

**Julie M. Rose, Ph.D.**  
Research Ecologist, NOAA Fisheries

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**Educational Summary and Work Experience**

2011-present Research Ecologist for NOAA National Marine Fisheries Service  
2009-2011 Science Coordinator and NOAA Liaison to the Long Island Sound Study  
2006-2009 NSF Polar Postdoctoral Fellowship, University of Delaware and Woods Hole Oceanographic Institution. Postdoctoral advisors: DA Hutchins and RJ Gast  
2000-2006 Ph. D., University of Southern California. Thesis advisor: DA Caron  
1999 Summer Student Fellowship, Woods Hole Oceanographic Institution  
1998 NSF/REU Aquatic Environmental Science Program, Life Science Undergraduate Research Program, University of Minnesota – Twin Cities  
1996-2000 B. A., La Salle University, Biology and English  
Summa cum laude, General University Honors, Senior Biology Award

**Awards**

2014 David and Nancy Bull Extension Innovation Award, UConn College of Agriculture and Natural Resources, to the CT Shellfish Initiative Task Force  
2012 Outstanding Reviewer Award, Limnology and Oceanography  
2012 Invited Participant, P/ICES Conference for Early Career Scientists  
2008 Invited Participant, New Generation Polar Research Symposium  
2006 NSF Postdoctoral Fellowship in Polar Regions Research  
2000 College Graduate Merit Award, University of Southern California

**Professional Development**

2015 Coastal and Marine Spatial Planning Advancement Training, Battelle  
2014 Data Scientist's Toolbox course, Johns Hopkins University  
2012 Permanova training course, Primer-E, Ltd.  
2006 PRIMER training course, Primer-E, Ltd.

**Publications**

Bricker, SB; Getchis, T; Chadwick, C; Rose, C; **Rose, JM** (submitted) Merging Modeling and Mapping: The integration of ecosystem-based models into an existing interactive web-based tool for improved aquaculture decision making.

Brown, C; **Rose, JM**; Goldberg, R; Wikfors, GH (submitted) Ecology of cultured bivalves and other filter-feeding organisms in the northeastern USA

**Rose, JM**; Bricker, SB; Ferreira, JG (in press) Comparative analysis of modeled nitrogen removal by shellfish farms. Marine Pollution Bulletin

Barrett, J; **Rose, JM**; Pagach, J; Parker, MP; Deonaraine, S (in press) Development of an estuarine climate change monitoring program. *Ecological Indicators*

**Rose, JM**; Bricker, SB; Tedesco, MA; Wikfors, GH (2014) A role for shellfish aquaculture in coastal nitrogen management. *Environmental Science and Technology* 48(5): 2519-2525. doi: 10.1021/es4041336. *This paper was selected as the cover article for the March 2014 issue of Environmental Science and Technology; the cover can be viewed online <http://pubs.acs.org/action/showLargeCover?jcode=esthag&vol=48&issue=5>*

Galimany, E; **Rose, JM**; Dixon, MS; Wikfors, GH (2014) Transplant experiment to evaluate the feeding behavior of the Atlantic ribbed mussel, *Geukensia demissa*, moved to a high inorganic seston area. *Marine and Freshwater Research*. doi: 10.1071/MF13335

Galimany, E; **Rose, JM**; Alix, J; Dixon, MS; Wikfors, GH. (2014) Responses of the ribbed mussel, *Geukensia demissa*, to the harmful algae *Aureococcus anophagefferens* and *Heterosigma akashiwo*. *Journal of Molluscan Studies*, doi: 10.1093/mollus/eyt055

Goldberg, R; **Rose, JM**; Mercaldo-Allen, R; Meseck, S; Clark, P; Kuropat, C; Pereira, JJ (2014) Effects of hydraulic clam dredging on the benthic ecology and sediment chemistry on a cultivated clam bed of the Northern quahog, *Mercenaria mercenaria*. *Aquaculture* 428-429: 150-157.

