



**Exponent**<sup>®</sup>  
Engineering & Scientific Consulting

## William H. Bailey, Ph.D.

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### Professional Profile

Dr. Bailey specializes in applying state-of-the-art assessment methods to environmental and occupational health issues. His 30 years of training and experience include laboratory and epidemiologic research, health risk assessment, and comprehensive exposure analysis. Dr. Bailey has investigated exposures to alternating current, direct current, and radiofrequency electromagnetic fields, 'stray voltage', and electrical shock, as well as to a variety of chemical agents and air pollutants. He is particularly well known for his research on potential effects of electromagnetic fields on the environment and health and has served as an advisor to numerous state, federal, and international agencies. Currently, he is involved in research on exposures to marine life from submarine cables, respiratory exposures to ultrafine- and nanoparticles, and EMF and RF exposure guidelines.

Dr. Bailey has been a visiting scientist at the Cornell University Medical College and has lectured at Rutgers University, the University of Texas (San Antonio), and the Harvard School of Public Health. He was formerly Head of the Laboratory of Neuropharmacology and Environmental Toxicology at the New York State Institute for Basic Research, Staten Island, New York, and an Assistant Professor and NIH postdoctoral fellow in Neurochemistry at The Rockefeller University in New York.

### Academic Credentials & Professional Honors

Ph.D., Neuropsychology, City University of New York, 1975

M.B.A., University of Chicago, 1969

B.A., Dartmouth College, 1966

Sigma Xi

The Institute of Electrical and Electronics Engineers/International Committee on Electromagnetic Safety (Subcommittee 3, Safety Levels with Respect to Human Exposure to Fields (0 to -3 kHz) and Subcommittee 4, Safety Levels with Respect to Human Exposure to Radiofrequency Fields (3 kHz to 3 GHz)

Elected member of the Committee on Man and Radiation (COMAR) of the IEEE Engineering in Medicine and Biology Society, 1998-2001

### Academic Appointments

Visiting Scientist, Department of Pharmacology, Cornell University Medical College, New York, NY, 1986-2012

Visiting Scientist, The Jackson Laboratory, Bar Harbor, ME, 1984-1985

Head, Laboratory of Neuropharmacology and Environmental Toxicology, NYS Institute for Basic Research in Developmental Disabilities, Staten Island, NY, 1983-1987

Assistant Professor, The Rockefeller University, New York, NY, 1976-1983

Postdoctoral Fellow, Neurochemistry, The Rockefeller University, New York, NY, 1974-1976

Dissertation Research, The Rockefeller University, New York, NY, 1972-1974

CUNY Research Fellow, Dept. of Psychology, Queens College, City University of New York, Flushing, NY, 1969-1971

Clinical Research Assistant, Department of Psychiatry, University of Chicago; Psychiatric Psychosomatic Inst., Michael Reese Hospital, and Illinois State Psychiatric Inst, Chicago, IL, 1968-1969

### **Teaching Appointments**

Lecturer, University of Texas Health Science Center, Center for Environmental Radiation Toxicology, San Antonio, TX, 1998

Lecturer, Harvard School of Public Health, Office of Continuing Education, Boston, MA, 1995, 1997

Lecturer, Rutgers University, Office of Continuing Education, New Brunswick, NJ, 1991-1995

Adjunct Assistant Professor, Queens College, CUNY, Flushing, NY, 1978

Lecturer, Queens College, CUNY, Flushing, NY, 1969-1974

### **Prior Experience**

President, Bailey Research Associates, Inc., 1991-2000

Vice President, Environmental Research Information, Inc., 1987-1990

Head of Laboratory of Environmental Toxicology and Neuropharmacology, New York State Institute for Basic Research, 1983-1987

Assistant Professor, The Rockefeller University, 1976-1983

### **Professional Affiliations**

The Health Physics Society (Affiliate of the International Radiation Protection Society)

Society for Risk Analysis

International Society of Exposure Analysis

New York Academy of Sciences

American Association for the Advancement of Science (Life Time Member)

Society for Neuroscience/International Brain Research Organization

Bioelectromagnetics Society

The Institute of Electrical and Electronics Engineers (Life Member)

The Institute of Electrical and Electronics Engineers Engineering in Medicine and Biology Society

Conseil International des Grands Réseaux Électriques

## Publications

Bailey WH, Cotts B, Dopart PJ. Wireless 5G radiofrequency technology - An overview of small cell exposures, standards and science. *IEEE Access*. 2020 Aug; 8:140792-140797. doi:0.1109/ACCESS.2020.3010677.

IEEE International Committee on Electromagnetic Safety Technical Committee 95. Bailey WH, Bodemann R, Bushberg J, Chou C-K, Cleveland R, Faraone A, Foster KR, Gettman KE, Graf K, Harrington T, Hirata A, Kavet R, Keshvari J, Klauenberg BJ, Legros A, Maxson DP, Osepchuk JM, Reilly JP, Tell RA, Thansandote A, Yamazaki K, Ziskin MC, Zollman PM. Synopsis of IEEE Std C95.1™-2019 "IEEE Standard for Safety Levels With Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz. *IEEE Access*. 2019 Dec; 7(1):171346-171356. doi: 10.1109/ACCESS.2019.2954823.

Bailey WH, Williams AL, Leonhard MJ. Exposure of laboratory animals to small air ions: a systematic review of biological and behavioral studies. *Biomed Eng Online*. 2018 Jun 5;17(1):72. doi: 10.1186/s12938-018-0499-z

Schmiedchen K, Petri AK, Driessen S, Bailey WH. Systematic review of biological effects of exposure to static electric fields. Part II: Invertebrates and plants. *Environ Res*. 2018 Jan;160:60-76. doi: 10.1016/j.envres.2017.09.013. Epub 2017 Oct 3.

Petri AK, Schmiedchen K, Stunder D, Dechent D, Kraus T, Bailey WH, Driessen S. Biological effects of exposure to static electric fields in humans and vertebrates: A systematic review. *Environ Health* 2017 Apr 17; 16(1):41. doi: 10.1186/s12940-017-0248-y.

Bailey WH. Review of epidemiology of electromagnetic fields, Martin Rössli, Editor. *Health Physics* 2015; 109:606-607.

Chang ET, Adami H-O, Bailey WH, Boffetta P, Krieger RI, Moolgavkar SH, Mandel JS. Validity of geographically modeled environmental exposure estimates. *Crit Rev Toxicol* 2014 May; 44:450-466. doi: 10.3109/10408444.2014.902029.

Alexander DD, Bailey WH, Perez V, Mitchell ME, Su S. Air ions and respiratory function outcomes: A comprehensive review. *J Negat Results Biomed* 2013 Sep 9; 12(1):14. doi: 10.1186/1477-5751-12-14.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. *BMC Psychiatry* 2013 Jan 15; 13(1):29. doi: 10.1186/1471-244X-13-29.

Bailey WH, Johnson GB, Bishop J, Hetrick T, Su S. Measurements of charged aerosols near +/- 500 kV DC transmission lines and in other environments. *IEEE Transactions on Power Delivery* 2012; 27:371-379.

Shkolnikov YP, Bailey WH. Electromagnetic interference and exposure from household wireless networks. 2011 IEEE Symposium on Product Compliance Engineering (PSES), October 1-5, 2011.

Kavet R, Bailey WH, Bracken TD, Patterson RM. Recent advances in research relevant to electric and magnetic field exposure guidelines. *Bioelectromagnetics* 2008; 29:499-526.

Bailey WH, Wagner M. IARC evaluation of ELF magnetic fields: Public understanding of the 0.4 $\mu$ T exposure metric. *Journal of Exposure Science and Environmental Epidemiology* 2008; 18:233-235.

Bailey WH, Erdreich L. Accounting for human variability and sensitivity in setting standards for electromagnetic fields. *Health Physics* 2007; 92:649-657.

Bailey WH, Nyenhuis JA. Thresholds for 60-Hz magnetic field stimulation of peripheral nerves in human subjects. *Bioelectromagnetics* 2005; 26:462-468.

Bracken TD, Senior RS, Bailey WH. DC electric fields from corona-generated space charge near AC transmission lines. *IEEE Transactions on Power Delivery* 2005; 20:1692-1702.

Bailey WH. Dealing with uncertainty in formulating occupational and public exposure limits. *Health Physics* 2002; 83:402-408.

Bailey WH. Health effects relevant to the setting of EMF exposure limits. *Health Physics* 2002; 83:376-386.

Kavet R, Stuchly MA, Bailey WH, Bracken TD. Evaluation of biological effects, dosimetric models, and exposure assessment related to ELF electric- and magnetic-field guidelines. *Applied Occupational and Environmental Hygiene* 2001; 16:1118-1138.

Bailey WH. ICNIRP recommendation for limiting public exposure to 4 Hz-1 kHz electric and magnetic fields. *Health Physics* 1999; 77:97-98.

Bailey WH. Principles of risk assessment with application to current EMF risk communication issues. In: *EMF Risk Perception and Communication*. Repacholi MH, Muc AM (eds), World Health Organization, Geneva, 1999.

De Santo RS, Bailey WH. Environmental justice tools and assessment practices. *Proceedings, American Public Transit Association*, 1999.

Bailey WH, Su SH, Bracken TD. Probabilistic approach to ranking sources of uncertainty in ELF magnetic field exposure limits. *Health Physics* 1999; 77:282-290.

Bailey WH. Field parameters. *Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research*. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28-29, 1998.

Bailey WH. Policy implications. *Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research*. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28-29, 1998.

Bailey WH. Probabilistic approaches to deriving risk-based exposure guidelines: Application to extremely low frequency magnetic fields. In: *Non-Ionising Radiation*. Dennis JA and Stather JW (eds), Special Issue of *Radiation Protection Dosimetry* 1997; 72:327-336.

Bailey WH, Su SH, Bracken TD, Kavet R. Summary and evaluation of guidelines for occupational exposure to power frequency electric and magnetic fields. *Health Physics* 1997; 73:433-453.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Magnetic field exposures in the electric utility

industry relevant to occupational guideline levels. Applied Occupational and Environmental Hygiene 1997; 12:756-768.

Blondin J-P, Nguyen D-H, Sbeghen J, Goulet D, Cardinal C, Maruvada P-S, Plante M, and Bailey WH. Human perception of electric fields and ion currents associated with high voltage DC transmission lines. Bioelectromagnetics 1996; 17:230-241.

