

## ***Ellen Marie Douglas, PE, PhD***

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### **EDUCATION and LICENSURE**

<b>Ph.D. WATER RESOURCES ENGINEERING, Tufts University</b>	2002
<b>PROFESSIONAL ENGINEER, State of New Hampshire</b> , Serial No. 9758	1998
<b>M.S. CIVIL ENGINEERING, University of New Hampshire</b>	1994
<b>B.S. in HYDROLOGY, University of New Hampshire</b> , GPA 3.94/4.00	1991
Summa Cum Laude, University Honors in Hydrology	

### **AWARDS**

<b>NORMAL B. LEVENTHAL EXCELLENCE IN CITY BUILDING AWARD FOR ENVIRONMENT</b> , A Better City, Boston, Massachusetts.	2016
<b>FULBRIGHT SCHOLARSHIP</b> , Saving Water by Valuing Water in the Murray-Darling River Basin, Southeastern Australia	2013-2014
<b>EXCELLENCE IN TEACHING</b> Environmental, Earth and Ocean Sciences Dept, University of Massachusetts Boston	2010
<b>TOP REFEREE for 2009</b> , Journal of Hydrology	2010
<b>OUTSTANDING ENVIRONMENTAL EDUCATION LEADERSHIP</b> , Massachusetts Association of Conservation Commissions (MACC)	2010
<b>OUTSTANDING GRADUATE RESEARCHER in ENGINEERING</b> , Tufts University	2002
<b>US EPA Science To Achieve Results (STAR) Graduate Fellowship</b>	2000/2001
<b>Tufts WATERSHED Center Fellowship</b>	2000
<b>OUTSTANDING STUDENT PAPER AWARD</b> , Hydrology Section, American Geophysical Union	2000

### **RESEARCH EXPERIENCE**

<b>ASSOCIATE PROFESSOR, Hydrology</b>	Sep 2012 to present
<b>ASSISTANT PROFESSOR, Hydrology</b> School for the Environment, College of Mathematics and Science University of Massachusetts, Boston, Massachusetts	Sept 2006 to Aug 2012
Research utilizes computer modeling, data analysis and stakeholder engagement to define and support sustainable management policies and practices related to water resources and climate change adaptation. Current research topics include 1) evaluating the impacts of climate change on New England hydrology, 2) assessing the vulnerability of coastal communities and infrastructure to flooding due to extreme precipitation and sea level rise, 3) integrating stakeholder knowledge into management and adaptation decisions and, 4) improving methods for monitoring the performance of river restoration through dam removal.	

<b>RESEARCH SCIENTIST</b> Water Systems Analysis Group, Complex Systems Research Center University of New Hampshire, Durham, New Hampshire Supervisor: Dr. Charles J. Vörösmarty	July 2002 to Aug 2006
Participated in research related to the interactions between human activities, hydrology and climate. Research topics included water resource availability and non-sustainable water use, the impact of irrigated agriculture on land-atmosphere interactions, water balance modeling, and anthropogenic disturbances to the hydrologic cycle.	

<b>POST-DOCTORAL RESEARCH FELLOW</b> DEAS, Harvard University, Cambridge, Massachusetts Supervisor: Dr. Ana P. Barros	Feb 2002 to July 2002
Short-term appointment to develop a new method for estimating the probable maximum precipitation (PMP) and the risk associated with extreme precipitation events using the multifractal characteristics of precipitation time series. Also investigated the presence of climate change impacts on the hydrology of the Paraíba basin in Brazil.	

**RESEARCH HYDROLOGIST (Part-time)** Sep 2000 to Feb 2001  
**U.S. Geological Survey, Water Resources Division, Northborough, Massachusetts**  
 Supervisor: Dr. William Alley

Research objectives included expanding a nationwide network of index wells for monitoring climatic changes, evaluating the presence of regional trends in groundwater data and identifying a predictive link between groundwater levels and drought. Also involved in estimating hydraulic properties of fractured bedrock.

**GRADUATE RESEARCH ASSISTANTSHIPS**  
**Tufts University, Medford, Massachusetts** Sep 1998 to Jan 2002  
Dissertation: *The behavior of floods and low flows in the United States.*  
 Thesis Advisor: Dr. Richard M. Vogel

**NH Water Resources Research Center (WRRC), Durham, New Hampshire** Jan 1992 to Jun 1994  
Master's Thesis: *The Transport and Fate of Nitrogen at a Farm and Yard Waste Composting Facility*  
 Thesis Advisor: Dr. Thomas Ballestero  
 Quantified nitrogen transport and fate in the vadose zone and a nitrogen mass balance for composting waste.