Gast, RJ; McKie-Krisberg, ZM; Fay, SA; **Rose, JM**; Sanders, RW (2014) Antarctic mixotrophic protist abundances by microscopy and molecular methods. *FEMS Microbiology Ecology* 89(2): 388-401. doi: 10.1111/1574-6941.12334

Meseck, SL; Mercaldo-Allen, R; **Rose, JM**; Clark, P; Kuropat, C; Pereira, JJ; Goldberg, R (2014). Impacts of hydraulic dredging for *Mercenaria mercenaria*, Northern Quahog, on sediment biogeochemistry. *Journal of the World Aquaculture Society* 45(3): 301-311.

Suter, EA; Lwiza, KMM; **Rose, JM**; Gobler, C; Taylor, GT (2014) Phytoplankton assemblage changes during decadal decreases in nitrogen loadings to the urbanized Long Island Sound estuary. *Marine Ecology Progress Series* 497: 51-67. doi: 10.3354/meps10602

**Rose, JM**; Fitzpatrick, E; Wang, A; Gast, RJ; Caron, DA. (2013) Low temperature constrains growth rates but not short-term ingestion rates of Antarctic ciliates. *Polar Biology* 36: 645-659. doi: 10.1007/s00300-013-1291-y

Li, Y; Meseck, SL; Dixon, MS; **Rose, JM**; Smith, BC, Wikfors, GH (2013) Short term effects of a commercial eastern oyster nursery upon nutrient and plankton dynamics of a coastal embayment: observations from mesocosm experiments. *Aquaculture Research*. doi: 10.1111/are.12358

Galimany, E; **Rose, JM**; Dixon, MS; Wikfors, GH. (2013) Quantifying the feeding behavior of ribbed mussels (*Geukensia demissa*) in two urban sites (Long Island Sound, USA) with different seston characteristics. *Estuaries and Coasts*. doi: 10.1007/s12237-013-9633-0

**Rose, JM**; Ferreira, JG; Stephenson, K; Bricker, SB; Tedesco, M; Wikfors, GH. (2012) "Comment on Stadmark and Conley (2011) 'Mussel farming as a nutrient reduction measure in the Baltic Sea: consideration of nutrient biogeochemical cycles'" *Marine Pollution Bulletin* (64):449-451.

Goldberg, R; Mercaldo-Allen, R; **Rose, JM**; Clark, P; Kuropat, C; Meseck, S; Pereira, J (2012) Effects of hydraulic shellfish dredging on the ecology of a cultivated clam bed. *Aquaculture Environment Interactions* 3: 11-21. doi:10.3354/aei00045

Friedland, KD; Stock, C; Link, JS; Leaf, RT; Shank, BV; **Rose, JM**; Pilskaln, CH; Fogarty, MJ. (2012) Pathways between primary production and fisheries yields of large marine ecosystems. *PLoS ONE* 7(1): e28945. doi:10.1371/journal.pone.0028945

Barrett, J; **Rose, JM** Deonaraine S; Clemetson, A; Pagach, J; Parker, M; Tedesco, M. Sentinel monitoring for climate change in the Long Island Sound estuarine and coastal ecosystems of New York and Connecticut. Report to the Long Island Sound Study, Stamford CT <http://www.longislandsoundstudy.net/research-monitoring/sentinel-monitoring>

Steele, JA; Countway, PD; Xia, L; Vigil, P; Beman, JM; Kim, D; Chow, C; Sachdeva, R; Jones, AC; Schwalbach, MS; **Rose, JM**; Hewson, I; Patel, A; Sun, F; Caron, DA; Fuhrman, JA. (2011) Marine bacterial, archaeal and protistan association networks reveal ecological linkages. *The ISME Journal* 5: 1414-1425 doi:10.1038/ismej.2011.24

**Rose JM**, Tedesco M, Wikfors GH, Yarish C. 2010. International Workshop on Bioextractive Technologies for Nutrient Remediation Summary Report. US Dept Commerce, Northeast Fisheries Science Center Reference Document. 10-19; 12 p. Available online at <http://www.nefsc.noaa.gov/nefsc/publications/>

Feng, Y; Hare, CE; **Rose, JM**; Handy, SM; DiTullio, GR; Lee, P; Smith, WO; Peloquin, J; Tozzi, S; Sun, J; Zhang, Y; Dunbar, RB; Long, MC; Sohst, B; Hutchins, DA. (2010) Interactive effects of iron, irradiance and CO<sub>2</sub> on Ross Sea phytoplankton. *Deep-Sea Research I*. (57): 368-383.

