

## **KENNETH H. FOREMAN**

The Ecosystems Center  
Marine Biological Laboratory  
Woods Hole, MA 02543  
Phone: 508-289-7348      email: kforeman@mbl.edu

### **Professional Preparation:**

AB, Stanford University, 1974

Ph.D., Boston University, 1989

### **Professional Experience and Appointments:**

2004- present – Program Director, Semester in Environmental Science (MBL)  
2003-present – Co-Director, Environ. Hands-On-Lab Course, Science Journalism Program (MBL)  
1995-2003 - Associate Program Director, Semester in Environmental Science (MBL)  
1989-1998 - Research Associate, Boston University  
1985-1987 - Course Coordinator - MBL Summer Marine Ecology Course  
1977-1983 - Graduate Research Assistant - Boston University Marine Program  
1975-1976 - Teaching Fellow - Boston University  
1975 - Massachusetts Audubon Society Environmental Intern

### **Current Research Grants**

Effectiveness of Reactive Barriers for Reducing N-Loading to the Coastal Zone. Cooperative Institute for Coastal and Estuarine Environmental (9/1/04 – 8/31/06) \$210,000. Joseph Vallino (lead PI).

Nonlinear Feedbacks in Coupled Element Cycles During Eutrophication of Shallow Coastal Ecosystems. National Science Foundation (7/1/04-6/30/09) \$1.7 million (MBL subcontract \$583,085).. R.W. Howarth, (lead PI), P. Berg, A.Giblin, R. Marino, K. McGlathery (co-PIs).

### **Education Grants**

2004 - A.V. Davis Foundation (\$150,000, endowment for SES)  
2003 - Blum-Kovler Foundation (\$5000 for SES)  
Harold Whitworth Pierce Foundation (\$25,000 for SES)  
C.V. Starr Foundation (\$250,000 for SES)  
2000 - A.W. Mellon Foundation with Jerry Melillo (\$1.0 million for SES)

### **Selected Publications:**

Thoms, T.\*, A.E. Giblin and K.H. Foreman (2003). Multiple Approaches to Tracing Nitrogen Loss in the West Falmouth Wastewater Plume. *Biological Bulletin* 205:242-243.

Tomasky, G; Barak\*, J; Valiela, I; Behr, P; Soucy, L; Foreman, K. 1999. Nutrient limitation of phytoplankton growth in Waquoit Bay, Massachusetts, USA: a nutrient enrichment study. *Aquat. Ecol.* 33(2):147-155.

Foreman, K.H. 1999. The Semester in Environmental Science at the Marine Biological Laboratory. *Council on Undergraduate Research Quarterly* 19:165-170.

Kirkpatrick, J\*., K. Foreman, I. Valiela. 1998. Dissolved inorganic nitrogen flux and mineralization in Waquoit Bay sediments as measured by core incubations. *Biol. Bull.* 195:240-41.

Valiela, I., J. McClelland, J. Hauxwell, P.J. Behr, D. Hersh and K. Foreman 1997. Macroalgal blooms in shallow estuaries: Controls and ecophysiological and ecosystem consequences. *Limnol. & Oceanogr.* 42:1105-1118.

