

CURRICULUM VITAE

Nancy C. Tuchman

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EDUCATION

Ph.D. Aquatic Ecology, 1988. University of Louisville, Louisville, Kentucky. Dissertation title: Effects of different intensities and frequencies of disturbance by snail herbivory on periphyton succession. Advisor: Dr. R. Jan Stevenson (now at Michigan State Univ.).

M.S. Aquatic Ecology, 1983. Central Michigan University, Mount Pleasant, Michigan. Thesis title: Effects of agricultural land use on leaf litter processing rates in a central Michigan stream. Advisor: Dr. Robert H. King (emeritus).

B.S. Biology, 1980 (cum laude). Central Michigan University. Mount Pleasant, Michigan.

RESEARCH and PROFESSIONAL EXPERIENCE

2005-present	Interim Director of the Center for Urban Environmental Research and Policy, Loyola University Chicago, Chicago, IL
2004-present	Assoc. Provost for Research and Centers, Loyola University Chicago, Chicago, IL
2002-2003	Program Director, National Science Foundation, Division of Environmental Biology, Ecosystem Studies Program, Arlington, VA
2002-present	Professor, Department of Biology, Loyola University Chicago, Chicago, IL
1994-2002	Associate Professor, Department of Biology, Loyola Univ. Chicago, Chicago, IL
1992-present	Adjunct Professor, The University of Michigan Biological Station, Pellston, MI
1988-1994 Chicago, IL	Assistant Professor, Department of Biology, Loyola Univ. Chicago,
1987-1988	Instructor, Department of Biology, Loyola University Chicago, Chicago, IL

EXTRAMURAL GRANTS RECEIVED

- 2007 - 2009 National Oceanic and Atmospheric Administration's Illinois-Indiana Sea Grant Program. "Do urbanization and invasive plant species affect water quality services performed by great lakes coastal wetlands?" P.I. N.C. Tuchman, Co-PIs, D. Larkin, P. Geddes and D. Goldblatt. \$80,000 awarded for 2 years.
- 2007-2008 US Environmental Protection Agency P3 Program (People, Prosperity and the Planet). "Innovative Biodiesel Production: A Solution to the Scientific, Technical, and Educational Challenges of Sustainability". P.I. D. Larkin, Co-PI N.C. Tuchman. \$10,000 awarded for 1 year.
- 2007 – 2009 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Fellowship Program). "Exploring Mechanisms behind Invasions: Do Microbes Mediate Plant Invasion success by Altering Nutrient Pools and transformation Processes?" P.I. N.C. Tuchman, Co-PI P. Geddes. \$120,000 awarded.
- 2005 - 2008 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Program) "Graduate Research Fellowship Award: The Role of Litter Accumulation as a Mechanism for Invasion Success of a Non-Native Cattail, *Typha x glauca* in Great lakes Coastal Wetlands." P.I. N.C. Tuchman, Co-PI Monika Freyman. \$40,500 awarded.
- 2003-2005 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Program) "REU Supplement: Interactive Effects of Elevated Atmospheric CO₂, N-Enrichment, and an Invasive Species on Wetland Plant Productivity". PI N.C. Tuchman. \$6,000 awarded.
- 2003-2005 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Program) "Supplement: Elevated Atmospheric CO₂ Alters Plant Detritus Nutritional Quality: Effects on Microbial and Detritivore Food Webs in Aquatic Ecosystems". PI N.C. Tuchman, Co-PI J.J. Kelly. \$27,000 awarded.
- 2001-2005 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Program) "Elevated Atmospheric CO₂ Alters Plant Detritus Nutritional Quality: Effects on Microbial and Detritivore Food Webs in Aquatic Ecosystems". P.I. N.C. Tuchman, Co-PIs, R.G. Wetzel and J.A. Teeri. \$348,332 awarded.
- 1999-2002 National Science Foundation (Division of Environmental Biology, Ecosystems Studies Program) "Effects of Elevated Atmospheric CO₂ on Plant Nutritional Quality and Heterotrophic Utilization in Aquatic Ecosystems". P.I. N.C.

Tuchman, Co-PIs, R.G. Wetzel and J.A. Teeri. \$300,000 awarded.