**HONORS SENIOR THESIS:** *Estimating Groundwater Recharge* Sept 1990 to May 1991  
**Department of Earth Sciences, University of New Hampshire, Durham, New Hampshire**  
 Thesis Advisor: Dr. S. Lawrence Dingman

## FUNDING, PRESENT and PAST

- **NOAA 2016 Coastal and Oceans Applications (COCA):** Improving the environment while protecting coasts: A holistic accounting of ecosystem services of "Green Infrastructure and Natural and Nature-Based Features (NNBF)" in an urbanized coastal environment, July 1, 2016 through June 30, 2018, \$279,000.
- **Massachusetts Department of Transportation:** Assessing the vulnerability of MassDOT's coastal transportation systems to future sea level rise and coastal storms, and developing conceptual adaptation strategies, January 1, 2015 through December 31, 2017, \$1,133,000.
- **State of Massachusetts Environmental Bond Bill FY2015:** Assessing the vulnerability of residents and stakeholders to flooding along the Charles and Mystic River, July 1, 2014 through June 30, 2016, \$350,000.
- **Federal Highway Administration-Massachusetts Department of Transportation Pilot Project:** Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery, April 23, 2013 through December 31, 2016, \$626,400.
- **NOAA Climate and Society Interactions (CSI)-Coasts:** Overcoming the obstacles and capitalizing on the incentives for climate change adaptation in coastal environmental justice communities, PI Douglas (UMB), co-Is: Kirshen (Tufts), Paolisso (UMaryland), Wiggin (UHI), Sep 1, 2011 through Aug 31, 2013, \$299,971.
- **Massachusetts Environmental Trust:** Monitoring dam removal in Massachusetts: Towards a regional river restoration strategy. PI Douglas, Jul 1, 2011 through Dec 31, 2013, \$75,000.
- **Town of Plymouth, MA:** Biomonitoring of Eel River Restoration, PI Douglas, May - Dec 2011, \$15,000
- **Massachusetts Water Resources Research Center:** Developing a physically-based and policy-relevant river classification scheme for sustainable water and ecosystem management decisions. PI Douglas, Apr 1, 2010-Mar 31, 2011, \$30,000.
- **NASA Terrestrial Hydrology Program:** The history of agricultural irrigation expansion: developing useful datasets of global irrigated area and irrigation water use from remote sensing and hydrologic modeling. PI Douglas, co-Is Frolking (UNH) and Friedl (UBM) Oct 1, 2007-Sep 30, 2010. \$549,798 (UMB \$205,455)
- **NOAA Sectoral Applications Research Program (SARP), Coastal Management:** Coastal Flooding and Environmental Justice: Developing Strategies for Adapting to Climate Change, PI Douglas (UMB), co-Is: Kirshen (Tufts), Ruth (UMaryland), Gontz (UMB), Wiggin (UHI), July 2008 - Jun 2011, \$299,861.

## PROFESSIONAL EXPERIENCE

### ENVIRONMENTAL ENGINEER

**New England Envirostrategies, Concord, New Hampshire (part-time)** Jun 2008 to present  
**Haley & Aldrich, Inc., Manchester, New Hampshire (part-time)** May 1999 to Apr 2008  
**GEI Consultants, Inc., Concord, New Hampshire (full-time)** Mar 1995 to Aug 1998

**FREE-LANCE CONSULTANT** Jun 1992 to Aug 2001

**Southeastern Sand and Gravel, Lee, NH:** Hydrogeologic characterization and conceptual design services.  
**Madbury Water Board, Madbury, NH:** Survey of MTBE concentrations in groundwater.  
**Pembroke Water Works, Pembroke, NH:** Installation of municipal drinking water supply well.  
**Pembroke Water Works, Pembroke, NH:** Source area delineation and groundwater reclassification.  
**UNH/Durham Water Treatment Plant, Durham, NH:** Source area delineation and protection program.  
**Southeastern Sand and Gravel, Lee, NH:** Potential groundwater resource investigation.  
**Madbury Water Board, Madbury, NH:** Survey of radon and VOC concentrations in groundwater.  
**Lower Mt. Washington Valley Secure Landfill, Conway, NH:** Monitoring gaseous emissions.  
**Madbury Water Board, Madbury, NH:** Monitoring of contamination at Transfer Station.  
**Barrington Sand and Gravel, Barrington, NH:** Potential groundwater resource investigation.  
**NHDOT, Dover, NH:** Hydrodynamic and geomorphic effects of widening the Scammel Bridge opening.

