

ANDONE C. LAVERY

Associate Scientist (Physicist- Acoustics)

Department of Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution (WHOI)

EDUCATION

1991 B.A. Honors, Mathematics, Cambridge University, England
1992 Certificate of Advanced Study (Part III), Applied Mathematics & Theoretical Physics, Cambridge University, England
1995 M.S. Physics, Cornell University
1999 Ph.D. Physics, Cornell University

PROFESSIONAL EXPERIENCE

1992 – 1995 Teaching Assistant, Physics Department, Cornell University
1995 Teacher Trainer, Physics Department, Cornell University
1995 - 1999 Graduate Research Assistant, Physics Department, Cornell University
1999 – 2001 Postdoctoral Scholar, Department of Applied Ocean Physics & Engineering, WHOI
2001 – 2002 Postdoctoral Investigator, Department of Applied Ocean Physics & Engineering, WHOI
2002 ONR Postdoctoral Fellow, Department of Applied Ocean Physics & Engineering, WHOI
2002- 2007 Assistant Scientist, Department of Applied Ocean Physics & Engineering, WHOI
2007- present Associate Scientist, Department of Applied Ocean Physics & Engineering, WHOI

PROFESSIONAL AFFILIATIONS

American Physical Society, Acoustical Society of America, The Oceanography Society, IEEE Oceanic Eng.

HONORS AND AWARDS

1991, 1992 Girton College Academic Merit Award, Cambridge University
1995 Clark Award for Excellence in Teaching, Cornell University
1992 Fulbright Scholarship
1999 Woods Hole Oceanographic Institution Postdoctoral Scholarship
2002 Office of Naval Research Postdoctoral Fellowship in Ocean Acoustics
2006 Woods Hole Oceanographic Institution Coastal Ocean Institute Fellow

RESEARCH INTERESTS

Theoretical development, laboratory and field measurements, and instrument development for improved measurement, of high-frequency acoustic scattering and propagation in discrete and continuous random inhomogeneous media, including turbulent microstructure, double-diffusion, and marine organisms.

SYNERGISTIC ACTIVITIES

Acoustical Society of America Meeting, Newport Beach, CA, Chair of Bioacoustical Oceanography Special Session and moderator for panel discussion (2000)
Acoustical Society of America, Acoustical Oceanography Technical Committee (2003-present)
The Oceanography Society Meeting, Student Poster Judge, New Orleans, LA (2003)
Acoustical Society of America, Acoustical Oceanography Paper Selection Committee (TPOM), Providence (2006)
IEEE OES Technology Committee on Underwater Acoustics (2006-present)
Acoustical Society of America Meeting, Student Paper Judge and Organizer, Salt Lake City (2007)
Acoustical Society of America, chair of sub-committee on on-site day-care at meetings (2007)
Acoustical Society of America, Women in Acoustics Committee (2008)
Acoustical Society of America, Acoustical Oceanography Paper Selection Committee (TPOM), Paris (2008)

STUDENTS SUPERVISED

WHOI Postdoctoral Scholars/Fellows: Tetjana Ross

MIT/WHOI Ph.D. Students Supervised: Wu-Jung Lee

Ph.D. Students Thesis Committee: Marcos Sastre-Cordova, University of Massachusetts at Dartmouth

MIT/WHOI Navy Masters Students Supervised: Greg Dietzen, Ben Jones

Masters Students Thesis Committee: Adam Baukus, University of Maine; Doris Leong, Dalhousie University

WHOI Summer Student Fellows: Yue Max Li, Swathmore College; V.K. Ravishankar

WHOI Guest Students: Paul Heslinga, Falmouth Academy High School

Five Publications Relevant to the Proposed Research

- 2002 Lavery, A.C, Stanton, T.K., McGehee, D.M., and Chu, D. "Three-dimensional modeling of acoustic backscattering from fluid-like zooplankton," *J. Acoust. Soc. Am.*, **111**, 1197-1210.
- 2003 Chu, D., Jech, J.M., and Lavery, A.C. "Inference of geometrical and behavioral parameters of individual fish from echo-trace-analysis," *Deep-Sea Res. I Oceanogr. Res. Pap.*, **50**, no. 4, 515-527.
- 2003 Benfield, M.C., A. Lavery, P.H. Wiebe, C.H. Greene, T.K. Stanton, and N. Copley, "Distributions of physonect siphonulae in the Gulf of Maine and their potential as important sources of acoustic scattering," *Can. J. Fish. Aquat. Sci.* **60**, 759-772.
- 2007 Lavery, A. C., Wiebe, P. H., Stanton, T.K., Lawson, G.L., Benfield, M.C., and Copley, N. "Determining dominant scatterers of sound in mixed zooplankton populations," *J. Acoust. Soc. Am.* **122**(6), 3304-3326.
- 2008 Lavery, A.C., Chu, D., and Moum, J., "Discrimination of scattering from zooplankton and oceanic microstructure using a broadband echosounder," submitted to *ICES J. Marine Science*.

Five Additional Significant Publications

- 2003 Lavery, A.C., R.W. Schmitt, and T.K. Stanton, "High-frequency acoustic scattering from turbulent oceanic microstructure: the importance of density fluctuations," *J. Acoust. Soc. Am.* **114**(5), 2685-2697.
- 2007 Lavery, A.C., and Ross, T. "Acoustic scattering from double-diffusive microstructure," *J. Acoust. Soc. Am.* **122**(3), 1449-1462.
- 2008 Jones, B. A., Stanton, T. K., Lavery, A. C., Johnson, M. P., Madsen, P. T., and Tyack, P. L., "Classification of broadband echoes from prey of a foraging Blainville's beaked whale," *J. Acoust. Soc. Am.* **123**(3), 1753-1762.
- 2008 Jones, B. A., Lavery, A. C., Stanton, T. K., "A ray-tracing method to predict acoustic scattering by inhomogeneous weakly-scattering objects: application to squid," accepted to the *J. Acoust. Soc. Am.*
- 2008 Ross, T., and Lavery, A.C., "Laboratory observations of double-diffusive convection using high-frequency broadband acoustics," accepted to *Experiments in Fluids*.

Non-WHOI Scientific Collaborators Within the Last four Years

Dr. Mark Benfield, Louisiana State University

Dr. Karen Fisher, Los Alamos National Laboratory

Dr. Lou Goodman, University of Massachusetts Dartmouth

Dr. Jim Moum, Oregon State University

Dr. Tetjana Ross, Dalhousie University

Dr. Malinda Sutor, Louisiana State University

GRADUATE ADVISOR: Dr. Barbara Cooper, Cornell University, Ithaca, NY

POSTDOCTORAL ADVISOR: Dr. Timothy K. Stanton, Woods Hole Oceanographic Institution, MA