

Clinton E. Hare, Ph.D., M.S., B.A.

Mid-Atlantic Regional Manager/Oceanographer

EXPERTISE

Broad background in biological, chemical, geological, and physical oceanography. Experienced with oceanographic data collection programs, including equipment configuration and installation, as well as operation and maintenance of real-time monitoring systems in ports and harbors, coastal, and offshore environments. Academic credentials include a Ph.D. in Oceanography, M.S. in Marine Studies, and B.A. in Biological Sciences. Primary task is the oversight of eleven NOAA Physical Oceanographic Real-Time System (PORTS) programs for Woods Hole Group. In this capacity is responsible for the day-to-day management, planning, client communication, reporting, and overall maintenance and operation of the programs. Expertise covers the installation and maintenance of current meters systems, tidal gauges, meteorological sensors, visibility sensors, and air gap systems.

QUALIFICATION SUMMARY

- 21+ years of experience with data collection, processing and interpretation for projects in marine environments
- 11+ years of experience with real-time oceanographic and meteorological measurement system design and operation
- 10+ years Project Management of real-time oceanographic and meteorological measurement systems
- Broad background in biological, chemical, and physical oceanographic processes
- Installation of NOAA approved water level, currents, air gap, and meteorological stations
- Extensive field work and project management experience in marine environments
- Excellent communication, technical writing, public speaking and organizational skills

WORK EXPERIENCE

2007-Present Mid-Atlantic Operations Manager, Woods Hole Group
1998-2007 Research Assistant, University of Delaware
1998 Field Scientist, Woodward-Clyde International-Americas



Education

2006 – Ph.D.
Oceanography
College of Marine & Earth
Studies University of
Delaware Ph.D.,
Oceanography-College of
Marine & Earth Studies
University of Delaware
2003 - M.S.
Marine Studies
College of Marine Studies -
University of Delaware
1997 - B.A.
Biological Studies
University of Delaware

Licenses and Registrations
N/A

Professional Affiliations
-Mid-Atlantic Regional
Association Coastal Ocean
Observing System
(MARACOOS)

Publications & Presentations
20

KEY PROJECTS

Jacksonville Marine Transportation Exchange, Physical Oceanographic Real-Time Systems (PORTS), Jacksonville – Project Manager

Serves as Project Manager for Installation and Operations and Maintenance PORTS program (total of 18 stations). Responsible for routine and unscheduled service to real-time oceanographic and meteorological instruments throughout the Jacksonville PORTS network. Responsible for overseeing all aspects of system installation and operations including oversight of station install, station installation documentation, coordination of routine and emergency service maintenance activities, annual inspections, daily communications with JMTX and NOAA Task Managers, and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Great Lakes VDatum Water Level Stations – Project Manager

Serves as Project Manager for reconnaissance, installation, and removal of thirty-six seasonal water level stations in the Great Lakes region in support of hydrographic and shoreline mapping and new release of the International Great Lakes Vertical Datum 2020. Oversight of field crews for station reconnaissance, installations, and removals. In charge of management level correspondence with the NOAA COR, contracting, and team leads. Oversee budgeting, documentation, resource estimates, and invoicing for the project. Provide technical and field support for installations, removals, and emergency maintenance visits as needed.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Houston/Galveston Bay, TX, Galveston Channel, West End Horizontal Acoustic Doppler Current Profiler – Project Manager

Served as Project Manager for the installation of a new Houston/Galveston PORTS side looking current meter system for the Galveston-Texas City Pilots. Assisted with initial equipment procurement, testing, NOAA design approvals, client communication, and final reporting/documentation tasks.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Delaware River & Bay – Project Manager

Serves as Project Manager for Delaware River and Bay PORTS program (total of 12 stations). Responsible for routine and unscheduled service to real-time oceanographic and meteorological instruments throughout the Delaware Bay and River. Responsible for overseeing all aspects of system operations including coordination of routine and emergency service maintenance activities, annual inspections, daily communications with NOAA Task Managers, and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Upper and Lower Chesapeake Bay – Project Manager

Serves as Project Manager for Chesapeake Bay PORTS program (total of 39 stations). Responsible for routine and unscheduled service to real-time oceanographic and meteorological instruments throughout the

KEY PROJECTS (CONTINUED)

