Robert A. Dalrymple

Department of Civil Engineering and Environmental Engineeering
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Personal

Nationality: U. S. Citizen
Place of Birth: Camp Rucker, Alabama
Date of Birth: May 30, 1945
Marital Status: Married, 1 child

Education

Institution and Location	**Degree**	**Year**	**Field**
University of Florida Gainesville, Florida	Ph.D.	1973	Civil and Coastal Engineering
University of Hawaii Honolulu, Hawaii	M.S.	1968	Ocean Engineering
Dartmouth College Hanover, New Hampshire	A.B.	1967	Engineering Sciences

Professional Experience

- Distinguished Professor of Coastal Engineering, Northwestern University, 2017-
- Williard and Lillian Hackerman Professor Emeritus of Civil Engineering, Johns Hopkins University, 2016-present.

- Williard and Lillian Hackerman Professor of Civil Engineering, Johns Hopkins University, 2002-2016.
- Department Chair, Civil Engineering, Johns Hopkins University, 2002-2004.
- Edward C. Davis Professor Emeritus of Civil and Environmental Engineering, 2002-present.
- Edward C. Davis Professor of Civil and Environmental Engineering, 1996-2002.
- Visiting Professor, Department of Civil Engineering, Johns Hopkins University, 1999-2000.
- Director (and Founder), Center for Applied Coastal Research, University of Delaware, 1989-2002.
- Acting Chair, Department of Civil Engineering, University of Delaware, 1994.
- Professor, Department of Civil Engineering, University of Delaware, 1984 to 1996. Also, Professor of Marine Studies, College of Marine Studies, 1984-present.
- Associate Professor, Department of Civil Engineering, University of Delaware, 1977 to 1984. Also, Associate Professor of Marine Studies, College of Marine Studies.
- Assistant Dean, College of Engineering, University of Delaware, 1980 to January 1982.
- Assistant Professor, Department of Civil Engineering, University of Delaware, 1973 to 1977. Also, Assistant Professor of Marine Studies, College of Marine Studies.
- Graduate Research Associate, Department of Coastal and Oceanographic Engineering, University of Florida, 1971 to 1973.
- Assistant in Engineering, Department of Coastal and Oceanographic Engineering, University of Florida, 1968 to 197l.

Major Research Interests

Coastal engineering, water wave mechanics, high-performance computing, fluid mechanics, littoral processes, and tidal inlets.

Honors

Corresponding Member, Real Academia de Ingeniería, Spain, 2013-.

H. Burr Steinbach Visiting Scholar, Woods Hole Oceanographic Institution, 2013.

Member, National Academy of Engineering, 2006-present.

Distinguished Member, ASCE, 2011-present.

Diplomate in Coastal Engineering, ACOPNE, 2010-2017.

International Coastal Engineering Award, ASCE, in recognition of "outstanding and continuing achievements and contributions to the advancement of coastal engineering through research, teaching and professional leadership," 1999.

Moffatt and Nichol Harbor and Coastal Engineering Award, ASCE, for "service and pioneering research contributions in water wave mechanics and sediment transport and applications of these contributions to the practice of coastal and harbor engineering", 1996.

6^{th} Special Faculty Award for Outstanding Contributions to the Educational Program of the College of Engineering, University of Delaware, 1989.

Editor's Citation for Excellence in Refereeing for Journal of Geophysical Research–Oceans, 1993.

Listed in Who's Who in the East, Who's Who in Technology, American Men and Women in Science.

Societies

American Society of Civil Engineers, Distinguished Member; American Geophysical Union, Member

Service

Chair, The Water Institute of the Gulf Science and Engineering Advisory Council, 2012-2016.

Member, Coastal Engineering Research Council, ASCE, 1992-2014. Chairman: 2006-2014.

Member, National Research Council Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning: Coastal Risk Reduction, 2013-2014.

Member, National Research Council Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning, 2009-2013.

Chair, National Research Council Committee on Sea Level Rise for California, Oregon, and Washington, 2011-2012.

Member, Marine Board, National Academy of Sciences, Transportation Research Board, 2004-2010.

Chair, National Research Council's Committee on Review of the Louisiana Coastal Protection and Restoration Program, 2007-2009.

President, Association of Coastal Engineers, Mar 2004-July 2007.

President, Coasts, Oceans, Ports, and Rivers Institute (COPRI), ASCE, Oct 2002-Oct 2003; Vice-President, 2001-2002.

(Founding) Board of Governors, Coasts, Oceans, Ports, and Rivers Institute, ASCE, 2000-present.

Executive Committee, ASCE, Waterways, Ports, Coastal and Ocean Engineering, 1999-2000.

Secretary, Association of Coastal Engineers, 1999-2003.

Member, Task Committee, Coasts, Oceans, Ports, and Rivers Institute (COPRI, ASCE), 1999-2000, 2006-present.

Chair, National Research Council's Coastal Engineering-Research and Educational Needs Committee, Marine Board, 1996-1999.

Editorial Board, Journal of Hydraulic Research, 1995-2000.

Editorial Board, Coastal Engineering, 1997-2015.

Advisory Board, Journal of Ocean Engineering and Marine Energy, 2014-present.

Editorial Advisory Board, China Ocean Engineering, 2014-present.

Civilian Member, Coastal Engineering Research Board, U.S. Army Corps of Engineers, 1989-1993.

Advisory Council, Int. Conf. on Coastal & Port Engineering in Developing Countries, COPEDEC, 1998-2000.

Council Member, Delaware Association of Professional Engineers, 1990-1992.

Founder (1995) and maintainer (until 2002) of coastal_list (www.coastal.udel.edu/coastal/coastal_list.html), an email list for coastal engineers around the world.

Founder and maintainer (until 2002) of The Coastal Engineering Page (www.coastal.udel.edu/coastal/), a coastal engineering web site.

Publications

Books

1. **Water Wave Mechanics for Engineers and Scientists**, R. G. Dean and R.A. Dalrymple, Englewood Cliffs: Prentice-Hall, Inc., ISBN 0-13-946038-1, 1984. Reprinted Singapore: World Scientific Publishing Co., ISBN 981-02-0420-5, 1991.

2. **Physical Modelling in Coastal Engineering**, editor, Rotterdam: A. A. Balkema, Inc., ISBN 90-6191-516-3, 1985.

3. **Coastal Hydrodynamics**, editor, Proceedings of the Specialty Conference, New York: American Society of Civil Engineers, ISBN 0-87262- 606-7, 1987.

4. **Responding to Changes in Sea Level: Engineering Implications**, member, National Research Council, Marine Board Committee, R.G. Dean, Chair, National Academy Press, ISBN

0-309-3781-6, 1987.

