

## Rebecca J. Gast

Associate Scientist with Tenure  
Biology  
Woods Hole Oceanographic Institution  
Woods Hole, MA 02543

Telephone: (508) 289-3209  
Fax: (508) 457-2169  
E-mail: [rgast@whoi.edu](mailto:rgast@whoi.edu)

## EDUCATION

The Ohio State University, Microbiology, Bachelor of Science, 1987  
The Ohio State University, Molecular Genetics, Ph. D., 1994

## PROFESSIONAL EXPERIENCE

2006-present Associate Scientist with Tenure, Biology Department, WHOI  
2001-2005 Associate Scientist, Biology Department, WHOI.  
1997-2001 Assistant Scientist, Biology Department, WHOI.  
1994-1997 Postdoctoral Scholar, Woods Hole Oceanographic Institution.  
1993 Visiting scientist (March, 1993), Department of Parasitology,  
National Institute of Health, Tokyo, Japan.  
1993 Guest lecturer (June, 1993), "PCR, Sequencing and Systematics"  
43rd Acarology Summer Program, Department of Entomology,  
The Ohio State University.  
1992-1994 Graduate Research Associate, The Ohio State University.  
1990-1992 Graduate Administrative Associate, Office of the Associate  
Dean, College of Biological Sciences, The Ohio State  
University.  
1989-1990 Graduate Research Associate, The Ohio State University.  
1987-1989 Graduate Teaching Associate, The Ohio State University.

## RESEARCH INTERESTS

My research has the overall theme of molecular protistan ecology. The main focus of my work includes analyses of the genetic diversity, detection, distribution and abundances of protists (algae and protozoa) in the marine environment. Currently my projects in this area include ones examining protistan and bacterial pathogens in the coastal marine environment, and protistan diversity in the extreme environments of the Antarctic and the Arctic. These polar studies have recently led to a project investigating tubulin protein adaptations associated with psychrophilic functions to better understand how organisms have evolved to operate in the extreme cold. I also pursue research projects on the photosymbiotic associations in foraminifera and radiolaria, including the natural distribution of free-living symbionts and algal gene expression in the symbiotic state.

Websites: [www.whoi.edu/science/B/protist](http://www.whoi.edu/science/B/protist) and [www.whoi.edu/people/rgast/index.html](http://www.whoi.edu/people/rgast/index.html).

## LEADERSHIP ACTIVITIES

2000-2002 Education Committee member Society of Protozoologists  
2002 Program Chair for Society of Protozoologists Annual Meeting  
2003 Coordinator for New England Molecular and Evolutionary Biology meeting November 2003  
2005 Vice-president Society of Protozoologists

- 2006 Morss Colloquium (November 2006) I organized and led a data synthesis session of results from WHOI, LSU and Miami Center for Ocean and Human Health-led studies on the Impact of Hurricane Katrina on Human Pathogens in Lake Pontchartrain. Product from the colloquium was a presentation that all participants could use to describe the work accomplished. Also hosted a community presentation of this, and other, data.
- 2008-2013 Member-at-large Society of Protozoologists
- 2008-2010 President-elect, President and Councilor for Division X American Society for Microbiology (in 2010 I organized and chaired the Division X symposium “Microbial Eukaryotes as symbionts and parasites: evolution, communication and virulence”)
- 2011 ASLO meeting special session on Mixotrophy (proposer and co-shair)
- 2012 ASLO special session on Polar Marine Microbial Ecology (co-proposer and co-chair)
- 2013 International Congress of Protistology Symposium on Nutritional Flexibility (organized symposium, invited speakers, obtained NSF funds to support speaker travel, chaired symposium)
- 2012-2018 Education Coordinator for the Joint Program in Biological Oceanography (participated in External Review of the Joint Program and Accreditation renewal of Joint Program)

**PUBLICATIONS IN REFEREED JOURNALS AND BOOKS** \* indicates postdoc, graduate student or undergraduate in my laboratory.

- Subm Fernando Gómez, Luis Felipe Artigas, and **RJ Gast**. The parasitic dinoflagellate *Syltodinium undulans* comb. nov., the first characterized member of a new lineage within the *Gymnodinium* clade (Gymnodiniales, Dinophyceae) submitted to the European Journal of Protistology  
*Extracted, amplified and sequenced DNA from samples, edited manuscript.*
- Subm Frasca Jr S, S Szczepanek, A Bogomolni\* and **RJ Gast**. Marine Disease Diagnostics. In Marine Disease Ecology, eds DC Behringer, BR Silliman and KD Lafferty. Oxford University Press  
*Researched in situ hybridization, PCR and HTS methods for marine disease detection, co-wrote and edited chapter.*
- 2019 Stamatakis K, P-I Broussos, A Panagiotopoulou, **RJ Gast**, M Pelecanou and GC Papageorgiou. Light-adaptive state transitions in the Ross Sea haptophyte *Phaeocystis antarctica* and in dinoflagellate cells hosting kleptoplasts derived from it. BBA – Bioenergetics 1860:102-110.  
*Contributed cultures for the experiments and edited manuscript.*
- 2018 Gomez F and **RJ Gast**. The dinoflagellates *Amyloodinium* and *Ichthyodinium* (Dinophyceae), parasites on marine fishes in the South Atlantic Ocean. Diseases of Aquatic Organisms 131:29-37. doi.org/10.3354/dao03274  
*Extracted, amplified and sequenced DNA from samples, accomplished phylogenetic analyses, co-wrote manuscript.*
- 2018 McKie-Krisberg Z, RW Sanders and **RJ Gast**. Evaluation of mixotrophy-associated gene expression in two species of Polar marine algae. Frontiers in Marine Science. [doi.org/10.3389/fmars.2018.00273](https://doi.org/10.3389/fmars.2018.00273)  
*PI on project, conceived of experiment, accomplished cell culture, ingestion experiment, RNA isolation and preliminary sequence analysis, participated in discussion of data analysis, contributed to writing and editing manuscript.*
- 2018 Beinart RA\*, J Rotterova, I Cepicka, **RJ Gast** and VP Edgcomb. The genome of an endosymbiotic methanogen is very similar to those of its free-living relatives. Environmental Microbiology 10.1111/1462-2920.14279