Chesapeake Bay. Responsible for overseeing all aspects of system operations including coordination of routine and emergency service maintenance activities, daily communications with NOAA Task Managers, and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), New York and New Jersey Harbor – Project Manager

Serves as Project Manager for the New York/New Jersey Harbor PORTS program (total of 10 stations). Responsible for routine and unscheduled service to real-time oceanographic and meteorological instruments throughout the New York/New Jersey Harbor. Responsible for overseeing all aspects of system operations including coordination of routine and emergency service maintenance activities, daily communications with NOAA Task Managers, and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Charleston – Project Manager

Serves as Project Manager for the Charleston Harbor PORTS program (total of 2 station). Responsible for routine and unscheduled service to real-time air gap station for this network. Responsible for overseeing all aspects of system operations including coordination of routine and emergency service maintenance activities, daily communications with NOAA Task Managers, and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Narragansett Bay, New London, and New Haven – Project Manager

Serves as Project Manager for the Narragansett Bay PORTS program (total of 14 stations). Provide technical and management oversight to the Local Operator, James Spilsbury. Assist with operation & maintenance, coordination and monthly reporting tasks, including reporting and field support for routine operation & maintenance activities, emergency services, annual inspections and monthly reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Lake Charles – Project Manager

Serves as Project Manager for the Lake Charles PORTS program (total of 7 stations) since 2104. Provides technical and management oversight to our partner and the Local Operator, Conrad Blucher Institute. Assist on an as-needed basis with operation & maintenance, coordination and monthly reporting tasks, including reporting and support for routine operation & maintenance activities, emergency services, annual inspections, and reporting.

KEY PROJECTS (CONTINUED)

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Houston/Galveston – Project Manager

Serves as Project Manager for the Houston/Galveston PORTS program (total of 7 stations) since 2014. Provides technical and management oversight to our partner and the Local Operator, Conrad Blucher Institute. Assist on an as-needed basis with operation & maintenance, coordination and monthly reporting tasks, including reporting and support for routine operation & maintenance activities, emergency services, annual inspections, and reporting.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Texas NWLON stations – Project Manager

Serves as Project Manager for five NWLON station located in Texas as part of PORTS program contract since 2014. Provides technical and management oversight to our partner and the Local Operator, Conrad Blucher Institute. Assist on an as-needed basis with tasks, including annual inspections, emergency service visits, annual inspections, and reporting.

Kinder Morgan, Money Point Terminal, VA – Project Manager

Designed and installed a wind monitoring system linked to visual and audial alarms to meet permitting requirements for offloading fine grain products. Primary tasks included oversight of design, testing, and installation of system, along with coordination with site personnel before and during the installation.

Dual Wind Monitoring System on the USCG Mariners Harbor Tower, USACE NY and NY/NJ Port Authority, Staten Island, NY – Project Manager

Serves as Project Manager for the installation of a dual wind monitoring system for the USACE at the USCG Mariners Harbor facility. The installation will be incorporated into the NOAA NY/NJ PORTS network in 2016. Oversaw the designing, equipment purchase, initial equipment installation onsite, testing, technical support, and reporting tasks. Responsible for technical support and reporting tasks, including field support for routine operation & maintenance activities, annual inspections, and emergency service.

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Pascagoula – Project Manager

Served as Project Manager for the Pascagoula PORTS program (total of 8 stations). Provided technical and management oversight to the Local Operator. Responsible for overseeing all aspects of system operations including coordination of routine and emergency service maintenance activities, daily communications with NOAA Task Managers, and monthly & annual reporting.

KEY PROJECTS (CONTINUED)

National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational-Oceanographic Products and Services (NOAA/NOS/COOPS), Physical Oceanographic Real-Time Systems (PORTS), Lake Charles – Project Manager

Served as Project Manager for the Lake Charles PORTS program (total of 7 stations) from 2009-2012. Provide technical and management oversight to the Local Operator. Assist on an as-needed basis with operation & maintenance, coordination and monthly reporting tasks, including reporting and field support for routine operation & maintenance activities, emergency services, annual inspections and monthly & annual reporting.

The Effects of Climate Change on Phytoplankton Community Structure, University of Delaware – Research Assistant

Led multiple research projects focused on the effects of predicted global climate variations, including temperature, light, iron, and carbon dioxide on algal community structure in the North Atlantic, Ross Sea, and Bering Sea. Designed and maintained sampling equipment for shipboard research projects.