**Rose, JM**; Feng, Y; DiTullio, GR; Dunbar, RB; Hare, CE; Lee, PA; Lohan, M; Long, M; Smith Jr, WO; Sohst, B; Tozzi, S; Zhang, Y; Hutchins, DA. (2009) Synergistic effects of iron and temperature on Antarctic phytoplankton and microzooplankton assemblages. *Biogeosciences* (6): 3131-3147.

**Rose, JM**; Gast, RJ; Bogomolni, A; Ellis, JE; Lentell, BJ; Touhey, K; Moore, M. (2009). Occurrence and patterns of antibiotic resistance in vertebrates off the Northeastern United States coast. *FEMS Microbiology Ecology* (67): 421-431

**Rose, JM;** Vora, NM; Countway, PD; Gast, RJ; Caron, DA. (2009) Effects of temperature on growth rate and gross growth efficiency of an Antarctic bacterivorous protist. *The ISME Journal* (3): 252-260.

**Rose JM;** Feng, Y; Gobler, CJ; Gutierrez, R; Hare, CE; Leblanc, K; Hutchins, DA.(2009) The effects of increased pCO<sub>2</sub> and temperature on the North Atlantic Spring Bloom. II. Microzooplankton dynamics. *Marine Ecology Progress Series* (388): 27-40.

Feng, Y; Hare, CE; Leblanc, K; DiTullio, GR; Lee, P; Wilhelm, SW; Sun, J; **Rose, JM;** Zhang, Y; Nemcek, N; Gueguen, C; Tortell, P; Benner, I; Passow, U; Hutchins, DA. (2009) The effects of increased pCO<sub>2</sub> and temperature on the North Atlantic Spring Bloom. I. The phytoplankton community and biogeochemical response. *Marine Ecology Progress Series* (388): 13-25

Lee, PA; Rudisill, JR; Neeley, AR; Hutchins, DA; Feng, Y; Hare, CE; Leblanc, K; **Rose, JM;** Wilhelm, SW; Rowe, JM; DiTullio, GR. (2009) The effects of increased pCO<sub>2</sub> and temperature on the North Atlantic Spring Bloom. III. Dimethylsulfoniopropionate. *Marine Ecology Progress Series* (388): 41-49.

Vigil, P; Countway, PD; **Rose, JM;** Lonsdale, DJ; Gobler, CJ, Caron, DA. (2009) Rapid shifts in dominant taxa among microbial eukaryotes in estuarine ecosystems. *Aquatic Microbial Ecology* (54): 83-100.

Caron, DA; **Rose, JM.** (2008) The metabolic theory of ecology and algal bloom formation (Reply to Lopez-Urrutia comment). *Limnology and Oceanography* (53): 2048-2049

**Rose, JM;** Vora, NM; Caron, DA. (2008) Effect of temperature and prey type on nutrient regeneration by an Antarctic bacterivorous protist. *Microbial Ecology* (56): 101-111

Handy, SM; Demir, E; Hutchins, DA; Portune, KJ; Whereat, EB; Hare, CE; **Rose, JM;** Warner, M; Farestad, M; Cary, SC; Coyne, KJ. (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

Feng, Y; Warner, ME; Zhang, Y; Sun, J; Fu, F; **Rose, JM;** Hutchins, DA. (2008) Interactive effects of increased pCO<sub>2</sub>, temperature and irradiance on the marine coccolithophore *Emiliana huxleyi* (Prymnesiophyceae). *European Journal of Phycology* (43): 87-98