- Co-advised Beinart during her postdoctoral appointment at WHOI, discussed research results with postdoc, edited manuscript.*
- 2018 **Gast RJ**, SA Fay and RW Sanders. Mixotrophic Activity and Diversity of Antarctic Marine Protists in Austral Summer. *Frontiers in Marine Science* [doi.org/10.3389/fmars.2018.00013](https://doi.org/10.3389/fmars.2018.00013).
- 2017 **Gast RJ**. Centrohelida and other heliozoan-like protists. In *Handbook of the Protists 2<sup>nd</sup> Edition*, pp. 955-971. Eds. JM Archbald, AGB Simpson & CH Slamovitz, Springer International Publishing.
- 2017 Caron DA, **RJ Gast** and M-E Garneau. Sea ice as a habitat for micrograzers. In *Sea Ice 3<sup>rd</sup> Edition*, pp. 370-393. Ed DN Thomas, Wiley & Sons, Ltd.  
*Co-wrote and co-edited chapter.*
- 2017 Stamatakis K, D Vayenos, C Kotakis, **RJ Gast** and GC Papagerorgiou. The extraordinary longevity of kleptoplasts derived from the Ross Sea haptophyte *Phaeocystis antarctica* within dinoflagellate host cells relates to the diminished role of the oxygen-evolving Photosystem II and to supplementary light harvesting by mycosporine-like amino acids. *Biochimica et Biophysica Acta* 1858:189-195.  
*Contributed cultures for the experiments, discussed data analysis, co-wrote and edited manuscript.*
- 2015 SK Hu, Z Liu, AAY Lie, PD Countway, DY Kim, AC Jones, **RJ Gast**, SC Cary, EB Sherr, BF Sherr and DA Caron. Estimating protistan diversity using high-throughput sequencing. *Journal of Eukaryotic Microbiology* 62(5):688-693.  
*Co-PI on original project, participated in fieldwork and sample collection, edited manuscript.*
- 2015 **Gast RJ**, S Elgar and B Raubenheimer. Observations of transport of bacterial-like microspheres through beach sand. *Continental Shelf Research* 97(1):1-6.
- 2015 Halliday E\*, DK Ralston and **RJ Gast**. Contribution of sand associated enterococci to dry weather water quality. *Environmental Science and Technology* 49(1):451-458.  
*PI on project, advised graduate student, discussed project design, participated in sample collection, discussed data analysis, edited manuscript.*
- 2015 McKie-Krisberg Z, **RJ Gast** and RW Sanders. Physiological responses of three species of Antarctic mixotrophic phytoflagellates to changes in light and dissolved nutrients: insights into survival in an extreme environment. *Microbial Ecology* doi: 10.1007/s00248-014-0543-x.  
*Co-designed project objectives and experiments (Co-PI), edited manuscript.*
- 2014 Halliday E\*, SL McLellan, LA Amaral-Zettler, ML Sogin and **RJ Gast**. Comparison of bacterial communities in sands and water at beaches with bacterial water quality violations. *PlosOne* 9:e90815.  
*PI on project, advised graduate student, discussed project design, execution and data analysis, wrote manuscript after student graduated.*
- 2014 Sellers CG, **RJ Gast** and RW Sanders. Selective feeding and foreign plastid retention in an Antarctic dinoflagellate. *Journal of Phycology* 50:1081-1088.  
*Co-PI on project, participated in discussions of student project, edited manuscript.*
- 2014 **Gast RJ**, Z McKie-Krisberg, SA Fay, JM Rose and RW Sanders. Antarctic mixotrophic protist abundances by microscopy and molecular methods. *FEMS Microbiology Ecology* doi: 10.1111/1574-6941.12334
- 2014 Rengefors K, R Logares, J Laybourn-Parry and **RJ Gast**. Evidence of concurrent local adaptation and high phenotypic plasticity in a polar microeukaryote. *Environmental Microbiology* DOI: 10.1111/1462-2920.12571  
*Contributed Antarctic culture for the study, participated in data discussion and manuscript writing.*
- 2014 Lie A, Z Liu, S Hu, A Jones, D Kim, P Countway, L Amaral-Zettler, C Cary, E Sherr, B Sherr, **RJ Gast** and D Caron. Investigating microbial eukaryotic diversity from a global

- census: Insights from a comparison of pyrotag and full-length sequences of 18S rRNA gene sequences. *Applied and Environmental Microbiology* 80:4363-4373.  
*Co-PI on original projects that generated the data analyzed in this manuscript, contributed to editing manuscript.*
- 2013 Fay SA, **RJ Gast**, and RW Sanders. Linking bacterivory and phyletic diversity of protists with a marker gene survey and experimental feeding with BrdU-labeled bacteria. *Aquatic Microbial Ecology* 71:141-153.  
*Co-designed original project (Co-PI), discussed data, edited manuscript.*
- 2013 Rose JM\*, E Fitzpatrick, A Wang, **RJ Gast** and DA Caron. Low temperature constrains growth rate but not short-term ingestion rates of Antarctic ciliates. *Polar Biology* 36:645-659.  
*Co-PI on project and lead PI during cruise where data was collected, contributed to editing manuscript. Rose was a postdoctoral fellow in my lab, but had taken a job with EPA/NOAA when this paper was written.*
- 2012 First MR\*, NY Park, ME Berrang, RJ Meinersmann, JM Bernhard, **RJ Gast** and JT Hollibaugh. Ciliate ingestion and digestion: Flow cytometric measurements and regrowth of a digestion-resistant *Campylobacter jejuni*. 2012. *Journal of Eukaryotic Microbiology* 59:12-19.
- 2011 Kim DY, PD Countway, **RJ Gast** and DA Caron. Rapid shifts in the structure and composition of a protistan assemblage during bottle incubations affect estimates of total protistan species richness. *Microbial Ecology* 62(2):383-398.
- 2011 **Gast RJ**, L Gorrell, B Raubenheimer and S Elgar. Impact of erosion and accretion on the distribution of enterococci in beach sands. *Continental Shelf Research* 31:1475-61.
- 2011 Halliday E\* and **RJ Gast**. Bacteria in beach sand: An emerging challenge in protecting coastal water quality and bather health. *Environmental Science and Technology* 45(2):370-79.
- 2011 **Gast, RJ**, DM Moran, MR Dennett, W Wurtsbaugh and L Amaral-Zettler. Amoebae and *Legionella pneumophila* in coastal marine environments. *Journal of Water and Health* 9(1):37-52.
- 2011 Edgcomb VP, D Beaudoin, **RJ Gast**, JF Biddle and A Teske. Marine Subsurface Eukaryotes: The Fungal Majority. *Environmental Microbiology* 13(1):172-183.
- 2010 Schnetzer A, SD Moorthi, PD Countway, **RJ Gast**, IJ Gilg and DA Caron. Depth matters: Microbial eukaryote diversity and community structure in the eastern North Pacific revealed through environmental gene libraries. *Deep-Sea Research Part I* 58(1): 16-26.
- 2010 Halliday E\*, JF Griffith, and **RJ Gast**. Use of an exogenous plasmid standard and quantitative PCR to monitor spatial and temporal distribution of *Enterococcus* spp. in beach sands *Limnology & Oceanography Methods* 8:146-154.
- 2009 **Gast RJ**, RW Sanders and DA Caron. Ecological strategies of protists and their symbiotic relationships with prokaryotic microbes *Trends in Microbiology* 17:563-569.
- 2009 Caron DA and **RJ Gast**. Heterotrophic protists associated with sea ice. In *Sea Ice*, pp.327-356. 2<sup>nd</sup> Edition edited by D.N. Thomas and G.S. Dieckmann Wiley-Blackwell.  
*Co-researched and co-wrote.*
- 2009 Moorthi, S, DA Caron, **RJ Gast** and RW Sanders. Mixotrophy: a widespread and important ecological strategy of planktonic and sea-ice nanoflagellates in the Ross Sea, Antarctica. *Aquatic Microbial Ecology* 54:269-277.  
*Co-PI on project and lead PI during cruise where data was collected, contributed to writing manuscript.*