#### HYDROLOGIC FIELD ASSISTANT

Aug 1988-Dec 1990

U.S. Geological Survey-Water Resources Division, Bow, NH

### TEACHING EXPERIENCE

#### ASSISTANT/ASSOCIATE PROFESSOR

**School for the Environment, University of Massachusetts, Boston** Sept 2006 to present  
 Fluvial hydrology, Quantitative Hydrogeology, Water Resources Management and Introductory Statistics.

#### ADJUNCT INSTRUCTOR

Sep 1998 to May 2005

**Civil and Environmental Engineering, Tufts University, Medford, Massachusetts**

**College of Engineering and Physical Sciences, University of New Hampshire, Durham, New Hampshire**

**New England College, Henniker, New Hampshire**

Sep 1994 to Dec 1995

Undergraduate and graduate level courses taught included Groundwater Hydrology, Engineering Hydrology, Hazardous Waste Management, Introduction to Contaminant Transport Modeling, Open Channel Flow, and Computers and the Environment (freshman-level course). Student evaluations available upon request.

### PUBLICATIONS in review or preparation (\*denotes student author)

Kirshen, P., T. Ballesterio, E. Douglas, J. Wiggin, M. Paolisso, C. Hesed\*, M. Ruth, C. Marchi, Addressing Deep Uncertainty, Vulnerable Populations, and Collaborative Planning in Climate Change Adaptation Planning; the Case Study of East Boston, Climatic Change, in review.

Agel, L.\*, M. Barlow, E. Douglas, M. Collins, P. Kirshen, Meteorological Conditions Associated with High Streamflow Events in the Charles and Mystic Rivers, in preparation.

Douglas, E. M., R. M. Vogel and K. Bosma. Composite probability distributions for combined storm surge and inland flooding, in preparation.

Jyoti, V.\*, Douglas, E., Hannigan, R., Schaaf, C. Modeling groundwater recharge flow and hydrogeochemical characteristics in semi-arid regions of Punjab and Haryana, India, J. Hydrology, in preparation.

### PUBLICATIONS peer-reviewed (\*denotes student author)

Douglas, E. M., P. Kirshen, K. Bosma, C. Watson, S. Miller and K. McArthur, Assessing the vulnerability of Boston's Central Artery/Tunnel system to sea level rise and increased coastal flooding, *J. Extreme Events*, in press.

Douglas, E., J. Jacobs, K. Hayhoe, J. Daniel, B. Anderson, C. Hebson, M. Collins, E. Mecray, A. Alipour, Q. Zou, L. Friess, H. Miller, P. Kirshen, J. Kartez, A. Stoner\*, E. Bell, C. Schwartz, N. Thomas, R. Mallick, S. Miller, B. Audet, and C. Wake. Incorporating climate change information into transportation research and design, *J. Infrastructure Systems*, accepted for publication.

Alshawaf, M.\*, E. Douglas and K. Ricciardi, 2016. Estimating nitrogen loads resulting from biofuel mandates, *International Journal of Environmental Research and Public Health*, Int. J. Environ. Res. Public Health, 13, 478; doi:10.3390/ijerph13050478.

Douglas, E. M., S. Wheeler, D. J. Smith, I. Overton, S. Gray, T. Doody and N. Crossman, Using mental-modelling to explore how irrigators in the Murray-Darling Basin make water-use decisions, *J. Hydrology: Regional Studies*, 6: 1–12. <http://www.sciencedirect.com/science/article/pii/S2214581816000380>.

O'Brien, P.\* E. M. Douglas and C. Schaaf, Analysis of anthropogenic impacts to the water cycle in urbanized watersheds of the Boston Metropolitan Area, *J. Hydrologic Engineering*, 21(1): 05015012.

Agel, L\*. M. Barlow, J-H. Qian, F. Colby, E. Douglas, and T. Eichler, 2015: Climatology of Daily Precipitation and Extreme Precipitation Events in the Northeast United States. *J. Hydrometeor*, 16, 2537–2557.

