdl.org/ICCE/.
4. Lee, W., and Kaihatu, J.M. (2019). "Effects of desalination on hydrodynamic processes in Persian Gulf," *Proceedings of the 36th International Conference on Coastal Engineering*, Baltimore, MD, USA. Paper No.: papers.3. Retrieved from https://journals.tdl.org/ICCE/.
5. Kaihatu, J.M., Goertz, J.T., Ardani, S., and Sheremet, A. (2017). "Nonlinear and dissipative characteristics of a combined random-cnoidal wave field," *Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering*, Trondheim, Norway, OMAE2017-62634 (*Reviewed)*.
6. Fowler, D.A., Macik, M.L., Kaihatu, J.M. and Bakenhus, C.A.H. (2016). "Impact of curriculum transformation committee experience on faculty perspectives of their teaching and influence on their learning," *Proceedngs of the 123rd Annual Conference and Exposition of the American Society for Engineering Education*, New Orleans, LA, Paper No. 14585.
7. Kaihatu, J.M., and Venkattaramanan, A. (2015). "Two-dimensional nonlinear wave propagation over wetland vegetation," *Proceedings of SCACR – International Short Course and Conference on Applied Coastal Engineering*, Florence, Italy, available online.
8. Tahvildari, N., Lynett. P.J., and Kaihatu, J.M. (2014). "A numerical code for waves in a two-layer fluid," *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, CA (CD-ROM) (*Reviewed*).
9. Sharma, A., Panchang, V., and Kaihatu, J.M. (2013). "Numerical modeling of nonlinear wave transformation using elliptic mild slope equation," *Proceedings of the 23rd International Offshore and Polar Engineering Conference*, Anchorage, AK, 1061-1067.
10. Kaihatu, J.M. (2013). "Combined random swell and transient long waves: dissipation characteristics," *Proceedings of the 32nd International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France, OMAE2013-10587 (*Reviewed*).

11. Kaihatu, J.M., Devery, D., Erwin, R.J.*, and Goertz, J.T. (2013). "The interaction between short ocean swell and transient long waves: dissipative and nonlinear effects," *Proceedings of the 33rd International Conference on Coastal Engineering*, Santander, Spain, Paper No: waves.20. Retrieved from https://journals.tdl.org/ICCE.
12. Goertz, J.T., Kaihatu, J.M., Sheremet, A., Smith, E.R., and Smith, J.T. (2013). "Long wave effects of breaking waves on fringing reefs," *Proceedings of the 33rd International Conference on Coastal Engineering*, Santander, Spain, Paper No: waves.9. Retrieved from https://journals.tdl.org/ICCE.
13. Liao, Y.-P., and Kaihatu, J.M. (2013). "The numerical investigation of wind wave generation by low wind speeds," *Proceedings of the 33rd International Conference on Coastal Engineering*, Santander, Spain, Paper No: waves.57. Retrieved from https://journals.tdl.org/ICCE.
14. Tahvildari, N., and Kaihatu, J.M. (2011). "Generation of oblique interfacial waves due to resonant interaction with surface gravity waves in shallow water." *Proceedings of the MTS/IEEE Oceans '11 Conference*, Kona, Hawaii (CD-ROM).
15. Kaihatu, J.M., and El Safty, H.M. (2011). "The interaction of tsunamis with ocean swell: an experimental study," *Proceedings of 30th International Conference in Ocean, Offshore and Arctic Engineering*, ASME, Rotterdam, the Netherlands, OMAE2011-49936 (*Reviewed*).
16. El Safty, H.M., Kaihatu, J.M., Alonzo, B.*, Outten, K.*, and Schilling, B.* (2011). "The interaction of tsunamis with ocean swell: an experimental study," *Proceedings of the 2011 NSF Engineering Research and Innovation Conference,* Atlanta, GA. (CD-ROM)
17. Edge, B.L., Ewing, L.C., Dean, R.G., Kaihatu, J.M., Overton, M.D., Rogers, S.M., and Work, P.A. (2011). "Immediate impacts of Hurricane Ike on the Texas coast," *Proceedings of the 32nd International Conference on Coastal Engineering*, Shanghai, China. Paper No.: management.14. Retrieved from https://journals.tdl.org/ICCE/.
18. Kaihatu, J.M., and El Safty, H.M. (2011). "Spectral description of energy dissipation in breaking wave groups," *Proceedings of the 32nd International Conference on Coastal Engineering*, Shanghai, China. Paper No.: waves.19. Retrieved from https://journals.tdl.org/ICCE/.
19. Jiang, B., and Kaihatu, J.M. (2011). "Multi-dimensional error analysis of nearshore wave modeling tools, with application toward data-driven boundary correction," *Proceedings of the 32nd International Conference on Coastal Engineering*, Shanghai, China. Paper No.: waves.67. Retrieved from https://journals.tdl.org/ICCE/.
20. El Safty, H.M., and Kaihatu, J.M. (2010). "Interactions between tsunamis and swell waves: a first look," *Proceedings of the 1st European IAHR Congress,* Edinburgh, Scotland, U.K., Proceedings Paper MHIIg, 1-6. (*Reviewed*).
21. Tahvildari, N., and Kaihatu, J.M. (2009). "Inverse deduction of mud parameters from free surface wave energy in muddy coasts," *Proceedings of the 33rd IAHR Congress: Water Engineering for a Sustainable Environment*, Vancouver, B.C., 2870-2877.
22. Irish, J.L., Frey, A.E., Mousavi, M.E., Olivera, F., Edge, B.L., Kaihatu, J.M., Dunkin, L.M., and Song, Y.K. (2009). "Predicting the influence of climate change on hurricane flooding,"

Proceedings of the 31st International Conference on Coastal Engineering, Hamburg, Germany, 1050-1059.

23. Augustin, L.N., Balsmeier, G.E., Irish, J.L., and Kaihatu, J.M. (2009), "Laboratory measurements of wave attenuation and wave setup by vegetation," *Proceedings of the 31st International Conference on Coastal Engineering*, Hamburg, Germany, 324-330
24. Kaihatu, J.M., Veeramony, J., and Edwards, K.L. (2009), "Spatial evolution of the frequency distribution of dissipation and the impact on frequency domain modeling," *Proceedings of the 31st International Conference on Coastal Engineering*, Hamburg, Germany, 293-301.
25. Edwards, K.L., Veeramony, J., and Kaihatu, J.M. (2007), "A hybrid deterministic-parametric model for nonlinear shoaling and breaking waves," *Proceedings of the 30th International Conference on Coastal Engineering*, San Diego, CA, 97-109.
26. Veeramony, J., Kaihatu, J.M., and Edwards, K.L. (2007), "Improvements to shallow water frequency domain models," *Proceedings of the 30th International Conference on Coastal Engineering*, San Diego, CA, 86-96.
27. Williams, J.Z., Dugan, J.P., Piotrowski, C.C., and Kaihatu, J.M. (2006), "Comparisons of remotely-retrieved directional wave spectra over a large area with a shoaling wave model," *Proceedings of the IEEE Oceans Meeting*, Washington, DC (CD-ROM).
28. Veeramony, J., and Kaihatu, J.M. (2006), "Spectral models based on Boussinesq equations," *Coastal Dynamics*, Barcelona, Spain, (CD-ROM).
29. Chen, Q.J., Hwang, P.A., and Kaihatu, J.M. (2005), "The influence of swell on the sea surface roughness and growth of wind waves," *Proceedings of the 29th International Conference on Coastal Engineering*, Lisbon, Portugal, 654-665.
30. Kaihatu, J.M., and Sheremet, A. (2005), "Dissipation of wave energy by cohesive sediments," *Proceedings of the 29th International Conference on Coastal Engineering*, Lisbon, Portugal, 498-507.
31. Work, P.A., Demir, H., Kaihatu, J.M., and Voulgaris, G. (2005), "Mesoscale wave energy dissipation over heterogeneous sediments," *Proceedings of the 29th International Conference on Coastal Engineering*, Lisbon, Portugal, 477-489.
32. Edwards, K.L., Kaihatu, J.M., and Veeramony, J. (2005), "Dissipation of nonlinear shallow water waves," *Proceedings of the 29th International Conference on Coastal Engineering*, Lisbon, Portugal, 467-476.
33. Chen, Q.J., Kaihatu, J.M., Hwang, P.A., and Douglass, S.L. (2003), "Quantification of the wind effect on wave breaking based on a Boussinesq model," *Proceedings of the 28th International Conference on Coastal Engineering*, Cardiff, Wales, 332-343.
34. Kaihatu, J.M., Shi, F., Kirby, J.T., and Svendsen, I.A. (2003), "Incorporation of random wave effects into a quasi-3D nearshore hydrodynamic model," *Proceedings of the 28th International Conference on Coastal Engineering*, Cardiff, Wales, 747-759.
35. Hwang, P.A., Kaihatu, J.M., and Wang, D.W. (2002), "A comparison of the energy flux computation of shoaling waves using Hilbert and wavelet spectral analysis techniques,"