- 2009 Caron DA, PD Countway, P Savai, **RJ Gast**, A Schnetzer, SD Moorthi, MR Dennett, DM Moran and AC Jones. Defining DNA-based operational taxonomic units for microbial eukaryote ecology. *Applied and Environmental Microbiology* 75(8):5797-5808.  
*Participated in discussions on how to define OTUs, contributed to writing the manuscript.*
- 2009 Rose JM\*, **RJ Gast**, A Bogomolni, J Ellis, B Lentell, K Touhey and M Moore. Occurrence and patterns of antibiotic resistance in vertebrates off the Northeastern United States coast. *FEMS Microbiology Ecology* 67:421–431.  
*PI on project, supervisor of postdoc, participated in data collection and analysis, contributed to writing and editing manuscript.*
- 2008 Amaral-Zettler LA, JD Rocca, MC Lamotagne, MR Dennett and **RJ Gast**. Changes in microbial community structure in the wake of Hurricanes Katrina and Rita. *Environmental Science and Technology* 42:9072-9078.
- 2008 Stewart JR, **RJ Gast**, RS Fujioka, HM Solo-Gabriele, S Meschke, LA Amaral-Zettler, E Del Castillo, MF Polz, TK Collier, MS Strom, CD Sinigalliano, PDR Moeller, and AF Holland. The coastal environment and human health: Microbial indicators, pathogens, sentinels and reservoirs. *Environmental Health* 7(Suppl 2):S3 doi:10.1186/1478-069X-7-S2-S3.
- 2008 Kite-Powell HL, LE Fleming, LC Backer, E Faustman, P Hoagland, A Tsuchiya, L Younglove, BA Wilcox, and **RJ Gast**. Linking the oceans to public health: current efforts and future directions. *Environmental Health* 7(Suppl 2):S6 doi:10.1186/1476-069X-7-S2-S6.
- 2008 **Gast RJ**, DM Moran, C Audemard, MM Lyons, J Defaveri, KS Reece, D Leavitt and R Smolowitz. Environmental distribution and persistence of Quahog Parasite Unknown (QPX). *Diseases of Aquatic Organisms* 81(3):219-229.
- 2008 Bogomolni A, **RJ Gast**, J Ellis, M Dennett, K Pugliares and M Moore. Vectors or Victims? Marine vertebrate zoonoses from coastal waters of the Northwest Atlantic. *Diseases of Aquatic Organisms* 81(1):13-38.
- 2008 Lasek-Nesselquist E, A Bogomolni A, **RJ Gast**, D Mark Welch, J Ellis, ML Sogin and M Moore. Molecular characterization of *Giardia intestinalis* haplotypes in marine animals: variation and zoonotic potential. *Diseases of Aquatic Organisms* 81(1):39-51.
- 2008 Caron DA and **RJ Gast**. The diversity of free-living protists: seen and unseen, cultured and uncultured. In *Accessing Uncultured Microorganisms: From the Environment to Organisms and Genomes and Back*. Ed K Zengler ASM Press, Washington, DC, 320 pp.
- 2007 Caraguel CGB, BM Depres, CJ O'Kelly, S Frasca Jr., **RJ Gast**, RJ Cawthorn and SJ Greenwood Microheterogeneity and coevolution: an examination of the relationship between *Neoparamoeba pemaquidensis* and its prokinetoplastid endosymbiont. *Journal of Eukaryotic Microbiology* 54(5):418-426.
- 2007 Shimeta J, **RJ Gast** and JM Rose. Community structure of marine sedimentary protists in relation to flow and grain size. *Aquatic Microbial Ecology* 48:91-104.
- 2007 Sinigalliano CD, ML Gidley, T Shibata, D Whitman, TH Dixon, E Laws, A Hou, D Bachoon, L Brand, L Amaral-Zettler, **RJ Gast**, GF Steward, OD Nigro, R Fujioka, WQ Betancourt, G Vithanage, J Mathews, LE Fleming, and HM Solo-Gabriele. Impact of Hurricanes Katrina and Rita on the microbial landscape of the New Orleans area PNAS 104: 9029-9034.
- 2007 Moran DM, OR Anderson, MR Dennett, DA Caron and **RJ Gast**. A description of seven Antarctic marine Gymnamoebae including a new subspecies, two new species and a new genus: *Neoparamoeba aestuarina antarctica* n. subsp., *Platyamoeba oblongata* n. sp., *Platyamoeba contorta* n. sp. and *Vermistella antarctica* n. gen. n. sp. *Journal of Eukaryotic Microbiology* 54(2):169-183.

- 2007 Countway PD, **RJ Gast**, MR Dennett, P Savai, JM Rose and DA Caron. Distinct protistan assemblages characterize the euphotic zone and deep sea (2500m) of the western North Atlantic (Sargasso Sea and Gulf Stream). *Environmental Microbiology* 9(5):1219-1232.
- 2007 **Gast RJ**, DM Moran, MR Dennett and DA Caron. Kleptoplasty in an Antarctic dinoflagellate; caught in evolutionary transition? *Environmental Microbiology* 9(1):39-45.
- 2006 **Gast RJ**, E Cushman\*, DM Moran, K Uhlinger, D Leavitt and R Smolowitz. DGGE-based method for detection of Quahog Parasite Unknown (QPX). *Diseases of Aquatic Organisms* 70:115-122.
- 2006 **Gast RJ** Molecular Phylogeny of a Dinoflagellate Parasite from the Solitary Radiolarian, *Thalassicolla nucleata*. *Journal of Eukaryotic Microbiology* 53(1):43-45.
- 2006 **Gast RJ**, DJ Beaudoin, DM Moran, JN Blythe\*, MR Dennett and DA Caron. High abundance of a novel dinoflagellate phylotype in the Ross Sea, Antarctica. *Journal of Phycology* 42:233-242.
- 2006 Lyons MM, R Smolowitz, KR Uhlinger, **RJ Gast** and JE Ward. Lethal marine snow: pathogen of bivalve mollusk concealed in marine aggregates. *Limnology and Oceanography* 50(6):1983-1988.
- 2005 Mullen TE, KR Nevis, CJ O'Kelly, **RJ Gast** and S Frasca Jr. Nuclear small-subunit ribosomal RNA gene-based characterization, molecular phylogeny and PCR detection of the *Neoparamoeba* from Western Long Island Sound lobsters. *Journal of Shellfish Research* 24(3):719-731.
- 2005 Frasca Jr. S, ES Weber, H Urquhart, T Wheeler, X Liao, M Gladd, K Cecchini, P Hudson, M May, **RJ Gast**, TS Gorton and SJ Geary. Isolation and characterization of *Mycoplasma sphenisci* sp. nov., from the choana of an aquarium-reared jackass penguin (*Spheniscus demersus*) *Journal of Clinical Microbiology* 43(6):2976-2979.
- 2005 Countway PD, **RJ Gast**, P Savai and DA Caron. Protistan diversity estimates based on 18S rDNA from seawater incubations in the western N. Atlantic. *Journal of Eukaryotic Microbiology* 52(2): 95-106.
- 2004 **Gast RJ**, MR Dennett and DA Caron. Characterization of Protistan Assemblages in the Ross Sea, Antarctica by Denaturing Gradient Gel Electrophoresis. *Applied Environmental Microbiology* 70:2028-2037.
- 2003 **Gast RJ**, DJ Beaudoin and DA Caron. Isolation of symbiotically expressed genes from the dinoflagellate symbiont of the solitary radiolarian *Thalassicolla nucleata*. *Biological Bulletin* 204:210-214.
- 2001 **Gast RJ** and DA Caron Photosymbiotic associations in planktonic foraminifera and radiolaria. *Hydrobiologia* 461:1-7.
- 2001 **Gast RJ**. Development of an *Acanthamoeba*-specific reverse dot blot and the discovery of a new ribotype. *Journal of Eukaryotic Microbiology* 48:609-615.
- 2000 **Gast RJ**, TA McDonnell\* and DA Caron. srDNA-based taxonomic affinities of algal symbionts from a planktonic foraminifer and a solitary radiolarian. *J. Phycol.* 36:172-7.
- 1999 Caron DA, **RJ Gast**, EL Lim and MR Dennett. Protistan community structure: molecular approaches for answering ecological questions. *Hydrobiologia.* 401:215-227.
- 1999 Caron DA, EL Lim, MR Dennett, **RJ Gast**, C Kosman and EF DeLong. Molecular phylogenetic analysis of the heterotrophic chrysophyte *Paraphysomonas*, and the design on rRNA-targeted oligonucleotide probes for two species. *J. Phycol.* 35:824-837.
- 1998 Stothard DR, J Diedrich-Schroeder, MH Awwad, **RJ Gast**, DR Ledee, SR Zaragoza, C Williams, PA Fuerst and TJ Byers. The evolutionary history of the genus *Acanthamoeba* and the identification of eight new 18S rRNA gene sequence types. *J. Euk. Microbiol.* 45(1):45-54.

- 1996 **Gast RJ** and DA Caron. Molecular phylogeny of symbiotic dinoflagellates from planktonic foraminifera and radiolaria. *Mol. Biol. Evol.* 13(9):1192-1197.
- 1996 **Gast RJ**, DR Ledee, PA Fuerst and TJ Byers. Subgenus Systematics of *Acanthamoeba*: Four Nuclear 18S rDNA Sequence Types. *J. Euk. Microbiol.* 43(6):498-504.
- 1995 **Gast RJ** and TJ Byers. Genus- and subgenus-specific oligonucleotide probes for *Acanthamoeba*. *Mol. Biochem. Parasitol.* 71; 255-260.
- 1994 **Gast RJ**, PA Fuerst and TJ Byers. Discovery of group I introns in the nuclear small subunit ribosomal RNA genes of *Acanthamoeba*. *Nucleic Acids Res.* 22(4):592-596.
- 1994 Weekers PHH, **RJ Gast**, PA Fuerst and TJ Byers. Sequence variations in small-subunit ribosomal RNAs of *Hartmannella vermiformis* and their phylogenetic implications. *Mol. Biol. Evol.* 11(4):684-690.
- 1992 Hugo ER, VJ Stewart, **RJ Gast** and TJ Byers. Purification of amoeba mtDNA using the UNSET procedure. In: *Protocols in Protozoology* (J.J. Lee and A.T. Soldo eds.) D 7.1-7.2 Society of Protozoologists.