EXTRAMURAL GRANTS RECEIVED (cont'd)

- 1996 Nancy Ryerson Ranney Leadership Grants Program. "Restoration of a Low-Diversity Cattail Wetland in the Ryerson Woods Conservation Area". P.I., N.C. Tuchman. \$6,000 awarded for 2 summer months.
- 1995 Nancy Ryerson Ranney Leadership Grants Program. "Establishment of Seven Wetland Plant Species within a Disturbed Cattail Stand". P.I., N.C. Tuchman. \$5,750 awarded for 2 summer months.
- 1993-1996 National Oceanic and Atmospheric Administration (Illinois-Indiana Sea Grant Program). "Shifts in Southwestern Lake Michigan Benthic Food Web Dynamics Since the Invasion of the Zebra Mussel". P.I., N.C. Tuchman. \$59,000 awarded.
- 1993-1995 National Science Foundation (Instrument and Laboratory Improvement Program). "Studying Plant Cellular Processes and Aquatic Organisms Through Advanced Microscopic Techniques". Co-PIs, N. Tuchman and J. Smarrelli. \$39,868 awarded.
- 1991-1993 National Oceanic and Atmospheric Administration (Illinois-Indiana Sea Grant Program). "Dietary Benefit of Benthic Algae in the Diets of Two Lake Michigan crayfish; *Orconectes propinquus* and *Orconectes virilis*". P.I., N.C. Tuchman. \$120,000 awarded.
- 1990-1991 National Oceanic and Atmospheric Administration (Sea Grant Program). "Effects of Crayfish Grazing on Benthic Algal Standing Crops, Turnover Rates, and Productivity". P.I., N.C. Tuchman. \$49,500 awarded.

EXTRAMURAL GRANT PROPOSALS PENDING

- 2008 – 2009 Chicago Wilderness C2000 Ecosystem Partnership Program. "A Research/Management Partnership: Experimentally Testing the Effectiveness of Restoration Techniques." P.I. N.C. Tuchman, Co-PIs D. Larkin, D. Maurer, and P. Geddes. \$146,626 requested for 1 year.
- 2007 – 2009 US Environmental Protection Agency. "The Role of Nitrogen Fixation in a *Typha x glauca* Native Wetland Invasion". P.I. N.C. Tuchman, Co-PI, Lane Barham. \$74,000 requested for 2 years.
- 2007 – 2009 National Science Foundation Graduate Student Award Program. "The Role of Nitrogen Fixation as a Mechanism of Successful invasion by the non-native *Typha x glauca*". PI N.C. Tuchman, Co-PI, L. Barham. \$45,500 requested for 2

years.

INTRAMURAL GRANTS RECEIVED

- 2007 Loyola University Chicago Mulcahy Scholars Program. “Bacterial biomass and decomposition rates of 4 native wetland plant species compared with the invasive *Typha x glauca*”. \$1000 awarded with Cindy Stowell.
- 2007 Loyola University Chicago Mulcahy Scholars Program. “Tracking a wetland plant invasion back through time using lead dating and nutrient analyses of soil cores.” \$1000 awarded with Raphael Porto.
- 2007 Loyola University Chicago Mulcahy Scholars Program. “Reconstructing the history of a plant invasion using pollen analyses of deep sediment cores”. \$462 awarded with Natalie Kmytuyk.
- 2005 Loyola University Chicago Mulcahy Scholars Program. “Allelopathic properties of the invasive wetland plant, *Typha x glauca* on germination and growth of native wetland plant species”. \$2000 awarded with Scott Mestrezat.
- 2002 Loyola University Chicago Mulcahy Scholars Program. “Elevated atmospheric CO₂ alters leaf litter nutritional quality for stream invertebrates, and the subsequent food quality of their feces for stream coprophagous insects”. \$1950 awarded with N. Miller.
- 2001 Loyola University Chicago Mulcahy Scholars Program. “Elevated Atmospheric CO₂-Induced Alterations in Tree Foliage: Effects on Aquatic Detritivore Growth and Subsequent Fish Predation. \$2000 awarded with S. Abichandani.
- 2000 Loyola University Chicago Mulcahy Scholars Program. “Elevated atmospheric CO₂ lowers leaf litter food quality: impacts on growth and development of 4 species of mosquito larvae.” \$2000 awarded with L. Sasso.
- 1999 Loyola University Chicago Mulcahy Scholars Program and the Department of Biology. “Upgrading and expanding the Stream Research Facility in the Greenhouse of Damen Hall”. \$5,000 awarded.
- 1998 Loyola University Chicago Mulcahy Scholars Program. “Elevated atmospheric CO₂-Induced alterations in tree foliage chemistry: Effects on stream detritivore growth rates”. \$2,025 awarded with G. Kilbane.
- 1996 Loyola University Summer Research Award. “Heterotrophic metabolism as a

survival mechanism for resource-limited benthic algae". \$6,000 awarded.