5. **Meeting Research and Educational Needs in Coastal Engineering,** National Research Council, Marine Board Committee, Chair, National Academy Press, ISBN 0-309-06381-7, 1999.

6. **Coastal Processes with Engineering Applications,** R.G. Dean and R.A. Dalrymple, Cambridge University Press, ISBN 0-521-49535-0, 475 pp., 2001.

7. **Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future,** National Research Council, Committee Chair, National Academy Press, ISBN-10: 0-309-25594-5, 2012.

Journal Articles, Book Chapters

8. Dalrymple, R.A.,"A Finite Amplitude Wave on Linear Shear Current, "*Journal of Geophysical Research*, 79, 30, 4498-4504, 1974.

9. Dalrymple, R.A. and R. G. Dean, "Waves of Maximum Height on Uniform Currents," *Journal of Waterways, Harbors and Coastal Engineering Division*, ASCE, 101, No. WW3, August 1974.

10. Dalrymple, R.A., "A Mechanism for Rip Current Generation on an Open Coast," *Journal of Geophysical Research*, 60, 24, 1975.

11. Dalrymple, R.A. and G.A. Lanan, "Beach Cusps Formed by Intersecting Waves," *Bulletin of the Geological Society of America*, 87, No. 1, January 1976.

12. Dalrymple, R.A., "Wave-Induced Mass Transport in Water Waves," *Journal Waterways, Harbors and Coastal Engineering Division*, ASCE, 102, May 1976.

13. Thompson, W.W. and R.A. Dalrymple, "A History of Indian River Inlet, Delaware," *Shore and Beach*, 44, No. 2, July 1976.

14. Dalrymple, R.A. and J.C. Cox, "Symmetric Finite Amplitude Rotational Water Waves," *Journal of Physical Oceanography*, 6, No. 6, 1976.

15. Dalrymple, R.A., R.A. Eubanks, and W.A. Birkemeier, "Wave-Induced Circulation in Shallow Basins," *Journal of the Waterway, Port, Coastal and Ocean Division*, ASCE, 103, February 1977.

16. M. A.Tayfun, M.A., C. Y. Yang and R.A. Dalrymple, "Random Wave-Current Interactions in Water of Varying Depth,"*Ocean Engineering*, 6, No. 3, 1977.

17. Dalrymple, R.A., "A Numerical Model for Periodic Finite Amplitude Waves on a Rotational Fluid," *Journal of Computational Physics*, 24, No. 1, 1977.

18. Dalrymple, R.A. and P. L-F. Liu, "Waves Over Soft Muds: A Two-Layer Fluid Model," *Journal of Physical Oceanography*, 8, No. 6, 1978.

19. Dalrymple, R.A. and C. Lozano, "Wave-Current Interaction Models for Rip Currents," *Journal of Geophysical Research*, 83, No. C12, 1978.

20. Liu, P.L.-F. and R.A. Dalrymple, "Bottom Frictional Stresses and Longshore Currents due to Waves with Large Angles of Incidence,"*Journal of Marine Research*, 32, No. 2, 1979.

21. Dalrymple, R.A., "Longshore Currents with Wave-Current Interaction," *Journal of Waterway, Port, Coastal and Ocean Division*, ASCE, 106, No. WW3, 1980.

22. Kirby, J.T., R.A. Dalrymple and P.L.-F. Liu, "Modification of Edge Waves by Barred-Beach Topography," *Coastal Engineering*, 5, 1981.

23. Dean, R.G., R.A. Dalrymple, and R.T. Hudspeth, "Force Coefficients from Wave Project I and II Data Including Free Surface Effects," *Society of Petroleum Engineers Journal*, 21, No. 6, 1981.

24. Dalrymple, R.A., and J. Fowler, "Bragg Scattering by Pile Supported Structures," *Journal of the Waterway, Port, Coastal and Ocean Division*, ASCE, 108, August, 1982.

25. Dalrymple, R.A., "An Introduction to Physical Modelling," in **Physical Modelling in Coastal Engineering**, A. A. Balkema, 1984.

26. Dalrymple, R.A., and M. Greenberg, "Directional Wave Makers," in **Physical Modelling in Coastal Engineering**, A.A. Balkema, 67–79, 1984.

27. Kirby, J.T. and R.A. Dalrymple, "Propagation of Obliquely Incident Water Waves over a Trench," *Journal of Fluid Mechanics*, 133, 47-63, 1983.

28. Kirby, J.T. and R.A. Dalrymple, "A Parabolic Equation for the Combined Refraction-Diffraction of Stokes Waves by Mildly Varying Topography,"*Journal of Fluid Mechanics*, 136, 453-466, 1983.

29. Dalrymple, R.A., J.T. Kirby and P.A. Hwang, "Wave Diffraction due to Areas of Energy Dissipation," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 110, WW1, 67-79, 1984.

30. Liu, P.L.-F. and R.A. Dalrymple, "The Damping of Gravity Water Waves Due to Percolation," *Coastal Engineering*, 8, 33-49, 1984.

31. Kirby, J.T. and R.A. Dalrymple, "Oblique Envelope Solutions of the Davey-Stewartson Equations in Intermediate Water Depth," *Physics of Fluids*, 26, 10, 1983.

32. Dalrymple, R.A., P.A. Hwang and P. L-F. Liu, "Water Waves and Circular Damping Regions," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 110, 2,1984.

33. Kirby, J.T. and R.A. Dalrymple, "Verification of a Parabolic Equation for Propagation of Weakly- Nonlinear Waves," *Coastal Engineering*, 8, 1984.

34. Dally, W.R. R. G. Dean and R.A. Dalrymple, "Wave Height Variation Across Beaches of Arbitrary Profile," *Journal of Geophysical Research*, 90, 6, 11917–11927, 1985.

35. Kirby, J.T. and R.A. Dalrymple, "Modeling Waves in Surfzones and Around Islands," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 112, 1, 1986.

36. Dalrymple, R.A., R. B. Biggs, R. G. Dean and H. Wang. "Bluff Recession Rates in Chesapeake Bay," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 112, 1, 1986.

37. Dalrymple, R.A., and J.T. Kirby, "Water Waves Over Ripples," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 112, 1, 1986.

38. Dalrymple, R.A. and P. Solana, "Nonuniqueness in Stream Function Wave Theory," *Journal of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 112, 2, 1986.

39. Kirby, J.T. and R.A. Dalrymple, "An Approximate Model for Nonlinear Dispersion in Monochromatic Wave Propagation Models," *Coastal Engineering*, 9, 1986.

40. Mann, D.W. and R.A. Dalrymple, "A Quantitative Approach to Delaware's Nodal Point," *Shore and Beach*, 54, 2, 1986.

41. Liu, P.L.-F., S.B. Yoon, and R.A. Dalrymple. "Wave Reflection from Energy Dissipation Region," *Journal of Waterway, Port, Coastal and Ocean Engineering*, 112, 6, 1986.