Bailey WH, Charry JM. Acute exposure of rats to air ions: Effects on the regional concentration and utilization of serotonin in brain. Bioelectromagnetics 1987; 8:173-181.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to dc electric fields and atmospheric space charge. Proceedings, 23rd Hanford Life Sciences Symposium, Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields, 1987.

Pavildes C, Aoki C, Chen J-S, Bailey WH, Winson J. Differential glucose utilization in the parafascicular region during slow-wave sleep, the still-alert state and locomotion. Brain Research 1987; 423:399-402.

Bailey WH, Charry JM. Behavioral monitoring of rats during exposure to air ions and DC electric fields. Bioelectromagnetics 1986; 7:329-339.

Charry JM, Shapiro MH, Bailey WH, Weiss JM. Ion-exposure chambers for small animals. Bioelectromagnetics 1986; 7:1-11.

Charry JM, Bailey WH. Regional turnover of norepinephrine and dopamine in rat brain following acute exposure to air ions. Bioelectromagnetics 1985; 6:415-425.

Bracken TD, Bailey WH, Charry JM. Evaluation of the DC electrical environment in proximity to VDTs. Journal of Environmental Science and Health Part A 1985; 20:745-780.

Gross SS, Levi R, Bailey WH, Chenouda AA. Histamine modulation of cardiac sympathetic responses: A physiological role. Federation Proceedings 1984; 43:458.

Gross SS, Guo ZG, Levi R, Bailey WH, Chenouda AA. 1984. Release of histamine by sympathetic nerve stimulation in the guinea pig heart and modulation of adrenergic responses. Circulation Research 1984; 54:516-526.

Dahl D, Bailey WH, Winson J. Effect of norepinephrine depletion of hippocampus on neuronal transmission from perforant pathway through dentate gyrus. Journal of Neurophysiology 1983; 49:123-135.

Guo ZG, Gross SS, Levi R, Bailey WH. Histamine: Modulation of norepinephrine release from sympathetic nerves in guinea pig heart. Federation Proceedings 1983; 42:907.

Bailey WH. Biological effects of air ions on serotonin metabolism: Fact and fancy. pp. 90-120. In: Conference on Environmental Ions and Related Biological Effects. Charry JM (ed), American Institute of Medical Climatology, Philadelphia, PA, 1982.

Weiss JM, Goodman PA, Losito BG, Corrigan S, Charry JM, Bailey WH. Behavioral depression produced by an uncontrollable stressor: Relationship to norepinephrine, dopamine, and serotonin levels in various regions of rat brain. Brain Research Reviews 1981; 3:167-205.

Weiss JM, Bailey WH, Pohorecky LA, Korzeniowski D, Grillione G. Stress-induced depression of motor activity correlates with regional changes in brain norepinephrine but not in dopamine. Neurochem Res. 1980; 5:9-22.

Bailey WH. Ion-exchange chromatography of creatine kinase isoenzymes: A method with improved specificity and sensitivity. *Biochemical Medicine* 1980; 24:300-313.

Bailey WH, Weiss JM. Evaluation of a 'memory deficit' in vasopressin-deficient rats. *Brain Research* 1979; 162:174-178.

Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brattleboro strain). *Hormones and Behavior* 1978; 10:22-29.

Pohorecky LA, Newman B, Sun J, Bailey WH. Acute and chronic ethanol injection and serotonin metabolism in rat brain. *Journal of Pharmacology and Experimental Therapeutics* 1978; 204:424-432.

Koh SD, Vernon M, Bailey WH. Free-recall learning of word lists by prelingual deaf subjects. *Journal of Verbal Learning and Verbal Behavior* 1971; 10:542-574.

### Book Chapters

Cotts B, Graf K, Bailey WH, Murphy P. Electromagnetic interference considerations for electrical power systems. In *The Power Grid: Smart, Secure, Green and Reliable*. D'Andrade B (ed), Academic Press, New York, NY 2017.

Bailey WH. Principles of risk assessment and their limitations. In: *Risk Perception, Risk Communication and its Application to EMF Exposure*. Matthes R, Bernhardt JH, Repacholi MH (eds), International Commission on Non-Ionizing Radiation Protection, Oberschleissheim, Germany, 1998.

Bailey WH. Biological responses to air ions: Is there a role for serotonin? pp. 151-160. In: *Air Ions: Physical and Biological Aspects*. Charry JM and Kavet R (eds). CRC Press, Boca Raton, FL, 1987.

Weiss JM, Bailey WH, Goodman PA, Hoffman LJ, Ambrose MJ, Salman S, Charry JM. A model for neurochemical study of depression. pp. 195-223. In: *Behavioral Models and the Analysis of Drug Action*. Spiegelstein MY, Levy A (eds), Elsevier Scientific, Amsterdam, 1982.

Bailey WH. Mnemonic significance of neurohypophyseal peptides. pp. 787-804. In: *Changing Concepts of the Nervous System*. Morrison AR, Strick PL (eds), Academic Press, New York, NY, 1981.

Bailey WH, Weiss, JM. Avoidance conditioning and endocrine function in Brattleboro rats. pp 371-395. In: *Endogenous Peptides and Learning and Memory Process*. Martinez JL, Jensen RA, Messing RB, Rigter H, McGaugh JL (eds), Academic Press, New York, NY, 1981.

Weiss JM, Glazer H, Pohorecky LA, Bailey WH, Schneider L. Coping behavior and stress-induced behavioral depression: Studies of the role of brain catecholamines. pp. 125-160. In: *The Psychobiology of the Depressive Disorders: Implications for the Effects of Stress*. Depue R (ed), Academic Press, New York, NY, 1979.

### Technical Reports

Snyder DB, Bailey WH, Palmquist K, Cotts BRT, Olsen KR. Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Headquarters, Sterling, VA. OCS Study BOEM 2019-049, August 2019.

Normandeau, Exponent, Tricas T, Gill A. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA. OCS Study BOEMRE 2011-09, May 2011.

Jardini JA, et al. Electric field and ion current environment of HVDC overhead transmission lines. Report of Joint Working Group B4/C3/B2.50, CIGRÉ, August 2011.

Johnson GB, Bracken TD, Bailey WH. Charging and transport of aerosols near AC transmission lines: A literature review. EPRI, Palo Alto, CA, 2003.

Bailey WH. Probabilistic approach to ranking sources of uncertainty in ELF magnetic-field exposure limits. In: Evaluation of Occupational Magnetic Exposure Guidelines, Interim Report, EPRI Report TR-111501, 1998.

Bracken TD, Bailey WH, Su SH, Senior RS, Rankin RF. Evaluation of occupational magnetic-field exposure guidelines; Interim Report. EPRI Report TR-108113, 1997.

Bailey WH, Weil DE, Stewart JR. HVDC Power Transmission Environmental Issues Review. Oak Ridge National Laboratory, Oak Ridge, TN, 1996.

Bailey WH. Melatonin responses to EMF. Proceedings, Health Implications of EMF Neural Effects Workshop, Report TR-104327s, EPRI, 1994.

Bailey WH. Recent neurobiological and behavioral research: Overview of the New York State powerlines project. In: Power-Frequency Electric and Magnetic Field Research, EPRI, 1989.

Bailey WH, Bissell M, Dorn CR, Hoppel WA, Sheppard AR, Stebbings, JH. Comments of the MEQB Science Advisors on Electrical Environment Outside the Right of Way of CU-TR-1, Report 5. Science Advisor Reports to the Minnesota Environmental Quality Board, 1986.

Bailey WH, Bissell M, Brambl RM, Dorn CR, Hoppel WA, Sheppard AR, Stebbings JH. A health and safety evaluation of the +/- 400 KV powerline. Science Advisor's Report to the Minnesota Environmental Quality Board, 1982.

Charry JM, Bailey WH, Weiss JM. Critical annotated bibliographical review of air ion effects on biology and behavior. Rockefeller University, New York, NY, 1982.

Bailey WH. Avoidance behavior in rats with hereditary hypothalamic diabetes insipidus. Dissertation, City University of New York, 1975.

### **Invited Presentations**

Chou CK, Petersen R, Foster K, Hirata A, Ziskin M, Reilly JP, Tell R, Faraone A, Klauenberg BJ, Kavet R, Graf K, Cleveland R, Thansandote A, Bushberg J, Bailey W, Osepchuk J, Legros A, Yamazaki K, Bodemann R. Revision of IEEE Standards C95.1-2005 and C95.6-2002. BioEM2018 - Joint Annual Meeting of The Bioelectromagnetics Society and the European BioElectromagnetics Association, Piran, Portorož, Slovenia, June 29, 2018.

Bailey WH. Thresholds for peripheral nerve stimulation by ELF magnetic fields in humans. Presentation at Bundesamt für Strahlenschutz Workshop on Action and Perception Thresholds of Static and ELF Magnetic and Electric Fields and Contact Currents in Humans, Munich, Germany, October 26-27, 2016.

Bailey WH. Update on scientific developments regarding extremely low frequency and radiofrequency fields and health. Committee on Man and Radiation (COMAR) of the IEEE Engineering in Medicine and Biology Society, January 11, 2016.

Bailey WH. Measurements of charged aerosols around DC transmission lines and other locations. International Committee on Electromagnetic Safety TC95/ Subcommittee 3: Safety Levels with Respect to

Human Exposure to Electromagnetic Fields, 0 - 3 kHz, December 2011.

Bailey WH, Erdreich LS. Human sensitivity and variability in response to electromagnetic fields: Implications for standard setting. International Workshop on EMF Dosimetry and Biophysical Aspects Relevant to Setting Exposure Guidelines. International Commission on Non-Ionizing Radiation Protection, Berlin, March 2006.

Bailey WH. Research-based approach to setting electric and magnetic field exposure guidelines (0-3000 Hz). IEEE Committee on Electromagnetic Safety, December 2005.

Bailey WH. Conference Keynote Presentation. Research supporting 50/60 Hz electric and magnetic field exposure guidelines. Canadian Radiation Protection Association, Annual Conference, Winnipeg, June 2005.

Bailey WH. Scientific methodology for assessing public health issues: A case study of EMF. Canadian Radiation Protection Association, Annual Conference, Public Information for Teachers, Winnipeg, June 2005.

