

# Heidi L. Fuchs

Institute of Marine and Coastal Sciences  
Rutgers, The State University of New Jersey  
71 Dudley Road  
New Brunswick, NJ 08901  
Phone: (732) 932-6555 x233  
E-mail: hfuchs@marine.rutgers.edu  
Web: marine.rutgers.edu/~hfuchs

## EDUCATION

- 2005    **Ph.D., MIT & Woods Hole Oceanographic Institution**, Biological Oceanography  
      *Thesis:* “Biophysical coupling between turbulence, veliger behavior, and larval supply”  
      *Advisor:* Lauren Mullineaux
- 1999    **B.S., University of Wyoming**, Zoology
- 1990    **B.S., University of Wisconsin - Madison**, Art

## APPOINTMENTS

- 2008–present    **Assistant Professor**, Rutgers Institute of Marine and Coastal Sciences
- 2007–2010      **Guest Investigator**, Woods Hole Oceanographic Institution
- 2005–2008      **Postdoctoral Scholar**, Scripps Institution of Oceanography, U.C.–San Diego
- 1999–2005      **Graduate Research Fellow**, Woods Hole Oceanographic Institution

## RESEARCH INTERESTS

Larval dispersal and settlement; Larval responses to hydrodynamic cues; Statistical models for quantifying larval behavior in flow; Population connectivity; Dispersal of invasive species; Plankton trophic dynamics; Effects of climate change on plankton communities; Planktonic ecosystem modeling; Coupled biological-physical models

## PUBLICATIONS

- H. L. Fuchs**, M. G. Neubert, and L. S. Mullineaux. 2007. Effects of turbulence-mediated larval behavior on larval supply and settlement in tidal currents. *Limnology & Oceanography* 52:1156-1165.
- H. L. Fuchs**, L. S. Mullineaux, and A. R. Solow. 2004. Sinking behavior of gastropod larvae (*Ilyanassa obsoleta*) in turbulence. *Limnology & Oceanography* 49:1937-1948.
- F. J. Tapia, J. Pineda, F. J. Ocampo-Torres, **H. L. Fuchs**, E. Parnell, P. Montero, and S. Ramos. 2004. High-frequency observations of wind-forced onshore transport at a coastal site in Baja California. *Continental Shelf Research* 24:1573-1585.

## MANUSCRIPTS

**H. L. Fuchs** and Peter J. S. Franks. Plankton community properties determined by nutrients and size-selective feeding. *Submitted* to Limnology and Oceanography.

**H. L. Fuchs**, A. R. Solow, and L. S. Mullineaux. Larval responses to turbulence and temperature in a tidal inlet: Habitat selection by dispersing gastropods? In preparation.

Peter J. S. Franks and **H. L. Fuchs**. A continuum size-structured planktonic ecosystem model: the effect of different grazing formulations. In preparation.

C. DiBacco, J. Pineda, K. Helfrich and **H. L. Fuchs**. Development and application of a downwelling flume to assess vertical swimming velocities and behavior of meroplankton. In preparation.