42. Trowbridge, J. , K.-D. Suh, and R.A. Dalrymple, "A Simplified Second-Order Solution for a Spiral Wave Maker," *Journal of Geophysical Research*, 91, C10, 1986.

43. Kirby, J.T., R.A. Dalrymple and S.N. Seo, "Propagation of Obliquely Incident Water Waves Over a Trench. 2. Currents Flowing Along the Trench," *Journal of Fluid Mechanics*, 176, 1987.

44. Suh, K.D. and R.A. Dalrymple, "Offshore Breakwaters in Laboratory and the Field," *Journal of Waterway, Port Coastal and Ocean Engineering*, ASCE, 113, 2, 1987.

45. Dalrymple, R.A., "Water Wave Diffraction," *Shore and Beach*, 55, 3-4, 1987.

46. Wu, Y.-C. and R.A. Dalrymple, "Analysis of Wave Fields Generated by a Directional Wavemaker," *Coastal Engineering*, 11, 3, 1987.

47. Martin, P.A. and R.A. Dalrymple, "Scattering of Long Waves by Cylindrical Obstacles and Gratings Using Matched Asymptotic Expansions," *Journal of Fluid Mechanics*, 188, 456-490, 1988.

48. Dexter, S.C., R.A. Dalrymple, and N. Kobayashi, "The Marine Environment," in **Materials for Marine Systems and Structures**, D.F. Hasson and C.R. Crowe, eds., Academic Press, ISBN 0-12-341828-3, 1988.

49. Dalrymple, R.A., "A Model for the Refraction of Water Waves," *Journal of Waterway, Port, Coastal and Ocean Eng.*, ASCE, 114, 4, 423-435, 1988.

50. Dalrymple, R.A. and J.T. Kirby, "Models for Very Wide Angle Water Waves and Wave Diffraction," *Journal of Fluid Mechanics*, 192, 33-50, 1988.

51. Suh, K.D. and R.A. Dalrymple, "Expression for Shoreline Advancement of Initially Plane Beach," *Journal of Waterway, Port, Coastal and Ocean Eng.*, ASCE, 114, 6, 1988.

52. Tang, E.C.-S. and R.A. Dalrymple, "Nearshore Circulation: Rip Currents and Wave Groups," in **Nearshore Sediment Transport Study**, R.J. Seymour, ed., Plenum Press, 1989.

53. Dalrymple, R.A., "Directional Wavemaker Theory with Sidewall Reflection," *Journal of Hydraulic Research*, 27, 1, 23-34, 1989.

54. Dalrymple, R.A., "Physical Modelling in Coastal Engineering," Chap. 11 in **Recent Advances in Hydraulic Physical Modelling**, R. Martins, ed., NATO Advanced Science Institutes Series, Dordrecht: Kluwer Academic Publishers, 1989.

55. Dalrymple, R.A., K.D. Suh, J.T. Kirby, and J.W. Chae, "Models for Very Wide Angle Water Waves and Wave Diffraction, Part 2. Irregular Bathymetry" *Journal of Fluid Mechanics*, 201, 299-322, 1989.

56. Dalrymple, R.A., "Water Waves Past Abrupt Channel Transitions," *Applied Ocean Research*, 11, 4, 170–175, 1989.

57. Munasinghe, L.C. and R.A. Dalrymple, "A Split-step Fourier Algorithm for Water Waves," *Journal of the Engineering Mechanics Div.*, ASCE, February, 251-267, 1990.

58. Losada, M.A., R.A. Dalrymple and C. Vidal, "Water Waves in the Vicinity of Breakwaters," *Journal of Coastal Research*, Special Issue 7, 119-137, 1990.

59. Dalrymple, R.A. and P.A. Martin, "Wave Diffraction Through Offshore Breakwaters," *Journal of Waterway, Port, Coastal and Ocean Engineering*, 116, 6, 727–741, ASCE, 1990.

60. Dalrymple, R.A., L.C. Munasinghe, D.H. Wood, J.T. Kirby, "A Very Wide Angle Acoustics Model for Underwater Sound Propagation,", *Journal of the Acoustical Society of America*, 88, 4, 1863-1876, 1990.

61. Seo, S.N. and R.A. Dalrymple, "An Efficient Model for Periodic Overturning Waves," *Engineering Analysis with Boundary Elements*, 7, 4, 1990.

62. Suh, K.D., R.A. Dalrymple and J.T. Kirby, "An Angular Spectrum Model for Propagation of Stokes Waves," *Journal of Fluid Mechanics*, 221, 205-232, 1990.

63. Medina, R., M.A. Losada, and R.A. Dalrymple, "Análisis de Perfiles de Playa por Medio de Funciones Ortogonales Empíricas, Método FOE," *Revista de Obras Publicas*, June, 1990.

64. Dalrymple, R.A., M.A. Losada, and P.A. Martin, "Reflection and Transmission from Porous Structures under Oblique Wave Attack," *Journal of Fluid Mechanics*, 224, 625-644, 1991.

65. Task Committee, "Effects of Sea Level Rise on Bays and Estuaries," *Journal of Hydraulic Engineering*, ASCE, 118, 1, 1-10, 1992.

66. Dalrymple, R.A., "Prediction of Storm/Normal Beach Profiles," *Journal of Waterway, Port, Coastal and Ocean Engineering,* ASCE, 118, 2, 193-200, 1992.

67. Dalrymple, R.A. and P.A. Martin, "Perfect Boundary Conditions for Parabolic Water-wave Models," *Proc. Royal Society, London, A*, 437, 41-54, 1992.

68. Dalrymple, R.A. and J.T. Kirby, "Angular Spectrum Modelling of Water Waves," *Reviews in Aquatic Sciences*, CRC Press, 6, 5 and 6, 383-404, 1992.

69. Dalrymple, R.A., "Wave Propagation in Shallow Water," in *Design and Reliability of Coastal Structures*, Proc. Short Course, Venice, Italy, October 1–3, 1992.

70. Losada, I.J., R.A. Dalrymple, and M. A. Losada, "Water Waves on Crown Breakwaters," *Journal of Waterways, Port, Coastal and Ocean Engineering,* ASCE, ASCE, 119, 4, 367-380, 1993.

71. Suh, K.D. and R.A. Dalrymple, "Application of Angular Spectrum Model to Simulation of Irregular Wave Propagation," *Journal of Waterway, Port, Coastal and Ocean Engineering,* ASCE, 119, 5, 1993.

