

KATHLEEN J. VIGNESS RAPOSA

Education

Ph.D., Environmental Sciences, University of Rhode Island, 2010
M.S., Biological Oceanography, University of Rhode Island, 1998
B.S., Education, summa cum laude, Miami University, Ohio, 1994

Professional Experience

1997 - Present: **Senior Research Scientist**, Marine Acoustics, Inc. Researched and prepared environmental impact documentation addressing the effects of underwater sounds from acoustic systems, aircraft, and explosive weapon impacts on the marine environment with emphasis on marine mammals and bioacoustics. Created an educational website "Discovery of Sound in the Sea" (<http://www.dosits.org>) with outreach scientists at the University of Rhode Island. Led visual and passive acoustic monitoring teams on research cruises. Conducted biological research and analyses to derive distribution and abundance estimates for acoustic experiments around the world. Performed analytical and experimental modeling to predict and quantify sound exposures of marine mammals using MAI's *Acoustic Integration Mode*®. Project manager for the North Pacific Acoustic Laboratory Environmental Impact Statement and its associated regulatory environmental documentation.

2006 - 2007: **Research Assistant** to Dr. Frank Golet, Department of Natural Resources Science, University of Rhode Island. Updated and maintained the department's website (<http://www.nrs.uri.edu>) using PHP technologies.

1997 - 1998: **Research Assistant** to Sara Hickox, Office of Marine Programs, University of Rhode Island. Created virtual tour of the Graduate School of Oceanography campus. Created virtual tour of the historic Narragansett Village at South Ferry, RI. Developed activities and resources which support the Coastal Institute's "Living on the Edge" exhibit.

Fall 1997: **Research Assistant** to Al Beck and Eleanor Kinney, University of Rhode Island. Prepared YSI equipment for deployment in two estuaries on Prudence Island, RI. Downloaded and maintained database of water quality data collected.

1995 - 1997: **Research Assistant** to Dr. Theodore Smayda, University of Rhode Island. Participated in weekly cruises on Narragansett Bay conducting water analysis for temperature, salinity, water clarity, chlorophyll, and nutrients. Conducted sample analysis for zooplankton dry weight, ctenophore abundance and volume. Conducted computer data analysis and graphing.

Summer 1995: **Marine Mammal Acoustic Consultant** to the Northeast Branch of the National Marine Fisheries Service. Managed grant monies, prepared a technical

report on the use of acoustics in distribution and abundance assessments of marine mammals.

Spring 1995: **Research Assistant** to Dr. Karen Wishner, University of Rhode Island. Prepared glass fiber filters for MOCNESS zooplankton samples for JGOFS research cruises. Conducted post-cruise analysis of dry weight and ash-free dry weight of zooplankton.

Fall 1994: **Member of the AEROCE Air Particle Sizing Research Group** with Dr. Richard Arimoto, University of Rhode Island. Maintained clean room and prepared filters for trace metal analysis in a nuclear reactor.

1990 - 1994: **Research Assistant** to Dr. Dennis Claussen, Miami University. Designed and conducted research project on the energetics of mealworm beetles. Secretary for zoology graduate program; organized student files and computerized entire system.

Teaching Experience

Fall 2006: **Teaching Assistant** to Professor Paul Jordan, University of Rhode Island. Taught computer lab class on Geographic Information Systems (GIS) to graduate and upper-level undergraduate students (NRS 410).

Spring 2006: **Teaching Assistant** to Dr. Thomas Husband, University of Rhode Island. Assisted with teaching an upper-level undergraduate course on the analytical techniques for determining the abundance of wildlife (Biometrics, NRS 407).

Fall 2005: **Teaching Assistant** to Dr. Peter August, University of Rhode Island. Taught computer lab class on Geographic Information Systems (GIS) to graduate and upper-level undergraduate students (NRS 410). Administered and graded examinations in associated lecture course on geospatial data (NRS 409/509).

1996-1998: **Outreach Scientist** with Office of Marine Programs, Graduate School of Oceanography, University of Rhode Island. Conducted lectures and led field trips for school and community groups on various marine biology topics, including marine mammal ecology, salt marsh ecology and restoration, and rocky intertidal dynamics.

Summer 1995: **Teaching Assistant** to Dr. Candace Oviatt, Biological Oceanography (OCG 561), University of Rhode Island. Researched and rewrote four laboratory cruises (intertidal line transect, plankton tows, benthic grabs, fish trawl) with detailed methodology and data sheets.

Professional Affiliations:

Society of Marine Mammalogy
Acoustical Society of America

U.S. Chapter of the International Association of Landscape Ecologists

Security Clearance:

Secret

Other Activities:

Published Papers

Vigness-Raposa, K.J., R.D. Kenney, M.L. Gonzalez, and P.V. August. 2010. Spatial patterns of humpback whale (*Megaptera novaeangliae*) sightings and survey effort: Insight into North Atlantic population structure. *Marine Mammal Science* 26(1): 161-175.