Proceedings of the 7th International Workshop on Wave Hindcasting and Forecasting, Banff, Alberta, 318-322.

36. Wang, D.W., Kaihatu, J.M., and Hwang, P.A. (2002), "On the analysis of dispersion relation of shoaling waves," *Proceedings of the 7th International Workshop on Wave Hindcasting and Forecasting*, Banff, Alberta, 353-360.
37. Kaihatu, J.M., and O'Reilly, W.C. (2002), "Model predictions and sensitivity analysis of nearshore processes near complex bathymetry," *Proceedings of the 7th International Workshop on Wave Hindcasting and Forecasting*, Banff, Alberta, 385-396.
38. Kaihatu, J.M., Edwards, K.L., and O'Reilly, W.C. (2002), "Model predictions and sensitivity analysis of nearshore processes near complex bathymetry," *Proceedings of the Marine Technology Society/ IEEE Conference: Oceans 2002*, Biloxi, MS, 685-691.
39. Holland, K.T., Puleo, J.A., Plant, N.G., and Kaihatu, J.M. (2002), "The Littoral Environmental Nowcasting System (LENS)," *Proceedings of the Marine Technology Society/ IEEE Conference: Oceans 2002*, Biloxi, MS, 85-91.
40. Kaihatu, J.M., and Narayanan, C. (2002), "Refinements to an optimized model-driven bathymetry deduction algorithm" *Proceedings of the 4th International Symposium on Ocean Wave Measurement and Analysis*, San Francisco, CA, 924-933.
41. Narayanan, C., and Kaihatu, J.M. (2001), "Use of phase-resolving wave models in bathymetry deduction," *Proceedings of the 27th International Conference on Coastal Engineering*, Sydney, Australia, 495-504.
42. Hsu, Y.L., Rogers, W.E., Kaihatu, J.M., and Allard, R.A. (2000), "Application of SWAN in Mississippi Sound," *Proceedings of the 6th International Workshop on Wave Hindcasting and Forecasting*, Monterey, CA, 398-403.
43. Rogers, W.E., Hwang, P.A., Kaihatu, J.M., and Wang, D.W. (2000), "Modeling bimodal propagation resonance," *Proceedings of the 6th International Workshop on Wave Hindcasting and Forecasting*, Monterey, CA, 290-297.
44. Kaihatu, J.M., Wang, D.W., Hwang, P.A., and Rogers, W.E. (2000), "Investigations of swell effects on directional characteristics of wind waves using phase-resolved nonlinear models," *Proceedings of the 6th International Workshop on Wave Hindcasting and Forecasting*, Monterey, CA, 280-289.
45. Hwang, P.A., Wang, D.W., Rogers, W.E., and Kaihatu, J.M. (2000), "A discussion on the directional distribution of wind-generated ocean waves," *Proceedings of the 6th International Workshop on Wave Hindcasting and Forecasting*, Monterey, CA, 273-279.
46. Wang, D.W., Hwang, P.A., Kaihatu, J.M., and Rogers, W.E. (2000), "Bimodal directional distribution of ocean waves in mixed seas," *Proceedings of the 6th International Workshop on Wave Hindcasting and Forecasting*, Monterey, CA, 56-64.
47. Kaihatu, J.M., Rogers, W.E., Hsu, Y.L., and O'Reilly, W.C. (1998), "Use of phase-resolving numerical wave models in coastal areas," *Proceedings of the 5th International Workshop on Wave Hindcasting and Forecasting*, Melbourne, FL, 389-403.

48. Kirby, J.T., and Kaihatu, J.M. (1997), "Structure of frequency domain models for random wave breaking," *Proceedings of the 25th International Conference on Coastal Engineering*, Orlando, FL, 1144-1155.
49. Kaihatu, J.M., and Kirby, J.T. (1997), "Mode truncation and dissipation effects on predictions of higher order statistics," *Proceedings of the 25th International Conference on Coastal Engineering*, Orlando, FL, 123-136.
50. Kaihatu, J.M., and Kirby, J.T. (1994), "Parabolic and angular spectrum modeling of a fully nonlinear extended Boussinesq equation," *Proceedings of the International Symposium: Waves – Numerical and Physical Modeling*, 514-523.
51. Creed, C.G., Dalrymple, R.A., Kriebel, D.A., and Kaihatu, J.M. (1993), "Equilibrium beach profiles under random seas," *Proceedings of the 23rd International Conference on Coastal Engineering*, Venice, Italy, 1973-1986.
52. Kaihatu, J.M., and Kirby, J.T. (1993), "Spectral evolution of directional finite amplitude dispersive waves in shallow water," *Proceedings of the 23rd International Conference on Coastal Engineering*, Venice, Italy, 364-377.
53. Kaihatu, J.M., Andrassy, C., and Thompson, E.F. (1993). "Longshore sediment transport rate at Morro Bay, CA." Proceedings of Coastal Engineering Practice `92, Long Beach, CA, 615-631.
54. Kirby, J.T., Kaihatu, J.M., and Mase, H. (1992). "Shoaling and breaking of random wave trains: spectral approaches." Proceedings of ASCE Specialty Conference on Engineering Mechanics, College Station, TX, 71-73.

Research: Publications – Technical Reports

1. Kennedy, A., Irish, J., Tomiczek, V., Lynett, P., Cox, D., and Kaihatu, J. (2019). "Envisioning the future coast: coastal engineering research in the coming decades." Outcome from Coastal Engineering Research Framework Workshop, 13-14 November 2018, Arlington, VA, supported by National Science Foundation.
2. Edge, B.L. (ed.), Rogers, S., Dean, R.G., Ewing, L. (ed.), Kaihatu, J.M., Loeffler, M.U., Overton, M.D., Suzuki, S., Work, P.A., Gregory, G., Stauble, D.K., Waters, J., Wiggins, C.E., and Garrett, M.H. (2013). "Hurricane Ike field investigation: a report of field observations on October 3-6, 2008." *Coasts, Oceans, Ports and Rivers Institute*, American Society of Civil Engineers, Reston, VA.
3. Hetland, R.D., Fennel, K., Harris, C.K., Kaihatu, J.M., Xu, K., and DiMarco, S.F. (2012). "Integrated bio-physical modeling of the Louisiana-Texas (LATEX) Shelf." *OCS Study BOEM 2012-108*, Bureau of Ocean Energy Management, New Orleans, LA.
4. Hsu, Y.L., Dykes, J.D., Allard, R.A., and Kaihatu, J.M. (2006), "Evaluation of Delft3D performance for nearshore flows," *NRL Memorandum Report*, Naval Research Laboratory, Stennis Space Center, MS.
5. Edwards, K.L., Veeramony, J., and Kaihatu, J.M. (2005), "Parameterizing the high frequency evolution of nearshore waves in a nonlinear wave model," *NRL Memorandum Report NRL/MR/7320-2005-8894*, Naval Research Laboratory, Stennis Space Center, MS.