72. Kirby, J.T., R.A. Dalrymple and H. Kaku, "Parabolic Approximations for Water Waves in Conformal Coordinate Systems," *Coastal Engineering,*, 23, 185-213, 1994.

73. Martin, P.A. and R.A. Dalrymple, "On Amphidromic Points," *Proc. Royal Society, London, A*, 444, 91–104, 1994.

74. Losada, M.A., A.J. Roldán, and R.A. Dalrymple, "Eigenfunction Analysis of Water Wave Propagation Down a Wave Flume, *Journal of Hydraulic Research*, 32, 371-384, 1994.

75. Martin, P.A. and R.A. Dalrymple, "On the Propagation of Water Waves Along a Porous-walled Channel," *Proc. Royal Society, London, A*, 444, 411-428, 1994.

76. Dalrymple, R.A, "Theory of Short-Period Waves," Chapter 2.3 of **Coastal, Estuarial and Harbour Engineers' Reference Book**, M.B. Abbott and W.A. Price, eds., E & F N Spon, London, 1994.

77. Dalrymple, R.A, J.T. Kirby and P.A. Martin, "Spectral Methods for Forward-propagating Water Waves in Conformally-mapped Channels,"*Applied Ocean Research*, 16, 249-266, 1994.

78. Dalrymple, R.A. and P.A. Martin, "Water Waves Incident on an Infinitely Long Rectangular Inlet," *Applied Ocean Research*, 18, 1-11, 1996.

79. Martin, P.A., R.A. Dalrymple, and J.T. Kirby, "Parabolic Modelling of Water Waves," in **Gravity Waves in Water of Finite Depth,** J.N. Hunt, Ed., Computational Mechanics Publications, Southhampton, 169-213, 1997.

80. Li, L. and R.A. Dalrymple, "Instabilities of the Undertow," *J. Fluid Mechanics,* 369, 175-190, 1998.

81. Losada, I.J., Dalrymple, M.A., Losada, M.A., "Wave-induced mean flows in vertical rubble-mound structures," *Coastal Engineering*, 35, 4, 251-281, 1998.

82. Dalrymple, R.A., M.A. Losada, and B. Doyle, "Waves and Wave-induced Flows at Jettied Inlets," *Shore & Beach*, 67, 1, 50-52, 1999.

83. Haller, M.C., U. Putrevu, J. Oltman-Shay, and R.A. Dalrymple, "Wave Group Forcing of Low Frequency Surf Zone Motion," *Coastal Engineering Journal*, 41, 2, 1999.

84. Chen, Q., R.A. Dalrymple, J.T. Kirby, A. Kennedy, and M.C. Haller, "Boussinesq Modelling of a Rip Current System," *J. Geophys. Res.*, 104, C9, 20, 617-20,638, 1999.

85. Kennedy, A.B., Chen, Q., Kirby, J.T., and Dalrymple, R.A., "Boussinesq Modeling of Wave Transformation, Breaking and Runup. I: 1D," *J. Waterway, Port, Coastal, and Ocean Engineering*, 126, 1, 39-47, 2000.

86. Chen, Q., Kirby, J.T., Dalrymple, R.A., Kennedy, A.B., and Chawla, A., "Boussinesq Modeling of Wave Transformation, Breaking and Runup. II: 2D," *J. Waterway, Port, Coastal, and Ocean Engineering,* 126, 1, 48-56, 2000.

87. Kennedy, A.B., Dalrymple, R.A., Kirby, J.T., and Chen, Q., "Depth Inversion Using Direct Boussinesq Modeling," *J. Waterway, Ports, Coastal, and Ocean Engineering*, 126, 4, 206-214, 2000.

88. Dalrymple, R.A., P.A. Martin, and L. Li, "Waves in a Rectangular Inlet with Reflecting or Absorbing Walls," *J. Waterway, Ports, Coastal and Ocean Engineering*, 126, 6, 206-214, 2000.

89. Shi, F., Dalrymple, R.A., Kirby, J.T., Chen, Q., and A.B. Kennedy, "A Fully Nonlinear Boussinesq Model in Generalized Curvilinear Coordinates, *Coastal Engineering*, 42, 337-358, 2000.

90. Kennedy, A.B., Kirby, J.T., Chen Q. and R.A. Dalrymple, "Boussinesq-type Equations with Improved Nonlinear Behaviour," *Wave Motion*, 33, 3, 225-243, 2001.

91. Haller, M.C. and R.A. Dalrymple, "Rip Current Instabilities," *J. Fluid Mechanics*, 433, 161-192, 2001.

92. Haller, M.C., R.A. Dalrymple and I.A. Svendsen, "Experimental Study of Nearshore Dynamics on a Barred Beach with Rip Channels," *J. Geophys. Res.*, 107, C6, 2002.

93. Shi, F-Y., J.T. Kirby, R.A. Dalrymple, Q. Chen, "Wave Simulations in Ponce De Leon Inlet Using a Boussinesq Model," *J. Waterway, Ports, Coastal, and Ocean Engineering*, 129, 3, 124-135, 2003.

94. Chen, Q., Kirby, J.T., R.A. Dalrymple, F. Shi, and E.B. Thornton, "Boussinesq modeling of longshore currents,", *J. Geophys. Res.*, 108, C11, 3362, doi:10.1029/2002JC001308, 2003

95. Gómez-Gesteira, M. and R.A. Dalrymple, "Using a 3D SPH Method for Wave Impact on a Tall Structure," *J. Waterways, Port, Coastal, Ocean Engineering*, 130, 2, 2003.

96. Gómez-Gesteira, M., R.A. Dalrymple, A.J.C. Crespo, and D. Cerquiero, "Uso de la Tecnica SPH para el Estudio de la Interaccion entre Olas y Estructuras," *Ingenieria del Agua*, 11, 2, 2004.

97. Gómez-Gesteira, M., D. Cerquiero, A.J.C. Crespo and R.A. Dalrymple, "Green Water Overtopping Analyzed with an SPH Model," *Ocean Engineering*, 32, 2, 223-238, 2005.

98. Crespo, A. J. C., M. Gómez-Gesteira, and R. Dalrymple, "Mitigacion de tsunamis mediante el metodo SPH3D," *Ingenieria Civil*, 140, 67-73, 2005.

99. Dalrymple, R.A. and D.L. Kriebel, "Lessons in Engineering from the Tsunami in Thailand," *The Bridge*, National Academy of Engineering, 35, 2, 2005.

100. Dalrymple, R.A. and B.D. Rogers, "Numerical Modeling of Water Waves with the SPH Method," *Coastal Engineering*, 53/2-3, 141-147, 2006.

101. Dalrymple, R.A., S.T. Grilli and J.T. Kirby, "Tsunamis and Challenges for Accurate Modeling," *Oceanography*, 19, 1, 2006.