Bailey WH. Assessment of potential environmental effects of electromagnetic fields from submarine cables. Connecticut Academy of Science and Engineering, Long Island Sound Bottomlands Symposium: Study of Benthic Habitats, July 2004.

De Santo RS, Coe M, Bailey WH. Environmental justice assessment and the use of GIS tools and methods. National Association of Environmental Professionals, 27th Annual Conference, Dearborn, MI, June 2002.

Bailey WH. Applications to enhance safety: Research to understand and control potential risks. Human Factors and Safety Research, Volpe National Transportation Systems Center/Dutch Ministry of Transport, Cambridge, MA, November 2000.

Bailey WH. EMF health effects review. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Dealing with uncertainty when formulating guidelines. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Field parameters: Policy implications. EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research, Charleston, SC, April 1998.

Bailey WH. Principles of risk assessment: Application to current issues. Symposium on EMF Risk Perception and Communication, World Health Organization, Ottawa, Canada, August 1998.

Bailey WH. Current guidelines for occupational exposure to power frequency magnetic fields. EPRI EMF Seminar, New Research Horizons, March 1997.

Bailey WH. Methods to assess potential health risks of cell telephone electromagnetic fields. IBC Conference — Cell Telephones: Is there a Health Risk? Washington, DC, June 1997.

Bailey WH. Principles of risk assessment and their limitations. Symposium on Risk Perception, Risk Communication and its Application to EMF Exposure, International Commission on Non-Ionizing Radiation Protection, Vienna, Austria, October 1997.

Bailey WH. Probabilistic approach for setting guidelines to limit induction effects. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0-3 kHz), June 1997.

Bailey WH. Power frequency field exposure guidelines. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0-3 kHz), June 1996.

Bailey WH. Epidemiology and experimental studies. American Industrial Hygiene Conference, Washington, DC, May 1996.

Bailey WH. Review of 60 Hz epidemiology studies. EMF Workshop, Canadian Radiation Protection Association, Ontario, Canada, June 1993.

Bailey WH. Biological and health research on electric and magnetic fields. American Industrial Hygiene Association, Fredrickton, New Brunswick, Canada, October 1992.

Bailey WH. Electromagnetic fields and health. Institute of Electrical and Electronics Engineers, Bethlehem, PA, January 1992.

Bailey WH, Weiss JM. Psychological factors in experimental heart pathology. Visiting Scholar Presentation, National Heart Lung and Blood Institute, Bethesda, MD, March 1977.

### **Presentations**

Williams AI, Bailey WH. Toxicologic assessment of air ion exposures in laboratory animals. Poster presentation at 53rd Annual Meeting of the Society of Toxicology, Phoenix, AZ, March 26, 2014.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. Poster presentation at the American College of Epidemiology, Chicago, IL, September 8-11, 2012.

Shkolnikov Y, Bailey WH. Electromagnetic interference and exposure from household wireless networks. Product Safety Engineering Society Meeting, San Diego, CA, October 2011.

Nestler E, Trichas T, Pembroke A, Bailey W. Will undersea power cables from offshore wind projects affect sharks? North American Offshore Wind Conference & Exhibition, Atlantic City, NJ, October 2010.

Nestler E, Pembroke A, Bailey W. Effects of EMFs from undersea power lines on marine species. Energy Ocean International, Ft. Lauderdale, FL, June 2010.

Pembroke A, Bailey W. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. Windpower 2010 Conference and Exhibition, Dallas, TX, 2010.

Bailey WH. Clarifying the neurological basis for ELF guidelines. Workshop on Practical Implementation of ELF and RF Guidelines. The Bioelectromagnetics Society 29th Annual Meeting, Kanazawa, Japan, June 2007.

Sun B, Urban B, Bailey W. AERMOD simulation of near-field dispersion of natural gas plume from accidental pipeline rupture. Air and Waste Management Association: Health Environments: Rebirth and Renewal, New Orleans, LA, June 2006.

Bailey WH, Johnson G, Bracken TD. Method for measuring charge on aerosol particles near AC transmission lines. Joint Meeting of The Bioelectromagnetics Society and The European BioElectromagnetics Association, Dublin Ireland, June 2005.

Bailey WH, Bracken TD, Senior RS. Long-term monitoring of static electric field and space charge near AC transmission Lines. The Bioelectromagnetics Society, 26th Annual Meeting, Washington, DC, June 2004.

Bailey WH, Erdreich L, Waller L, Mariano K. Childhood leukemia in relation to 25-Hz and 60-Hz magnetic

fields along the Washington DC — Boston rail line. Society for Epidemiologic Research, 35th Annual Meeting, Palm Desert CA, June 2002. American Journal of Epidemiology 2002; 155:S38.

Erdreich L, Klauenberg BJ, Bailey WH, Murphy MR. Comparing radiofrequency standards around the world. Health Physics Society 43rd Annual Meeting, Minneapolis, MN, July 1998.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Relevance of occupational guidelines to utility worker magnetic-field exposures. Second World Congress for Electricity and Magnetism in Biology and Medicine, Bologna, Italy, June 1997.

Weil DE, Erdreich LS, Bailey WH. Are 60-Hz magnetic fields cancer causing agents? Mechanisms and Prevention of Environmentally Caused Cancers, The Lovelace Institutes 1995 Annual Symposium, La Fonda, Santa Fe, NM, October 1995.

Bailey WH. Neurobiological research on extremely-low-frequency electric and magnetic fields: A review to guide future research. Sixteenth Annual Meeting of the Bioelectromagnetics Society, Copenhagen, Denmark, June 1994.

Blondin J-P, Nguyen D-H, Sbeghen J, Maruvada PS, Plante M, Bailey WH, Goulet D. The perception of DC electric fields and ion currents in human observers. Annual Meeting of the Canadian Psychological Association, Penticton, British Columbia, Canada, June 1994.

Erdreich LS, Bailey WH, Weil DE. Science, standards and public policy challenges for ELF fields. American Public Health Association 122nd Annual Meeting, Washington, DC, October 1994.

Bailey WH, Charry JM. Particle deposition on simulated VDT operators: Influence of DC electric fields. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Charry JM, Bailey WH. Contribution of charge on VDTs and simulated VDT operators to DC electric fields at facial surfaces. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Bailey WH, Charry, JM. Dosimetric response of rats to small air ions: Importance of relative humidity. EPRI/DOE Contractors Review, November 1986. Charry JM, Bailey WH, Bracken TD (eds). DC electric fields, air ions and respirable particulate levels in proximity to VDTs. International Conference on VDTs and Health, Stockholm, Sweden, June 12-15 1986.

Charry JM, Bailey WH. Air ion and DC field strengths at  $10^4$  ions/cm<sup>3</sup> in the Rockefeller University Small Animal Exposure Chambers. EPRI/DOE Contractors Review, November 1985.

Charry JM, Bailey WH. DC Electrical environment in proximity to VDTs. 7th Annual Meeting of the Bioelectromagnetics Society, June 1985.

Bailey WH, Collins RL, Lahita RG. Cerebral lateralization: Association with serum antibodies to DNA in selected bred mouse lines. Society for Neuroscience, 1985.

Kavet R, Bailey WH, Charry JM. Respiratory neuroendocrine cells: A plausible site for air ion effects. Seventh Annual Meeting of The Bioelectromagnetics Society, June 1985.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to DC electric fields and atmospheric space charge. 23rd Hanford Life Sciences Symposium, Richland, WA, October 1984.

Bailey WH, Charry JM, Weiss JM, Cardle K, Shapiro M. Regional analysis of biogenic amine turnover in rat brain after exposure to electrically charged air molecules (air ions). Society for Neuroscience, 1983.

Bailey WH. Biological effects of air ions: Fact and fancy. American Institute of Medical Climatology Conference on Environmental Ions and Related Biological Effects, October 1982.

Goodman PA, Weiss JM, Hoffman LJ, Ambrose MJ, Bailey WH, Charry, JM. Reversal of behavioral depression by infusion of an A2 adrenergic agonist into the locus coeruleus. Society for Neuroscience, November 1982.

Charry JM, Bailey WH. Biochemical and behavioral effects of small air ions. Electric Power Research Institute Workshop, April 1981.

Bailey WH, Alonson DR, Weiss JM, Chin S. Predictability: A psychologic/ behavioral variable affecting stress-induced myocardial pathology in the rat. Society for Neuroscience, November 1980.

Salman SL, Weiss JM, Bailey WH, Joh TH. Relationship between endogenous brain tyrosine hydroxylase and social behavior of rats. Society of Neuroscience, November 1980.

Bailey WH, Maclusky S. Appearance of creatine kinase isoenzymes in rat plasma following myocardial injury produced by isoproterenol. Fed Assoc Soc Exp Biol, April 1978.

Bailey WH, Maclusky S. Appearance of creatine kinase isoenzymes in rat plasma following myocardial injury by isoproterenol. Fed Proc 1978; 37:889.

Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brambleboro strain). Eastern Psychological Association, April 1976.