Vigness-Raposa, K.J., G. Scowcroft, C. Knowlton, and P.F. Worcester. 2008. The *Discovery of Sound in the Sea* website: An educational resource. *Bioacoustics* 17:348-350.

Oral Presentations

Vigness-Raposa, K.J. 2010. Habitat of humpback whales (*Megaptera novaeangliae*) in the North Atlantic Ocean. US-IALE Twenty-fifth Anniversary Symposium, Athens, Georgia.

Miller, James H., Gopu R. Potty, Kathleen Vigness Raposa, David Casagrande, and Lisa Miller. 2010. Environmental assessment of offshore wind power generation: Acoustic effects on marine animals. 2nd conference of The Effects of Noise on Aquatic Life, Cork, Ireland.

Miller, James H., Gopu R. Potty, Kathleen Vigness Raposa, David Casagrande, Lisa Miller, Steven E. Crocker, Robert Tyce, Jonathan Preston, Brian Roderick, Jeffrey A. Nystuen, Peter M. Scheifele. 2009. Environmental Assessment of Offshore Wind Power Generation Near Rhode Island: Acoustic and Electromagnetic Effects on Marine Animals. 158th Meeting of the Acoustical Society of America, San Antonio, TX.

Miller, James H., Gopu R. Potty, Andres Nunez Perez, Kathleen Vigness-Raposa, and Jeffrey Nystuen. 2009. Ocean Acoustic Noise Budgets for the Environmental Assessment of Offshore Wind Power Generation Sites. 38th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2009), Ottawa, Canada.

Miller, James H., Gopu R. Potty, Kathleen Vigness-Raposa, and Jeffrey Nystuen. 2009. Ocean Acoustic Noise Budgets: Application to the Environmental Assessment of Offshore Wind Power Generation. 157th Meeting of the Acoustical Society of America, Portland, OR.

Vigness Raposa, K.J. 2007. Does the spatial pattern of humpback whales in the North Atlantic Ocean provide insight into their population structure? 22nd Annual Conference of the U.S. Chapter of the International Association for Landscape Ecology (US-IALE), Tucson, AZ.

- Vigness Raposa, K. J., Scowcroft, G., Johnen, J., Knowlton, C., and Worcester, P. 2006. Discovery of Sound in the Sea website: An educational resource. 151st Meeting of the Acoustical Society of America, Providence, R.I.
- Vigness Raposa, K. J. 2006. Assessing the potential effects of underwater sound on marine animals. National Marine Educators Association Conference, New York, N.Y.
- Johnen, J. and Vigness Raposa, K. J. 2006. Discovery of Sound in the Sea. National Marine Educators Association Conference, New York, N.Y.
- Scowcroft, G., Vigness Raposa, K. J., and Johnen, J. 2005. Discovery of Sound in the Sea: An educational resource. National Science Teachers Association Annual Meeting, Dallas, TX.
- Scowcroft, G., Vigness Raposa, K. J., and Johnen, J. 2004. Discovery of Sound in the Sea: An educational resource. National Science Teachers Association Annual Meeting, Atlanta, GA.
- Vigness, K. J. 1999. Factors affecting abundance estimates of marine mammal populations. 13th Biennial Conference of the Society for Marine Mammalogy. Maui, HI.
- Vigness, K. J. 1999. Visual and acoustic surveys of whales: A Monte Carlo model. 138th Meeting of the Acoustical Society of America. Columbus, OH.

Poster Presentations

- Vigness-Raposa, K.J., G. Scowcroft, J.H. Miller, D.R. Ketten. 2010. Discovery of Sound in the Sea: an on-line resource. 2nd conference of The Effects of Noise on Aquatic Life, Cork, Ireland.
- Vigness-Raposa, K.J., G. Scowcroft, C. Knowlton, H. Morin. 2010. Discovery of Sound in the Sea: an on-line resource. 159th Meeting of the Acoustical Society of America and NOISE-CON 2010. Baltimore, MD.
- Vigness Raposa, K.J. 2007. The spatial patterns of humpback whale (*Megaptera novaeangliae*) sightings and survey effort in the North Atlantic Ocean. 17th Biennial Conference on the Biology of Marine Mammals, Cape Town, South Africa.
- Vigness Raposa, K., Scowcroft, G., Knowlton, C., and Worcester, P. 2007. *Discovery of Sound in the Sea* website: An educational resource. The Effects of Noise on Aquatic Life International Conference, Nyborg, Denmark.
- Vigness Raposa, K., Damon, C., Ellison, W.T., Frankel, A. S., LaBash, C., and August, P.V. 2006. Marine Wildlife Behavior Database for predicting and minimizing environmental impacts. ESRI Users Conference, San Diego, CA.
- Vigness Raposa, K., Damon, C., Ellison, W.T., Frankel, A. S., LaBash, C., and August, P.V. 2006. Marine Wildlife Behavior Database for predicting and minimizing environmental impacts. NOAA Fisheries and MIT Sea Grant Conference on Geographic Information Systems and Ocean Mapping in Support of Fisheries Research and Management, Boston, MA.
- Vigness Raposa, K., Scowcroft, G., Johnen, J., Knowlton, C., and Worcester, P. 2005. Discovery of Sound in the Sea: An online educational resource. Sixteenth Biennial Conference on the Biology of Marine Mammals, San Diego, CA.