## OTHER PUBLICATIONS

- 1995 Caron DA and **RJ Gast**. "Probing biodiversity with molecular techniques" *Oceanus*, 38: 11-15.
- 1999 **RJ Gast** WHOI annual report "Antarctic Studies Illuminate Diversity in Extreme Environments"
- 2000 "The Good, the Bad and the Ubiquitous: Acanthamoeba in the Marine Environment" report written by Tracey Crago summarizing the Acanthamoeba research that I have accomplished with funding from WHOI Sea Grant (Sea Grant publication)
- 2000 **RJ Gast** "Detection and Quantification of Live Acanthamoeba in Natural Marine Ecosystems Using Molecular Genetic Methods" Sea Grant Program Guide.
- 2002 Fathom online feature about Antarctic Protistan Diversity
- 2004 Revealing the Ocean's invisible Abundance: New instruments enable studies of diverse microbial communities at the center of the oceanic food web *Oceanus*.
- 2005 Protists in the Antarctic, *Antarctic Sun* (Online publication)
- 2009 DA Caron, **RJ Gast** and PD Countway Microbial eukaryote ecology: Questions of diversity and biogeography *Microbe* (ASM)

## AWARDS and HONORS

Theodore L. Jahn Award

Best Graduate Student Presentation (1992 - Society of Protozoologists)

Woods Hole Oceanographic Institution Postdoctoral Scholar (1994-1997)

WHOI Coastal Ocean Institute Fellow 2006-2009

Provost's Distinguished Scholar, University of Texas at Austin (2008)

Seward Johnson Chair (Education Coordinator, 2013-present)

## PROFESSIONAL AFFILIATIONS

International Society of Protozoologists

American Society of Limnology and Oceanography

American Society for Microbiology

## PROFESSIONAL ACTIVITIES

### WHOI:

Reviewer for Draft of Handbook for New WHOI Scientists  
Trustee Partnership Program (2001-2003)  
Co-chair Biology Department Seminar Series  
Biology Department Hiring Committee (member 2002-2012; member of 2015, 2016 & 2018 search committees)  
Scientific Staff Executive Committee (2006-2008)  
Promotion committees (2006 – Sievert; 2008 – chair, Kujawinski; 2012 – chair, Mincer; 2015 – Jenouvrier; 2017 – Llopiz)  
WHOI Womens Committee (2009-2010; served as co-chair)  
WHOI Staff Committee (2002-2005)  
WHOI Coastal Ocean Institute Advisory Committee (2003-2015)  
WHOI Biosafety Committee (member since 2000; Chair, 2005-present)  
WHOI Safety Committee (Chair, 2015-present)  
Member of WHOI Dean of Education Search Committee (2017)

### Outside WHOI:

Editorial Board Member for the American Society for Microbiology, International Society of Protistologists  
Subject Editor for Diseases of Aquatic Organisms (2007-2016; zoonosis, microbial eukaryote ecology) and co-editor of special issue on marine animal health (2008).  
Reviewer for Journal of Phycology, Protist, Journal of Parasitology, Limnology and Oceanography, Biological Bulletin, Acta Protozoologica, Microbial Ecology, Journal of Clinical Microbiology, Marine Ecology and Progress Series, Aquatic Microbial Ecology, Estuarine Coastal and Shelf Science, FEMS Microbiology Ecology, Environmental Microbiology, Water Science and Technology, ISME Journal, Polar Biology, Journal of Applied Microbiology, Symbiosis, Journal of Plankton Research.  
Panelist for National Science Foundation (14 panels; 7 different programs) and NIAID (2014, Workshop Panel).  
Elected member of the American Institute of Biological Sciences Infrastructure for Biology at Regional to Continental Scales Working Group (2002-2004), that helped prepare a final document in support of NSF NEON program.

## OUTREACH ACTIVITIES

Science & Art I work with Falmouth High School (FHS) Studio Arts Teacher, Jane Baker, to develop and execute projects that combine art and science. These include:  
*Portraits of Antarctica* (2014; 2016) I visited the FHS classes to talk with the students about microbial ecology and its role in Antarctica, as well as what it is like to conduct research in Antarctica. Students utilized images of microbes for watercolor studies, as well as images of Antarctic landscapes, animals and science activity for linoleum cut prints. These have been displayed in Redfield Lobby, at the FHS science fair and the WHOI Exhibit Center.  
*Seals, Sand Dunes and Solitude* (2014/2015) combined art, poetry and grey seal ecology. Students in FHS Art and English classes traveled to High Head beach in Provincetown, MA to observe the grey seals and listen to talks presented by scientists on the local grey seal population. They produced charcoal drawings of seals, small *plein aire* landscape paintings of the



seashore, and haibun travel poetry. They also created a life-sized seal from fishing net that was accepted for display at the Provincetown Green Arts Festival in 2015. All of the artwork was on public display in the Falmouth Museums on the Green, and a public “sealposium” was held where Gast, Andrea Bogomolni and Gordon Waring participated in presentations and a discussion regarding grey seals.

*Illustrating Science* (2018) FHS Advanced Art students used artwork to bring attention to scientific topics being studied by WHOI Biology faculty. Scientists were asked to submit a paragraph describing their work, or an aspect of it. The students then created acrylic on panel door murals that illustrated their interpretation of the research. The students and faculty had an opportunity to meet at a public reception where the murals were displayed. Murals are currently mounted on scientist’s laboratory doors.

*Inspired by Agassiz* (2018/2019) In this project FHS students interact with professional scientists and naturalists as the students apply naturalist approaches to studies of Cape Cod habitats. Students from the FHS Studio Art, English and Biology classes will travel down Cape to explore disparate ecosystems such as Provincetown dunes and glacial kettle-holes. The students will also collaborate on this venture with students from Nantucket High School, comparing individualities of the ecosystems of the lower Cape with those of Nantucket Island. All students from all subject areas will be asked to respond to their studies as writers, scientists, and artists – using poetry and prose as well as etchings, pen drawings, watercolor and acrylic paintings. All works created will be shared in both school and greater communities through public presentations, art shows and a published book.

Participant in the New England COSEE Ocean Science Education Institute (2004-2005).

Participant in the MBL hands-on summer program for middle and high school teachers called “Living in the Microbial World” (1998, 1999, 2000, 2003).

Collaboration with Zephyr Education Foundation to develop grade 6-8 educational unit on plankton.

Northwest Atlantic Seal Research Consortium member.

## **PARTICIPATION IN EDUCATION AT WHOI**

General Exam Committee (2011, 2012)

Summer Student Fellow Biology Department Representative (2001-2003)

Postdoctoral Scholar Biology Department Representative (2008-2010)

WHOI Postdoc Mentoring Committee (2012-present)

### Graduate Level Courses Initiated and Taught

Sequence based “Omics”, 2016

Oceans and Human Health 2007, 2010

Symbiosis 2001, 2004, 2007

Biological Oceanography Sampling and Laboratory 2003

Marine Genomics 2003 (collaborative teaching effort)

### Graduate Student Mentoring

Joint Program Student Megan May (Biology, graduated 2018)

Joint Program student Elizabeth Halliday (Biology, graduated 2012)

Sandra Cortes-Perez – WHOI Guest Student from University of Mexico (summer 2012)

Keith Hernandez – WHOI Guest Student from Louisiana State University (May-July 2017 & September-November 2018)

#### Postdoctoral Mentoring

Nicole Millette – WHOI Sea Grant Postdoctoral Fellow

Andrea Bogomolni – Morris Animal Foundation Trainee/WHOI Postdoctoral Investigator

Roxanne Beinart – WHOI Postdoctoral Scholar/NSF Postdoctoral Fellow in Biology, coadvised with Edgcomb

Julie M. Rose – NSF Office of Polar Programs Postdoctoral Fellow

Matthew First – WHOI Postdoctoral Scholar in G&G; coadvised with Bernhard

#### Undergraduate Student Mentoring

Harrison Walker - Part-time Helper (2002)

Holly McFadden - Part-time Helper (2003)

Janina Kanin – High school science fair project (2005; 3<sup>rd</sup> place state level)

Yvonne Campbell - Guest Student from Scotland (6 mo, 2000)

Anthony Dvarskas – WHOI Summer Student Fellow (SSF; 1998)

Zobeida Cruz – WHOI SSF (1999)