### Advisory Appointments

National Institute of Environmental Health Sciences, National Toxicology Program, Participation in research study to update Level of Concern categories to better integrate evidence for toxicity and extent of human exposure, 2017

Bundesamt für Strahlenschutz - Federal Office for Radiation Protection. Summarize recent research and recommend research direction on magnetic field stimulation of peripheral nerves, 2016

Federal Office for Radiation Protection - Germany, Technical input to assessment of static and ELF exposures to public from updating national transmission network, 2016

RWTH Aachen University. Workshop on human perception thresholds in static electric fields from high-voltage direct current (HVDC) transmission lines, 2015

ZonMw - Netherlands Organization for Health Research and Development, 2012; 2007-2008, reviewer for National Programme on EMF and Health

US Bureau of Ocean Energy Management, Regulation and Enforcement, 2009-2010

Canadian National Collaborating Centre for Environmental Health, reviewer of Centre reports, 2008

Island Regulatory and Appeals Commission, province of Prince Edward Island, Canada, 2008

National Institute of Environmental Health Sciences/ National Institutes of Health, Review Committee, Neurotoxicology, Superfund Hazardous Substances Basic Research and Training Program, 2004

National Institute of Environmental Health Sciences, Review Committee Role of Air Pollutants in Cardiovascular Disease, 2004

Working Group on Non-Ionizing Radiation, Static and Extremely Low-Frequency Electromagnetic Fields, International Agency for Research on Cancer, 2000-2002

Working Group, EMF Risk Perception and Communication, World Health Organization, 1998-2005

Member, International Committee on Electromagnetic Safety, Subcommittee 3 - Safety Levels with Respect to Human Exposure to Fields (0 to 3 kHz) and Subcommittee 4 - Safety Levels with Respect to Human Exposure (3kHz to 3GHz), Institute of Electrical and Electronics Engineers (IEEE), 1996-present

Invited participant, National Institute of Environmental Health Sciences, EMF Science Review Symposium: Clinical and In Vivo Laboratory Findings, 1998

Working Group, EMF Risk Perception and Communication, International Commission on Non-Ionizing Radiation Protection, 1997

U.S. Department of Energy, RAPID EMF Engineering Review, 1997

Oak Ridge National Laboratory, 1996

American Arbitration Association International Center for Dispute Resolution, 1995-1996

U.S. Department of Energy, 1995

National Institute for Occupational Safety and Health, 1994-1995

Federal Rail Administration, 1993-1996

U.S. Forest Service, 1993

New York State Department of Environmental Conservation, 1993

National Science Foundation

National Institutes of Health, Special Study Section — Electromagnetics, 1991-1993

Maryland Public Service Commission and Maryland Department of Natural Resources, Scientific Advisor on health issues pertaining to HVAC Transmission Lines, 1988-1989

Scientific advisor on biological aspects of electromagnetic fields, Electric Power Research Institute, Palo Alto, CA, 1985-1989

U.S. Public Health Service, NIMH: Psychopharmacology and Neuropsychology Review Committee, 1984

Consultant on biochemical analysis, Colgan Institute of Nutritional Science, Carlsbad, CA, 1982-1983

Behavioral Medicine Abstracts, Editor, animal behavior and physiology, 1981-1983

Consultant on biological and behavioral effects of high-voltage DC transmission lines, Vermont Department of Public Service, Montpelier, VT, 1981-1982

Scientific advisory committee on health and safety effects of a high-voltage DC transmission line, Minnesota Environmental Quality Board, St. Paul, MN, 1981-1982

Consultant on biochemical diagnostics, Biokinetix Corp., Stamford, CT, 1978-1980

## Editorships & Editorial Review Boards

Associate Editor, Non-Ionizing Radiation, Health Physics, 1996-present



## **Kenneth Bowes**

*Vice President, Siting & Permitting*

Kenneth Bowes is Vice President, Offshore Wind Siting & Permitting for Eversource Energy. In that role, he is responsible for the leadership and direction of siting and permitting activities for Offshore Wind and related transmission infrastructure projects, and compliance for those projects. He serves as a technical consultant for various large transmission projects, clean energy projects, and provides expert testimony in regulatory proceedings concerning them.

A native of New Hampshire, Bowes joined Eversource in July 1984 in the System Test department. He has held several engineering and management positions in the Energy Delivery organizations becoming the Director – Transmission and Distribution Maintenance in 1999, Director – Transmission Construction, Test, and Maintenance in 2002, Director – Transmission Projects in 2004, Vice President – Customer Operations in 2008, Vice President of Energy Delivery in 2010, Vice President of Engineering in 2014, Vice President of Transmission Performance in 2017, and Vice President of ISO Policy, Siting & Compliance in 2018.

Ken has a Bachelor of Electrical Engineering degree from the University of New Hampshire and a Masters Degree in Electrical Engineering from Rensselaer Polytechnic Institute. He is the past Chairman of the Edison Electric Institute's Transmission Committee. He serves on the Connecticut Science Center Women in Science Steering Committee, the Board of Directors of Special Olympics Connecticut, the Bristol Boys and Girls Club Board of Directors, and is Past Chairman of the Board of Nutmeg Big Brothers Big Sisters. Bowes was inducted into the University of Connecticut, Academy of Distinguished Engineers in 2016 and elected into the Connecticut Academy of Science and Engineering in 2017.

**PUBLICATIONS AND PREVIOUS TESTIMONY****Kenneth B. Bowes**

## Publications:

- Yan Li, *Student Member, IEEE*, Peng Zhang, *Senior Member, IEEE*, Wenyuan Li, *Life Fellow, IEEE*, Joseph N. Debs, David A. Ferrante, Donald J. Kane, Samuel N. Woolard, Roderick Kalbfleisch, Kenneth B. Bowes, and Andrew J. Kasznay, *Member, IEEE*, "Non-Detection Zone Analytics for Unintentional Islanding in Distribution Grid Integrated with Distributed Energy Resources", *IEEE Transactions on Sustainable Energy*, April 2018, PP(99):1-1.
- Bowes K., Beehler M., "Defining the Value of the Grid", *IEEE, The Sixth Annual IEEE PES Conference on Innovative Smart Grid Technology*, February, 2015
- Bowes K., Hogan J., "CL&P Explores Sustainable Solutions", *Transmission & Distribution World Magazine*, January 2012, Volume 64, Number 1, pp. 24-31.
- IEEE Working Group on Nonsinusoidal Situations, "Practical Definitions for Powers in Systems with Nonsinusoidal Waveforms and Unbalanced Loads: A Discussion", 95 WM 040-6 PWRD, 1995
- IEEE Working Group on Nonsinusoidal Situations, "A Survey of North American Electric Utility Concerns Regarding Nonsinusoidal Waveforms", 95 WM 036-4 PWRD, 1995
- Bowes, K. B., "The Effects of Temporary Overvoltage (TOV) on Consumer Products", *POWER QUALITY '91 USA, Official Proceedings of the Third International Power Quality Conference*, Universal City, CA, September 22-27, 1991
- Bowes, K. B., Lorusso, A., "Harmonic and Power Characteristics of Electronic Ballasts for Fluorescent Lighting Applications", *POWER QUALITY '90 USA, Official Proceedings of the Second International Power Quality ASD Conference*, Philadelphia, PA, October 21, 29, 1990
- Anderson, L.M., Bowes, K.B., "The Effects of Power-line Disturbances on Consumer Electronic Equipment", *IEEE Transactions on Power Delivery*, Volume 5, Number 2, pp. 1062-65, April 1990
- Bowes, K. B., "The Effects of Power-line Disturbances on Electronic Products", *POWER QUALITY '89 USA, Official Proceedings of the First International Power Quality Conference*, Long Beach, CA, October 15-20-1989 (Also edited and reprinted in *Power Quality Magazine - Premier V Issue*)

Mr. Bowes has testified extensively in many cases in a variety of forums, including:

## Siting Proceedings:

- Connecticut Siting Council Docket No. 474 – The Connecticut Light & Power Company d/b/a Eversource Energy application for a Certificate of Environmental Compatibility and Public Need for the Greater Hartford-Central Connecticut Reliability Project that traverses

the municipalities of Hartford, West Hartford, and Newington, , which consists of construction, maintenance and operation of a new 115-kilovolt (kV) electric transmission line within existing Eversource, Amtrak and public road rights-of-way and associated facilities extending overhead approximately 2.4 miles and underground approximately 1.3 miles.

- Connecticut Siting Council Docket No. 461, Docket No. 461A – Eversource Energy application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 115-kilovolt (kV) bulk substation located at 290 Railroad Avenue, Greenwich, Connecticut, and two 115-kV underground transmission circuits extending approximately 2.3 miles between the proposed substation and the existing Cos Cob Substation, Greenwich, Connecticut, and related substation improvements.
- Connecticut Siting Council Docket No. 292 – The Connecticut Light & Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction and operation of 8.7 miles of new underground 115-kilovolt electric transmission cables extending from CL&P's existing Glenbrook Substation in the City of Stamford, through the Town of Darien, to CL&P's existing Norwalk Substation in the City of Norwalk.
- Connecticut Siting Council Docket No. 302 – Northeast Utilities Service Company, on behalf of The Connecticut Light and Power Company (CL&P) application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of the proposed Killingly 2G Substation at 193 Tracy Road and 227-257 Park Road in the Towns of Killingly and Putnam, and the proposed connections to the existing #347 345-kV line and the existing #1607 and #1505 115-kV lines.
- Connecticut Siting Council Docket No. 311 – Northeast Utilities Service Company, on behalf of The Connecticut Light and Power Company (CL&P) Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of the proposed Wilton 35A Substation at 53 Old Danbury Road in the Town of Wilton.
- Connecticut Siting Council Docket No. 326 – The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed substation located at Stepstone Hill Road, Guilford, Connecticut.
- Connecticut Siting Council Docket No. 327 – The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed substation located off Commerce Drive, Oxford, Connecticut.
- Connecticut Siting Council Docket No. 352 – The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed substation located at 264 Rood Avenue and 25 Shelley Avenue, Windsor, Connecticut.
- Connecticut Siting Council PETITION NO. 737 - The Connecticut Light and Power Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed Manchester to Hopewell 115-kV Transmission Line Reconductor Project in the Towns of Manchester and Glastonbury.

- Connecticut Siting Council PETITION NO. 702 - Connecticut Light & Power Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed Plumtree to Triangle 115-kV Transmission Upgrade Project in the towns of Bethel and Danbury, Connecticut.
- State of New Hampshire, Site Evaluation Committee, Docket No. 2015-06, Joint Application of Northern Pass Transmission LLC and Public Service Company of New Hampshire d/b/a Eversource Energy For A Certificate of Site and Facility To Construct A New High Voltage Transmission Line And Related Facilities In New Hampshire.
- State of New Hampshire, Site Evaluation Committee, Docket No. 2015-04 Application of Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource") for a Certificate of Site and Facility for the Construction of a New 115 kV Transmission Line from Madbury Substation to Portsmouth Substation.
- Commonwealth of Massachusetts, Energy Facilities Siting Board, EFSB 07-4/D.P.U. 07-35/07-36, Petition of Russell Biomass, LLC and Western Massachusetts Electric Company for a proposed project consisting of (1) an approximately 5.3-mile, 115 kilovolt transmission line from the proposed Russell Biomass generating facility in Russell to Western Massachusetts Electric Company's ("WMECo") transmission system in Westfield, and (2) a new switching station facility in Westfield.