The Effects of Iron and Trace Metal Supply on Phytoplankton Community Structure due to Variations in Iron Supply to Oceanic Euphotic Zone, University of Delaware – Research Assistant

Multiple research projects focused on the effects of variations iron supply rates to the euphotic zone on algal community composition in the Peru Upwelling Zone and Southern Ocean. Designed and maintained sampling equipment for shipboard research projects.

Ecology, Trophic Interactions and Composition of Harmful Algal Species Populations in Delaware Inland Bays, University of Delaware – Research Assistant

Multiple research projects focused the harmful algal species populations within the Delaware Inland Bays. Projects focused on ecological studies including nutrient requirements, trophic level interactions, and characterization of populations.

PUBLICATIONS AND PRESENTATIONS

Lee, P.A., S.F. Riseman, C.E. Hare, D.A. Hutchins, K. Leblanc, G.R. DiTullio. 2011. Potential impact of increased temperature and CO₂ on particulate dimethylsulfoniopropionate in the Bering Sea. *Advances in Oceanology and Limnology*, 2: 37-47.

Feng, Y., C.E. Hare, J.M. Rose, S.M. Handy, G.R. DiTullio, P.A. Lee, W. Smith W., J. Peloquin, S. Tozzi, Zhang Y., Sun J., R. Dunbar, M. Long, B. Sohst, D.A. Hutchins. 2010. Interactive effects of iron, irradiance and CO₂ on Ross Sea phytoplankton. *Deep-Sea Research I*, 57: 368-383.

Rose J.M., Y. Feng, G.R. DiTullio, R.B. Dunbar, C.E. Hare, P.A. Lee, M. Lohan, M. Long, W.O. Smith, B. Sohst, S. Tozzi, Y. Zhang, D.A. Hutchins. 2009. Synergistic effects of iron and temperature on Antarctic phytoplankton and microzooplankton assemblages. *Biogeosciences*, 6: 3131-3147.

Leblanc, K., C.E. Hare, Y. Feng, G.M. Berg, G.R. DiTullio, A. Neeley, I. Benner, C. Sprengel, A. Beck, S.A. Sanudo-Wilhelmy, U. Passow, K. Schreiber, J.M. Rowe, S.W. Wilhelm, C.W. Brown, D.A. Hutchins. 2009. Distribution of

PUBLICATIONS AND PRESENTATIONS (CONTINUED)

calcifying and silicifying phytoplankton in relation to environmental and biogeochemical parameters during the late stages of the 2005 North East Atlantic Spring Bloom. *Biogeosciences*, 6: 2155–2179.

Feng, Y., C.E. Hare, K. Leblanc, J.M. Rose, Y. Zhang, G.R. DiTullio, P.A. Lee, S.W. Wilhelm, J.M. Rowe, J. Sun, N. Nemcek, C. Gueguen, U. Passow, I. Benner, D.A. Hutchins. 2009. The effects of increased pCO₂ and temperature on the North Atlantic Spring Bloom. I. The phytoplankton community and biogeochemical response. *Marine Ecology Progress Series*, 388: 13-25.

Rose, J.M., Y. Feng, C.J. Gobler, R. Gutierrez, C.E. Hare, K. Leblanc, D.A. Hutchins. 2009. The effects of increased pCO₂ and temperature on the North Atlantic Spring Bloom. II. Microzooplankton abundance and grazing. *Marine Ecology Progress Series*, 388: 27-40.

Lee, P.A., J.R. Rudisill, A.R. Neely, D.A. Hutchins, Y. Feng, C.E. Hare, K. Leblanc, J.M. Rose, S.W. Wilhelm, J.M. Rowe, G.R. DiTullio. 2009. The effects of increased pCO₂ and temperature on the North Atlantic Spring Bloom. III. Dimethylsulfoniopropionate. *Marine Ecology Progress Series*, 388: 41-49.

Handy, S.M., E. Demir, D.A. Hutchins, K.J. Portune, E.B. Whereat, C.E. Hare, J.M. Rose, M.E. Warner, M. Farestad, S.C. Cary, K.J. Coyne. 2008. Using quantitative real-time PCR to study competition and community dynamics among Delaware Inland Bays harmful algae in field and laboratory studies. *Harmful Algae*, 7: 599-613.