102. Crespo, A.J.C., M. Gómez-Gesteira, and R.A. Dalrymple, "SPH: A New Tool to Study Wave-Structure Interaction," *Computers, Materials & Continua,* 5, 3, 173-184, 2007.

103. Crespo, A.J.C, M. Gómez-Gesteira, R.A. Dalrymple. "3D SPH Simulation of Large Waves Mitigation with a Dike," *Journal of Hydraulic Research*. International Association of Hydraulic Research, 45, 5, 2007.

104. Rogers, B.D. and R.A. Dalrymple, "SPH Modeling of Tsunamis Waves," in **Advanced Numerical Models for Simulating Tsunami Waves and Runup**, P.L.-F. Liu, H. Yeh. and C. Synolakis, ed., World Scientific, 75-100, 2008.

105. Crespo, A.J.C, M. Gómez-Gesteira, R.A. Dalrymple, "Modeling Dam Break Behavior Over a Wet Bed by a SPH Technique," *Journal of Waterway, Port, Coastal, and Ocean Engineering*, 134, 6, 313-320, 2008.

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107. **Review of the Louisiana Coastal Protection and Restoration (LACPR) Program**, committee chair, National Academy Press, ISBN 0-309-14103-6, Washington, 2009.

108. Rogers, B.D., R.A. Dalrymple, and P.K. Stansby, "Simulation of Caisson Breakwater Movement using 2-D SPH," *Journal of Hydraulic Research*, 48, Extra Issue, 135-141, 2010.

109. Narayanaswamy, M.S., A.J.C. Crespo, M. Gómez-Gesteira, and R.A. Dalrymple, "SPHysics-FUNWAVE Hybrid Model for Coastal Wave Propagation," *J. Hydraulic Research*, 48, Extra Issue, 85-93, 2010.

110. Hérault, A., G. Bilotta, and R.A. Dalrymple, "SPH on GPU with CUDA," *J. Hydraulic Research*, 47, Extra Issue, 74-79, 2010.

111. Gómez-Gesteira, M, R.A. Dalrymple, B.D. Rogers, A.J.C. Crespo, and M. Narayanaswamy, "SPH for free surface flows, " *J. Hydraulic Research*, 48, Extra Issue, 6-27, 2010.

112. Dalrymple, R.A., M. Gómez-Gesteira, B.D. Rogers, A. Panizzo, S. Zuo, A.J.C. Crespo, G. Cuomo, M. Narayanaswamy. "Smoothed Particle Hydrodynamics for Water Waves," in **Advances in Numerical Simulation of Nonlinear Water Waves**. World Scientific Press, 465-496, 2010.

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247. Dalrymple, R.A., Closure, "Prediction of Storm/Normal Beach Profiles," *Journal of Waterway, Port, Coastal and Ocean Engineering,* ASCE, 119, 4, 473-474, 1993.

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249. Dalrymple, R.A., "XFig: Drawing Pictures in Linux and Unix," *Linux Journal*, April, 1995.

250. Dalrymple, R.A., "Xfm 1.3: A File and Applications Manager," Linux Journal, July, 1995.

251. Dalrymple, R.A. "Numerical Modelling of Water Waves–Some Models and Some Problems", Appendix G of "Developing a Joint Army/Navy Coastal Wave Prediction Program," Planning Report of the Army/Navy Wave Prediction Group, Sept 25, 1995.

252. Dalrymple, R.A. "Linux Tips: Open Look Window Manager," *Linux Journal*, September, 1995

253. Dalrymple, R.A., Book Review, **Erosion and Sedimentation**, by P.Y. Julien, *Ocean & Coastal Management*, 26, 3, 1995.

254. Dalrymple, R.A. "EXT2TOOLS for Linux," *Linux Journal*, March, 1996.

255. Dalrymple, R.A., "Sharing Pedagogy with Java," *Linux Journal*, December, 1998.

256. Dalrymple, R.A., "Shoring Up Coastal Engineering," *Civil Engineering Magazine,*, March, 2001.

257. Dalrymple, R.A., Jalali Farahani, R., Hérault, A., Bilotta, G. and Rustico, E., "Modeling water waves with GPUSPH," *HydroLink*, IAHR, 3, 2015.

Technical Reports

258. "Cooperative Study at Jupiter Island, Florida," Florida Industrial Experimental Station, Gainesville, 1969.

259. "Pelican Island Dredge and Fill Project," Florida Industrial Experimental Station, Gainesville, 1970.

260. "Coastal Engineering Investigation of St. George Island Channel," Florida Industrial Experimental Station, Gainesville, 1970.

261. "Coastal Engineering Study of the Proposed Clam Pass Improvement," Florida Industrial Experimental Station, Gainesville, 1970.

262. "Black Island-Lovers Key: Shoreline Stability and Coast Development," Florida Industrial Experimental Station, Gainesville, 1971.

263. "The Irregular Form of the Stream Function Wave Theory for Application to Measured Wave Data," with R.G. Dean, Subject Rpt. No. 1, Joint Industry Wave Force Project, Florida Industrial Experimental Station, Gainesville, 1972.

264. "Computer Programming of the Symmetric Stream Function Wave Theory," with R.G. Dean, Subject Rpt. No. 2, Joint Industry Wave Force Project, Florida Industrial Experimental Station, Gainesville, 1972.

265. "Manual for Interim Wave Force Calculations," with R.G. Dean, Subject Rpt. No. 3, Joint Industry Wave Force Project, Florida Industrial Experimental Station, Gainesville, 1972.

266. “Analysis of Wave Project I and Wave Project II Data,” with R.G. Dean and R.T. Hudspeth, Subject Rept. No. 4, Joint Industry Wave Force Project, Florida Industrial Experimental Station, Gainesville, 1974.

267. “Water Wave Models with Linear and Bilinear Shear Currents,” Subject Rpt. No. 5, Joint Industry Wave Force Project, Florida Industrial Experimental Station, Gainesville, 1973.

268. “Water Wave Models and Wave Forces with Shear Currents,” Tech. Rpt. No. 20, Coastal and Oceanographic Engineering Laboratory, Gainesville, 1973.

269. “Numerical Models for the Prediction of Wave Set-up and Nearshore Circulation,” Ocean Eng. Rpt. 3, with W.A. Birkimeier, 1976.

270. “A Coastal Engineering Study of Indian River Inlet, Delaware,” DEL- SG-5-77, Ocean Eng. Tech. Rpt. 14, with Glenn A. Lanan, 1977.

271. “A Bibliography on Rip Currents,” Proc. of Workshop on Coastal Sediment Transport, University of Delaware, DEL-SG-15-78, 1978.