- Sardá, R., I. Valiela and K.H. Foreman. 1996. Decadal shifts in a salt marsh macroinfaunal community in response to sustained long-term experimental nutrient enrichment. *J. Exp. Mar. Biol. Ecol.* 205:63-81.
- Sardá, R., K.H. Foreman and I. Valiela (1995). Macroinfauna of a Southern New England salt marsh: Seasonal dynamics and production. *Mar. Biol.* 121:431-445.
- Sardá, R., I. Valiela, K.H. Foreman (1995). Life Cycle, demography and production of *Marenzelleria viridis* (Verrill, 1873) in a salt marsh of Southern New England. *J. Mar. Biol. Assoc. U.K.* 75:725-738.
- Giblin, A.E., K.H. Foreman and G.T. Banta. 1995. Biogeochemical processes and marine benthic community structure: Which follows which?, pp. 37-44. In: C. G. Jones and J. H. Lawton (eds.), *Linking Species and Ecosystems*.
- Foreman, K.H., I. Valiela and R. Sardá. 1995. Controls of benthic marine food webs. *Scientia Marina* 59(Suppl. 1): 119-128.
- Vazquez, L.Z.,\* J.L. Boxhill,\* T.R. Harrison,\* J.N. Kremer and K.H. Foreman (1994). The effects of wind speed and direction on stratification and phytoplankton production in an estuary of Waquoit Bay. *Biol. Bull.* 187:285-86.
- Rudy, M.,\* K. McDonnell,\* I. Valiela and K.H. Foreman (1994). Dissolved organic nitrogen in groundwater entering three estuaries of Waquoit Bay, Massachusetts: correlations with coastal land mosaics. *Biol. Bull.* 187:278-79.
- McDonnell, K.,\* M. Rudy,\* I. Valiela and K.H. Foreman (1994). The effect of coastal land use on inorganic nutrient concentrations in groundwater entering estuaries of Waquoit Bay, MA. *Biol. Bull.* 187:276-77.
- Harrison, T.R.,\* J.L. Boxhill\*, L.Z. Santiago Vázquez\*, K.H. Foreman and J.N. Kremer (1994). Comparison of phytoplankton and ecosystem gross production in the Quashnet River, an estuary of Waquoit Bay, MA. *Biol. Bull.* 187:287-88.
- Boxhill, J.L. \* L. Santiago Vazquez,\* T.R. Harrison\* and K.H. Foreman and J.N. Kremer (1994). Daily variation in phytoplankton production in two subestuaries of Waquoit Bay, MA. *Biol. Bull.* 187:284-85.
- Valiela, I., K.H. Foreman, M. LaMontagne, D. Hersh, J. Costa, C.D. D'Avanzo, M. Babione, Chi-Ho Sham, J. Brawley, P. Peckol, B. DeMeo-Anderson, K. Lajtha 1991. Coupling of watersheds and coastal waters: Sources and consequences of nutrient enrichment in Waquoit Bay. *Estuaries* 15:443-457.
- Valiela, I., J. Costa, K.H. Foreman, J.M. Teal, B. Howes, and D. Aubrey 1990. Transport of groundwater-borne nutrients from watersheds and their effects on coastal waters. *Biogeochemistry* 10:177-197.
- Foreman, K.H. (1989). Regulation of benthic microalgal and meiofaunal productivity and standing stock in a salt marsh ecosystem: the relative importance of resources and predation. Ph.D Dissertation, Boston University. 224 pp.
- Valiela, I., J. Wilson, R. Buchsbaum, C. Rietsma, D. Bryant, **K.H. Foreman**, and J.M. Teal (1984) Importance of chemical composition of salt marsh litter on decay rates and feeding by detritivores. *Bull. Mar. Sci.* 35:261-269.
- Wiltse, W.I., K.H. Foreman, J.M. Teal and I. Valiela 1984. Effects of predators and food resources on the macrobenthos of saltmarsh creeks. *J. Mar. Res.* 42:923-942.
- Wagner, W.\* and K. Foreman (1981) The response of benthic diatoms to the exclusion of macroconsumers. *Proc. Indiana Acad. Sci.* 91:237-246.

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\*Undergraduate student co-author

**List of Collaborators in the past 48 months:**

Peter Berg (University of Virginia)  
Anne Giblin (Ecosystems Center, MBL)  
Robert Howarth (Cornell University)

Roxanne Marino (Cornell University)  
Karen McGlathery (University of Virginia)  
Joseph Vallino (Ecosystems Center, MBL)

**Recent Senior Thesis, REU, Summer Intern Advisees.**

2007 Margaret Waldron (Lawrence University, Appleton, Wisconsin)  
2006 Mark Anderson (San Francisco State University, San Francisco, CA)  
2005 Jennifer Reimer (Clark University, Wooster, MA)  
Jeffrey Walker (Cornell University, Ithaca, NY / with Professor Robert Howarth)

**Selected Recent Invited Lectures and Lectures to the Public.**

*Disruption of the Global Nitrogen Cycle: An under-appreciated threat to the coastal zone and a novel approach to N-mitigation in groundwater-fed estuaries*, seminars at Lafayette College (September 2006) and Colby College (February 2007)

November 2005 - *Disruption of the Global Nitrogen Cycle: An under-appreciated threat to the coastal zone and a novel approach to N-mitigation along sandy shorelines*, guest lecture, Brandeis University

October 2004 *Putting Nitrogen Pollution in Perspective* to Falmouth Associations Concerned with Estuaries and Saltponds.

April 2004 – Beloit College - *Effects of Human Alteration of Global N-Cycle on the Coastal Zone*

**Synergistic Activities:**

2002-present, Planning Board representative to Municipal Nutrient Management Working Group providing guidance to long-ranging wastewater planning in the Town of Falmouth.

1996-present, Falmouth Planning Board (chair 2002-2004) – responsible for long term municipal planning and implementation of state and local zoning regulations.

1986- present, director and past president (1991-94) of The 300 Committee Land Trust, Inc., a local non-profit land trust in the Town of Falmouth responsible for preservation of ~2000 acres of open space.

1998-2004, Municipal Nitrogen Offset Committee responsible for developing strategies for spending \$8.5 million in funds awarded to the Town of Falmouth from the Air Force Center for Environmental Excellence to mitigate N-loading to local coastal ponds.