6. Bourgeois, B.S., Holland, K.T., and Kaihatu, J.M. (2005), "Field experiment report for the AUV-Fed Nearshore Nowcast Project, La Jolla, CA, REMUS bathymetry survey, Oct. 13-18 2003." *NRL Formal Report NRL/FR/7440—05-10095*, Naval Research Laboratory, Stennis Space Center, MS.
7. Thornton, E.B., Dalrymple, R.A., Drake, T.G., Elgar, S.L., Gallagher, E.L. Guza, R.T., Hay, A.E., Holman, R.A., Kaihatu, J.M., Lippmann, T.C., and Özkan-Haller, H.T. (2000), "State of nearshore processes research: II – report based on the Nearshore Research Workshop," *Technical Report NPS-OC-00-001*, Naval Postgraduate School, Monterey, CA.
8. Rogers, W.E., Kaihatu, J.M., Booij, N., and Holthuijsen, L.H. (1999), "Improving the numerics of a third-generation wave action model," *NRL Formal Report NRL-FR-7320—99-9695,* Naval Research Laboratory, Stennis Space Center, MS.
9. Rogers, W.E., Kaihatu, J.M., and Hsu, Y.L. (1998), "Review and verification of numerical wave models for nearshore coastal areas – Part 2: verification of near coastal numerical wave models," *NRL Formal Report NRL-FR-7322—97-9680*, Naval Research Laboratory, Stennis Space Center, MS.
10. Kaihatu, J.M. (1998), "Review and verification of numerical wave models for near coastal areas – Part 1: review of mild-slope equation, relevant approximations and technical details of numerical wave models," *NRL Formal Report NRL-FR-7322—97-9669.*, Naval Research Laboratory, Stennis Space Center, MS.
11. Kaihatu, J.M. (1994), "Frequency domain models for nonlinear finite depth water wave propagation," *Research Report CACR-94-17*, Center for Applied Coastal Research, Department of Civil Engineering, University of Delaware, Newark, DE (also Ph.D. dissertation).
12. Kaihatu, J.M., Lillycrop, L.S., and Thompson, E.F. (1989), "Effects of entrance channel dredging at Morro Bay, California," *Miscellaneous Paper CERC 89-13*, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
13. Kaihatu, J.M., and Chen, H.S. (1988), "Combined refraction and diffraction by a vertical wedge: PCDFRAC user's manual," *Technical Report CERC 88-9*, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
14. Kaihatu, J.M. (1987), "Edge waves and crescentic bars," *Report UCB/HEL-87/02*, Hydraulic Engineering Laboratory, University of California, Berkeley, CA.

Research: Publications – Other

1. Resio, D.T., Vincent, C.L., Tolman, H.L., Chawla, A., Rogers, W.E., Ardhuin, F., Babanin, A., Banner, M.L., Kaihatu, J.M., Sheremet, A., Perrie, W., Alves, J.H., Morison, R.P., Janssen, T.T., Smit, P., Hanson, J., Zakharov, V.E., and Pushkarev, A. (2019). "Progress during the NOPP wave model improvement program." arXiv:1908.03601[physics.ao-ph]. Available at https://arxiv.org/abs/1908.03601.

Research: Publications - Citations

- Online Databases:
  - ORCID: https://orcid.org/0000-0002-9277-6409
  - Google Scholar: https://scholar.google.com/citations?user=W6EPWyYAAAAJ&hl=en
  - ResearchGate: http://www.researchgate.net/profile/James_Kaihatu
  - ResearchID: http://www.researcherid.com/rid/H-7561-2016
  - Academia.edu: https://tamu.academia.edu/JamesKaihatu

Research: Invited Presentations

- Sizihwan Workshop on Environmental Fluid Mechanics: Tsunami, Kaohsiung, Taiwan (August 2021) – remote participation.
- University of Notre Dame (April 2015) – expenses paid.
- Louisiana State University (October 2014) – expenses paid.
- Virginia Tech (October 2011) – expenses paid.
- University of Florida (October 2010).
- Oregon State University (June 2005; January 2010).
- Scripps Institution of Oceanography (June 2009) – expenses paid.
- Deltares, Delft, the Netherlands (July 2008).
- Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center, Vicksburg, MS (June 1987; October 2000; July 2007).
- Texas A&M University, Galveston (October 2006).
- University of Delaware (October 2001; April 2005).
- University of South Alabama (January 2005).
- Texas A&M University, College Station (October 1997; October 2001).
- University of Southern Mississippi (February 1999).
- Naval Research Laboratory, Stennis Space Center, MS (April 1995).
- International Centre for Computational Hydrodynamics, Danish Hydraulics Institute (April 1994) – expenses paid.
- Naval Research Laboratory, Washington DC (April 1994).

Research: Funding - External (PI or listed co-PI) *For non-sole-PI projects, both prorated share and overall project total (if known) are presented.*

1. National Science Foundation Coastlines and People Program, $4,159,480 (Kaihatu $197,346) for "Focused CoPe: Enabling Holistic Decision-Making for Historically Underrepresented Communities Impacted by Coastal Hazards via Building a Digital Twin." PI: Dr. Maria Koliou, TAMU. Co-PIs, Kaihatu, Dr. Anand Puppala (TAMU), Dr. Petros Sideris (TAMU), Dr. Siyu Yu (TAMU), Mr. Stuart Nolan (LSU), Dr. Jayur Mehta (FSU), Dr. Andres Gonzales (Oklahoma), and Dr. Haizong Wang (Oregon State). (2021-2026).

2. Texas General Land Office, $714,742 (Kaihatu $182,982) for "Prediction of Texas Wetland Erosion Through Remote Sensing, Field Surveys, and Numerical Modeling." PI: Dr. Kuang-An Chang, TAMU. Co-PIs: Kaihatu, Dr. Jens Figlus, Dr. Huilin Gao, and Dr. Scott Socolofsky (TAMU). (2021-2023).
3. National Academies Healthy Ecosystems Grants (subaward through Enviuronmental Defense Fund), $420,495 (Kaihatu $98,037) for "Development of Gulf Coast Resilience Management Plan using Sentinel Species and Natural Infrastructure." PI: Dr. Weihsueh Chiu (TAMU Veterinary Integrative Bioscience). Co-PIs: Kaihatu, Dr. Thomas McDonald, Dr. Galen Newman and Dr. Garett Sansom (TAMU). (2020-2023).
4. Environmental Protection Agency, Science To Achieve Results (STAR), $799,928 (Kaihatu $190,771) for "Engaging the Galena Park Community to Build Resilience to Excess Industrial Pollutant Releases after Hurricanes and Floods in Greater Houston." PI: Dr. Weihsueh Chiu (TAMU Veterinary Integrative Bioscience). Co-PIs: Kaihatu, Dr. Galen Newman and Dr. Garett Sansom (TAMU). (2020-2023).
5. National Institute of Environmental Health Sciences, National Institute of Health, $8,978,022 (Kaihatu $97,286) for "Comprehensive Tools and Models for Addressing Exposure to Mixtures During Environmental Emergency-Related Contamination Events." PI: Dr. Ivan Rusyn (TAMU Veterinary Integrative Bioscience). Co-PIs: Many, including Kaihatu, through Geochemical and Environmental Research Group (GERG) (2017-2022).
6. Texas Sea Grant College Program, $200,000 (Kaihatu: $52,233) for "Study of Wetland Erosion Due to Storms through Combined Field, Laboratory, and Numerical Investigations." PI: Dr. Kuang-An Chang, TAMU. Co-PIs: Kaihatu, TAMU; Dr. Rusty Feagin, TAMU (2016-2018).
7. National Science Foundation, Civil, Mechanical and Manufacturing Innovation Directorate: $418,788 for "Collaborative Research: Nonlinear Long Wave Amplification in the Shadow Zone of Offshore Islands." PI: Kaihatu. Collaborative PIs (separate funding): Dr. Costas Synolakis and Dr. Patrick Lynett, University of Southern California (2015-2018).
8. Qatar National Research Fund, National Priorities Research Program, 7th Cycle: $785,025 (Kaihatu: $125,986) for "Multi-Scale Modeling of Hydrodynamics in Arabian Gulf." PI: Kaihatu. Co-PIs: Dr. Vijay Panchang, Texas A&M University Galveston / Texas A&M University Qatar; Dr. Ayal Anis, Texas A&M University Galveston (2014-2017).
9. National Science Foundation, George E. Brown Jr. Network for Earthquake Engineering Simulation (NEES): $787,941 (Kaihatu: $266,024) for "Interaction of Tsunamis with Short Waves and Bottom Sediment – Numerical and Physical Modeling." PI: Kaihatu. Co-PIs: Dr. Alexandru Sheremet, University of Florida; Dr. Robert Weiss, Virginia Tech (2012-2015).
10. Qatar National Research Fund, National Priorities Research Program 5th Cycle: $ 951,922 (Kaihatu: $150,935) for "Development of an Observational System to Monitor Nearshore Wind, Waves and Sediment Transport." PI: Kaihatu; Co-PI: Dr. Reza Sadr, Texas A&M University, Qatar (2012-2015).
11. National Oceanic and Atmospheric Administration Sea Grant: $600,000 (Kaihatu: $97,736) for "A Parameterized Climate Change Projection Model for Hurricane Flooding, Wave Action,