Academic Awards

Best Student Research Presentation, US-IALE Conference, April 2010

NASA-MSU Professional Enhancement Award, 2007

P.E.O. Fellowship, 2006-2007

Selected to participate in the Office of Naval Research (ONR) Bioacoustical Oceanography Workshop III, University of California Santa Cruz, August 1996. Analyzed krill target strength. Participated in daily research cruises on Monterey Bay tagging blue and fin whales with time-depth recorders, mapping their prey field with a Simrad echo-sounder, and tracking them with passive acoustics.

Selected to participate in the ONR Bioacoustical Oceanography Workshop II: "Top Predators and Their Prey in the Marine Environment," University of California Santa Cruz. August 1995. Constructed tank to measure target strength of Antarctic krill; measurements were correlated with video images to include effects of animal orientation in the beam. Participated in daily research cruises on Monterey Bay tagging blue and fin whales with time-depth recorders, mapping their prey field with a Simrad echo-sounder, and tracking them with passive acoustics.

Alumni Award for research equipment, 1996

Scholar-Leader Program/Raymond M. Hughes Scholarship, 1993-1994

A.R. McMicken Memorial Scholarship, 1993-1994

Harry T. Phillips Memorial Scholarship, 1993-1994

Mortar Board (senior honor society), 1993-1994

Outstanding Senior, Greek Week Committee, 1993

Outstanding Greek Scholar, Greek Week Committee, 1993

National Residence Hall Honorary Outstanding Student Leader, 1992-1993

Golden Key National Honor Society, 1992

Kappa Delta Pi, International Honor Society in Education, 1991

SPERS (junior honor society), 1991-1992

Dean's List (GPA>3.5), 1991-1994

President's List (GPA=4.0), 1990-1991

Alpha Lambda Delta, National Academic Honor Society for Freshmen, 1990-1991

Phi Eta Sigma, Freshman Honor Society, 1990-1991

Dean's Scholar Award, 1990

Presidential Scholarship, 1990-1994

Research Cruises and Field Work

September 2007: Beaked Whale Behavioral Response Study, Bahamas. Acoustic propagation modeling and database maintenance.

April 2003: Littoral Warfare Advanced Deployment 03-2 sea test aboard the R/V ENDEAVOR, northeast United States. Passive acoustic and visual monitoring for marine mammals.

August 2001: Littoral Warfare Advanced Deployment 01-2 sea test aboard the R/V MELVILLE, Japan. Passive acoustic monitoring for marine mammals.

February 2001: Littoral Warfare Advanced Deployment 01-1 sea test aboard the R/V EWING, southeast United States. Passive acoustic monitoring for marine mammals.

September-October 1997: U.S. Navy's SURTASS LFA Scientific Research Project aboard the R/V CORY CHOUEST and R/V DARIABAR, Channel Islands. Located marine mammals and sea turtles visually and with passive acoustics. Radio-tracked tagged blue whales. Predicted the range- and depth-dependent sound field around the sound source using an acoustic propagation model. Measured transmission loss from the sound source to validate the sound propagation model.

Spring 1997: Led team of Earthwatch volunteers on "Belize's Barrier Reef: The Behavioral Ecology of Coral Reef Fish" Project.

June 1995: National Marine Fisheries Service Food Chain Survey aboard the R-F/V KATAHDIN, Georges Bank. Conducted trawls every two hours for two weeks. Measured weight and length of fish caught. Analyzed stomach contents.

1992-1994: Designed and conducted botanical, taxonomic analysis on Indian Paintbrush (*Castilleja sp.*) in Glacier National Park, MT with Dr. Hardy Eshbaugh.

Volunteer Work

2004-present: Board of Directors, Land Conservancy of North Kingstown. Our mission is to preserve the natural and scenic character of the North Kingstown community for present and future generations. President (2006-Present), Chair of the Outreach Committee (2004-2007): Develop board leadership, initiate strategic planning, conduct GIS analyses of conservation targets, prepare newsletters biannually, maintain the organization's website, organize lecture series and programs to enhance environmental awareness.

2008-present: Board of Directors, Rhode Island Natural History Survey.

2000-present: Outreach Scientist, Audubon Society of Rhode Island. Lead rocky intertidal nature walks. Participate in annual winter waterfowl survey.

2004-2005, 2009-2010: Member of the Organizing Committee for the GIS Spatial-temporal Modeling Workshops at the 16th and 18th Biennial Conferences on the Biology of Marine Mammals.