**Rose, JM** and DA Caron. (2007) Does low temperature constrain the growth rates of heterotrophic protists? Evidence and implications for algal blooms in cold waters. *Limnology and Oceanography* (52): 886-895. *This paper was selected as the featured article for the March 2007 issue of Limnology and Oceanography*

Shimeta, J; Gast, RJ; **Rose, JM** (2007) Community structure of marine sedimentary protists in relation to flow regime and grain size; application of denaturing gradient gel electrophoresis (DGGE). *Aquatic Microbial Ecology* (48): 91-104

Countway, PD; Gast, RJ; Dennett, M; Savai, P; **Rose, JM** and Caron, DA. (2007) Distinct protistan assemblages characterize the euphotic zone and deep-sea (2500 m) of the western N. Atlantic (Sargasso Sea and Gulf Stream). *Environmental Microbiology* 9(5): 1219-1232.

Bertrand, EM; Saito, MA; **Rose, JM**; Riesselman, CR; Lohan, MC; Noble, AE; Lee, PA and DiTullio, GR. (2007) Vitamin B<sub>12</sub> and iron co-limitation of phytoplankton growth in the Ross Sea. *Limnology and Oceanography* 52(3): 1079-1093.

**Rose, JM**; Caron, DA; Sieracki, ME and NJ Poulton. (2004) Counting heterotrophic nanoplanktonic protists in cultures and in aquatic communities by flow cytometry. *Aquatic Microbial Ecology* 34(3): 263-277

Cerrato, RM; Caron, DA; Lonsdale, DJ; **Rose, JM**; Schaffner, RA. (2004) Experimental approach to examine the effect of the Northern Quahog, *Mercenaria mercenaria* on the development of blooms of the brown tide alga, *Aureococcus anophagefferens*. *Marine Ecology Progress Series* 281: 93-108

Caron, DA; Gobler, CJ; Lonsdale, DJ; Cerrato, RM; Schaffner, RA; **Rose, JM**; Taylor, G; Boissonneault, KR and R. Mehran. (2004). Microbial herbivory on the brown tide alga, *Aureococcus anophagefferens*: results from natural ecosystems, mesocosms and laboratory experiments. *Harmful Algae* 3(4): 439-457

Caron, DA; Countway, PD; Lambert, SE; **Rose, JM**; Schaffner, RA (2001) Protozoa in marine and estuarine waters, *Encyclopedia of the Environment*, pp. 2613 –2626

### **First-Author Invited Talks and Presentations**

**Rose, JM**; Mercaldo-Allen, R; Meseck, S; Goldberg, R (2014) Recent Milford Lab research on the biological and chemical effects of hydraulic clam dredging. *Invited talk at the Northeast Shellfish Sanitation Association Annual Meeting, Shelton, CT*

**Rose, JM**; Bricker SB; Wikfors GH; Dwyer L; Tedesco MA (2013) Shellfish aquaculture in the coastal environment: potential for nutrient management and challenges to implementation. *Oral presentation at the CERF 22nd Biennial Conference, San Diego, CA*

**Rose, JM**; Tedesco MA; Yarish, C (2013) Going really green: sea farming for environmental and economic benefits. *Webinar for the EPA National Water Program Best Practice seminar series*

**Rose, JM**. (2013) Using shellfish aquaculture for coastal nutrient remediation. *Webinar for the NOAA Aquaculture Program seminar series. Presentation will be available for download from the NOAA Aquaculture website*

**Rose, JM**; Bricker SB; Galimany, E; Tedesco, M; Wikfors, GH. (2012) Exploring the science and policy of using shellfish aquaculture for nutrient removal in the coastal environment. *Oral presentation at the P/ICES Early Career Scientists Conference, Mallorca, Spain*

**Rose, JM**; Wikfors GH; Bricker, SB; Ferreira, JG; Miller, RL; Rheault, B; Tedesco, M; Wellman, K. (2011) An exploratory investigation of nutrient bioextraction opportunities in Long Island Sound. *Oral presentation at the Environmental Management of Enclosed Coastal Seas Conference, Baltimore, MD*