Economic Damages, and Population Dynamics." Former PI, present co-PI: Dr. Jennifer L. Irish, formerly TAMU, now Virginia Tech; Former co-PI, present PI: Kaihatu, TAMU; Co-PIs: Dr. Francisco Olivera, TAMU; Dr. Cecilia Giusti, TAMU; Dr. Dawn Jourdan, University of Florida (2010-2013).

12. Office of Naval Research, through University of Florida: $88,074 (entire subcontract to Kaihatu) for "Development of Numerical 3-Wave Interactions Module for Operational Wave Forecasts in Intermediate Depth and Shallow Water." PI: Dr. Alexandru Sheremet, University of Florida; Co-PI: Kaihatu (2010-2014).
13. U.S. Army Corps of Engineers, Coastal and Hydraulics Laboratory: $50,132 for "Subharmonic Nonlinear Interactions in Waves over Submerged Reefs: Modeling Considerations." Sole PI: Kaihatu (2009-2011).
14. Office of Naval Research, through the National Oceanographic Partnership Program: $576,000 (Kaihatu: $282,853) for "Nonlinear and Dissipation Characteristics of Ocean Surface Waves in Estuarine Environments." PI: Kaihatu, TAMU; Co-PIs: Dr. Alexandru Sheremet, University of Florida; Dr. Jane M. Smith, Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center; Dr. Hendrik L. Tolman, National Center for Environmental Prediction, National Oceanic and Atmospheric Administration (2009-2014).
15. National Science Foundation, George E. Brown Jr. Network for Earthquake Engineering Simulation (NEES): $100,000 for "Determining the Added Hazard Potential of Tsunamis by Interaction with Ocean Swell and Wind Waves" Sole PI: Kaihatu (2009-2010).
16. Qatar National Research Fund, National Priorities Research Program 2nd Cycle: $1,027,519 (Kaihatu: $131,447) for "Interaction of Turbulent Wind with Ocean Surface Waves: Field Experiments and Numerical Modeling," PI: Kaihatu, TAMU; Co-PIs: Dr. Reza Sadr, Texas A&M University, Qatar; Dr. Meredith M. Metzger, University of Utah (2009-2012).
17. Office of Naval Research, Coastal Geosciences Program: $100,000 for "Incorporation of a Nearshore Hydrodynamic Model into the Unmanned Cooperative Cueing and Intervention Automated Planner," Sole PI: Kaihatu (2009-2010).
18. Office of Naval Research, Coastal Geosciences Program: $163,403 for "Data Driven Boundary Correction and Optimization of a Nearshore Wave and Hydrodynamic Model to Enable Rapid Environmental Assessment," Sole PI: Kaihatu (2009-2011).
19. HPA Halcrow, Inc.: $87,824 (Kaihatu: $4,244) for "3D Hydraulic Model Study of Marina Breakwater Stability/Overtopping and Moveable Bed Hydraulic Model Study of Sand Beach and T-Head Groins" PI: Dr. Billy L. Edge, formerly TAMU; Co-PI: Kaihatu, TAMU (2008-2009).
20. Analytical Mechanics Associates, Inc.: $36,730 (Kaihatu: $27,065) for "Development of an Improved Parameterization for the Prediction of Sea State Characteristics Relevant to the Orion Crew Module," PI: Kaihatu; Co-PIs: Dr. Richard Mercier, TAMU; Dr. Christopher Houser; TAMU. (2008).
21. U.S. Army Corps of Engineers, Coastal and Hydraulics Laboratory: $44,500 for "Subharmonic Nonlinear Interactions over Submerged Reefs," Sole PI: Kaihatu (2007-2008).

22. Mineral Management Service: $225,000 (Kaihatu: $16,407) for "Integrated Bio-Physical Modeling of the Louisiana-Texas (LATEX) Shelf. PI: Dr. Robert D. Hetland, TAMU; Co-PIs Dr. Courtney K. Harris, VIMS; Dr. Katja Fennel; Dalhousie University; Kaihatu, TAMU (2007-2010).
23. Office of Naval Research, Coastal Geosciences Program: $156,972 for "Development and Implementation of a Relocatable Coastal and Nearshore Modeling System," Sole PI: Kaihatu (2007-2009).
24. HPA Halcrow, Inc.: $65,511 (Kaihatu: $9,000) for "To Perform 3D Hydraulic Model Studies of Stability, Transmission and Overtopping of Breakwaters for Jebel Ali New Container Terminal," PI: Dr. Billy L. Edge, formerly TAMU; Co-PI: Kaihatu, TAMU (2006-2007).
25. Office of Naval Research, Coastal Geosciences Program: $72,000 (Kaihatu share only) for "Wave Forecasting in Muddy Coastal Environments," PI: Dr. Alexandru Sheremet, University of Florida; Co-PI: Kaihatu, formerly Naval Research Laboratory, now TAMU (2003-2005).
26. Office of Naval Research, Physical Oceanography Program: $141,515 (Kaihatu share only) for "Directional, Dissipative and Random Wave Effects in Forcing of Nearshore Circulation," PI: Kaihatu, formerly Naval Research Laboratory, now TAMU; Co-PIs: Dr. Jayaram Veeramony, Naval Research Laboratory; Dr. James T. Kirby, University of Delaware (2003-2004).
27. Office of Naval Research, Ocean Modeling Program, joint with Space and Naval Warfare Systems Command: $1,560,000 (Kaihatu: $240,000) for "Development of an AUV-Fed Nearshore Nowcasting System," PI: Kaihatu, formerly Naval Research Laboratory, now TAMU; Co-PIs: Mr. Richard Allard, Dr. K. Todd Holland, Dr. Brian Bourgeois, all of Naval Research Laboratory (2002-2005).
28. Office of Naval Research, Coastal Dynamics Program: $60,000 (Kaihatu share only) for "Assimilating Data into a Circulation Model," PI: Dr. H. Tuba Özkan-Haller, Oregon State University; Co-PIs : Dr. Thomas Lippmann, formerly The Ohio State University; Dr. Jennifer Shore, formerly The Ohio State University; Kaihatu, formerly Naval Research Laboratory, now TAMU (2002-2004).
29. Office of Naval Research, Coastal Dynamics Program: $20,000 (Kaihatu share only) for "Measurement of Local Scale Wave Transformation Effects at NCEX using AROSS Imagery," PI: Dr. J. Zandy Williams, Arete Associates, Inc.; Co-PIs: Dr. John Dugan, Arete Associates; Dr. K. Todd Holland, Naval Research Laboratory; Kaihatu, formerly Naval Research Laboratory, now TAMU (2002-2003).
30. Office of Naval Research, Coastal Dynamics Program: $250,000 (Kaihatu share only) for "NOPP Development and Verification of a Community Model for Physical Processes in the Nearshore Ocean," PI: Dr. James T. Kirby, University of Delaware; Co-PIs: Many, including Kaihatu, formerly Naval Research Laboratory, now TAMU (1999-2004).
31. Office of Naval Research, Coastal Dynamics Program: $100,000 (Kaihatu share only) for "Modeling of Nearshore Waves, Current and I.G. Waves," PI: Dr. Ib Svendsen, University of Delaware; Co-PI: Kaihatu, formerly Naval Research Laboratory, now TAMU (1999-2000)..