#### Litigation:

- Connecticut Superior Court, Allyn vs. CL&P, CV-96-0109273-S.
- Connecticut Superior Court, Scanlon vs. CL&P, CV-96-0536911S.
- Connecticut Superior Court, Segalla vs. CL&P, X-04-CV-98-0117225S.
- DSV MR. SONNY: Damage to submarine electric cables in Long Island Sound. Complex, multi-party limitation of liability proceeding in U.S. District Court for the Eastern District of New York. Settled at mediation.

#### Regulatory Proceedings:

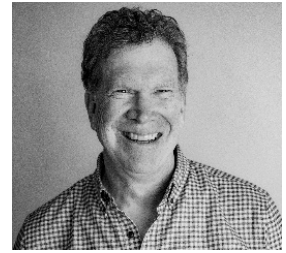
- Connecticut DPUC Docket No. 94-05-35 - DPUC Investigation Into Stray Voltage On Dairy Farms.
- Connecticut DPUC Docket No. 08-02-06 - DPUC Investigation into The Connecticut Light and Power Company's Billing Issues.
- Connecticut DPUC Docket No. 09-12-05 - Application of The Connecticut Light and Power Company to Amend Its Rate Schedules.
- Connecticut DPUC Docket No. 10-03-08 - Investigation of the Service Response and Communications of The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI) Following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010.
- Connecticut DPUC Docket No. 10-05-09 - DPUC Investigation of the Safety of the Connecticut Light and Power Company Underground Electric Distribution System in Waterbury.

- Connecticut PURA Docket No. 11-03-07 - PURA Investigation Into The Appointment Of A Third Party Statewide Utility Telephone Pole Administrator For The State Of Connecticut.
- Connecticut PURA Docket No. 11-09-09 - PURA Investigation of Public Service Companies' Response to 2011 Storms.
- Connecticut PURA Docket No. 12-01-07 - Application for Approval of Holding Company Transaction Involving Northeast Utilities and NSTAR.
- Connecticut PURA Docket No. 12-01-10 - Investigation into the Tree Trimming Practices of CT Utility Companies.
- Connecticut PURA Docket No. 12-06-09 - PURA Establishment of Industry Performance Standards for Electric and Gas Companies.
- Connecticut PURA Docket No. 12-07-06RE01 - Application of the Connecticut Light and Power Company For Approval of its System Resiliency Plan – Expanded Plan.
- Connecticut PURA Docket No. 12-06-12 - PURA Investigation of the Feasibility of the Establishment of a Program to Reimburse Residential Customers for Spoilage Loss of Food items or Refrigerated Medications Caused by a Lack of Refrigeration During Electric Service Outages.
- Connecticut PURA Docket No. 12-09-13 - PURA Investigation of the Best Practices of Other State Public Utility Commissions, Public Utility Companies and Municipal Utilities' Emergency Management Best Practices.
- Connecticut PURA Docket No. 12-11-07 - PURA Investigation into the Performance of Connecticut's Electric Distribution Companies and Gas Companies in Restoring Service Following Storm Sandy.
- Connecticut PURA Docket No. 13-03-23 - Petition of the Connecticut Light and Power Company for Approval to Recover its 2011-2012 Major Storm Costs.
- Connecticut PURA Docket No. 14-05-06 - Application of the Connecticut Light and Power Company To Amend Rate Schedules.
- Connecticut PURA Docket No. 14-07-18 - PURA Report to the General Assembly Concerning its Review of Each Electric Distribution Company's Vegetation Management Practices.
- Connecticut PURA Docket No. 15-01-27 - Attorney General and Office of Consumer Counsel Request for Investigation of Northeast Utilities Facilities Closures in Connecticut.
- Connecticut PURA Docket No. 15-12-20 - PURA Review of Electric Companies' and Electric Distribution Companies' Plans for Maintenance of Transmission and Distribution Overhead and Underground Lines.
- Public Act 15-5 - Section 103 – Connecticut Department of Energy & Environmental Protection, Demonstration Projects for Grid-Side System Enhancements.
- Connecticut PURA Docket No. 17-10-46 - Application of The Connecticut Light and Power Company d/b/a Eversource Energy to Amend its Rate Schedules
  
- New Hampshire Public Utilities Commission, Docket No. DE 15-464, Public Service Company of New Hampshire d/b/a Eversource Energy, Petition for Approval of Lease Agreement between PSNH dba Eversource Energy and Northern Pass Transmission LLC.
- New Hampshire Public Utilities Commission, Docket No. DE-17-081, Public Service Company of New Hampshire d/b/a Eversource Energy, 2017 Transmission Cost Adjustment Mechanism.

- New Hampshire Public Utilities Commission, Docket No. DE-18-089, Public Service Company of New Hampshire d/b/a Eversource Energy, 2018 Transmission Cost Adjustment Mechanism.
- United States of America, Federal Energy Regulatory Commission, Docket No. EL16-64-002.



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drew@INSPIREenvironmental.com



## DREW CAREY | Chief Executive Officer

### Education

Ph.D, Geology and Marine Ecology, University of St. Andrews, Scotland, 1983  
B.Sc., Geology and Biological Oceanography, The Evergreen State College, 1976

### Areas of Specialization

Sediment Profile Imaging  
Benthic Ecology/Sedimentology  
Environmental Monitoring  
Marine Policy  
Statistics & Sampling Design  
Contaminated Sediment Management  
Dredged Material Management & Monitoring  
Confined Aquatic Disposal Management  
Environmental Impact Assessment  
Ecological Risk Assessment  
Environmental Mediation

### Professional Affiliations

American Society of Limnology and Oceanography  
Marine Technology Society  
American Association of Petroleum Geologists  
Geological Society of America  
Coastal and Estuarine Research Federation  
Western Dredging Association

### Employment History

2018-present – CEO, INSPIRE Environmental  
2015-2018 - Managing Partner, INSPIRE Environmental, LLC, Newport, RI  
2004-2016 - Managing Partner, DAMOSVision, Newport, RI  
1999-2015 - Founding Partner and Principal Scientist, CoastalVision, LLC, Newport, RI  
1991-1999 – Senior Scientist and Program Manager, Science Applications International Corporation, Newport, RI  
1982-1989 – Assistant Professor, Earth & Environmental Sciences and Science in Society, Wesleyan University, Middletown, CT  
1982 - Research Associate, Marine Sciences Research Center, SUNY, at Stony Brook  
1977 - Survey Associate, Department of Agriculture and Fisheries, Aberdeen, Scotland

### EXPERIENCE SUMMARY

Dr. Carey is an international expert in the assessment of environmental impacts on marine ecosystems. Dr. Carey specializes in benthic ecology, sedimentology, fisheries monitoring, and marine policy. Dr. Carey has led coastal assessments and data collection in nearshore and deep-water environments worldwide for over 30 years. He has extensive experience in benthic seafloor characterization, preparation of Construction and Operation Plans and monitoring for offshore wind energy projects. He has served as a senior technical lead for marine assessments (benthic, EFH, fish, lobster, geological) for nine offshore wind projects in the United States, including Block Island Wind, South Fork Wind, Skipjack Wind, Bay State Wind, Ocean Wind, Sunrise Wind, and Revolution Wind for Ørsted U.S.; Empire State for Equinor, and the NYSERDA Master Plan.

Dr. Carey is an expert in design and interpretation of marine habitat mapping. He has led over 50 projects in New England that integrate high resolution acoustic mapping (multibeam, side-scan sonar, subbottom profiling) with innovative ground-truth data collection (SPI/PV imaging) to provide physical and biological habitat information. He led an assessment of habitat classification schemes for the Northeast Regional Ocean Council (NROC) and helped develop CMECS (2012). This broad experience with habitat assessment and knowledge of the geological and biological conditions in NE Atlantic waters led directly to INSPIRE's successful approach to EFH habitat mapping for South Fork Wind, RevWind, Skipjack Wind, and Ocean Wind.

Dr. Carey has extensive familiarity with stakeholder engagement and management programs, recently applying his expertise to the Block Island Wind Farm and South Fork Wind public engagement. He led the development of a 10-year planning document for the Long Island Sound Study: Sound Vision and leading the revision of the Long Island Sound Comprehensive Conservation and Management Plan. Dr. Carey provided facilitation for the Narragansett Bay Summit, the Partnership for Narragansett Bay, the 2007 National Estuary Program national meeting and the 2004 RI Sea Grant Science Symposium. He was a senior technical lead for the Dredged Material Disposal Site Designation EIS in Long Island Sound, supporting the Corps of Engineers and EPA. He is the program manager for the Disposal Area Monitoring System (DAMOS), the Historic Area Remediation Site (HARS) and the facilitator for the New England Regional Dredging Team since 2005.

Prior to INSPIRE, Dr. Carey formed CoastalVision, LLC, the Joint Ventures DAMOSVision and WaterVision and collaborated with Germano & Associates on marine assessments. Prior to CoastalVision, Dr. Carey was a Senior Scientist at Science Applications International Corporation (SAIC) from 1991-1999. Dr. Carey prepared technical documents, led database development, presented results at public meetings, and designed and managed monitoring activities and field investigations of marine dredged material and waste disposal sites for environmental assessment of coastal areas. He led business development for an innovative ocean imaging instrument (Laser Line Scan System) and received a public service award for his work on surveying after the TWA Flight 800 crash. Prior to SAIC, Dr. Carey was an Assistant Professor at Wesleyan University where he conducted scientific research on marine ecology, sediment transport and developed a curriculum in Marine Ecology, Coastal Geology, Ocean Policy, Law of the Sea, and Ocean Resources.

## **PROFESSIONAL EXPERIENCE**

Dr. Carey is a Senior Technical Advisor for Marine Environmental Permitting for **Ørsted U.S.**'s Block Island Wind, South Fork Wind, Skipjack Wind, Bay State Wind, Ocean Wind, Sunrise Wind, and Revolution Wind. Dr. Carey has supported the development of the Marine Work Plans, permitting strategies and designed and conducted numerous technical studies including benthic seafloor characterization surveys, EFH habitat mapping, cable routing, eelgrass survey, hardbottom habitats, finfish trawl surveys, lobster surveys, EMF measurement, suspended sediment impacts from cable installation, geophysical desktop studies, fisheries data collection and NEPA documentation. Dr. Carey collaborated with marine archeologists presenting seafloor mapping and seismic data to representatives of Native tribes, commercial fishermen and stakeholders.