**Rose, JM** (2011) Development of a Sentinel Monitoring for Climate Change Program in Long Island Sound. *Oral presentation at the ASLO Ocean Sciences Meeting, San Juan, PR*

**Rose, JM** (2010) Nutrient Bioextraction: opportunities for additional nutrient management in Long Island Sound. *Oral presentation at the Association of National Estuary Programs Meeting, Punta Gorda, FL*

**Rose, JM** (2010) Nutrient Bioextraction: opportunities for additional nutrient management in Long Island Sound. *Invited talk at the Sea Grant Nutrient Management workshop, New York City*

**Rose, JM** (2010) Microbial community dynamics in a changing climate. *Invited talk at the NOAA Milford Laboratory*

**Rose, JM; Tedesco, M; Li, Y; O'Brien-Clayton, K; Olsen, C; Lyman, M; Wikfors, GH** (2010) Spatial and temporal trends in phytoplankton community composition within a large urban estuary. *Oral presentation at the AGU/ASLO Ocean Sciences Meeting, Portland, Oregon*

**Rose, JM; Tedesco, M; Wikfors, GH; Yarish, C** (2010) International workshop on bioextractive technologies for nutrient remediation. *Oral presentation at the 30<sup>th</sup> Milford Aquaculture Seminar, Shelton, CT*

**Rose, JM** (2009). Microbial community dynamics in a changing climate. *Invited talk at the University of Connecticut*

**Rose, JM; Feng, Y; Zhang, Y; Hutchins, DA** (2009) A multiple trophic level laboratory study of increased CO<sub>2</sub> and temperature interactive effects on Southern Ocean plankton. *Poster presentation at the ASLO Aquatic Sciences Meeting, Nice, France*

**Rose, JM; Feng, Y; Hare, CE; Lohan, MC; Tozzi, S; Hutchins, DA** (2008) Potential effects of future changing temperature, light and iron supplies on plankton communities of the Ross Sea, Antarctica. *Poster presentation at the Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA*

**Rose, JM** (2008). Changing ocean food webs in a greenhouse world. *Invited talk at the University of Georgia*

**Rose, JM** (2008). Changing ocean food webs in a greenhouse world. *Invited talk at Duke University*

**Rose, JM; Bogomolni, A; Gast, RJ; Ellis, JC; Pokras, MA; Moore, M** (2008). Patterns of antibiotic resistance in northeastern coastal vertebrates. *Oral presentation at the ASLO Aquatic Sciences Meeting, Orlando, FL*

**Rose, JM** (2008). Microbial community dynamics: A greenhouse perspective. *Invited talk at the Woods Hole Oceanographic Institution.*

**Rose, JM** (2007). Changing ocean food webs in a greenhouse world. *Invited talk at the University of South Alabama.*

**Rose, JM; Feng, Y; Gobler, C; Gutierrez, R; Hare, ED; Leblanc, K; DiTullio, G; Hutchins, DA** (2007). Effects of temperature, iron and CO<sub>2</sub> on microzooplankton assemblages: Ross Sea, Antarctica and North Atlantic Spring Bloom. *Oral presentation at the PSA/ISOP meeting, Providence, RI.*

**Rose, JM; Hutchins, DA; Dunbar, RB; Feng, Y; Handy, SM; Hare, CE; Long, MC; Zhang Y** (2007). Interactive effects of iron and temperature on microbial assemblages within the Ross Sea, Antarctica. *Oral presentation at the ASLO Aquatic Sciences Meeting, Santa Fe, NM*

**Rose, JM; Countway, PD; Gast, RJ; Fuhrman, JA; Caron, DA** (2006) Analysis of community fingerprint data: a versatile set of statistical tools. *Poster presentation at the Gordon Research Conference on Marine Microbes, Biddeford, ME*