Sun Hur – WHOI SSF (2000)

Jonathan Blythe – WHOI SSF (2001)

Kristin Henderson – Boston University REU (2003)

Elizabeth Cushman – WHOI SSF (2004)

Elizabeth Halliday – MBL REU (2005)

Benjamin Tully – WHOI COHH REU (2006)

Christine Blachly – MBL REU (2007)

Jennifer Cutler – MBL REU/WHOI Guest Student/COHH REU (2008)

Bridget Sarpu – MBL intern (2008)

Jonathan Viola – MBL intern (2009)

Cynthia McElvey – WHOI Guest Student/MBL intern (2010)

Eden Maloney – WHOI Guest Student (2010)

Allison Jones – WHOI SSF (2011)

Megan May – Undergrad Intern (January 2013)

#### Thesis committees outside of WHOI

Melissa Hewett – University of South Australia 2005

Markus Majaneva – University of Helsinki 2013

Mary Thaler – University of Laval 2014

Grier Sellers – Temple University 2014

Zaid McKie-Krisberg – Temple University 2014

Wei Li – Miami University (2012-2016)

### **CRUISE and FIELDWORK PARTICIPATION**

#### Cruises

RVIB Nathaniel B Palmer; December 1998 – February 1999 (NBP 99-01); October 2003 – November 2003 (NBP 03-05); October 2005 – December 2005 (NBP 08-05); January 2011 – February 2011 (NBP 11-01)

RV Endeavor (EN 343); August 15 – 29, 2000

RV Weatherbird; September 26 – October 3, 1994 (BATS validation) & June 8 – 9, 2000 (BATS)  
RV Sea Watch (USC Microbial Observatory cruise); March 18, 2001  
RV Point Sur (USC Microbial Observatory cruise); June, 2001  
Extreme 2001 cruise (9N East Pacific Rise, Dr. Craig Cary Chief Scientist)  
RV John Dempsey - Monthly trips into Long Island Sound 2001-2003  
USCG Healy – September 6 – October 1, 2008.

#### Fieldwork at Marine Stations

Bermuda Biological Station for Research; 1994, 1995, 1997  
Caribbean Marine Research Station; 1998  
Catalina Island; 2001

#### **INVITED PRESENTATIONS**

- 1997 32<sup>nd</sup> Annual Regional Meeting of the American Society of Microbiology "Detection of potentially pathogenic Acanthamoebae from marine sediments using reverse dot-blots"
- 1998 NASA Astrobiology meeting "Symbiosis and the Evolution of Organelles"
- 1998 University of Connecticut; Department of Marine Sciences Seminar Series "Topics in protistan molecular ecology"
- 1999 ASM Conference on Microbial Biodiversity "Protistan biodiversity in Antarctic marine ecosystems"
- 2000 University of California Santa Barbara, Department of Ecology, Evolution and Marine Biology Seminar Series "Molecular characterization of marine protistan diversity"
- 2002 Woods Hole Sea Grant Luncheon "Detection of pathogenic protists in the marine environment"
- 2002 Committee on the Origins and Evolution of Life, NASA Astrobiology presented Astobiology associated work on photosymbiotic relationships (Symbiotic protist image chosen for the cover of "Life in the Universe" publication from the National Research Council)
- 2002 University of Rhode Island School of Oceanography Seminar Series "My Antarctic summer vacation"
- 2002 Sea Education Association "My Antarctic summer vacation"
- 2003 Sea Education Association "Topics in protistan molecular ecology"
- 2003 University of Connecticut "Topics in protistan molecular ecology"
- 2003 Marine Biological Laboratory Ecosystems Center "Topics in protistan molecular ecology"
- 2003 Science and Engineering Briefs, WHOI Women's Committee "Antarctic protistan ecology"
- 2003 International Symbiosis Society Meeting, Halifax, Nova Scotia "Isolation of genes potentially involved in regulating and establishing photosymbiotic associations"
- 2004 Stony Brook University Marine Sciences Research Center "Topics in protistan molecular ecology: Life in the extreme cold".
- 2005 Canadian Institute for Advanced Research Workshop on Microbial Diversity "Protistan diversity: Establishing linkages between genotype, morphology and physiology"
- 2006 International Society of Protistologists (Vice-President's address) "Studies of protistan diversity in Antarctica."
- 2006 National Shellfisheries Association "Detection and distribution of Quahog Parasite Unknown in the coastal marine environment"
- 2007 Massachusetts Shellfish Officers meeting "Update on environmental persistence of Quahog Parasite Unknown"

- 2007 Canadian Institute for Advanced Research Workshop on Integrated Microbial Diversity “Kleptoplasty in an Antarctic Dinoflagellate”
- 2007 Microbial Diversity Course MBL (also participated in laboratory exercise) “Molecular methods to study protistan diversity”
- 2008 Columbia/Lamont-Doherty Earth Observatory “*Legionella* species in saline environments”
- 2008 American Society for Microbiology “Marine parasites – the dark side of microbial eukaryotes”
- 2008 University of Miami, Oceans and Human Health Center “Human pathogens and coastal ocean processes”
- 2008 Gordon Research Conference, Marine Microbes “Intracellular bacteria, amoebae and the ocean”
- 2009 International Marine Conservation Congress “Anthropogenic environmental degradation exposes marine organisms to new microbes”
- 2009 NOAA Oceans and Human Health Initiative PI meeting “Antibiotic resistant bacteria in stranded, bycaught and live marine animals”
- 2010 I-RICH Symposium, University of Connecticut “Connecting human and marine animal health”
- 2010 Wianno Club, Cape Cod “Beach water quality monitoring”
- 2012 Atlantic Research Center Seashore Research Symposium. Wellfleet, MA “Giardia and Cryptosporidium in Cape Cod Seals”
- 2012 Rhode Island College “Bacteria in beach sand”
- 2013 Cape Cod Natural History Conference “Grey seals and beach water quality”
- 2013 Friends of Pleasant Bay “Grey seals and beach water quality”
- 2014 University of Laval, Canada “Mixotrophy in polar protists”
- 2015 Miami University, Ohio “Mixotrophy in polar protists”
- 2016 University of Delaware, UCMES “Mixotrophy in polar protists”

#### **PAPERS & POSTERS PRESENTED AT MEETINGS** (since 1996)

- 1996 ASLO/AGU Ocean Sciences Meeting **RJ Gast**, DA Caron and TA McDonnell "Molecular Characterization of the Symbionts from Planktonic Sarcodines Based upon srDNA Analysis" (Gast, oral presentation)
- 1996 Gordon Conference on Molecular Evolution **RJ Gast** and DA Caron "SrDNA-based Phylogeny of the Symbiotic Algae from Planktonic Sarcodines" (Gast, Poster)
- 1996 Second International Congress on Symbiosis **RJ Gast** and DA Caron "Photosymbiotic Associations in Planktonic Foraminifera and Radiolaria" (Gast, Poster)
- 1997 ASLO Aquatic Sciences Meeting **RJ Gast** and DA Caron “Development of a Reverse Dot-blot Method for *Acanthamoeba*” (Gast, oral presentation)
- 1998 Annual Meeting of the Society of Protozoologists **RJ Gast** and DA Caron "Reverse Dot blot Detection of Acanthamoebae and Application of the Method to Environmental Samples" (Gast, oral presentation)
- 1999 Microbial Aquatic Symbiosis Meeting in Oban, Scotland **RJ Gast** "Photosymbiotic Associations in Planktonic Sarcodines" (Gast, oral presentation)
- 2000 ASLO Annual Aquatic Sciences Meeting in Denmark Z Cruz-Monserrate\* and **RJ Gast** "Detection and Identification of Acanthamoebae from Natural Samples" (Cruz-Monserrate, poster) \* denotes undergraduate student presentation
- 2000 NASA Astrobiology Institute Annual Meeting DJ Beaudoin, **RJ Gast**, DA Caron and MR Dennett "Protistan Communities of Extreme Marine Environments." (Beaudoin, Poster)