- Salmon, J. M.\*, M Friedl, S. Frohling, D. Wisser and **E. Douglas**, 2015. Global Rain-fed, Irrigated, and Paddy Croplands: A New High Resolution Map Derived from Remote Sensing, Crop 2 Inventories and Climate Data, *International Journal of Applied Earth Observation and Geoinformation*, 38: 321–334.
- Kuhl, L\*., Kirshen, P. H., **Douglas, E.**, Ruth, M., Watson, C., 2014. Evacuation as a Climate Change Adaptation Strategy for Environmental Justice Communities, *Climatic Change*, 127: 497-504.
- Daniel, J., Jacobs, J., **Douglas, E.**, Hayhoe, K, 2014. Impact of Climate Change on Pavement Performance: Preliminary Lessons Learned through the Infrastructure and Climate Network (ICNet). *Construction Institute*, University of Connecticut.
- Paolisso, M., **E. Douglas**, A. Enrici\*, Kirshen, P. and M. Ruth, Environmental Justice and Climate Change: Knowledge and Adaptation among African American Communities in the Chesapeake Bay Region, *Weather, Climate and Society*, 4 (1): 34-47, 2012.
- Hillman, B.\* , **E. M. Douglas** and D. G. Terkla, Sustainable Water Use and Economic Valuation: A Case Study of the Yakima River in Washington, *J. Environmental Management*, 103: 102-112, 2012.
- Douglas, E.**, P. Kirshen, M. Paolisso C. Watson, A. Enrici\* and M. Ruth, Coastal flooding and climate change: impacts and adaptations for an environmental justice community in Boston, Massachusetts, *Mitigation and Adaptation Strategies for Global Change*, DOI 10.1007/s11027-011-9340-8, 2012.
- Douglas, E. M** and C. A. Fairbank\*, Is precipitation in New England becoming more extreme? A statistical analysis of extreme rainfall in Massachusetts, New Hampshire and Maine and updated estimates of the 100-year storm *J. Hydrologic Engineering*, 16 (3):203-217, 2011.
- Wisser, D., **E. M. Douglas**, B. Fekete and C. J. Vörösmarty. Blue and green water: The significance of local water resources , special issue of *J. Hydrology*, 384 (1-2): 264-275, 2010.
- Douglas, E. M.**, J. M. Jacobs, and D. M. Sumner, Calculated and Measured Potential Evapotranspiration across Land Uses in Florida, *J. Hydrology*, 373 (3-4): 366-376, 2009b.
- Douglas, E. M.**, A. Beltran-Przekurat, D. S. Niyogi, R.A. Pielke, Sr., and C. J. Vörösmarty. Simulating Changes in Land-Atmosphere Interactions From Expanding Agriculture and Irrigation in India and the Potential Impacts on the Indian Monsoon, *Global and Planetary Change*, 67, (1-2): 117–128, 2009a.
- Wisser D, S Frohling, **EM Douglas**, BM Fekete, CJ Vörösmarty, AH Schumann. Global Irrigation Water Demand: Variability and Uncertainties Arising from Agricultural and Climate Data Sets, *Geophysical Research Letters*, VOL. 35, LXXXXX, doi:10.1029/2008GL035296, 2008.
- Kirshen, P., C. Watson, **E. Douglas**, A. Gontz, J. Lee, and Y. Tian. Coastal Flooding in the Northeastern USA under High and Low GHG Emission Scenarios, *Mitigation and Adaptation Strategies for Global Change*, 13:437–451, 2008.
- Roy, S. S., R. Mahmood, D. Niyogi, S. A. Foster, K. G. Hubbard, **E. M. Douglas** and R. A. Pielke, Sr. Impacts of the Agricultural Green Revolution Induced Land Use Changes on Air Temperatures in India, *J. Geophysical Research*, 112, D21108, doi:10.1029/2007JD008834, 2007.
- Douglas, E. M.**, S. Wood, K. Sebastian, C. J. Vörösmarty, K. M. Chomitz and T. P. Tomich. Policy implications of a pan-tropic assessment of the simultaneous hydrological and biodiversity impacts of deforestation, *Water Resources Management*, 21 (1):211-232, 2007.
- Douglas, E. M.** and R.M. Vogel, The Behavior of the Flood of Record for Basins in the U.S, *Journal of Hydrologic Engineering*, 11 (5): 482-488, 2006.
- Douglas, E. M.**, D. Niyogi, S. Frohling, J. B. Yeluripati, R. A. Pielke, Sr., N. Niyogi, C. J. Vörösmarty, and U. C. Mohanty (2006), Changes in moisture and energy fluxes due to agricultural land use and irrigation in the Indian Monsoon Belt, *Geophys. Res. Lett.*, 33, L14403, doi:10.1029/2006GL026550, 2006.
- Frohling S, J. B. Yeluripati, and **E. Douglas**. New district-level maps of rice cropping in India: a foundation for scientific input into policy assessment, *Field Crops Research*, 98(2-3):164-177, 2006.
- Vörösmarty, C. J., **E.M. Douglas**, P. A. Green and C. Revenga, Geospatial indicators of emerging water stress: an application in Africa, *Ambio*, 34 (3): 230-236, 2005a.
- Douglas, E.M.**, and A.P. Barros, Probable maximum precipitation estimation using multifractals: applications to the eastern United States, *Journal of Hydrometeorology*, 4 (6):1012-1024, 2003.
- Douglas, E.M.**, R.M. Vogel and C.N. Kroll, Impact of streamflow persistence on hydrologic design, *Journal of Hydrologic Engineering*, 7 (3):220-227, 2002.
- Douglas, E.M.**, R.M. Vogel and C.N. Kroll, Trends in flood and low flows in the United States: impact of spatial correlation, *Journal of Hydrology*, 240(1-2): 90-105, 2000.
- Ballester, T.P., and **E.M. Douglas**, Comparison between the nitrogen fluxes from composting farm wastes and composting yard wastes. *Trans. of ASAE*, 39(5): 1709-1715, 1996.
- Czepiel, P., **E. Douglas**, R. Harriss, and P. Crill, Measurements of N<sub>2</sub>O from composted organic wastes. *Environmental Science & Technology*, 30(8): 2519-2525, 1996.



