

Contact

Department of Geology and Geophysics
Woods Hole Oceanographic Institution, MS#52
Woods Hole, MA 02543
Phone: 508.289.3958
email: mfirst@whoi.edu
Web: www.whoi.edu/people/mfirst

**Education &
Academic Positions**

Ocean Life Institute Postdoctoral Scholar
Woods Hole Oceanographic Institution (Woods Hole, MA)
September 2008 to present
Joan M. Bernhard & Rebecca J. Gast, Primary Advisors

PhD Marine Science, 2008

The University of Georgia (Athens, GA)

Dissertation: Benthic Microbial Food Webs: Spatial and Temporal Variations and the Role of Heterotrophic Protists in Salt Marsh Sediments

James T. Hollibaugh, Primary Advisor

MS Biology, 2002

The University of Akron (Akron, OH)

Thesis: Microbial Food Web Structure and Function Along the Texas Coast and the Gulf of Mexico (2002)

Peter J. Lavrentyev, Primary Advisor

BS Environmental Biology, 1997

cum laude

Ohio University (Athens, OH)

Awards

Woods Hole Oceanographic Institution Postdoctoral Scholarship (2008)
Outstanding Teaching Assistant Award (2006)
Graduate School Assistantship (2002 - 2004)

Publications

First, M.R. and J.T. Hollibaugh (2009) The model high molecular weight DOC compound, dextran, is ingested by the benthic ciliate, *Uronema marinum*, but does not supplement ciliate growth (**In Press – Aquatic Microbial Ecology**) [[DOI: 10.3354/ame01338](https://doi.org/10.3354/ame01338)]

First, M.R., H. L. Miller III, P. J. Lavrentyev, J. L. Pinckney, and A. B. Burd (2009) Microzooplankton growth and trophic interactions and their effects on herbivory in coastal and offshore environments. *Aquatic Microbial Ecology* 54: 255-267. [[DOI: 10.3354/ame01271](https://doi.org/10.3354/ame01271)]

First, M.R. and J.T. Hollibaugh (2008) Protistan bacterivory and benthic microbial biomass in an intertidal creek mudflat. *Marine Ecology Progress Series* 361: 59-68. [[DOI: 10.3354/meps07422](https://doi.org/10.3354/meps07422)]

**Publications
(Cont.)**

First, M.R., P.J. Lavrentyev and F. J. Jochem (2007) Microzooplankton growth patterns across natural and experimental trophic gradients: Implications for herbivory studies. *Marine Biology* 151 (5) 1929 – 1940 [[DOI: 10.1007/s00227-007-0629-9](https://doi.org/10.1007/s00227-007-0629-9)]

Jochem, F.J., Lavrentyev, P.J. and **M.R. First** (2004) Growth and grazing rates of bacteria groups with different apparent DNA content in the Gulf of Mexico. *Marine Biology* 145 (6) 1213 – 123 [[DOI: 10.1007/s00227-004-1406-7](https://doi.org/10.1007/s00227-004-1406-7)]

Manuscripts

First, M.R., Park, N.Y., Berrang, M.E., Meinersmann, R.J., Bernhard, J.M., Gast, R.J., and J.T. Hollibaugh (*Submitted – Applied and Environmental Microbiology*) Flow cytometric measurement of ingestion and digestion of bacteria by ciliates and recovery of a digestion-resistant *Campylobacter jejuni*.

Atkinson, C., **First, M.R.**, Covich, A.P., Opsahl, S.P. and S.W. Golladay (*In Revision – Freshwater Biology*) Application of flow cytometry and mass loss to understand preferential filtration by a native and an invasive bivalve species.

First, M.R. and J.T. Hollibaugh (*Resubmitted – Marine Ecology Progress Series*) Environmental Factors Shaping Microbial Food Webs in Salt Marsh Sediments.

First, M.R. and J.T. Hollibaugh (*In Revision*) Diel depth distributions of microbenthos in a tidal creek mudflat: High resolution mapping in Fluorescently Labeled Embedded Cores (FLEC)

**Selected
Presentations**

Measuring Protist Metabolism: An Approach to Estimate Ingestion, Digestion, and Egestion Rates of Bacterivorous Protists Feeding on Live Bacteria. International Society of Protistologists Meeting, Bristol, Rhode Island, June 2009

Detecting Microbial ‘Trojan Horses’ in the Environment. Biogeochemistry Seminar Series, Woods Hole Oceanography Institution, Woods Hole, Massachusetts, November 2008

Direct Uptake of High Molecular Weight Dissolved Organic Carbon by Benthic Ciliates. ASLO Aquatic Sciences Meeting, Santa Fe, New Mexico, February 2007

**Teaching
Experience**

Marine Biology Lab (UGA)
Spring 2008 (40 students per semester)

Biology and Ecology of the Marine Environment Lab (UGA)
Spring 2005 (60 students per semester)

Teaching Experience (cont.)

Physics, Chemistry and Geology of the Marine Environment Lab (UGA)
Fall 2004 & 2007 (60 students per semester)

Natural Science: Biology Lab (U Akron)
2000 – 2002 (90 students per semester, 5 semesters)

Aquatic Ecology (U Akron)
Fall 2001 (15 students)

Substitute Lecturer for Natural Science: Biology (U Akron)
Teaching Portfolio Program Certificate (UGA)

Professional Membership**American Society for Limnology and Oceanography (ALSO)**

Member since 2000

American Geophysical Union (AGU)

Member since 2004

International Society of Protistologists (ISoP)

Member since 2006

American Society for Microbiology (ASM)

Member since 2007

Service & Synergistic Activities

Ad Hoc Reviewer for the National Science Foundation, *Applied and Environmental Microbiology*, *Aquatic Microbial Ecology*, *Microbial Ecology*, and *Marine Pollution*

Presented, “Microbial Trojan Horses: Small refugia for pathogenic bacteria in the environment” to a class of Columbia University students studying science journalism; May 1, 2009, Woods Hole Oceanographic Institute Exhibit Center

Biology Department Representative to the Woods Hole Postdoctoral Association (2009)

Postdoctoral Proposal Writing Workshop; Jim Price, Instructor; Woods Hole Oceanographic Institution, January – February, 2009

Communicating Science Workshop; Chris Reddy and Lonny Lippsett, Instructors; Woods Hole Oceanographic Institution, April – May, 2009

UGA Future Leaders Workshop, October 24 – 26, 2007

Direct supervisor for an undergraduate student researcher (May 2007 – August 2008)

Abstract Reviewer and Conference Organizer for the Center for Undergraduate Research Opportunities (CURO) program 2006-2008

Teaching Assistant Mentor (*Future Faculty*) Program 2006-2007

Secretary, Graduate Student Association (UA) 2001 –2002