- 2000 Society of Protozoologists Annual Meeting **RJ Gast** and Z Cruz-Monserrate. "New Acanthamoeba Ribotypes Identified by Reverse Dot Blot." (Gast, oral presentation and published abstract)
- 2001 ASLO Annual Aquatic Sciences Meeting **RJ Gast**, DJ Beaudoin, MR Dennett, DM Moran and DA Caron. "Genetic Diversity of Protists in Antarctic Marine Environments" (Gast, oral presentation).
- 2001 ASLO Annual Aquatic Sciences Meeting PD Countway, DA Caron, **RJ Gast**, MR Dennett. "Terminal Restriction Fragment Length Polymorphism (TRFLP) Analysis of Protistan Assemblages of the North Atlantic." (Countway, oral presentation)
- 2001 NASA Astrobiology Annual Meeting **RJ Gast**, DJ Beaudoin and DA Caron. "Genes Involved in Photosymbiotic Interactions." (Gast, poster)
- 2001 East Coast Protozoology Meeting **RJ Gast**, DJ Beaudoin, MR Dennett, DM Moran, and DA Caron. "Genetic Diversity of Protists in Antarctic Marine Environments." (Gast, oral presentation)
- 2001 East Coast Protozoology Meeting DM Moran\*, **RJ Gast**, and DA Caron. "The Isolation, Maintenance and Identification of an Antarctic Protist Culture Collection." \* denotes undergraduate student presentation (Moran was pursuing her undergraduate degree at this time)
- 2002 ASLO Annual Aquatic Sciences Meeting PD Countway, DA Caron, **RJ Gast**, MR Dennett, DM Moran. "Molecular Analyses of Protistan Assemblages from the Sargasso Sea Suggest Radical Community Shifts in Nutrient-amended Bottle Incubation and Throughout the Water Column." (Countway, poster and published abstract)
- 2002 ASLO Annual Aquatic Sciences Meeting JM Rose, DM Moran, **RJ Gast**, MR Dennett, RA Schaffner, and DA Caron. "Do growth rates of Antarctic protists compensate for low temperature?" (Rose, published abstract)
- 2002 Long Island Sound Lobster Health Symposium **RJ Gast** "Oligonucleotide-based Detection of Pathogenic Paramoeba Species" (Gast, oral presentation)
- 2002 ASLO Summer Meeting **RJ Gast** and DJ Beaudoin. "Isolation and characterization of genes potentially involved in phosymbiotic associations." (Gast, oral presentation and published abstract)
- 2002 ASLO Summer Meeting MR Dennett, **RJ Gast**, PD Contway, DA Caron, and DM Moran. "Analysis of containment effects on the diversity of protistan assemblages from the Sargasso Sea and San Pedro Channel by denaturing gradient gel electrophoresis." (Dennett, poster and published abstract)
- 2002 European Union Pico-Div Workshop, Station Biologique, Roscoff, FR PD Countway, DA Caron, **RJ Gast**, MR Dennett, M.R. and DM Moran. "Molecular analyses of protistan assemblages from the Sargasso Sea suggest radical community shifts in nutrient-amended bottle incubations." (Countway, oral presentation)
- 2002 Society of Protozoologists Annual Meeting DM Moran\*, **RJ Gast**, MR Dennett, and DA Caron "The identification of a new dinoflagellate from the Ross Sea, Antarctica." (Published abstract) \*denotes undergraduate student presentation (Moran was pursuing her undergraduate degree at this time)
- 2003 Long Island Sound Lobster Health Symposium **RJ Gast** "Oligonucleotide-based Detection of Pathogenic Neoparamoeba Species." (Gast, oral presentation and published abstract)
- 2003 ASLO Annual Aquatic Sciences Meeting DA Caron, **RJ Gast**, PD Countway, A Schnetzer, DM Moran, MR Dennett, and M Travao. "Unicellular eukaryotic biodiversity in environmental samples from the Western North Atlantic and Eastern North Pacific." (Caron, poster and published abstract)

- 2003 ASLO Annual Aquatic Sciences Meeting **RJ Gast**, DM Moran, MR Dennett, JM Rose, and DA Caron. "Linking protistan genotype, morphology and physiology from ice and water samples of the Ross Sea, Antarctica." (Gast, oral presentation and published abstract)
- 2003 ASLO Annual Aquatic Sciences Meeting PD Countway, DA Caron, **RJ Gast**, A Schnetzer, MJ Travao, and MR Dennett. "Community Fingerprints of Eukaryotic Marine Microbes at a Coastal Time-Series Station." (Countway, poster and published abstract)
- 2003 IAAAM Meeting TE Mullen, KR Nevis, S Frasca Jr., **RJ Gast**, MR Peglar, PM Gillevet, and CJ O'Kelly "Characterization of the amoeba associated with paramoebiasis in the American lobster (*Homarus americanus*) by small subunit ribosomal gene analysis." (Mullen, oral presentation and published abstract)
- 2004 Lobster Research Initiative Meeting **RJ Gast** and DM Moran. "Detection of Neoparamoeba species in Long Island Sound." (Gast, platform presentation and published abstract)
- 2004 Society of Protozoologists Annual Meeting **RJ Gast**, DM Moran, MR Dennett, JM Rose, and DA Caron. "Protistan diversity in the Ross Sea, Antarctica: Linking genotype, morphology and physiology." (Gast, oral presentation and published abstract).
- 2004 Society of Protozoologists Annual Meeting DM Moran, OR Anderson, **RJ Gast**, DA Caron, and MR Dennett. "Antarctic Amoebae Adventures." (Moran, oral presentation and published abstract).
- 2005 ASLO Annual Aquatic Sciences Meeting MM Lyons, KR Uhlinger, JE Ward, **RJ Gast**, and R Smolowitz. "Quahog parasite unknown (QPX) and its association with marine aggregates." (Lyons, oral presentation and published abstract).
- 2005 ASLO Annual Aquatic Sciences Meeting **RJ Gast**, DM Moran, DJ Beaudoin, JN Blythe, MR Dennett, and DA Caron. "Identification, distribution and abundance of a novel bloom-forming dinoflagellate in the Ross Sea, Antarctica." (Gast, oral presentation and published abstract.)
- 2005 ASLO Annual Aquatic Sciences Meeting DA Caron, **RJ Gast**, PD Countway, P Savai, A Schnetzer, and S Moorthi. "Protistan DNA sequence information and the species concept: defining taxa for ecological studies." (Caron, oral presentation and published abstract.)
- 2005 ASLO Annual Aquatic Sciences Meeting JM Rose, DA Caron, **RJ Gast**, DM Moran, NM Vora, and V Sippel. "Temperature effects on micrograzer control of algal and bacterial assemblages in the Ross Sea, Antarctica." (Rose, oral presentation and published abstract.)
- 2005 National Shellfish Association MM Lyons, JE Ward, **RJ Gast**, KR Uhlinger and R Smolowitz. "Quahog Parasite Unknown (QPX) concealed in Marine Aggregates: What is the link with Macrophytes?" (Lyons, oral presentation and published abstract.)
- 2005 ASLO summer meeting **RJ Gast** "Molecular phylogeny of a dinoflagellate parasite from the solitary radiolarian, *Thalassicolla nucleata*." (Gast, poster and published abstract)
- 2006 Ocean Sciences E Halliday and **RJ Gast**. "Recovery of Legionella species from the Marine Environment Using Molecular Methods." (Halliday, poster in REU special session and published abstract)
- 2006 Ocean Sciences **RJ Gast**, E Halliday, MR Dennett, J Rocca, A Laatsch and L Amaral-Zettler. "Amoebae and Legionella species in Mt Hope Bay." (Gast, poster and published abstract)
- 2006 Ocean Sciences J Shimeta and **RJ Gast**. "Community Structure of Marine Sedimentary Protists in Relation to Flow Regime and Grain Size; Application of Denaturing Gradient Gel Electrophoresis (DGGE)." (Gast, poster and published abstract)
- 2006 Ocean Sciences PD Countway, P Savai, DA Caron and **RJ Gast**. "Protistan Diversity in the Sargasso Sea and Gulf Stream (N. Atlantic Ocean): A Comparison of Euphotic Zone and Deep-Sea (2500 m) Protistan Assemblages." (Countway, poster and published abstract)