32. Office of Naval Research, Coastal Dynamics Program: $322,000 (Kaihatu: $80,000) for "Data Enhanced Modeling of Sea and Swell on the Continental Shelf," PI: Dr. William C. O'Reilly, Scripps Institution of Oceanography; Co-PIs: Kaihatu, formerly Naval Research Laboratory, now TAMU; Dr. Y. Larry Hsu, Dr. Paul Hwang, Mr. W. Erick Rogers, all of Naval Research Laboratory (1998-2001).

Research: Funding - Internal (PI or listed co-PI) *Non-TAMU internal funding received while at Naval Research Laboratory (1995-2006) and Coastal Engineering Research Center (1987-1989); only project totals listed. Co-PIs listed were associated with home institution during period of performance.*

1. Texas A&M Superfund Center: $15,000 for "Dissolved Metals and Organic Carbon in Hurricane Harvey Remnants in Greater Houston: Concentrations, Sources, and Spatial Distribution." PI: Kaihatu, TAMU. Co-PIs: Dr. Mikyoung Jun, Dr. Shankar Chellam (all TAMU) (2019-2020).
2. Texas A&M Engineering Program and Pontifica Universidad Catolica de Chile Seed Funds: $16,500 (Kaihatu $2,000) for "Building Capacities to Withstand Extreme Coastal Wave Forces." PI: Dr. Kuang-An Chang, TAMU. Co-PIs: Kaihatu, Dr. Rodrigo Carrasco (Pontifica Universidad Catolica de Chile) (2016-2017).
3. Texas A&M Energy Institute: $50,000 (Kaihatu $12,500) for "Development of Synergetic / Mobile Multi-Source Multi-Purpose Ocean Renewable Energy Station." PI: Dr. M.H. Kim, TAMU. Co-PIs: Kaihatu, Dr. Kuang-An Chang, Dr. Jun Kameoka (all TAMU) (2015-2016)
4. Texas Engineering Experiment Station, Institutional Support: $10,000 (Kaihatu $3,333) for "Sustainable Coastal Systems." PI: Kaihatu. Co-PIs: Dr. Kuang-An Chang, Dr. Rusty Feagin (both TAMU) (2014-2015).
5. Office of Naval Research, through the Naval Research Laboratory Core Program: $1,583,500 for "Data Assimilation and Sampling Strategies for Nearshore Model Optimization and Validation," 6.2 Battlespace Environments Focus Area. PI (until 2006): Kaihatu; CoPIs: Dr. Jayaram Veeramony (PI after 2006), Dr. Nathaniel Plant (2006-2009).
6. Office of Naval Research, through the Naval Research Laboratory Core Program: $5,000,000 for "Coastal Dynamics of Heterogeneous Sedimentary Environments," 6.1 Battlespace Environments Focus Area. PI: Dr. K. Todd Holland; Co-PIs: Many, including Kaihatu, (2004-2009).
7. Office of Naval Research, through the Naval Research Laboratory Core Program: $120,000 for "Development of a Deformable Fin for UUVs," 6.1 Battlespace Environments Focus Area. PI: Dr. B.R. Ratna; Co-PIs: Dr. William Sandberg; Kaihatu (2004-2006).
8. Office of Naval Research, through the Naval Research Laboratory Core Program: $800,000 for "Nonlinear Interactions in Nearshore Environments (NINE)," under the 6.1 Battlespace Environments Focus Area. PI: Kaihatu (2004-2006).
9. Office of Naval Research, through the Naval Research Laboratory Core Program: $397,000 for "Littoral Environment Nowcasting System (LENS)," under the 6.2 Battlespace Environments Focus Area. PI: Dr. K. Todd Holland; Co-PI: Kaihatu (2001-2005).

10. Office of Naval Research, through the Naval Research Laboratory Core Program: $413,000 for "Phase Resolved Transformation of Nonlinear Shoaling Waves," under the 6.2 Battlespace Environments Focus Area. PI: Dr. Paul Hwang; Co-PI: Kaihatu (1999-2002).
11. Office of Naval Research, through the Naval Research Laboratory Core Program: $3,643,000 for "Dynamically Constrained Nowcasting of Near Coastal Waves and Bathymetry," under the 6.2 Battlespace Environments Focus Area. PI: Kaihatu; Co-PIs: Many (1998-2002).
12. Office of Naval Research, through the Naval Research Laboratory Core Program: $800,000 for "Coastal Simulation," under the 6.2 Battlespace Environments Focus Area. PI: Kaihatu; Co-PI: Dr. Cheryl Ann Blain (1995-1998).
13. U.S. Army Corps of Engineers, U.S. Army District, Los Angeles CA: $60,000 for "Engineering Study of Processes at Morro Bay, CA." PI: Kaihatu (1989).
14. U.S. Army Corps of Engineers, Coastal Engineering Research Center: $93,000 for Research Work Unit "Inlet Process Simulation," under the Harbor Entrances and Coastal Channels Program, Civil Works Research and Development. PI: Kaihatu (1988-1989).
15. U.S. Army Corps of Engineers, Coastal Engineering Research Center: $100,000 for Research Work Unit "Waves at Entrances," under the Harbor Entrances and Coastal Channels Program, Civil Works Research and Development. PI: Dr. H.S. Chen; Co-PI: Kaihatu (1987-1988).

Teaching: Graduate Student Advising

- Doctor of Philosophy Students (chair or co-chair)
    1. Xuan Ma (degree expected August 2026) – topic area: "Impact of Hurricane-Driven Waves and Surge on Nearshore Structural Damage and Geotechnical Erosion."
    2. John T. Goertz (degree expected December 2023) – dissertation title: "Nearshore Interactions of Tsunamis with Local Systems." *Status:* Engineer with U.S. Army Corps of Engineers, Los Angeles District.
    3. Mindo Choi (co-chair with Dr, Vijay Panchang, TAMU Galveston; degree expected December 2023) – topic area: "Forecasting and Hindcasting of Wave Processes."
    4. Sunghoon Han (graduated December 2022) – dissertation title: "Hydrodynamic Characteristics Present in Nonlinear Long Wave Amplification in the Shadow Zone of Offshore Islands." *Status:* Postdoctoral Research Associate, Department of Civil and Environmental Engineering, Old Dominion University, Norfolk, VA.
    5. Inchul Kim (graduated August 2022) – dissertation title: "A Consistent Nonlinear Frequency Domain Model for Finite Depth Ocean Wave Propagation." *Status:* Postdoctoral Research Associate, Laboratoire de Recherche en Hydrodynamique, Energetique et Environment Atmospherique (LHEEA), Ecole Centrale Nantes, Nantes, France.
    6. Jin Young Kim (co-chair with Dr. Kuang-An Chang; graduated December 2020) - topic area: "Wetland Erosion in Galveston Bay by Ocean Waves." *Status:* Postdoctoral Research Associate, Department of Civil Engineering, University of Texas at Arlington, Arlington, TX.