## GRANTS

- Pending National Science Foundation (**Fuchs**, Gerbi, Chant, and Diez, \$889,808)
- Pending Department of Energy, “New Jersey Wind Energy Consortium” (F. E. Werner and 42 co-PIs, \$8,000,000)
- 2009-2010 National Science Foundation, “RAPID: Role of ephemeral bottom roughness patches in unpredictable recruitment of surfclams on the continental shelf” (C. M. Fuller, P. Ramey, **H. L. Fuchs**, J. P. Grassle, and G. L. Taghon, \$99,989)
- 2008-2010 Coastal Ocean Institute (WHOI), “Simultaneous measurement of larval behavior and turbulence in the laboratory” (L. S. Mullineaux, K. R. Helfrich, and **H. L. Fuchs**, \$62,782)
- 2007-2010 Sea Grant, “Characterization of the behavior of mussel larvae in turbulence and downwelling flow” (**H. L. Fuchs**, C. DiBacco, and L. S. Mullineaux, \$23,967)
- 2006-2008 Coastal Ocean Institute (WHOI), “Construction of a double-grid turbulence tank for larval behavior studies” (L. S. Mullineaux and **H. L. Fuchs**, \$35,762)
- 2003-2005 Coastal Ocean Institute (WHOI), “Temporal variation in larval supply relative to turbulence in a tidal inlet” (**H. L. Fuchs** and L. S. Mullineaux, \$44,354)
- 2005 American Society of Limnology and Oceanography travel award (\$250)
- 2003–2004 Sea Grant New Initiative grant (\$2,500)
- 2003 Rinehart Coastal Research Center grant (\$2,000)
- 2000–2004 MIT & Woods Hole Oceanographic Institution, 8 research and travel awards (\$4,485)

## FELLOWSHIPS AND AWARDS

- 1999–2002 National Science Foundation Graduate Research Fellowship
- 1998 Summer Student Fellowship, Woods Hole Oceanographic Institution
- 1998 Phi Kappa Phi Honor Society, University of Wyoming chapter
- 1997–1998 Mr. and Mrs. Harold DeWitt Scholarship (2 awards), University of Wyoming
- 1990 Golden Key National Honor Society, University of Wisconsin chapter
- 1989 Edith L. Gilbertson Scholarship, Art Department, University of Wisconsin
- 1986 Kemper K. Knapp Merit Scholarship, University of Wisconsin

## TEACHING AND MENTORING

- 2009        **Co-instructor**, Dynamics of Marine Ecosystems (11:628:320)  
2009        **Research Advisor**, Undergraduate Independent Study (11:628:497, 11:628:498)  
2009        **Guest Lecturer**, Ocean Ecology (11:628:462)  
2009        **Resource Faculty Member**, Graduate Oceanography Seminar (16:712:606)  
2009        **Academic Advisor**, Undergraduate Marine Science majors (2), Rutgers  
2002-2004   **Undergraduate Mentor**, trained 3 students in field data collection, larval identification, and larval culturing, Woods Hole Oceanographic Institution  
1998–1999   **Tutor**, math and chemistry, University of Wyoming Athletic Department  
1998        **Teaching Assistant**, general biology, University of Wyoming  
1987–1988   **Private Tutor**, business calculus, University of Wisconsin

## CRUISES (97 DAYS AT SEA)

- 2002–2004   **Principal Investigator**, 17 day-cruises, MA coast, RV's Tioga, Mytilus, Calanus  
Collected biological and physical measurements (plankton, ADCP, ADV, MAVS, CTD) for thesis research. Trained 2 undergraduates and 5 volunteers.  
2000–2001   **Research Assistant**, 2 cruises, Chile to Antarctica, ARSV Laurence M. Gould  
Collected plankton and dredge samples to investigate larval dispersal. Photographed invertebrate larvae for keys. *PI's*: R. Scheltema and K. Halanych  
1999        **Research Assistant**, 10 day-cruises, Ensenada, Mexico to Bahia Salsipuedes  
Tracked drifters and sampled larvae to study onshore transport. *PI*: J. Pineda  
1999        **Education Cruise**, 10-day sail, Woods Hole to Sargasso Sea, SSV Corwith Cramer

## WORKSHOP PARTICIPATION

- 2008        Size-Structured Modeling Workshop, Woods Hole Oceanographic Institution  
2000-2002   Mathematical Ecology Retreats, Nantucket, MA

## SERVICE

- 2009        **Poster Judge**, IMCS Research Internships in Ocean Sciences program  
2009        **Committee Member**, IMCS Outstanding Senior Award Committee  
2008-pres   **Committee Member**, Oceanography Graduate Admissions Committee  
2003-2005   **Founder and co-organizer**, Woods Hole weekly Redfield Movie series  
2002        **Co-organizer**, WHOI turbulence reading and discussion group  
2001        **Science fair judge**, Falmouth Academy, Falmouth, MA