- 2006 Ocean Sciences L Amaral-Zettler, A Laatsch, J Rocca, MR Dennett and **RJ Gast**. “A Microbial Diversity Survey of a Sewage- and Thermally-Impacted Estuary: Mt. Hope Bay, Massachusetts.” (Amaral-Zettler, poster and published abstract)
- 2006 International Society of Protistologists **RJ Gast**, DM Moran, KR Uhlinger, DR Leavitt and R Smolowitz. “Detection and persistence of Quahog Parasite Unknown in the Coastal Marine Environment.” (Gast, oral presentation and published abstract)
- 2006 Gordon Research Conference on Marine Microbes PD Countway, **RJ Gast**, MR Dennett, P Savai, JM Rose, and DA Caron. “A Comparison of Protistan Diversity in the North Atlantic and North Pacific Oceans Based on 18S rRNA Gene Surveys.” (Countway, poster)
- 2006 5<sup>th</sup> Aquatic Animal Health symposium TE Mullen, KR Nevis, CJ O’Kelly, **RJ Gast** and S Frasca Jr. “Identification of *Neoparamoeba pemaquidensis* from Western Long Island Sound lobster using nuclear small-subunit ribosomal RNA gene-based sequence analysis, molecular phylogeny and PCR detection from infected tissues.” (Frasca, oral presentation)
- 2006 OCEANS 2006 IEEE US A Bogomolni, MR Dennett, J Ellis , **RJ Gast**, B Harris, M Pokras, K Touhey and M Moore. “Emerging Zoonoses in Marine Mammals and Sea Birds in the Northeast.” (Bogomolni, oral presentation).
- 2007 ASLO Ocean Sciences **RJ Gast**, DM Moran, KR Uhlinger, DR Leavitt, and R Smolowitz. “Environmental distribution of Quahog Parasite Unknown in the coastal marine environment.” (Gast, oral presentation)
- 2007 ASLO Ocean Sciences **RJ Gast**, DM Moran, MR Dennett, J Rocca, and L Amaral-Zettler. “*Legionella* species, including the human pathogen *Legionella pneumophila*, in Mout Hope Bay.” (Moran, poster presentation)
- 2007 National Shellfish Association MM Lyons, **RJ Gast**, SB Roberts, R Smolowitz, and JE Ward. “Growth of the hard clam pathogen Quahop Parasite unknown (QPX) on seaweed and seagrass detritus.” (Lyons, oral presentation)
- 2007 AAAS Zoonotic Disease Surveillance M Moore, A Bogomolni, MR Dennett, J Ellis , **RJ Gast**, B Harris, M Pokras, and K Touhey. “Using Seabirds and Marine Mammals To Detect Health Threats.” (Moore, oral presentation)
- 2007 American Society for Microbiology A Bogomolni, MR Dennett, JC Ellis, **RJ Gast**, MA Pokras, K. Touhey, F Tseng, M Moore. “Zoonotic Pathogens in Marine Vertebrates on the Northeast Coast.” (Bogomolni, poster presentation)
- 2007 American Society for Microbiology **RJ Gast**, CD Sinigalliano, ML Gidley, T Shibata, D Whitman, TH Dixon, E Laws, A Hou, D Bachoon, L Brand, L Amaral-Zettler, GF Steward, OD Nigro, R Fujioka, WQ Betancourt, G Vithanage, J Mathews, and HM Solo-Gabriele. “Impacts of Hurricane Floodwater on Lake Pontchartrain Microbes.” (Gast, poster presentation; designed from Morss Colloauim presentation)
- 2007 APMBC meeting L Amaral-Zettler, A Laatsch, J Rocca, L Graham, B Tully, MR Dennett, and **RJ Gast**. “A comparative study of microbial populations in sewage-impacted estuarine environments: Mt. Hope Bay, Massachusetts and Lake Pontchartrain, Louisiana.” (Amaral-Zettler, oral presentation)
- 2007 International Society of Protistologists **RJ Gast**, DM Moran, MR Dennett, J Rocca, and L Amaral-Zettler. “Amoebae from saline environments harbor *Legionella* species.” (Gast, oral presentation)
- 2007 International Free-Living Amoeba Meeting **RJ Gast**, DM Moran, MR Dennett, J Rocca, and L Amaral-Zettler. “*Legionella* species in amoebae isolated from saline environments.” (Gast, oral presentation)
- 2007 17<sup>th</sup> Biennial Conference on the Biology of Marine Mammals A Bogomolni, J Ellis, **RJ Gast**, MR Dennett, B Lentell, M Pokras, K Touhey, and M Moore. “Zoonotic Disease

- Surveillance and Antibiotic Resistance Patterns in Marine Mammals and Seabirds on the Northeast United States Coast.” (Bogomolni, poster presentation)
- 2008 Ocean Sciences (ASLO/AGU) A Bogomolni, **RJ Gast**, MR Dennett, C Blachly, JC Ellis, MA Pokras, K. Touhey, F Tseng, and M Moore. “Zoonotic Pathogens in Marine Vertebrates of the coastal Northeast U.S.” (Gast, oral presentation)
- 2008 Ocean Sciences (ASLO/AGU) JM Rose, A Bogomolni, **RJ Gast**, JC Ellis, and M Moore. “Patterns of antibiotic resistance in northeastern coastal vertebrates.” (Rose, oral presentation)
- 2008 National Shellfisheries Association MM Lyons, R Smolowitz, M Gomez-Chiarri, JE Ward, and **RJ Gast**. “An epizootiological approach to the study of bivalve diseases such as QPX.” (Lyons, oral presentation)
- 2008 National Shellfisheries Association **RJ Gast**, DM Moran, C Audemard, MM Lyons, J DeFavari, KR Uhlinger, KS Reece, DF Leavitt, and R Smolowitz “Distribution of Quahog Parasite Unknown in the coastal marine environment.” (Gast, oral presentation)
- 2008 International Society of Protistologists CGB Caraguel, CJ O’Kelly, P Legendre, S Frasca Jr., **RJ Gast**, B Després, N Donay, RJ Cawthorn, and SJ Greenwood. “Molecular characterization of *Neoparamoeba pemaquidensis*, a parasite implicated in the mass mortality of Long Island Sound lobsters in 1999.” (Greenwood, poster presentation)
- 2009 ASLO Aquatic Sciences A Schnetzer, SD Moorthi, PD Countway, IC Gilg, **RJ Gast** and DA Caron. “Depth matters: Microbial eukaryote diversity and community structure in the Western North Pacific as indicated by environmental gene libraries.” (Schnetzer, oral presentation)
- 2009 ASLO Aquatic Sciences E Halliday and **RJ Gast**. “Quantification and distribution of *Enterococcus* spp. in wet and dry beach sand over space and time.” (Halliday, poster presentation)
- 2009 American Society for Microbiology **RJ Gast** and RW Sanders. “Polar Plants and Animals? Mixotrophic Protists in the Beaufort Sea.” (Gast, poster presentation)
- 2009 ICoMM PD Countway, L Amaral-Zettler, **RJ Gast**, BF Sherr, EB Sherr, and DA Caron. “Global Protistan Survey: Comparison of High-Throughput '454' Pyrosequencing vs. 'Deep' Sanger Sequencing of 18S rRNA genes in Arctic (Chukchi Sea) and Antarctic (Ross Sea) ecosystems.” (Countway, poster presentation)
- 2010 COHH PI meeting **RJ Gast**, RM Moran, E Halliday, MR Dennett and L Amaral-Zettler “*Legionella* in the marine environment.” (Gast, poster presentation)
- 2010 NOAA OHHI PI meeting (invited talk) **RJ Gast**, A Bogomolni, and M Moore. “Antibiotic resistant bacteria in stranded, bycaught and live marine mammals”
- 2010 Marine Microbes Gordon Conference DY Kim, PD Countway, **RJ Gast** and DA Caron. “Rapid shifts in protistan community structure and composition during bottle incubations.” (Kim, poster presentation)
- 2010 Ocean and Human Health Gordon Conference **RJ Gast**, DM Moran, E Halliday, MR. Dennett and L Amaral-Zettler. “*Legionella* in the marine environment.” (Gast, poster presentation)
- 2011 International Society of Protistologists/Phycological Society of America S Fay, S DeVaul, E Halliday, **RJ Gast**, and RW Sanders. “Separation of eukaryotic bacterivore DNA from environmental samples.” (Fay, oral presentation)
- 2012 SCAR meeting **RJ Gast**, ZM McKie-Krisberg, and RWSanders. “Mixotrophic protists in the Ross Sea, Antarctica and the Arctic Ocean.” (Gast, poster presentation)