Dr. Carey was the Program Manager and Senior Technical lead for assessment and remediation support to **Trident Seafoods**, the world's largest seafood processor. For Trident, Dr. Carey managed SPI, acoustic, coring and hydrodynamic studies of seafood waste deposits in Alaska.

Dr. Carey was a Senior Technical Advisor for **Atlantic Wind Connection's** effort to install a submarine cable system to provide a backbone transmission line for the mid-Atlantic states. Dr. Carey conducted desktop geological and benthic resource studies, designed benthic habitat surveys and contributed to cable routing design.

Dr. Carey has been a Senior Technical lead for a wide variety of site assessment projects including baseline environmental surveys of oil and gas leases in the Gulf of Mexico, RI/FS investigations in San Francisco Bay, Melbourne, Australia, River Clyde, Scotland, Hudson River, and Ontario, Canada.

From 1991-1999 and 2005- present, Dr. Carey has served as the technical and program manager of the Disposal Area Monitoring System (DAMOS) Program of the New England District of the U.S. Army Corps of Engineers. He successfully managed over 75 work orders and delivered 150 reports as final or draft products. He is currently the technical studies manager, responsible for oversight of project design and data interpretation of dredged material disposal site investigations.

For the DAMOS Program, Dr. Carey developed expertise in designing and managing monitoring of dredged material disposal sites. Dr. Carey managed all of SAIC's activities in the DAMOS Program including field data collection, data analysis, report preparation, technical support, and public outreach. His efforts led to the first demonstration of the Laser Line Scan System for an environmental application and leadership on the development of UV-Hyperspectral imaging. His expertise in dredged material management includes monitoring of open-water sites, in-channel Confined Aquatic Disposal (CAD) cells, design and evaluation of cap integrity, and assessment of potential environmental impacts of disposal site placement.

From 1991 to the present, Dr. Carey has served as a technical manager supporting EPA New England and New York, the New England and New York Districts of the Army Corps of Engineers, on issues related to environmental assessment. He has provided services to develop NEPA sampling design for sediment, lobsters, finfish and fishing activities, Quality Assurance Project Plans (QAPP), public outreach and GIS data management. He authored reports on finfish resource and fishing activities. He led a bioturbation workshop for the NY District that developed a clear consensus among a regional scientific panel on the impact of biological activity on dredged

material placement. He has served as the Program Manager for the New York District's monitoring of the HARS site since 2010 including acoustic, geochemical and biological characterization of the seafloor at the site.

Dr. Carey led a team that supported the Long Island Sound Study revision of the 1994 Comprehensive Conservation and Management Plan (CCMP) for Long Island Sound. The themes and principles developed in the SoundVision project were the starting point for this legally-binding plan development.

Dr. Carey led the analysis of SPI data for habitat mapping of the Milford Haven Waterway, Wales, UK. The study established a protocol for utilization of SPI data to conduct habitat mapping with facies models in nearshore environments and apply those results to the EUNIS habitat classification scheme (Carey et al., 2014).

Dr. Carey led a team that supported the Habitat Working Group of NROC to evaluate the feasibility of coordinating habitat mapping initiatives in New England. CoastalVision developed a framework, an inventory of initiatives and successfully integrated the results into a creative visual synthesis to inform managers and scientists of the common ground between initiatives (Shumchenia et al., 2014).

Dr. Carey worked with Connecticut Fund for the Environment and Save the Sound to review fifteen years of program activities and budget allocations of the Long Island Sound Study (LISS) and develop a series of workshops to lead the LISS Citizens Advisory Committee in the development of a SoundVision Five Year Strategic Plan. Dr. Carey facilitated workshops and discussions and co-drafted the Strategic Plan. This process produced a final synthesis based on input from a wide range of participants that includes a set of integrated goals with desired results, steps to achieve those results, as well as an outreach strategy that can be implemented by all participating stakeholder groups.

Dr. Carey led an effort to conduct a habitat classification feasibility study for the Massachusetts Office of Coastal Zone Management. The team performed GIS-based analysis of several large benthic datasets, helped to develop habitat digitizer tools, performed benthic habitat classifications under each of four different classification schemes, and authored a project report. The following three objectives were met in this project: 1) apply each of four pre-selected habitat classification frameworks to the coastal and ocean environment in northern Massachusetts, 2) evaluate the relative strengths and weaknesses of each framework, and 3) make recommendations on the adoption of a framework for Massachusetts that will be useful to resource managers, stakeholders and scientists.

Dr. Carey has been the facilitator for the New England Regional Dredging Team since 2005 and facilitated several sessions of the National Dredging Team meetings in May 2006 and October 2007. Dr. Carey was a co-facilitator for the 2006 USEPA/USACE "Managing Sediments in the Watershed Workshop" in Portland, OR. He worked with a team of eight professional facilitators to develop breakout session designs, facilitated plenary sessions and supervised the facilitation team.

Dr. Carey facilitated the 2004 RI Sea Grant Science Symposium and edited a synthesis of the State of Science on Nutrients in Narragansett Bay (Carey et al., 2005).

Dr. Carey conducted two assessments of human uses and resource distribution in Buzzards Bay for Massachusetts Coastal Zone Management (Carey and Haley, 2002; Colburn, Carey and Haley, 2002). One study involved developing a database, GIS data layers and PDF maps from inshore trawl data and the other study involved developing a survey instrument and conducting a survey of recreational and commercial fishing use of Buzzards Bay.

Dr. Carey supported Germano & Associates and the Dredged Material Management Office (DMMO) of San Francisco in their effort to conduct a performance evaluation of sediment screening guidelines for wetland restoration in San Francisco Bay. He led workshops, facilitated meetings and provided expert review of the design and development of a database and statistical assessment of sediment screening guidelines based on dredged material test results (Germano & Associates, 2004).

Dr. Carey supported NOAA Fisheries to develop a manual of procedures employed by Northeast Regional staff to review proposed dredging and dredged material disposal projects. The manual is intended to help streamline the process of review by providing internal guidance and external awareness of the review process and best management practices employed to minimize impacts on protected fisheries resources.

Dr. Carey supported the State of Connecticut in the development of a Dredged Material Management Plan (DMMP) through compilation and review of the current state of regulations and practice of dredged material management, assessment of alternatives to open-water disposal and definition of research needs. This effort involved review of CWA and MPRSA criteria and requirements as they apply to disposal in Long Island Sound and recommendations for the process to develop a DMMP (Carey, 1998).

Dr. Carey supported Germano and Associates and the U.S. Army Engineer Research and Development Center (ERDC) Coastal Ecology group to develop guidelines for measurement of rates and effects of dredging-induced sedimentation on early life stages of fish, shellfish and submerged aquatic vegetation (Germano and Carey, 2005).

Dr. Carey was responsible for all aquatic disposal site determinations for the Massachusetts Coastal Zone Management Dredged Material Management Plan. Dr. Carey supported the Maguire Group in designation of the Buzzard's Bay Disposal Site Environmental Impact Report, Data Management and Aquatic Disposal Alternatives for Salem, Gloucester, New Bedford and Fall River Designated Port Authorities. This involves 404(b)(1) guidance for disposal site selection and analysis of all available environmental information including detailed analysis of potential fisheries impacts. Dr. Carey designed and led public workshops and team screening meetings on aquatic site selection.

Dr. Carey directed a disposal site evaluation process for the Coastal Resource Management Council of Rhode Island (CRMC). The CRMC is charged with designating disposal sites in Narragansett Bay to receive clean dredged material from marinas and yacht clubs. The effort included field studies and data review based on 404(b)(1) guidelines and an assessment of the potential biological and physical oceanographic implication for disposal at two proposed sites in Narragansett Bay. He supported CRMC in development of a scope and technical review of the hydrographic data collection and circulation modeling study of Quonset and Davisville channels for potential deepening (Berger/Maguire 2004).

Dr. Carey supported EVS Environment Consultants on the development of the Massachusetts Ocean Resources Information System (MORIS) for Massachusetts Coastal Zone Management. He was responsible for identification of aquaculture and other MORIS-related data sources and local coordination with industry and academic participants.

Dr. Carey teamed with Fara Courtney to develop an inventory and metadata database of human resources and management considerations for a Gloucester Harbor Resource Characterization for Massachusetts Coastal Zone Management. He was responsible for the database development and metadata structure.

Dr. Carey supported the Governors' Stakeholder Committee on Port Development of Quonset Point, RI. Working with MIDI, Normandeau Associates and Applied Sciences Associates, he prepared material on dredging requirements and disposal options for various port development proposals. Dr. Carey worked on a team that provided information on potential environmental impacts of designs developed by the stakeholders committee and made presentations to the committee on several related subjects including fisheries impacts.

Dr. Carey directed post-processing of Laser Line Scan Images collected in support of the US Navy's efforts to locate and identify debris and remains from the TWA Flight 800 crash investigation. His efforts led to the development of an innovative GIS-based database with a simple point-and-click interface. Dr. Carey served as press liaison for SAIC during the TWA flight investigation. Dr. Carey and his team were presented with "Award for Excellence in Public Service Crystal Eagle" from SAIC for their work (Saade and Carey 1996).

For EPA Region I and ERL-N, Dr. Carey designed and directed two surveys of historical waste container disposal sites in Massachusetts Bay. Each survey integrated a precision navigation system with side-scan sonar and remotely operated vehicles (ROV) to locate, categorize, and inspect hazardous and low-level waste containers. He developed Quality Assurance documents, technical documents, and presented results at public meetings including one of the first publications of the use of GIS in seafloor studies (Carey et al. 1992).

For a US AID-sponsored program in Tunisia in 1995, Dr. Carey developed and directed a field demonstration of advanced survey technologies for ecological assessment of the Gulf of Gabes, Tunisia. Dr. Carey made public presentations of the results in Tunisia and led the development of a proposed program for the improved planning and management of the Tunisian coastal zone. He has also served as a technical liaison for survey efforts in Hong Kong, Italy and New Zealand.

From 1989 to 1990 Dr. Carey managed and developed programs in science education at the Thames Science Center. He led development of innovative software, data collection, and research management programs designed to promote environmental education. He co-wrote five proposals and managed two NSF-sponsored projects. He is an experienced project manager with excellent personnel and communication skills.