7. Wonhuyn Lee (graduated May 2018) – dissertation title: "Modeling of Three-Dimensional Wind-Driven Hydrodynamic and Thermohaline Processes in the Persian Gulf." *Status:* Research Associate, Bureau of Economic Geology, Jackson School of Geosciences, University of Texas, Austin, TX.
8. Ying-Po Liao (co-chair with Dr. Reza Sadr, TAMU Qatar; graduated December 2016) – dissertation title: "Interaction of a Turbulent Wind with Ocean Surface Waves – Numerical Modeling." *Status:* Software Engineer, Microsoft Corp., Redmond, WA.
9. Samira Ardani (graduated August 2016) – dissertation title: "A Model for Transformation of Fully Dispersive Nonlinear Waves." *Status:* Postdoctoral Research Associate, University of Nebraska, Lincoln, NE.
10. Abhishek Sharma (co-chair with Dr. Vijay Panchang, TAMU Galveston and TAMU Qatar; graduated May 2015) – dissertation title: "Modeling Wave-Wave Interactions and 3-D Wave-Induced Circulation in the Presence of Reflection-Diffraction Effects." *Status:* Engineer with Coast and Harbor Engineering, San Francisco, CA
11. Ikpoto Udoh (co-chair with Dr. Jennifer Irish, Virginia Tech; graduated December 2012) – dissertation title: "Robust Hurricane Surge Response Functions." *Status:* Engineer with Houston Offshore Engineering, Houston, TX
12. Navid Tahvildari (graduated December 2011) – dissertation title: "Nonlinear Interactions between Long Waves in a Two-Layer Fluid." *Status:* Associate Professor, Department of Civil and Environmental Engineering, Old Dominion University, Norfolk, VA.
13. Gaurav Singhal (co-chair with Dr. Vijay Panchang, TAMU Galveston and TAMU Qatar; graduated August 2011) – dissertation title: "Viability, Development, and Reliability Assessment of Coupled Coastal Forecasting Systems." *Status:* Project Specialist with MCS Kenny, Houston, TX.

- <u>Master of Science Students (chair or co-chair)</u>
    1. Xin Yang (graduated August 2019) – thesis title: "Effect of Transient Long Waves on Nonlinear Processes in Random Waves." *Status:* Doctoral student, Department of Oceanography, Texas A&M University.
    2. David Pauling (graduated May 2018) – thesis title: "Dissipation of Group Waves in Shallow Water for Wave Model Input." *Status:* Engineer with KS Associates, Cleveland, OH.
    3. Mourya Penugonda (graduated May 2018) – thesis title: "Nonlinear Wave Transformation using Modified Dispersive Shoaling Models." *Status:* Engineer, National Institute of Ocean Technology, Chennai, Tamil Nadu, India.
    4. Chi Lu (graduated December 2016) – thesis title: "Riverine and Sediment Processes in the Yangtze River Estuary – Modeling and Validation." *Status:* Engineer with Moffat and Nichol Engineers, Houston, TX.

5. Woongsuk Pae (graduated August 2016) – thesis title: "Erosion Countermeasures for Eastern Coastline of Korea." *Status:* Engineer with Korea Gas Corporation, Daegu, Republic of Korea.
6. Kevin Frost (co-chair with Dr. Jens Figlus, TAMU Galveston; graduated December 2015) – thesis title: "Hydrodynamic and Sedimentary Response to Tropical Storm Bill in the Gulf of Mexico and Christmas Bay." *Status:* Engineer with Nortek, Boston, MA.
7. Craig Harter (co-chair with Dr. Jens Figlus, TAMU Galveston; graduated August 2015) – thesis title: "The Impact of Hurricane Ike on the Geomorphology of Follett's Island, Texas – Short and Long Term Effects." *Status*: Engineer with Coast and Harbor Engineering, San Francisco, CA.
8. Nicholas West (co-chair with Dr. Jens Figlus, TAMU Galveston; graduated August 2014) – thesis title: "Conceptual Design and Physical Model Tests of a Levee-in-Dune Hurricane Barrier." *Status:* Engineer with Hydroid Inc., Woods Hole, MA.
9. Patrick McLaughlin (graduated May 2014) – thesis title: "Parameterization and Statistical Analysis of Hurricane Waves." *Status:* Engineer with Coast and Harbor Engineering, Austin, TX.
10. Aravinda Venkattaramanan (graduated May 2014) – thesis title: "Nonlinear Characteristics of Wave Propagation over Vegetation." *Status:* Engineer with COWI, Chennai, Tamil Nadu, India.
11. John T. Goertz (graduated December 2012) – thesis title: "Long Wave Breaking Effects On Fringing Reefs." *Status:* Ph.D. student, Zachry Department of Civil Engineering, Texas A&M University.
12. Antonne Taylor (graduated December 2012) – thesis title: "Parameterization of Maximum Waveheights Forced by Hurricanes: Application to Corpus Christi, TX." *Status:* Engineer with Optimum Designs, LTD., Nassau, Bahamas.
13. Nicholas C. Cox (co-chair with Dr. Jennifer Irish, Virginia Tech; graduated December 2011) – thesis title: "The Influence of Nearshore Bars on Infragravity Wave Energy at the Shoreline." *Status:* Coastal Engineer with Moffatt and Nichol Engineers, Baton Rouge, LA.
14. Boyang Jiang (graduated December 2010) – thesis title: "Multi-Dimensional Error Analysis of Nearshore Wave Modeling Tools, with
    Application Toward Data-Driven Boundary Correction." *Status:* Engineer with Det Norske Veritas, Houston, TX.
15. Dinesh Manian (graduated December 2009) – thesis title: "Using Genetic Algorithms to Optimize Bathymetric Surveys for Hydrodynamic Model Input." *Status:* Coastal Engineer with Moffatt and Nichol Engineers, New York, NY.

- Master of Engineering Students (chair or co-chair)
    1. Yu Jiang (graduated December 2018) – research report: "Modeling of Erosional Hotspots with the Delft3D Model." *Status:* Doctoral student, Haslam College of Business, University of Tennessee, Knoxville, TN.
    2. Shiqi Guo (graduated August 2018) – research report: "Dissipation Physics Sensitivity Analysis of a Phase-Averaged Wave Model." *Status:* Engineer, AECOM, Charleston, SC.
    3. Szu-Ting Lee (graduated August 2018) – research report: "Storm Surge Modeling suring Hurricane Ike with Delft3D Manning Coefficient Sensitivity Analysis." *Status:* Water Resources Engineer, Dynamic Solutions International, LLC., Edmonds, WA.
    4. Ruiqi Guo (graduated August 2015) – research report: "Wind Wave Generation Modeling over Regional Scales." *Status:* Ph.D. candidate, Department of Mechanical Engineering, Texas A&M University.
    5. Ross A. Penrod (graduated December 2012) – research report: "Numerical Modeling of Processes on the Atchafalaya Shelf, Louisiana." *Status*: Returned to active duty with the U.S. Navy.
    6. Deirdre Devery (graduated August 2012) – research report: "Wavelet Analysis of Tsunami-Swell Interaction Experimental Data." *Status:* Engineer with Chevron, Inc., Houston, TX.
    7. Nathaniel L. Herron (graduated December 2010) - research report: "Estimating Ship Approach Velocity with Delft3D." *Status:* Returned to active duty with U.S. Navy.
    8. Michael M. Jarosz (graduated December 2008) - research report: "Development of Delft3D as a Relocatable Nearshore Modeling System for Naval Applications." *Status*: Returned to active duty with U.S. Navy.
    9. William J. Mack (graduated May 2008) - research report: "Delft3D Model of San Luis Pass, TX." *Status*: Engineer with BHP Billiton, Houston, TX
    10. Gregery E. Balsmeier (co-advised with Dr. Jennifer Irish, then of TAMU, now Virginia Tech – graduated December 2007) – research report: "Physical Model of Wave Damping by Emergent Vegetation Following Wave Breaking." *Status:* Returned to active duty with U.S. Navy.

