



## Brian L. Howes

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### Research Interests

- Restoration of estuarine nutrient related habitat quality
- Restoration of salt marshes through tidal enhancement and through *Phragmites* removal using natural biogeochemical cycles
- Groundwater nutrient transport & transformation from uplands to coastal waters
- Relationship between nutrient loading, algal production, oxygen levels and benthic communities in embayments
- Long-term impact of sea level rise on community structure of wetland ecosystems
- Interactions between gas and solute exchange and pathways of porewater turnover in flooded wetlands
- Biogeochemistry of redox stratified waters: effects on ecosystem functioning

### Current Research

In addition to the \$12.5-million Massachusetts Estuaries Project, Dr. Howes currently has another ~\$1 million in related research funding in the fields of wetland restoration, enhancement of natural attenuation and benthic animals.

### Recent Publications:

**(Overall: 65+ Journal Articles; 30+ General Articles & Published Reports, 70+ Technical Reports)**

- Ramsey, J.S., H.E. Ruthven, S.W. Kelley and B.L. Howes, 2007. Quantifying the influence of inlet migration on tidal marsh system health. *ICCE Proc. Intern. Conf. Coastal Engineering xx*:1-14.
- Smith, M.P., B.L. Howes and J. Kimball, 2007. Watershed Planning: Securing our Water Future. Chapter 9 in: *Water: Managing a Finite Resource*. E. Hamin, L. Silka and P. Geigis. UMass Press. pp. 121-133.
- Hamersley, M.R., and B.L. Howes, 2005. An evaluation of the N<sub>2</sub> flux approach for measuring sediment denitrification. *Estuar. Coast. Shelf Sci.* 62:711-723.
- Hamersley, M.R., and B.L. Howes, 2005. Coupled nitrification-denitrification measured in situ in a *Spartina alterniflora* with a <sup>15</sup>NH<sub>4</sub><sup>+</sup> tracer. *Mar. Ecol.-Prog. Ser.* 299, 123-135.
- Howes, B.L., J.M. Teal and S. Peterson. 2005. Experimental *Phragmites* control through enhanced sediment sulfur cycling. *Ecological Applications* 25:292-303.
- Hamersley, M.R., and B.L. Howes, 2003. Contribution of denitrification to nitrogen, carbon and oxygen cycling in tidal creek sediments of a New England salt marsh. *Mar. Ecol.-Prog. Ser.* 262, 55-69.
- Hamersley, M.R., B.L. Howes, and D.S. White, 2003. Particulates, not plants, dominate nitrogen processing in a septage-treating aerated pond system. *J. Environ. Qual.* 32, 1895-1904.
- Rengefors, K., K.C. Ruttenberg, C.L. Hauptert, C.D. Taylor, B.L. Howes and D.M. Anderson, 2003. Experimental investigation of taxon-specific response of alkaline phosphatase activity in natural freshwater phytoplankton. *Limnol. Oceanogr.* 48:1167-1175.
- Hamersley, M.R., and B.L. Howes, 2002. Control of denitrification in a septage-treating artificial wetland: The dual role of particulate organic carbon. *Water Res.* 36, 4415-4427.
- Hamersley, M.R., B.L. Howes, D.S. White, S. Jonke, D. Young, S.B. Peterson, and J.M. Teal, 2001. Nitrogen balance and cycling in an ecologically engineered septage treatment system. *Ecol. Eng.* 18, 61-75.
- Teal, J.M., and B. Howes, 2000. Salt marsh values: Restrospection from the end of the century. Chapter 6 in: *Concepts and Controversies in Tidal Marsh Ecology*, M.P. Weinstein & D. Kreeger (eds.), 864 pp.
- Schlezinger, D.R., and B.L. Howes, 2000. Organic phosphorus and elemental ratios as indicators of prehistoric human occupation. *J. Archaeol. Sci.*, 27, 479-492.
- McKnight, D.M., B.L. Howes, C.D. Taylor, and D.D. Goehring, 2000. Phytoplankton dynamics in a stably stratified Antarctic lake during winter darkness. *J. Phycol.*, 36, 852-861.
- Bazylinski, D.A., D.R. Schlezinger, B.L. Howes and R.B. Frankel, 2000. Occurrence and distribution of diverse populations of magnetic protists in a chemically stratified coastal salt pond. *Chem. Geol.*, 169, 319-328.