**Member** of the Graduate Program of Oceanography (2008-present), Ecology and Evolution Graduate Program (2009-present)

**Manuscript Reviews:** Limnology & Oceanography (5), Progress in Oceanography (3), Journal of Geophysical Research - Oceans (2), Marine Ecology Progress Series (2), Deep-Sea Research II (1), Aquatic Biology (2), Journal of Experimental Biology (1)

**Grant Reviews:** National Science Foundation (4)

**Book Reviews:** Prentice Hall (1)

## PRESENTATIONS

### INVITED TALKS

- 2009 **H. L. Fuchs**. Plankton Community Properties Dependent on Nutrients and Size-Selective Feeding. Ecology and Evolution seminar. Rutgers, New Brunswick, NJ
- 2008 **H. L. Fuchs**. Responses of snail larvae to turbulence in a tidal inlet, and implications for dispersal. Joint PO/BO seminar. Oregon State University, Corvallis, OR
- 2007 **H. L. Fuchs**. Larval Divebombing in Turbulence: Implications for Dispersal and Recruitment of Coastal Molluscs. Rutgers Institute of Marine & Coastal Sciences, New Brunswick, NJ
- 2006 **H. L. Fuchs**, A. R. Solow, and L. S. Mullineaux. Larval responses to turbulence and temperature in a tidal inlet. 7th Larval Biology Symposium, Coos Bay, OR
- 2006 **H. L. Fuchs**. Biophysical coupling between turbulence, veliger behavior, and larval supply. Ecology seminar. Scripps Institution of Oceanography, La Jolla, CA
- 2004 **H. L. Fuchs**. Sinking behavior of gastropod larvae (*Ilyanassa obsoleta*) in grid-stirred turbulence. Biology seminar. Woods Hole Oceanographic Institution, Woods Hole, MA

### CONTRIBUTED TALKS

- 2008 **H. L. Fuchs**, How do changes in zooplankton community affect plankton size structure? Workshop on Size-Structured Models, Woods Hole, MA
- 2007 **H. L. Fuchs**, M. G. Neubert, and L. S. Mullineaux. Effects of turbulence-mediated larval behavior on larval supply and settlement in tidal currents. American Society of Limnology and Oceanography, Santa Fe, NM
- 2005 **H. L. Fuchs**, L. S. Mullineaux, M. G. Neubert, and A. R. Solow. Temporal variation in larval supply of gastropods due to veliger behavior in a tidal inlet. American Society of Limnology and Oceanography, Santiago de Compostela, Spain
- 2004 **H. L. Fuchs**, L. S. Mullineaux, and A. R. Solow. Sinking behavior of gastropod larvae (*Ilyanassa obsoleta*) in grid-stirred turbulence. American Society of Limnology and Oceanography, Honolulu, HI

### CONTRIBUTED POSTERS

- 2007 **H. L. Fuchs** and P. Franks. Size-selective feeding drives plankton community structure. Ecological Society of America Meeting, San Jose, CA
- 2006 **H. L. Fuchs** and P. Franks. A new continuum model of planktonic ecosystems. LTER All Scientists Meeting, Estes Park, CO
- 2002 **H. L. Fuchs**, L. S. Mullineaux, and S. P. McKenna. Sinking behavior of gastropod larvae in response to oscillating, grid-generated turbulence. American Society of Limnology and Oceanography, Victoria, BC, Canada
- 2000 **H. L. Fuchs**. A qualitative study of planktonic larvae of benthic invertebrates in Vineyard Sound (MA). 4th International Larval Biology Meeting, Santa Cruz, CA

## PROFESSIONAL MEMBERSHIPS

American Society of Limnology and Oceanography  
Ecological Society of America  
American Geophysical Union