Teaching: Undergraduate Research Advisement

- Research Employment
    1. Belynda Alonzo, Kyle Outten and Brianna Schilling, Spring 2010: NSF REU students assisted with conducting experiments at the Tsunami Wave Basin, Oregon State University.
    2. J. Nick DuBose, Summer 2007: Primary research task involved running nonlinear wave models over various reef-like bottoms and analyzing results.

- Research Credit Hours
    1. Dylan Sanderson, Spring 2016: Primary research task involved analysis of wave spectra evolution and breaking characteristics from experiments conducted at the Large Wave Flume, Oregon State University.
    2. Raylene Hylland, Spring 2015: Primary research task concerned modeling of wave energy for harvesting potential in the Pacific Northwest
    3. Evan Walters, Spring 2015: Primary research task concerned modeling of wave propagation and sediment transport for the Texas coast.
    4. Richard J. Erwin, Spring 2012: Primary research task involved analysis of near-bottom velocity measurements from experiments conducted at the Tsunami Wave Basin, Oregon State University.

Teaching: Courses Taught

- Zachry Department of Civil & Environmental Engineering, Texas A&M University:
    1. OCEN 400: Basic Coastal Engineering (Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2021). Undergraduate level course in coastal engineering. Topics include: wave forecasting; storm surge and hurricanes; coastal meteorology; sediment transport; coastal sediment processes and morphology; equilibrium beach profiles and beach fill design; risk analysis; design of coastal structures; basics of port and harbor planning.
    2. OCEN 671: Ocean Wave Mechanics (Fall 2006, Fall 2007, Fall 2008, Fall 2015, Fall 2016). Graduate level introduction to ocean wave mechanics. Topics include: formulation of linear wave theory from the boundary value problem; wave kinematics and dynamics; wave shoaling, refraction, diffraction and breaking; irregular waves and wave spectra; wavemaker theory; long wave theory; nonlinear properties derived from linear wave theory, mass flux, momentum flux, and radiation stress; introduction to nonlinear waves.
    3. OCEN 672: Coastal Engineering (Spring 2012; Spring 2013, Spring 2014, Spring 2015, Spring 2016). Graduate level course in coastal engineering. Topics include: Nearshore waves and wave-averaged motions; nearshore hydrodynamics; hurricanes and storm surge; wave prediction; coastal meteorology; tides and long waves; sediment transport mechanics; coastal processes and transport modes; beach fill design and fate; risk analysis; coastal structure design.
    4. OCEN 674: Ports and Harbors (Fall 2010). Graduate level course in port and harbor design. Topics include: vessel characterization for design; site selection; design of wharves, quays and other structures; navigation channel layout design; design of marinas; environmental and economic considerations.
    5. OCEN 675: Nonlinear Wave Dynamics (Fall 2009, Fall 2011, Fall 2013, Spring 2017, Spring 2021). Graduate level introduction to nonlinear waves in both deep and shallow water. Topics include: introduction to perturbation theory; multiple scale expansions; physical scaling; Stokes wave theory; modulated Stokes waves; Boussinesq, Kortweg-

deVries and Kadomtsev-Petviashvili equations; wave-wave interactions in deep and shallow water; numerical wave theories.

6. OCEN 682: Coastal Sediment Processes (Spring 2008, Spring 2010; Spring 2013). Graduate level course in sediment transport mechanics. Topics include: characteristics of boundary layer flow in steady and unsteady conditions; incipient sediment motion; transport modes of sediment; wave-averaged coastal flows and flow moments; infragravity waves; small-scale and large-scale morphological changes in the nearshore; sediment transport outside the surf zone; cohesive sediment characteristics.
7. CVEN 302: Computer Applications in Engineering and Construction (Spring 2009, Fall 2016, Fall 2017, Spring 2018, Fall 2019, Fall 2020, Fall 2022). Undergraduate level course in programming and numerical methods as applied to the solution of engineering problems. Topics include: basics of programming and programming philosophy; matrix manipulation and linear algebra; curve fitting and data modeling; numerical integration and differentiation; solution of ordinary differential equations; eigenvalue problems; boundary value problems.
8. CVEN 311: Fluid Dynamics (Spring 2007, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Fall 2017, Fall 2018, Spring 2020, Spring 2023). Undergraduate level course in fluid mechanics. Topics include: properties of fluids; fluid pressure, hydrostatics, and forces on plane and curved surfaces; the Bernoulli equation; conservation of mass, momentum and energy; dimensional analysis; viscous flow in pipes; concepts of viscous drag.
9. CVEN 363: Vector Dynamics (Fall 2021, Spring 2022). Undergraduate level course in the application of first principles to model dynamic particles and rigid body dynamics. Topics include: kinematics of particles; curvilinear paths; normal-tangential coordinates; kinetics of particles; concepts of work and energy; impact, impulse and momentum; rigid-body kinematics; moments of inertia; rotation of rigid bodies; rigid-body kinetics; fixed-axis rotation; vibrations.
10. CVEN 689: Special Topics: Sediment Transport Mechanics and Modeling (Spring 2019). Graduate level course in sediment transport. Topics include: properties of sediment, boundary layer mechanics, bed load transport, suspended load transport, total load transport, incipient motion, bedforms, models used in common applications.
11. CVEN 465: Coastal Resilience (Fall 2020, Fall 2022, Fall 2023). Undergraduate level design course in civil engineering within the coastal environment. Topics include: basics of ocean wave motion, transformation, and dissipation; tides and water level fluctuations; coastal meteorology, storms, and hurricanes; wave data analysis and determination of design conditions; shoreline processes and sediment transport; considerations in coastal resilient design.

- Department of Marine Science, University of Southern Mississippi:
    1. MAR685: Nearshore Waves and Processes (Spring 2004). Graduate level survey course in coastal processes. Topics include: basics of linear wave theory; wave transformation over varying bathymetry; long wave theory; mass flux, momentum flux, and energy flux; wave-averaged flows; long waves in the nearshore; basics of sediment transport; coastal morphology; sediment transport modes.

Service: Journal Editorial Service

- Editorial Service, ASCE Journal of Waterway, Port, Coastal and Ocean Engineering (Associate Editor: 2011-2019 and 2022-present; Chief Editor: 2019-2022).
- Associate Editor, Journal of Ocean Engineering and Marine Energy (Springer) (2014-present).

Service: Post-Event Damage Survey Participation

- Member, Hurricane Ian Field Assessment Survey Team, Ft. Myers Beach / Sanibel Island / San Carlos Island / North Ft. Myers / Ft. Myers Shores, Florida, Structural Extreme Events Reconnaissance (StEER) Network, National Science Foundation, October 2022.
- Member, Hurricane Dorian Field Assessment Survey Team, Abaco and Grand Bahama Islands, Bahamas, Structural Extreme Events Reconnaissance (StEER) Network, National Science Foundation, October 2019.
- Member, Hurricane Michael Field Assessment Survey Team, Mexico Beach / Panama City Beach, Florida, State of Florida, November 2018.
- Member, Hurricane Ike Assessment Team, Galveston, TX, American Society of Civil Engineers, October 2008.