272. “Decisions for Delaware: Sea Grant Looks at Beach Management,” with P.A. Jensen and B.W. Lee, University of Delaware, DEL-SG-7-78, 1978.

273. “A Coastal Engineering Analysis of Roosevelt Inlet, Lewes, Delaware,” DEL-SG-4-78, Ocean Eng. Tech. Rpt. 18, with William A. Dennis.

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275. “Numerical Modeling of the Nearshore Region,” Civil Engineering Res. Rpt. 11, with J.T. Kirby, 1982.

276. “Broadkill Beach: An Assessment of an Erosion Problem,” Civil Engineering Rpt. No. CE-82-22, 1982.

277. “Coastal Engineering Study of Bethany Beach, Delaware,” Civil Engineering Rpt. No. CE-83-38, with J.E. Dick, 1983.

278. “Tidal Flows in Indian River Inlet, June 11, 1983,” Civil Engineering Rpt. No. CE-83-39, with D.W. Mann, and N. Kobayashi, 1983.

279. “A Coastal Engineering Assessment of Fenwick Island, Delaware,” with D.W. Mann, Civil Engineering Tech. Rpt. CE-54, 1985.

280. “Modifications to a Propagation Model for the Combined Refraction-Diffraction of Stokes Waves; Shallow Water, Large Angle and Breaking Wave Effects,” Coastal and Oceanographic Dept., Rept. UFL/COEL-85/001, Univ. of Florida, Gainesville, 1985.

281. “Wave Modification in the Vicinity of Islands: REF/DIF 1. Documentation and Users Manuals,” Coastal and Offshore Engineering and Research, Inc., January 1986, with James T. Kirby.

282. "Wave Modification in the Vicinity of Islands: REF/DIF 2. Documentation and Users Manuals," Coastal and Offshore Engineering and Research, Inc., July 1986, with James T. Kirby.

283. "Erosion of Unprotected Causeways due to Waves," with N. Kobayashi, Civil Engineering Res. Rpt. CE-86-58, 1986.

284. "Contributions to the SUPERDUCK Experiment, 1986," with S.N. Seo, Civil Engineering Res. Rpt. CE-88-66.

285. Strine, M.A. and R.A. Dalrymple, "Beach Fill at Fenwick Island, Delaware," Center for Applied Coastal Research, Res. Rpt. 89-1, 1989.

286. Strine, M.A. and R.A. Dalrymple, "A Probabilistic Prediction of Beach Nourishment Project Lifetimes," Center for Applied Coastal Research, Res. Rpt. 91-01, 1991.

287. Kirby, J.T. and R.A. Dalrymple, "Documentation Manual, Combined Refraction/Diffraction Model, REF/DIF 1," Version 2.3, Center for Applied Coastal Research, Res. Rpt. CACR-91-02, 1991.

288. Fowler, R.E. and R.A. Dalrymple, "Wave Group Forced Nearshore Circulation: A Generation Mechanism for Migrating Rip Currents and Low Frequency Motion," Center for Applied Coastal Research, Res. Rpt. CACR-91-03, 1991.

289. "Laboratory Testing of the Beachsaver^{TM} Breakwater System," with A.M Driscoll and J.S. Ramsey, Feb. 1991.

290. Dalrymple, R.A. and P.A. Martin, "Perfect Boundary Conditions for Parabolic Water-wave Models," Center for Applied Coastal Research, Res. Rpt. CACR-91-08, 1991.

291. Dalrymple, R.A., "REFRACT: A Refraction Program for Water Waves," Center for Applied Coastal Research, Res. Rpt. CACR-91-09, 1991.

292. Kirby, J.T. and R.A. Dalrymple, " Combined Refraction/Diffraction Model–REF/DIF 1, Version 2.4, Documentation and User's Manual," Center for Applied Coastal Research, Res. Rpt. CACR-92-04 (includes diskette), 1992.

293. Dalrymple, R.A., "Prediction of Storm/Normal Beach Profiles," Center for Applied Coastal Research, Res. Rpt. CACR-92-05, 1992.

294. Moses-Hall, J.E. and R.A. Dalrymple, "Sharing Sea Grant Models with the Public," Center for Applied Coastal Research, Res. Rpt. CACR-92-09, 1992.

295. Dalrymple, R.A., J.T. Kirby, and P.A. Martin, "Spectral Methods for Forward-Propagating Water Waves in Conformally-Mapped Channels," Center for Applied Coastal Research, Res.Rpt. CACR-94-01, 1994.

296. Kirby, J.T., R.A. Dalrymple, H. Kaku, "Parabolic Approximations for Water Waves in Conformal Coordinate Systems,' Center for Applied Coastal Research, Res. Rpt. CACR-94-03, 1994.

297. Kirby, J.T. and R.A. Dalrymple, " Combined Refraction/Diffraction Model–REF/DIF 1, Version 2.5," Center for App lied Coastal Research, Res. Rpt. CACR-94-22 (includes diskette), 1994.

298. Hamilton, R.P. and R.A. Dalrymple, "Wave Group Forcing in Low Frequency Surf Zone Motion," Center for Applied Coastal Research, Res. Rpt. CACR-94-23, 1994.

299. Bosma, K.F. and R.A. Dalrymple, "Beach Profile Analysis Along the Delaware Atlantic Shoreline," Center for Applied Coastal Research, Res. Rpt. CACR-97-05, 1997.

300. Nagashima, S. and R.A. Dalrymple, "Nonlinear Two-Line Shoreline Model with Refraction," Center for Applied Coastal Research, Res. Rpt. CACR-97-07, 1997.

301. "Boussinesq Modelling of Wave Transformation , Breaking and Runup," Part 1, A.B. Kennedy, Q. Chen, J.T. Kirby and R.A. Dalrymple. Part 2. Q. Chen, J.T. Kirby, R.A. Dalrymple, A.B. Kennedy, and A. Chawla, Center for Applied Coastal Research, Res. Rpt. CACR-99-02, 1999.

302. Shi, F., R.A. Dalrymple, J.T. Kirby, Q. Chen, and A. Kennedy, "A Fully Nonlinear Boussinesq Model in Generalized Curvilinear Coordinates," Center for Applied Coastal Research, Res. Rpt.CACR-99-06, 1999.

303. Haller, M.C. and R.A. Dalrymple, "Rip Current Dynamics and Nearshore Circulation," Center for Applied Coastal Research, Res. Rpt. CACR-99-05, 1999.

304. Haller, M.C., R.A. Dalrymple, I.A. Svendsen, "Experiments on Rip Currents and Nearshore Circulation: Data Report," Center for Applied Coastal Research, Res. Rpt. CACR-00-04, 2000.