- 2012 Ocean Sciences **RJ Gast**, ZM McKie-Krisberg, and RW Sanders. “QPCR-based abundances of mixotrophic protist species in the Ross Sea, Antarctica and the Beaufort Sea.” (Gast, poster presentation)
- 2012 Ocean Sciences RW Sanders and **RJ Gast**. “Changes in latitude – bacterivory by mixotrophic protists in the Ross and Beaufort Seas.” (Sanders, oral presentation)
- 2012 Ocean Sciences S Fay, RW Sanders, and **RJ Gast**. “Studying trophic compartments of eukaryotic microbial food webs using a thymidine analog and environmental DNA sequencing.” (Fay, oral presentation)
- 2012 Ocean Sciences DA Caron, E Fitzpatrick, JM Rose, and **RJ Gast**. “Low temperature constrains growth rate but not growth efficiency or instantaneous grazing rate of Antarctic microzooplankton.” (Caron, oral presentation)
- 2012 EPA & New England Association of Environmental Biologists Annual Meeting E Halliday and **RJ Gast**. “Digging into dry-weather bacterial violations at recreational beaches.” (Halliday, oral presentation)
- 2012 EPA & New England Association of Environmental Biologists Annual Meeting E Halliday and **RJ Gast**. “Calculating a site-specific single sample maximum for fecal indicator bacteria (*Enterococcus*) at Provincetown beaches.” (Halliday, poster presentation)
- 2013 International Congress of Protistology XIV **RJ Gast**, A Bogomolni and MJ Moore. “*Giardia* in Cape Cod seals and their fish prey.” (Gast, oral presentation)
- 2013 International Congress of Protistology XIV **RJ Gast**, Z McKie-Krisberg and RW Sanders. “Evaluation of mixotroph abundances in the Arctic and Antarctic marine environments by quantitative PCR.” (Gast, oral presentation)
- 2013 International Congress of Protistology XIV CG Sellers, **RJ Gast** and RW Sanders. “Responses of a kleptoplastidic Antarctic dinoflagellate and its prey to an extended period of darkness.” (Sellers, oral presentation)
- 2013 Polar and Alpine Microbiology Conference **RJ Gast**, Z McKie-Krisberg and RW Sanders. “Mixotroph abundances in the Arctic and Antarctic marine environments by quantitative PCR.” (Gast, oral presentation)
- 2014 Marine Microbes Gordon Conference **RJ Gast**, and P Keeling. “Regulation of stolen plastids by ancestrally acquired genes in a dinoflagellate.” (Gast, poster presentation)
- 2015 American Society for Microbiology General Meeting Z McKie-Krisberg, RW Sanders and **RJ Gast**. “Evaluation of mixotrophy-associated gene expression in two species of Antarctic marine algae.” (Gast, poster presentation)
- 2016 Ocean Sciences **RJ Gast**, E Hehenberger and P Keeling. “Kleptoplast regulation by an Antarctic dinoflagellate.” (Gast, poster presentation)
- 2017 American Society for Microbiology **RJ Gast**, SA Fay and RW Sanders. “Mixotrophic activity and diversity of Antarctic marine protists in summer.” (Gast, poster presentation)
- 2017 American Society for Microbiology MK May and **RJ Gast**. “Prevalence and persistence of antibiotic resistance in *Vibrio*-like bacteria isolated from Cape Cod, MA beaches.” (May, poster presentation)
- 2017 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance M May and **RJ Gast**. “Antibiotic resistant bacteria at the beach: Evaluating prevalence and persistence.” (May, poster presentation)
- 2017 15th International Congress of Protistology E Hehenberger, P Keeling and **RJ Gast**. “Investigation of an Antarctic dinoflagellate harboring kleptoplastids of remarkable longevity.” (Hehenberger, oral presentation)

- 2018 5<sup>th</sup> Joint Meeting of the Phycological Society of America & International Society of Protozoologists **RJ Gast**, EE Peacock, EF Brownlee and HM Sosik. “Multi-year assessment of marine eukaryotic plankton diversity from amplicon and image data.” (Gast, oral presentation)
- 2018 5<sup>th</sup> Joint Meeting of the Phycological Society of America & International Society of Protozoologists RA Beinart, J Rotterova, S Sylva, I Cepicka, JS Seewald, **RJ Gast** and VP Edgcomb. “Metabolic functioning of a ciliate-methanogen symbiosis from anoxic habitats.” (Beinart, invited oral presentation)
- 2018 ASLO February RA Beinart, J Rotterova, S Sylva, I Cepicka, JS Seewald, **RJ Gast** and VP Edgcomb. “Metabolic functioning of a ciliate-methanogen symbiosis from anoxic habitats.” (Beinart, oral presentation)
- 2018 International Symposium on Aquatic Animal Health R Smolowitz, D Murphy, **RJ Gast**, A Gourlay. “Hemocytic neoplasia of hard clams (*Mercenaria mercenaria*), an emerging neoplastic disease?” (Smolowitz, oral presentation)

### **GUEST LECTURES & WORKSHOP PARTICIPATION**

- 1998 Workshop on Techniques for in situ Hybridization at University of Cincinnati (invited instructor; gave lecture on in situ hybridization and ran laboratory exercise)
- 1998 Living in the Microbial World: A Teacher Enhancement Workshop on Microbiology and Microbial Diversity (invited lecture; “Protists in the Marine Environment”)
- 1999 Living in the Microbial World: A Teacher Enhancement Workshop on Microbiology and Microbial Diversity (invited lectures; “Photosymbiotic Associations in Planktonic Sarcodines” and “Diversity of Protists in Antarctic Marine Environments”)
- 2000 Living in the Microbial World Supplemental Workshop on Biology of Foraminifera (invited lecture “Photosymbiotic Associations in Planktonic Foraminifera”)
- 2001 Participant in NOAA Arctic Exploration Planning Workshop.
- 2001 Video interview for Astrobiology Program. Discussed evolution of life.
- 2001 Participant in NASA Astrobiology Europa Workshop. Short presentation on detection of protists in Antarctic marine environment.
- 2002 Participant in the NASA Astrobiology sponsored Genome-genome Interaction Workshop in Woods Hole, MA; published abstract
- 2002 Microbial Observatories Workshop; **Gast, RJ**, Caron, DA, Moran, DM, Rose, JM, Dennett, MR, Schaffner, RA, & DJ Patterson. “Protistan Molecular Ecology and Physiology in Antarctic Waters” (Poster and published abstract.)  
Co-leader for discussion forum “Advances and New Applications of Molecular Tools”
- 2002 Single Cell Analysis Workshop in Bremerhaven, Germany; **Gast, RJ**, Dennett, MR, Moran, DM, Olson, RJ, Sosik, HM, & A Shalapyonok. “Detection, Identification and Enumeration of Protists in the Marine Environment using Ribosomally-based oligonucleotides” (Short presentation, poster and published abstract)
- 2003 Living in the Microbial World MBL Astrobiology Teacher’s Workshop (invited lecture “Symbiotic Associations”)
- 2003 Sensors Workshop WHOI Gast, R. J., Dennett, M. R. “Detection of Protistan Genomes in the Environment” (Presentation)
- 2004 Marine Biological Laboratory Elderhostel Program (guest lecture; presentations on adaptation to life in the extreme cold and the development of novel life detection strategies)
- 2004 Participant in NSF sponsored workshop “Frontiers in genomics: insights into protist evolutionary biology”

- 2004 Science Enabling Human Exploration, MBL Astronaut Education Program “Cold Protists”
- 2008 Workshop on Molecular Evolution (MBL), invited lecture
- 2008 Evergreen WHOI Planned Gift and Bequest Society (Zoonoses in marine animals)
- 2009 Gulf of Maine Seals Workshop (WHOI)
- 2009 Workshop on Molecular Evolution (MBL), invited lecture
- 2011 Gulf of Maine Seals Workshop (WHOI)
- 2013 Gast, RJ. Interviewed on local public radio station (WMVY) “The Point” with Mindy Todd (February 8, 2013) “Seals and water quality on Cape Cod”