Service: Technical Panel and Committee Membership

- Member, ASCE 7-28 Flood Load Subcommittee, American Society of Civil Engineers, August 2023 – present.
- Member, Task Group, NSF-NHERI Decadal Visioning Study 2026-2035, March 2023-September 2023. This task group provides input to the Nexight Group, who is charged with developing the strategic vision for the second incarnation of the Natural Hazards Engineering Research Infrastructure (NHERI) network for the National Science Foundation.
- Member, Coastal Advisory Board, Structural Extreme Events Reconnaissance (StEER) Network, National Science Foundation, May 2022 – May 2024.
- Member, Review Panel, Physical Oceanography Program, Division of Ocean Sciences, National Science Foundation, May 2018.
- Member, Review Panel for Scientific Foundation Ireland Grant, University College Cork, Cork, Ireland, October 2016.
- Vice Chair (2016-2018) and Chair (2018-2020), Fluid Dynamics Committee, Engineering Mechanics Institute, American Society of Civil Engineers.

- Member, Steering Committee, "Improving Wind Wave Predictions: Global to Regional Scales" Project, National Ocean Partnership Program / Office of Naval Research, 2010 – 2014. The purpose of the steering committee is to guide the forward progress of the individual groups funded under this (more than $10M) project and to ensure transition of innovative science from the groups toward operational wave prediction models.
- Member, Review Panel, Physical Oceanography Program, Division of Ocean Sciences, National Science Foundation, May 2011.
- Member, Review Panel, Physical Oceanography Program, Division of Ocean Sciences, National Science Foundation, October 2007.
- Member, Validation Test Panel, Naval Research Laboratory, Stennis Space Center, MS, 2007.
- Member, Software Audit Committee, Delft Hydraulics (now Deltares), 2005.
- Navy Chair, Army-Navy Wave Prediction Group, 1997-2001 – The purpose of the group was to coordinate the operational wave modeling activities of several U.S. Army and Navy scientific organizations.

Service: Conference Organization and Service

- Member of Science Committee, 37th International Conference on Coastal Engineering, Sydney, Australia, 2020.
- Member, Scientific Committee, 2019 Engineering Mechanics Institute / Geo-Institute Specialty Conference, American Society of Civil Engineers, Pasadena, CA, June 2019.
- Member of Science Committee, 36th International Conference on Coastal Engineering, Baltimore, MD, USA, 2018.
- Member of Science Committee, 35th International Conference on Coastal Engineering, Istanbul, Turkey, 2016.
- Member of Science Committee, 34th International Conference on Coastal Engineering, Seoul, Korea, 2014.
- Session Chair, 36th International Conference on Coastal Engineering, Baltimore, MD, USA, 2018.
- Session Co-organizer and Co-Chair, Advances in Operational Nearshore Wave, Swell and Surf Prediction Special Session, American Geophysical Union Fall Meeting, 2012.
- Session Chair, 33rd International Conference on Coastal Engineering, 2012.
- Session Chair, 30th International Conference on Ocean, Offshore and Arctic Engineering, 2011.
- Session Chair, Coastal Dynamics, 2005.
- Session Chair, 29th International Conference on Coastal Engineering, 2004.
- Session Co-organizer and Co-Chair, Heterogeneous Sedimentary Environments Special Session, American Geophysical Union Ocean Sciences Meeting, 2004.
- Member, Organizing Committee, Waves 2001: 4th International Symposium on Ocean Wave Measurement and Analysis, 2001.

- Session Co-organizer and Co-Chair, Nearshore Processes Special Session, American Geophysical Union Fall Meeting, 1997.
- Session Chair, Waves97: 3rd International Symposium on Ocean Wave Measurement and Analysis, 1997.

Service: Department and University Service

- Division Head, Environmental, Water Resources, and Coastal Engineering Division, Zachry Department of Civil & Environmental Engineering, Texas A&M University (2021-present).
- Associate Department Head for Research, Zachry Department of Civil Engineering, Texas A&M University (2018-2021).
- Assistant Department Head for Research, Zachry Department of Civil Engineering, Texas A&M University (2017-2018).
- Director of Undergraduate Programs, Zachry Department of Civil Engineering, Texas A&M University (2016-2017).
- College of Engineering Representative, Council of Principal Investigators, Texas A&M University (2019-2022).
- Department Representative, Engineering Research Council, Texas A&M University (March 2018-2021).
- Department Representative, Engineering Faculty Advisory Committee, Texas A&M University (September 2016-March 2018).
- Member, University Grievance Committee, Texas A&M University (September 2015-August 2017).
- Member, Ad-Hoc Committee for Joint Faculty Appointments, College of Engineering, Texas A&M University (2017).
- Affiliated Faculty, Haynes Coastal Engineering Laboratory, Zachry Department of Civil Engineering, Texas A&M University (2015-2017).
- Member, Strategic Planning Committee for Haynes Coastal Engineering Laboratory, Ocean Engineering Program, Zachry Department of Civil Engineering (October 2012 – October 2013).
- Curriculum Committee (Member May 2011-February 2015; Chair March 2015-present), Zachry Department of Civil Engineering (May 2011-February 2015).
- Chair, Curriculum Committee, Ocean Engineering Program, Zachry Department of Civil Engineering (May 2011-August 2015).
- Curriculum Transformation Team / Assessment and Implementation Team (Member August 2013-February 2015; Chair March 2015-present), Zachry Department of Civil Engineering.
- Member, Infrastructure Center Committee, Zachry Department of Civil Engineering (February 2011 – May 2011).
- Faculty Advisor (with Dr. Jeffery Falzarano) for TAMU Student Chapters of Society of Naval Architects and Marine Engineers (SNAME) and Marine Technology Society (MTS) (May 2010-August 2015).

- Co-reviewer of graduate applications for Ocean Engineering program (May 2010-May 2012).
- Co-reviewer of Coastal Engineering graduate applications, Environmental, Water Resources, and Coastal Engineering Division, Zachry Department of Civil Engineering, Texas A&M University (August 2015 – present).
- Participant in development of NSF Engineering Research Center proposal on Center for Emergency Informatics (lead: Dr. Robin R. Murphy, Department of Computer Science and Engineering, Texas A&M University) (2009-2010).
- Co-author (with Dr. John Mander) of Research White Paper on Coastal Hazards, submitted as part of Department's contributed white papers for Academic Master Plan, College of Engineering, Texas A&M University, 2009.
- Course coordinator for OCEN336 (Fluid Dynamics Laboratory; Fall 2009 – Fall 2013), OCEN400 (Basic Coastal Engineering; Fall 2011 to Fall 2015), CVEN311 (Fluid Dynamics; Fall 2009-present) and CVEN465 (Coastal Resilience; Fall 2020-present).
- Proposal coordinator for Department of Homeland Security Center of Excellence for Coastal Hazards: coordinated and led proposal development effort between Texas A&M University, University of Mississippi and Jackson State University for center.
- Examiner for Ph.D. Qualifying Committee in Ocean Engineering in Strength of Materials (January 2011 – present) and Mathematics (December 2006-August 2010).
- Member, Search Committee for Director, Texas Water Research Institute (Spring 2023 – present).
- Member, Search Committee for Department Head, Zachry Department of Civil & Environmental Engineering (Spring 2021).
- Member, Search Committee for Geotechnical Engineering, Zachry Department of Civil Engineering (chair: Dr. Giovanna Biscontin) (Spring 2009).
- Member, Search Committee for Environmental Engineering, Zachry Department of Civil Engineering (chair: Dr. Bill Batchelor) (Spring 2014).

Other: Consulting Activities

- Analytical Mechanics Associates, Inc, Hampton VA (2008-2009) - Assisted in development of methodology for determining statistical nature of wave slopes for use in designing the Orion manned capsule.
- Deltares, Delft, the Netherlands (2009, 2010, 2011) – Technical review of reports on modeling of processes at Wadden Sea, Netherlands.
- Deltares, Delft, the Netherlands (2008) – Evaluation of SWIVT, a model testbed database.
- Ingenieria y Planeacion Peninsular S. de R.L. de C.V. (2011) – solutions for coastal erosion near Ciudad del Carmen and Sabancuy, Campeche, Mexico.
- Houston Advanced Research Center (2014) – evaluation of tenability of wave barriers for hurricane wave protection for Harris County, Texas.