305. Seed, R., P.G. Nicholson, R.A. Dalrymple, J. Battjes, R.G. Bea, G. Boutwell, J.D. Bray, B.D. Collins, L.F. Harder, J.R. Headland, M. Inamine, R.E. Kayen, R. Kuhr, J.M. Pestana, R. Sanders, F. Silva-Tulla, R. Storesund, S. Tanaka, J. Wartman, T.F. Wolff, L. Wooten, T. Zimmie, "Preliminary report on the performance of the New Orleans levee systems in Hurricane Katrina on August 29, 2005," UCB/CITRUS-05/01, University of California, Berkeley, 2005

306. Boesch, D.F., L.P. Atkinson, W.C. Boicourt, J.D. Boon, D.R. Cahoon, R.A. Dalrymple, T. Ezer, B.P. Horton, Z.P. Johnson, R.E. Kopp, M. Li, R.H. Moss, A. Parris, C.K. Sommerfield. 2013. Updating MarylandÕs Sea-level Rise Projections. Special Report of the Scientific and Technical Working Group to the Maryland Climate Change Commission, 22 pp. University of Maryland Center for Environmental Science, Cambridge, MD.

Graduate Students Supervised

- William A. Birkemeier, M.C.E., Numerical Models for the Prediction of Wave Set-up and Nearshore Circulation, 1976.

- William W. Thompson, M.C.E., A Study of Equilibrium Beach Profiles, 1976.
- Glenn A. Lanan, M.C.E., A Coastal Engineering Study of Indian River Inlet, Delaware, 1977.
- Richard P. Stern, M.C.E., Characteristics of Wave Propagation Over a Submerged Obstacle, 1977.
- William A. Dennis, M.C.E., A Coastal Engineering Analysis of Roosevelt Inlet, Lewes, Delaware, 1978.
- Bruce A. Ebersole, M.C.E., A Numerical Model for Nearshore Circulation Including Convective Accelerations and Lateral Mixing, 1979.
- William G. McDougal, M.C.E., A Numerical Model to Predict Surf Zone Dynamics, 1979
- Fen-Hwa Chen, M.C.E., Elastic Bed Responses to Water Waves, 1983.
- Ernest Cheng-Shao Tang, M.S.C.E., Waves in Fluids of Small Viscosity, 1983.
- James T. Kirby, Ph.D., Propagation of Weakly-nonlinear Surface Water Waves in Regions with Varying Depth and Current, 1983.
- Jennifer E. Dick, M.S.C.E., Coastal Engineering Study of Bethany Beach, Delaware, 1983.
- Kyungduck Suh, M.S.C.E., Modeling of Beach Erosion Control Measures in a Spiral Wave Basin, 1985.
- Pedro Solana, Ph.D., A Numerical Study of Water Waves: Flat and Sloping Bottom Solutions, 1985.
- Charles Yung-Chao Wu, Ph.D., Directional Wavemaker: Theory and Experiment, 1985.
- Seung Nam Seo, Ph.D., Time-Dependent Highly Nonlinear Water Waves, 1988.
- Sanjeev Kumar, M.S.C.E., Measurement of Wave Spectra in the Laboratory Wave Tank, 1988.
- Kyung Duck Suh, Ph.D., Angular Spectrum Models for Propagation of Weakly Nonlinear Surface Gravity Waves in Water of Varying Depth, 1989.
- Levsiri C.J. Munasinghe, M.C.E., A Split-Step Fourier Transform Algorithm Applied to Water Waves, 1989.
- Michael A. Strine, M.C.E., A Probabilistic Prediction of Beach Nourishment Project Lifetimes, 1990.
- Rachel E. Fowler, M.C.E., Wave Group Forced Nearshore Circulation: A Generation Mechanism for Migrating Rip Currents and Low Frequency Motion, 1991.
- Gordon S. Harkins, M.C.E., Sensitivity Analysis for Multi-element Wavemakers, 1991.

- John Ramsey, M.C.E., A Study of Wave-induced Currents Behind Shore Parallel Breakwaters, 1991.
- Andrew Driscoll, M.C.E., Generation and Transmission of Water Wave Harmonics Past a Submerged Obstacle, 1991.
- Christopher G. Creed, M.C.E., Modelling Equilibrium Profiles, 1992.
- Robert P. Hamilton, M.C.E., Wave Group Forcing of Low Frequency Surf Zone Motion, 1994.
- Li Li, M.C.E., The Propagation of Water Waves in Ocean-Channel-Bay System, 1995.
- Merrick C. Haller, M.C.E., The Measurement and Analysis of Wave Groups in the Surf Zone, 1996.
- Iñigo J. Losada, Ph.D., Wave Interaction with Permeable Structures, 1996.
- Kirk F. Bosma, M.C.E., Beach Profile Analysis Along the Delaware Atlantic Shoreline, 1997.
- Satoshi Nagashima, M.C.E., Nonlinear Two-Line Shoreline Model with Refraction, 1997.
- Merrick C. Haller, Ph.D., Instability of Rip Currents, 1999.
- Courtney M. Garriga, M.S.C.E., Development of a Long-Term Coastal Zone Management Plan for the Delaware Atlantic Coast, 2002.
- Lulin Guo, Ph.D., Water Wave Propagation over Rough Bottoms, 2002.
- Shan Zou, M.S.C.E., SPH Model and Coastal Application, 2002.
- Asher H. Peltz, JHU, M.S.C.E., Numerical Study of the Effects of Dredge Pits on Nearshore Circulation, 2004.
- Janice L. Rice, JHU, M.S.C.E., Numerical Study of the December 26, 2004 Indian Ocean Tsunami Along the Western Thailand Coast, 2006.
- Shan Zou, JHU, Ph.D., Coastal Sediment Transport Simulation by Smoothed Particle Hydrodynamics, 2007.
- Muthukumar Narayanaswamy, JHU, Ph.D., A Hybrid Boussinesq-SPH Wave Propagation Model with Applications to Forced Waves in Rectangular Tanks, 2008.
- Varjola Nelko, JHU, Ph.D., The Prediction of Rip Currents, 2012.
- Younes Nouri, JHU, Ph.D., Experimental Study of Water Wave Interactions with a Layer of Mud, 2013.
- Brian Lindberg, JHU, M.S.C.E., Modeling Violent Flows with GPUSPH, 2013.
- Rozita Jalali Farahani, JHU, Ph.D., Three-Dimensional SPH Numerical Modeling of a Bar/Rip Channel System and Turbulent Vortex Structures Under Broken Water Waves in the Surf Zone Region, 2014.

- Nourah Almashan, JHU, Ph.D., Laboratory Experiments of Wave Attenuation by Mud, 2014.

Funded Research Projects

1. Beach Erosion Control–System Design and Evaluation, State of Delaware Department of Natural Resources and Environmental Control ($22,910), with H.Wang and J.D. Ditmars, 1973.