Between 1982 and 1989 Dr. Carey was Assistant Professor of Earth & Environmental Sciences and Science in Society at Wesleyan University. During his seven years teaching and conducting research at Wesleyan University, Dr. Carey developed an advanced seminar in ocean policy and law of the sea including case studies of hearings on the New York Bight, Long Island Sound, Georges Bank, and the Gulf of Maine. His scientific investigations identified potential complications in surveys for chlorinated hydrocarbons, demonstrated high nitrogen uptake in bulk deposit-feeders, and helped pioneer the study of animal-flow interactions.

From June 1985 to August 1986 and from January 1987 to August 1987 Dr. Carey was a Guest Investigator in the Coastal Research Center and Chemistry Department of the Woods Hole Oceanographic Institution. He investigated bioaccumulation of polyaromatic hydrocarbons in deposit-feeding enteropneusts. Dr. Carey developed a protocol for assessing differential uptake of combusted hydrocarbons versus weathered hydrocarbons and investigated mixed function oxygenase activity in enteropneusts. After conducting GC-MS analysis of organic extractions from sediments and tissues, he identified potential complications for analysis of polychlorinated hydrocarbons (Carey and Farrington, 1989).

In 1982, Dr. Carey teamed with scientists at the Marine Sciences Research Center, SUNY at Stony Brook to develop experimental investigation of the impact of resuspended sediments in Long Island Sound on bivalve growth and physiology. He worked with Dr. Rhoads, Yale University, to develop innovative experimental chambers to assess environmental conditions in Long Island Sound.

Dr. Carey designed and led an underwater ecological survey in 1979 of the Isle of May, Scotland, for the Nature Conservancy Council, Scotland. He led a 4-member scuba team for a two-week intensive *in situ* observation and quantitative baseline ecological assessment.

In 1977 Dr. Carey served as a Survey Associate for the Department of Agriculture and Fisheries, Scotland, for a deep-sea benthic survey, Wyville-Thompson Ridge. He was responsible for managing all aspects of benthic sampling design, sample collection, and preliminary identification. The survey was successfully conducted under extreme weather conditions in the North Sea requiring careful coordination of equipment and staff.

In 1976 Dr. Carey surveyed the benthic communities in St. Andrews Bay, Scotland revising community structure maps and discovering several taxonomic groups previously unreported from the area (hemichordata, phoronida and aplousobranchia).

## **EXPERT TESTIMONY**

Dr. Carey has provided expert testimony, both written and in person for several clients including:

### **Ørsted U.S. 2019-2020. South Fork Wind Article VII Settlement**

Dr. Carey provided testimony on potential benthic, finfish and shellfish effects of installation of a submerged export cable from the South Fork Wind project to potential landings on Long Island, New York. He prepared responses to requests for information and a benthic monitoring plan as part of the Joint Proposal for the Settlement.

### **Save the Sound 2006-7. Broadwater Energy LLC, Testimony to FERC and NY DOS.**

Dr. Carey reviewed the Broadwater LNG Project Draft Environmental Impact Statement and Resource Reports for Save the Sound. Review included preparation of expert testimony for the FERC docket and for the State of New York CZMA Consistency determination. He supported Save the Sound staff in review of all applicable federal and state laws and regulations and participated in a briefing of New York Department of State. Dr. Carey reviewed all of the resource reports relevant to the environmental analysis (geological, biological, threatened and endangered species, cumulative impacts and alternatives). He documented numerous problems with the document, conducted an alternatives analysis and identified several viable alternatives that were not considered in the DEIS which led to the denial of the project by NYDOS on Coastal Consistency grounds.

### **Office of the Governor of Rhode Island 2003. Channel Deepening, Quonset, Rhode Island**

Dr. Carey was asked by the Governor's Office to provide expert review and guidance on a project proposal to deepen the channel to Quonset Point. The state was concerned that circulation in the environmentally sensitive areas surrounding the channel might be affected by changes in channel geometry. Dr. Carey led a panel of federal and state agencies that developed and reviewed a work plan to collect oceanographic data and conduct circulation modeling to assess the potential changes in circulation. The Governor's office requested that Dr. Carey manage and review the contractor's efforts and produce a report evaluating the results. The oceanographic results were used in conjunction with Mt. Hope Bay results to evaluate conditions that led to a fish kill in Greenwich Bay.

### **Private Client 2001-2. Shoreline Protection**

Dr. Carey worked with a private client to prepare a Category B Assent for shoreline protection and improvement on a private island in Narragansett Bay for submission to the Coastal Resource Management Council of Rhode Island (CRMC). Dr. Carey evaluated storm surge potential and the geological context of the island. The successful approach provided a novel method to re-use and augment existing shore materials to provide a naturalistic shore protection system. Dr. Carey provide expert witness testimony for the successful CRMC hearing.

### **Cummings and Lockwood 2000. Cross Sound Electric Cable, Testimony before Connecticut Energy Siting Board.**

Dr. Carey prepared expert testimony based on review of environmental assessment documents prepared to support an application to route an underwater electric cable across Long Island Sound. Dr. Carey's testimony reviewed scientific data and technical reports related to jet plow cable placement and burial on benthic resources including oysters. He reviewed the geological and biological resource reports associated with the application and provided detailed expert review and assessment of the adequacy of the data and consideration of alternative cable routes. The client reached an out of the hearing settlement with the applicant.

### **Port Development Environmental Assessment, Governors' Stakeholder Committee on Port Development of Quonset Point, RI. 1998-1999.**

Dr. Carey prepared material on dredging requirements and disposal options for various port development proposals. He worked on potential environmental impacts and potential habitat mitigation of designs developed by the stakeholders committee and provided expert witness presentations to the committee on several related subjects including geological and fisheries impacts.

## WORKSHOPS

- Teacher, Environmental Forensics: Urban Ports & Harbors – Sediment Assessments in Complex Systems, International Society of Environmental Forensics Workshop, Baltimore, MD, September 26-27, 2006
- Teacher, Environmental Forensics: Focus on Harbors and Sediment Assessments, International Society of Environmental Forensics Workshop, Honolulu, HI, April 20-21, 2006
- Leader, Café Conversation: Mapping for Managers: Bridging the Gap Between Data and Information, Presented at: Coastal Zone 09, Boston, MA, July 19-23, 2009
- Co-Leader, Short Course: Aquatic Site Characterization: Survey Methods, Sampling Techniques, & Limitations, Presented at Dredging 2012, San Diego, CA, October 22, 2012
- State of the Science: Wildlife and Offshore Wind Energy Development. November 13-14, 2018, Woodbury, NY. Presented results of BIWF demersal trawl and ventless trap studies; panel on fish habitats.
- Synthesis of the Science: Offshore Wind and Fisheries. October 13, 14, 15, 30, 2020. Panel and Breakouts on Benthic Habitats and Demersal Finfish and Shellfish. RODA/NOAA/BOEM. Online.
- State of the Science: Wildlife and Offshore Wind Energy Development. November 16-20, 2020, online. Benthic habitats.

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- Sabo, S., Murphy, A., and D. Carey. 2020. Block Island Wind Farm Recreational Boating Survey Post-Construction Year 2019 Annual Report and Project Synthesis. Prepared by INSPIRE Environmental, Newport, RI for Deepwater Wind Block Island, LLC, Providence, RI. 43 pp. + Appendices.
- Carey, D.A., D.F. Doolittle, and K. Smith. 2019. Forward Scouting: Use of Sediment Profile Imaging in Conjunction with Multibeam Echosounder Mapping for Offshore Wind Cable Routes and Site Characterization. Offshore Technology Conference, Houston TX, 6-9, May 2019. 8 pp.
- INSPIRE Environmental. 2018. Ichthyoplankton and Zooplankton Assessment– Jet Plow Entrainment Report. Prepared for CH2M and Deepwater Wind South Fork, LLC. Submitted April 2018.
- INSPIRE Environmental. 2018. Sediment Profile Imaging and Benthic Survey Report in Support of the Fugro South Fork Wind Farm and Export Cable, South Fork COP Survey. Prepared for Fugro Marine GeoServices, Inc. and Deepwater Wind South Fork, LLC. Submitted January 2018.
- Griffin, M., L. Reed, and D.A. Carey. 2018. Block Island Wind Farm Ventless Trap Lobster Survey Annual Report, May through October 2017. Prepared by INSPIRE Environmental, Middletown, RI. Prepared for Deepwater Wind Block Island, LLC, Providence, RI, 56 pp.

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## PROFESSIONAL SUMMARY

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- ♦ **Marine Affairs Manager, Orsted U.S.:** (2019-present)
  - Identify, manage, protect, and promote Orsted's myriad marine-related equities to achieve constructive coexistence with key stakeholders pursuant to design, construction, operation, and decommissioning of Offshore Renewable Energy Installations (OREI's) on the Outer Continental Shelf (OCS) of the United States.
  - Build and leverage constructive relationships with key stakeholders, e.g., commercial and recreational fishing industries; commercial maritime industries including general cargo, passenger, petroleum, and tug-and-barge components; applicable federal, state, and local government agencies; various non-government organizations (NGO's) and environmental advocacy groups; maritime and energy industry associations, etc.
  - Supervise development of Navigation Safety Risk Assessments (NSRA's) for each individual Orsted OREI, ensuring it meets the letter and spirit of U.S. Coast Guard Navigation and Vessel Inspection Circular 01-19, Guidance on the Coast Guard's Roles and Responsibilities for Offshore Renewable Energy Installations.
  - Liaise with Orsted's fleet of vessels operating in the U.S. to ensure they are operated and maintained in accordance with international, U.S. Coast Guard, and Orsted vessel inspection and safety standards.
- ♦ **Chief, Waterways Management Division, U. S. Coast Guard Sector Southeastern New England:** (2003-2019)
  - Provided civilian oversight and leadership of four staff and two sub-units of approximately 12 crew members each.
  - Analyzed proponents' navigation safety risk assessments for the Bureau of Ocean Energy Management (BOEM). Provided an assessment of potential impacts to navigation safety, and recommended appropriate mitigations.
  - Ensured the continuous viability of the U.S. marine transportation system in all waterways of southeastern New England including Narragansett Bay, Buzzards Bay, Cape Cod Canal, Cape Cod and the Islands, and all ports within.
  - Managed the Federal aids to navigation system in southeastern New England, including hundreds of buoys, lights, sound signals, and lighthouses.
  - Maintained Coast Guard equities and facilitated navigation safety in offshore wind farm construction and operation in southeastern New England. (Bay State Wind, South Fork Wind, Revolution Wind, Block Island Wind, Vineyard Wind, Cape Wind, and others.)
  - Engaged a broad network of diverse constituencies such as offshore wind farm developers, regulators (BOEM, NOAA, state coastal resources agencies, etc.), fishing industries, and marine pilots to achieve consensus on solutions to navigation safety concerns associated with offshore wind farm siting, construction, and operation.
  - A primary author of Coast Guard Port Access Route Studies (PARS) for both Nantucket Sound and the Massachusetts/Rhode Island Wind Energy Area.
  - A primary author of Coast Guard's initial Navigation and Vessel Inspection Circular (NVIC) 02-07, "Guidance on the Coast Guard's Roles and Responsibilities for Offshore

# Edward G. LeBlanc [cdreblanc@cox.net](mailto:cdreblanc@cox.net)

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Renewable Energy Installations” and a key member of the team that revised the guidance in 2019, NVIC 01-19.