## BOOK CHAPTERS

- Douglas, E. M.**, M. Finlayson, C. Revenga, Coastal Systems and Freshwater, Chapter 10 in *Seas, Society and Human Well-being*, R. Bowen, M. Depledge and L. Fleming, eds., Wiley Blackwell Publishing, 318 p, 2014.
- Contributing author**, Chapter 26: North American in *Climate Change 2014: Impacts, Adaptation, and Vulnerability, Part B: Regional Aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)] Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, XXX pp..
- Kirshen, P., **E. Douglas**, M. Paolisso, and A. Enrici. “Cities and integrated water planning: Complexities of climate change.” In H.A. Karl, L. Scarlett, J.C. Vargas-Moreno, M. Flaxman (Eds.), *Restoring Lands - Coordinating Science, Politics, and Action*. New York: Springer, 2011.
- Mecikalski, J. R., D. M. Sumner, J. M. Jacobs, C. S. Pathak, S. J. Paech and **E. M. Douglas**, Use of Visible Geostationary Operational Meteorological Satellite Imagery in Mapping Reference and Potential Evapotranspiration over Florida, Chapter 5 in *Evapotranspiration*, In Tech, Open Source Publishing, 2010.
- Vörösmarty, C.J., C. Leveque, C. Revenga (Convening Lead Authors) Coordinating Lead Authors: Chris Caudill, John Chilton, **Ellen M. Douglas**, Michel Meybeck, Daniel Prager, Chapter 7: Fresh Water Ecosystems. In: *Millennium Ecosystem Assessment, Volume 1: Conditions and Trends Working Group Report*. Island Press, 2005b.
- Walker, Jr., F. R. and **E. M. Douglas**, Identifying hydrologic variability and change for strategic water supply planning and design, In AGU Monograph entitled *Science and Water Resources Issues: Challenges and Opportunities*, R. Lawford and H. Hartmann, editors, Water Resources Monograph 16, American Geophysical Union, 2003.