**Rose, JM;** Caron, DA; Gast, RJ; Moran, DM; Vora, NM; Sippel, V (2005) Temperature effects on micrograzer control of algal and bacterial assemblages in the Ross Sea, Antarctica. *Oral presentation at the ASLO Aquatic Sciences Meeting, Salt Lake City, UT*

**Rose, JM;** Caron, DA; Sieracki, ME; Schaffner, RA; Their, EC (2003) Cytometric quantification of heterotrophic protists in culture and in marine microbial communities. *Poster presentation at the ASLO/TOS Aquatic Sciences Meeting, Salt Lake City, UT*

**Rose, JM;** Moran, DM; Gast, RJ; Dennett, MR; Schaffner, RA; Caron, DA (2002) Do the growth rates of Antarctic protists compensate for low temperature? *Poster presentation at the ASLO/AGU Ocean Sciences Meeting, Honolulu, HI*

### **Oceanographic Cruise and Field Experience**

- 2011-2014 Field programs to explore the use of ribbed mussel aquaculture for coastal nutrient remediation. Sites included Long Island Sound; Bronx River, New York City; Cape Cod, Massachusetts; Long Beach, California; Providence, Rhode Island
- 2012-2013 Field program in Long Island Sound to support the aquaculture siting pilot program
- 2003-2006 Five research cruises to the Ross Sea, Antarctica on the RVIB Nathaniel B. Palmer
- 2000 Cruise to the Sargasso Sea on the RV Endeavor
- 1999, 2001 Field program in the Peconic Bays, NY, working with brown tide (*Aureococcus anophagefferens*)

### **Project Management and Synergistic Activities**

Member of the Connecticut Shellfish Initiative Task Force, 2013-present

Member of the Long Island Sound Study Scientific and Technical Advisory Committee, 2009-present

Leader of the Long Island Sound Study Climate Change Monitoring workgroup, 2009-2014

Member of the NROC/NERACOOS Northeast Sentinel Monitoring Program, 2013-2014

Content manager for the Long Island Sound Study nutrient bioextraction and sentinel monitoring for climate change websites, 2011-present

Organized the International Workshop on Bioextractive Technologies for Nutrient Remediation, December 3-4, 2009, UConn Stamford

Science Lead for the Long Island Sound Study Environmental Indicators program, 2009-2011

Writing Team Lead for the Long Island Sound Study 2010 Research RFP; 2009 Eelgrass RFP

Selection coordinator for the 2009 Long Island Sound Study Science and Technical Advisory Committee Graduate Student Fellowships

2009-2011 Member of a variety of other workgroups, including the New England Interstate Water Pollution Control Commission Regional Climate Change Workgroup, LISS Implementation Team, Cable Fund Steering Committee

Manuscript reviewer for Limnology and Oceanography, Marine Biology, Marine Ecology Progress Series, Aquatic Microbial Ecology, The ISME Journal, Environmental Science and Technology, Limnology and Oceanography: Methods, PNAS, Estuaries and Coasts, Aquaculture-Environment Interactions, Journal of Marine Systems, Marine Pollution Bulletin, Journal of Plankton Research, Management of Biological Invasions, Environmental

Monitoring and Assessment, North American Journal of Aquaculture, Hydrobiologia,  
Antarctic Science and Phycologia

Proposal reviewer for the National Science Foundation (Office of Polar Programs and Biological  
Oceanography), NOAA, and the National Fish and Wildlife Foundation

**Teaching and Mentoring Experience**

2014	Research sponsor for Genevieve Bernatchez, Long Island Sound Study Water Quality Monitoring Intern
2011-2013	Outside committee member for Jim Rice, CUNY Queens College
2010-present	Annual guest lecture, Careers in Marine Science, University of New Haven
2006	Guest lecturer, Introductory Oceanography, University of Delaware
2000-2002	Teaching Assistant, Biology Department, University of Southern California

**Membership in Professional Societies**

American Society of Limnology and Oceanography  
Coastal and Estuarine Research Federation  
New England Estuarine Research Society