- A primary author of the Coast Guard’s “Terms and Conditions” for the Cape Wind offshore wind farm proposal, the Block Island Wind Farm, and Vineyard Wind.
- ◆ **Active-duty U.S. Coast Guard:** (1975-2003) Served as enlisted and officer in a variety of underway and shore-based operational and staff assignments. Retired at the rank of Commander after 28 years military service.
- ◆ **Director of Logistics, Search and Recovery Operations, EgyptAir Flight 990, and JFK Jr. Downed Aircraft** (1999)
- ◆ **Director of Operations Planning, Boston, Massachusetts** (1998-1999)  
Responsible for planning offshore operations in the New England region and allocating assets (ships, aircraft, personnel).
- ◆ **Director, Operations Center, Boston, Massachusetts** (1996-1998)  
Supervised staff of twelve officers overseeing Coast Guard operations, especially search and rescue, in North Atlantic ocean from New York City north along the New England coast to the Maine/Canadian border.
- ◆ **Director of Command and Control, Search and Recovery Operations, TWA Flight 800 explosion and crash** (1996)
- ◆ **Assistant Director, Search and Rescue, Boston, Massachusetts** (1994-1996)
- ◆ **Executive Officer, U.S. Coast Guard Cutter Spencer, Boston, Massachusetts** (1992-1994)  
Underway patrols in North Atlantic, Caribbean Sea, mid-Atlantic to enforce various U.S. laws, interdict illegal drugs, rescue migrants, enforce fisheries law, and various search and rescue operations. Responsible for execution of ship’s operations including underway and in-port scheduling maintenance, training (ship-handling, seamanship, watch-standing, etc)
- ◆ **Anti-Submarine Warfare/Weapons Officer, USS Connole, Newport, RI** (1984-1986)  
Deck watch officer, Tactical Action Officer responsible for performance of all anti-submarine detection and weapons systems, possessed weapons-release authority. Underway patrols in North Atlantic, Caribbean Sea, and Mediterranean Sea.
- ◆ **First Lieutenant, U.S. Coast Guard Decisive, New Castle, NH** (1981-1983)  
Deck watch officer responsible for safe navigation of the ship. Underway patrols in North Atlantic, Caribbean Sea, mid-Atlantic to enforce various U.S. laws, interdict illegal drugs, rescue migrants, enforce fisheries law, and various search and rescue operations.

## AWARDS

RI Professional Federal Employee of the Year, 2011  
Two U.S. Coast Guard Meritorious Service Medals  
Six U.S. Coast Guard Commendation Medals  
U.S. Navy Commendation Medal  
Joint Services Commendation Medal  
U.S. Coast Guard Civilian Commendation Award

# JOHN O'KEEFFE

## Head of Marine Affairs

@ johno@orsted.com

[www.linkedin.com/in/john-o-keeffe-3949a216](http://www.linkedin.com/in/john-o-keeffe-3949a216)

Providence, RI



## EXPERIENCE

### Head of Marine Affairs North America

#### Ørsted Offshore North America

12/2018 - Ongoing Providence Rhode Island

Offshore Wind Developer

- Built, lead and developed first of its kind department in North America that focuses on, and is responsible for a wide range of maritime stakeholders including the USCG, DOD, commercial shipping and fishing industries
- Recruited and employs highly skilled team of current and former mariners and specialists
- Marine Affairs acts as the primary liaison during all phases of Orsted projects, ranging from development through operations and ultimately decommissioning

### Manager Operations & Maintenance

#### Deepwater Wind

2016 - 2018 Providence Rhode Island

Offshore Wind Developer

- Served as the initial manager of Operations and Maintenance for the Block Island Wind Farm, guiding the Nation's first offshore wind farm from construction through its first years of successful operation
- Oversight of all daily operations, maintenance and budget for \$330 million 30MW offshore wind farm
- Managed OEM and contractors, and assisted in establishing US supply chain

### Manager, Marine Coordinator

#### Deepwater Wind

2016 Providence Rhode Island

Offshore Wind Developer

- Managed marine coordination responsibilities contributing to the successful and safe construction of the first offshore wind farm in the United States.
- Developed, maintained and logged Marine Coordination Procedures for Deepwater Wind. Deconflicted traffic related conflicts of interest.
- Coordinated monitoring and movements of all project vessels and coordinate directly with the USCG and achieved zero incidents.

### Relief Captain/Deck Officer

2015 Worldwide

- Responsible for the safe operation, navigation and supervision of vessel and crew for various ship operators in Pacific and Atlantic Oceans

### Deck Officer

#### Un-cruise Adventures

2014 Seattle, WA

- Served as deck officer aboard the 210' SS Legacy and the 140' MV Safari Explorer sailing on the Columbia and Snake Rivers and Southeast Alaskan waters.
- Earned "Acting as" pilotage in Alaskan waters, navigated sophisticated lock and dam systems along with glacial ice navigation.

## SUMMARY

Dynamic leader, recognized for delivering superior results utilizing a diverse skillset and background. Highly adept in development and implementation of strategic plans. History of success leading initiatives to address and solve complex issues in project development and operations. Proficient in relationship and team building in unique and challenging environments. Accomplished professional mariner, having sailed worldwide for over 15 years as a deck officer, teacher, captain and shipmate

## CERTIFICATION

**USCG Master of Steam, Motor or Auxiliary Sail vessels of not more than 1600 gross registered tons (domestic tonnage), 3000 gross tons (ITC) tonnage upon Oceans w/sail endorsement**

United States Coast Guard

**Able Seaman (unlimited)/ BST / STCW / OICNW /Advanced Firefighting/TWIC**

United States Coast Guard

**Radar Observer Unlimited w/ ARPA**

Maritime Institute of Technology and Graduate Studies

**GMDSS and FCC Marine Radio Operator**

Maritime Professional Training

**PADI Rescue Diver (Dive master in training) / AAUS Diver**

PADI , AAUS

**First Aid/CPR/AED/Emergency Oxygen**

DAN

EDUCATION

Master's in Quality Systems Management, National Graduate School  
Bachelor of Science, Political Science, George Washington University  
Graduate studies, Catholic University of America, International Affairs  
Numerous certificates in leadership, management, and underway operations

MISCELLANEOUS

- ◆ **Certified U.S. Coast Guard Cutterman**, which recognizes expertise in underway ship operations, navigation, ship-handling, and seamanship.
- ◆ **Certified U.S. Navy Surface Warfare Officer**, which recognizes expertise in naval warfighting, underway ship operations, navigation, ship-handling, and seamanship.
- ◆ **Certified U.S. Navy Tactical Action Officer**, which recognizes knowledge of various weapons systems and the skills required to employ those system while maneuvering the ship in battle.

## EXPERIENCE

### Port Captain

#### Bermuda Institute of Ocean Sciences

📅 2011 - 2014 📍 St Georges, Bermuda

- Overall responsibility for operations of 171' R/V Atlantic Explorer, while sailing 90+ days per year as Master/Chief Mate.
- Managed shore support facilities, SMS plans and crew training program as required by regulatory bodies. Port engineer during shipyard periods, request for quotations, shipyard selection and oversight of all shipyard work.
- Management of the ship's officers and crew, temporary relief crew and volunteers.
- Liaison with Bermuda Government, international science community and with general public and donors.

### Senior Chief Mate

#### Sea Education Association

📅 2004 - 2011 📍 Worldwide

- Served as senior chief mate, responsibilities included supervision and training of crew, contributing to long-term operations, planning, logistics, human resources, and maintenance of two 134' brigantines operating worldwide

### First Officer

#### Spirit of Bermuda

📅 2009 📍 Hamilton, Bermuda

- North Atlantic Ocean Served as First Officer aboard Spirit of Bermuda, during her 7,000-mile transatlantic voyage, participating in Tall Ships Atlantic Challenge.

### US Cavalry Sergeant, Armored Reconnaissance

#### US ARMY

📅 1993 - 2001 📍 Worldwide

- Served as non commissioned officer and 19D Cavalry Scout
- Attended the U.S. Army Primary Leadership Development Course in Grafenweohr, Germany
- Expert knowledge in weapons, tactics and various vehicles operation and maintenance, responsible for the accountability of platoon weapons and vehicles worth millions of taxpayer dollars

## EDUCATION

### M.M.A. Marine Affairs

#### University of Rhode Island

📅 2016

### B.S. Environmental Studies

#### Southern Vermont College

📅 2005

### Oceanography & Nautical Science

#### Sea Education Association C183

### Global Business and Politics

#### Yale School of Management Executive Education

📅 2020

- In Progress

## SKILLS

Supply Chain

Budget Preparation

Stakeholder Management

Vessel Operations

International Logistics

Maritime Security

Policy Development

Public Speaking

Leadership

Oceanographic Research

Navigation Safety

International Project Mgmt

Offshore Operations

Offshore Wind Construction

Offshore Coordination

Education

Interpersonal Skills

## AWARDS



### 2019 Maritime Person of the Year

Awarded by the Propeller Club of Narragansett Bay chapter for work promoting the US maritime industry and offshore wind



### Cavalry Scout of the Year

Company and Battalion level – for outstanding achievement resulting in selection as scout/soldier of the year. For display of bearing, discipline and selfless service combined with superior technical and tactical knowledge



### Order of the Spur

Received for excellence and skill as a cavalry sergeant