## REPORTS and CONFERENCE PROCEEDINGS

- Douglas, E.**, P. Kirshen, R. Hannigan, R. Herst and A. Palardy, 2016. Climate Change and Sea Level Rise Projections for Boston, a report prepared by the Boston Research Advisory Group for Climate Ready Boston.
- Bosma, K., **E. Douglas**, P. Kirshen, S. Miller, K. McArthur, C. Watson, 2015. MassDOT-FHWA Pilot Project Report: Climate Change and Extreme Weather Vulnerability and Adaptation Options for the Central Artery/Tunnel System in Boston, Massachusetts, final reported submitted June 1, 2015.
- Jacobs, J.M., J.S. Daniel, R. Mallick, A. Stoner, K. Hayhoe and **E. Douglas** 2014. Impact of Climate Change on Transportation Infrastructure: Lessons Learned through the Infrastructure and Climate Network (ICNet), International Conference on Sustainable Built Environment 2014 proceedings, Kandy, Sri Lanka.
- Douglas, E.**, A. Whelchel and B. Yarnal, 2013. Climate Change and Regional and Local Identities: New England, Mid-Atlantic and the Urban Northeast Corridor, and Central Appalachia, Chapter V in *Climate Change in the Northeast A Sourcebook*, Draft Technical Input Report Prepared for the U.S National Climate Assessment, R. Horton, W. Solecki, C. Rosenzweig, eds.
- Douglas, E.**, P. Kirshen, V. Li, C. Watson and J. Wormser, 2013. Preparing for the Rising Tide, report prepared for The Boston Harbor Association, funded by the Barr Foundation, February 4, 2013, Boston, MA.
- Boston Water and Sewer Commission Wastewater and Storm Drainage Facilities Plan, Task G – Climate Change Adaptation Strategies, Technical memo prepared by CH2MHill, February 11, 2013, Boston MA.
- Douglas, E.**, Kirshen, P., and Merrill, S., 2012. Cost-Efficient and Storm Surge-sensitive Bridge Design for Coastal Maine: A Case Analysis. A report prepared for Maine Department of Transportation through the New England Environmental Finance Center, December 31, 2012, Portland, ME.
- Douglas, E.**, A. Whelchel, and B. Yarnal, 2012. Climate Change and Regional and Local Identities Within the Northeast: New England, Mid-Atlantic, Appalachia and Western Interior, and the Urban Northeast Corridor, Chapter IV in *Climate Change in the Northeast: A Sourcebook*, Technical Input Report for the 2013 National Climate Assessment, R. Horton, W. Solecki, and C. Rosenzweig, eds. US. Global Change Research Program, Office of Science and Technology Policy, Executive Office of the President. Washington, DC. June, 2012.
- Douglas, E. M.**, B. Fradkin\*, and S. Kichefski\*, 2011. Monitoring and modeling changes in flow and sediment transport in Red Brook, a small coastal stream in southeastern, Massachusetts, Year 1 Monitoring Report to the Massachusetts Division of Ecological Restoration, Boston, MA, September 2011.
- Douglas, E. M.** J. F. Limbrunner, G. Özertan, K. E. Simpson\* and D. Wisser, Sustainable use of irrigation water: The case of Turkey, Proceedings of The 13th Biennial Conference of the International Association for the study of the Commons (IASC), Hyderabad, India, January 2011.
- Watson, C. and **E. M. Douglas**, Analysis of changes in the 100-year coastal flooding event in Portland, Maine, due to climate change induced sea-level rise, Final report prepared for Casco Bay Estuary Project, August 2009.
- Douglas, E. M.** Is precipitation in northern New England becoming more extreme? A statistical analysis of

rainfall time series in Massachusetts, New Hampshire and southern Maine and updated estimates of the 100-year storm. Final Report to the Joseph P. Healey Grant Program, September 2008.

**Douglas, E. M.**, and C. Watson, ANALYSIS OF THE ENVIRONMENTAL ADVANTAGES OF THE BLUEWATER RECYCLER TRUCK, Final report prepared for Bluewater Septic, Inc., June, 2008.

Member of the Coastal Team contributing to Chapter 2: Coastal Impacts in *Confronting Climate Change in the U.S. Northeast: Science, impacts and solutions*, Frumhoff, P. C., J. J. McCarthy, J. M. Melillo, S. C. Moser and D. J. Wuebbles, eds., UCS Publications, Cambridge, MA, available on-line at

<http://www.climatechoices.org/assets/documents/climatechoices/confronting-climate-change-in-the-u-s-northeast.pdf>, July 2007.

major contributions to Water, a shared responsibility: The United Nations World Water Development Report, UNESCO World Water Assessment Programme, Paris, France, 584 p, 2006.