Hare, C.E., K. Leblanc, G.R. DiTullio, R.M. Kudela, Y. Zhang, P.A. Lee, S. Riseman, P.D. Tortell, D.A. Hutchins. 2007. Consequences of increased temperature and CO₂ for algal community structure and biogeochemistry in the Bering Sea. *Marine Ecology Progress Series*, 352: 9-16.

Hare, C.E., G.R. DiTullio, S.F. Riseman, A.C. Crossley, L.C. Popels, P.N. Sedwick, D.A. Hutchins. 2007. Effects of changing continuous iron input rates on a Southern Ocean algal assemblage. *Deep-Sea Research I*, 54: 732-746.

Coyne, K.J., C.E. Hare, C.E. Popels, D.A. Hutchins, S.C. Cary. 2006. Distribution of *Pfiesteria piscicida* cyst populations in sediments of the Delaware Inland Bays, USA. *Harmful Algae*, 5: 363-373.

Frew, R.D., D.A. Hutchins, S. Nodder, S. Sanudo-Wilhelmy, A. Tovar-Sanchez, K. Leblanc, C.E. Hare, P.W. Boyd. 2006. Particulate iron dynamics during FeCycle in subantarctic waters southeast of New Zealand. *Global Biogeochemical Cycles*, 20: GB1593, doi: 10.1029/2005GB002558.

Hare, C.E., G.R. DiTullio, C.G. Trick, S.W. Wilhelm, K.W. Bruland, D.A. Hutchins. 2005. Phytoplankton community structure changes following simulated upwelled iron inputs in the Peru Upwelling region. *Aquatic Microbial Ecology*, 38: 269-282.

Hare, C.E., E. Demir, K.J. Coyne, S.C. Cary, D.L. Kirchman, D.A. Hutchins. 2005. A bacterium that inhibits the growth of *Pfiesteria piscicida* and other dinoflagellates. *Harmful Algae*, 4: 221-234.

Leblanc, K, Hare, C.E., P.W. Boyd, K.W. Bruland, B. Sosht, S. Pickmere, M.C. Lohan, K. Buck, M Ellwood, D.A. Hutchins. 2005. Fe and Zn effects on the Si cycle and diatom community structure in two contrasting high and low-silicate HNLC areas. *Deep-Sea Research I*, 52: 1842-1864.

Boyd, P.W., C.L. Law, D.A. Hutchins, E. Abraham, P.L. Crott, M. Ellwood, R.D. Frew, J. Hall, S. Handy, Hare, C.E., J. Higgins, P. Hill, K.A. Hunter, K. Leblanc, M.T. Maldonado, R.M. McKay, C. Mioni, M. Oliver, S. Pickmere, K. Safi, S. Sander, S.A. Sanudo-Wilhelmy, M. Smith, R. Strzepek, A. Tovar-Sanchez, S.W. Wilhelm. 2005. FeCycle: Attempting an iron biogeochemical budget from a mesoscale SF₆ tracer experiment in unperturbed low iron waters. *Global Biogeochemical Cycles*, 19: GB4S20, doi: 10.1029/2005GB002494.

Handy, S.M., K.J. Coyne, K.J. Portune, E. Demir, M.A. Doblin, Hare, C.E., S.C. Cary, D.A. Hutchins. 2005. Evaluating vertical migration behavior of harmful raphidophytes in the Delaware Inland Bays utilizing quantitative real-time PCR. *Aquatic Microbial Ecology*, 40: 121-132.

Hutchins, D.A., F. Pustizzi, C.E. Hare, G.R. DiTullio. 2003. A shipboard natural community continuous culture system for ecologically relevant low-level nutrient enrichment experiments. *Limnology and Oceanography: Methods*, 1: 82-91.

Hutchins, D.A., Hare, C.E., R.S. Weaver, Y. Zhang, G.F. Firme, G.R. DiTullio, M.B. Alm, S.F. Riseman, J.M. Maucher, M.E. Geesey, C.G. Trick, G.J. Smith, E.L. Rue, J. Conn, K.W. Bruland. 2002. Phytoplankton iron limitation in the Humboldt Current and Peru Upwelling. *Limnology and Oceanography*, 47: 997-1011.

Coyne, K.J., D.A. Hutchins, Hare, C.E., S.C. Cary. 2001. Assessing temporal and spatial variability in *Pfiesteria piscicida* distributions using molecular probing techniques. *Aquatic Microbial Ecology*, 24: 275-285.