2. Indian River Inlet, Sea Grant ($50,000), 1974-1976.

3. Nearshore Circulation Model, University of Delaware Research Foundation ($10,000), 1975-1976.

4. ONR Dynamic Modelling, Office of Naval Research ($54,244), with H.Wang, 1973-1974.

5. Coastal Engineering Assessment of Delaware's Beach Erosion, Sea Grant ($30,168), with R.G. Dean.

6. Roosevelt Inlet, Sea Grant ($20,400), with R. Singerman.

7. Rip Currents, Sea Grant ($24,000), 1976-1978.

8. Rip Currents, Sea Grant ($41,923), 1975-1976.

9. Rip Currents, Sea Grant ($59,248), 1976-1977.

10. Dynamics of Coastal Conditions, Office of Naval Research ($65,536), with H. Wang, 1977-1978.

11. Dynamics of Coastal Conditions, Office of Naval Research ($94,592), with H. Wang, 1978-1979.

12. Field Measurements of Rip Currents, Nearshore Sediment Transport Study,National Sea Grant ($98,800), 1977-1980.

13. Dynamics of Coastal Conditions, Office of Naval Research ($73,528), with H. Wang, 1979-1980.

14. Physical Modelling in Coastal Engineering, National Science Foundation and the U.S. Army Corps of Engineers ($21,000), 1981.

15. Dynamics of Coastal Conditions, Office of Naval Research ($79,743), with H. Wang, 1980-1981.

16. Broadkill Beach Erosion Study, State of Delaware Department of Natural Resources and Environmental Control ($6,858), 1982.

17. Bethany Beach Erosion Control Study, State of Delaware Department of Natural Resources and Environmental Control ($24,926), 1983.

18. Wave and Current Models with Combined Refraction/Diffraction, Office of Naval Research ($23,599), 1982-1983.

19. Nearshore Circulation and Coastal Processes: Effects of Directional Waves, National Science Foundation ($250,000), 1982-1986, with R.G. Dean.

20. Modelling of Erosion Control Measures, Sea Grant ($51,200), with N. Kobayashi, 1983-1985.

21. Impacts of Sea Level Rise: A Coastal Engineering Approach, Sea Grant ($164,000), with N. Kobayashi and J.H. Trowbridge, 1985-1987.

22. Coastal Erosion Study of Fenwick Island, State of Delaware Department of Natural Resources and Environmental Control ($23,000), 1985-1986.

23. An Experimental Study of Nearshore Hydrodynamics, U.S. Army Corps of Engineers ($9,956), with J.H. Trowbridge, 1986-1987.

24. Offshore Breakwaters: Waves and Currents, Sea Grant ($125,000), with J.H. Trowbridge, 1987-1988.

25. Experiments in a Directional Wave Basin: Wavemaker Theory and Wave-induced Currents, National Science Foundation ($135,712), 1987-1989.

26. Beach Fill at Fenwick Island, State of Delaware ($5,000), 1989.

27. Offshore Breakwaters: Waves and Currents, Sea Grant ($ 93,000), 1989-1991.

28. Co-operative Agreement: Department of Natural Resources and Environmental Control, State of Delaware, ($150,000), 1989-1991.

29. Army Research Office: University Research Initiative, ($2,000,000), with Ib A. Svendsen, J.T. Kirby, N. Kobayasi, J. McCalpin and P. Liu, 1992-1995.

30. Equilibrium Profile Modelling, State of Delaware ($24,950), 1992.

31. Angular Spectrum Modelling of Water Waves, Sea Grant ($118,200), 1993-1995.

32. Water Waves in Navigational Channels, Sea Grant ($88,457), 1995-1997.

33. Eddies in the Nearshore Zone, Sea Grant ($106,805), 1997-1999.

34. Nearshore Circulation on Variable Bathymetry, Office of Naval Research ($338,000), with Ib A. Svendsen, 1994-1997.

35. Hydrodynamics of the Nearshore Zone, Office of Naval Research ($154,319), with I.A. Svendsen, and J.T. Kirby, 1998-1999.

36. Using Hydrodynamic Models to Interpret Remote Sensing Images of the Sea Surface, Office of Naval Research, ($526,578), with James T. Kirby, 1997-1999.

37. Boussinesq Modelling of Waves in Harbors and Tidal Inlets, Army Research Office ($165,000), with James T. Kirby, 1998-2001.

38. Wave-breaking Induced Eddies in the Surf Zone, Sea Grant ($158,706), 1999-2001.

39. An Economic Analysis of Beach Nourishment Versus Retreat, Sea Grant ($82,000), with George Parsons, 1999-2001.

40. Smoothed Particle Hydrodynamics for Nearshore Modelling, Sea Grant ($81,152), 2001-2003.

41. Three Dimensional Modeling of Breaking, Office of Naval Research ($400k), 2004-2008.

42. Multidisciplinary University Research Initiative (MURI): Mechanisms of Fluid-Mud Interactions Under Waves, Department of Defense ($5,000,000), 2006-2011.

43. Hybrid Eulerian and Lagrangian Simulation of Steep and Breaking Waves, Office of Naval Research, ($230,928), 2009-2013, with Lian Shen.

44. Modeling Water Waves with Smoothed Particle Hydrodynamics, Office of Naval Research, ($226,900), 2012-2014.

45. Subsea Oil Plumes, NASA, ($140,000), 2015-2016

46. GOMRI, 2015-2018, in processing.

Sabbatical Leaves

Fall, 1978, Scripps Institution of Oceanography, to participate in the Nearshore Sediment Transport Study at Torrey Pines Beach.

Fall, 1985, Technical University of Delft, Holland, to research wave propagation models.

Fall, 1992, University of Delaware.

1999-2000, Johns Hopkins University, Department of Civil Engineering, research on particle methods.

Consulting Experience

Mathematica, Inc.; Western Contracting Corporation; Argonne National Laboratory; U.S. Park Service; Marex Technologies, Ltd. (U.K.); University of Hawaii; State of Alaska; State of Delaware; Morrison-Knudsen; Ciba-Geigy; AMOCO; Chevron; United Nations USAID; University of Kuwait; Port and Harbour Institute (Japan); and Roy F. Weston, Inc. In addition, Exxon Production Research (Houston, TX); Coastal and Offshore Engineering and Research, Inc. (Gainesville, FL.); Delaware Emergency Management Administration; MTS; Camp Dresser & McKee; Grand Bahama Development Corporation; U.S. Army Army Test Center, Aberdeen, MD; Jacksonville District, U.S.Army Corps of Engineers via Offshore and Coastal Technologies, Inc., Sutron Corporation; Whitman, Requardt; Jones Day.