Sullivan, C., Vörösmarty, C. Craswell, E., Bunn, S., Cline, S., Heidecke, C., Storygard, A., Prousevitch, A.,

**Douglas, E.**, Bossio, D., Günther, D., Giacomello, A. M., O'Regan, D. and Meigh, J. 2006. Mapping the links between water, poverty and food security, Report on the Water Indicators workshop held at the Center for Ecology and Hydrology, Wallingford, May 2005.

Levy, M. A., C. Thorkelson, C. Vörösmarty, **E. Douglas**, and M. Humphreys. Freshwater availability anomalies and the outbreak of internal war: results from a global spatial time series analysis, Human Security and Climate Change Workshop, Asker (near Oslo) Norway, June 2005.

**Douglas, E. M.**, K. Sebastian, C. J. Vörösmarty and S. Wood, The role of tropical forests in supporting biodiversity and hydrologic integrity, *World Bank Policy Research Working Paper No. 3635*, Social Science Research Network, Washington, DC, available on-line at <http://econ.worldbank.org>, 2005.

Vogel, R.M., **E. Douglas** and A. Castellarin, "The Probabilistic Behavior of Extraordinary Floods", Proceedings of the International Conference on Hydrological Perspectives for Sustainable Development 2005, Indian Institute of Technology, Roorkee, India, Feb 2005.

**Water Indicators: Mapping the Links between Water, Food Policy Implications of a Pan-Tropic Assessment of the Simultaneous Hydrological and Biodiversity Impacts of Deforestation** (co-author) *International Conference on Integrated Assessment of Water Resources and Global Change : A North-South Analysis*, Bonn, February 2005.

**Douglas, E.M.**, R.M. Vogel and J. Heimerdinger, The Behavior of the Flood of Record for Basins in the U.S., *Proceedings of the 2002 EWRI conference*, Roanoke, Virginia, May 2002.

**Douglas, E.M.**, C.D. Race, I.M. Phillips, and M.D. Walters, Modeling contaminated ground water in fractured crystalline bedrock, *Proceedings of Northeast Focus Conference*, National Ground Water Association, 1998.

Moore, R.B., C.D. Johnson, and **E.M. Douglas**, Geohydrology and water quality of stratified-drift aquifers in the lower Connecticut River basin, Southwestern, NH. *U.S. Geological Survey WRI Report 92-4013*, 1994.

**Nitrogen Transport and Fate at a Farm and Yard Waste Composting Facility**, NGWA, Burlington, VT, 1994.

## ACADEMIC SERVICE

<b>BOARD MEMBER</b> , University Council on Water Resources	May 2015 to present
<b>GRADUATE PROGRAM DIRECTOR</b> , EEOS, UMass Boston	Sep 2011 to present
<b>SURFACE WATER COMMITTEE MEMBER (invited)</b> , American Geophysical Union	2010 to 2014
<b>ECOHYDROLOGY COMMITTEE MEMBER</b> , American Geophysical Union	2008-2009
<b>MEMBER, GRADUATE PROGRAM in URBAN PLANNING AND COMMUNITY DEVELOPMENT PROPOSAL</b> , UMass Boston	June – December 2010
<b>MEMBER, DEAN REVIEW COMMITTEE</b> , CSM, UMass Boston	Spring 2011
<b>COORDINATOR, INTERNAL REVIEW BOARD</b> , EEOS, UMass Boston	Apr 2009 to present
<b>CHAIR, GRADUATE ADMISSIONS COMMITTEE</b> , EEOS, UMass Boston	Dec 2006 – Aug 2011
<b>MEMBER, INTEGRATED SCIENCE CENTER COMMITTEE</b> , UMass Boston	Jan 2008 - present
<b>MEMBER, CHAIR SEARCH COMMITTEE</b> , EEOS, UMass Boston	Dec 2007 - May 2008
<b>REPRESENTATIVE, PROFESSIONAL, ACADEMIC AND TECHNICAL (PAT) COUNCIL</b> University of New Hampshire	Dec 2005-Jun 2006
<b>DEAN SEARCH COMMITTEE</b> College of Engineering and Physical Science (CEPS), University of New Hampshire	Jan to Apr 2000

## MEMBERSHIPS

**American Society of Civil Engineers**, Senior Member

**American Geophysical Union**, Member