- 1995 Loyola University Research Support Grant. "Effects of Hydrologic Regime on the Success of Four Wetland Forb Species. \$1,200 awarded.

INTRAMURAL GRANTS RECEIVED (cont'd)

- 1993 Loyola University Grant in Aid. "Design and Construction of a Stream Research Facility in the Greenhouse of Damen Hall". \$1,150 awarded.
- 1992 Loyola University Research Support Grant. "Effects of the Invasion of the Exotic Zebra Mussel on the Balance of Rock Reef Ecosystems in Southwestern Lake Michigan". \$1,200 awarded.
- 1991 Loyola University Summer Research Award. "Effects of Crayfish Grazing on Algae in Southwestern Lake Michigan". Awarded \$5,500.
- 1991 Loyola University Research Support Grant. "Effects of Crayfish Grazing on Benthic Algae in Southwestern Lake Michigan". \$1,000 awarded.
- 1989 Loyola University Summer Research Award. "Effects of Light Limitation on Diatom Stalk Production". Awarded \$4,500.

MANUSCRIPTS PUBLISHED

- Kominoski, J.S., P.A. Moore, R.G. Wetzel, and N.C. Tuchman. 2007. Elevated CO₂ alters leaf-litter-derived dissolved organic carbon:effects on stream periphyton and crayfish feeding **J. N. Am. Benthol. Soc.** 26(4):662-671.
- Angeloni, N.L., K.J. Jankowski, N.C. Tuchman, and J.J. Kelly. 2006. Effects of an invasive cattail species (*Typha x glauca*) on sediment nitrogen and microbial community composition in a freshwater wetland. **FEMS Microbiol. Lett.** 263:86-92.
- Tuchman, N.C., M.A. Schollett, S.T. Rier, and P. Geddes. 2006. Differential heterotrophic utilization of organic compounds by diatoms and bacteria under light and dark conditions. **Hydrobiologia.** 561:167-177.
- Frost, P. and N.C. Tuchman. 2005. Nutrient release rates and ratios by two stream detritivores fed leaf litter grown under elevated atmospheric CO₂. **Archiv für Hydrobiol.** 163(4): 463-477.
- Wetzel, R.G. and N.C. Tuchman. 2005. Effects of atmospheric CO₂ enrichment and sunlight on degradation of plant particulate and dissolved organic matter and microbial utilization. **Archiv für Hydrobiol.** 162(3): 287-308.

Janus, L.R., N.L. Angeloni, J. McCormack, S.T. Rier, N.C. Tuchman, and J.J. Kelly. 2005. Elevated atmospheric CO₂ alters soil microbial communities associated with trembling aspen (*Populus tremuloides*) roots. **Microb. Ecol.** 50:102-109.

MANUSCRIPTS PUBLISHED (cont'd)

Rier, S.T., N.C. Tuchman, and R.G. Wetzel. 2005. Chemical changes to leaf litter from trees grown under elevated CO₂ and the implications for microbial utilization in a stream ecosystem. **Can. J. Fish. Aquatic. Sci.** 62: 185-194.

Adams, J.A., N.C. Tuchman, and P.A. Moore. 2005. Effects of CO₂-altered detritus on growth and chemically-mediated decisions in crayfish (*Procambarus clarkii*). **J.N. Am. Benthol. Soc.** 24(2):330-345.

Tuchman, N.C., R.L. Burks, C.A. Call, and J. Smarrelli, Jr. 2004. Flow rate and vertical position influence ingestion rates of colonial zebra mussels (*Dreissena polymorpha*). **Freshwater Biol.** 49(2):191-198.

Tuchman, N.C., K.A. Wahtera, R.G. Wetzel, N.M. Russo, G.M. Kilbane, L.M. Sasso, and J.A. Teeri. 2003. Nutritional quality of leaf detritus altered by elevated atmospheric CO₂: Effects on development of mosquito larvae. **Freshwat. Biol.** 48(8):1432-1439.

Tuchman, N.C., K.A. Wahtera, R.G. Wetzel, and J.A. Teeri. 2003. Elevated atmospheric CO₂ alters leaf litter nutritional quality for stream ecosystems: An *in situ* leaf decomposition study. **Hydrobiologia.** 495(1-3):203-211.

Adams, J.A., N.C. Tuchman, and P.A. Moore. 2003. Atmospheric CO₂ enrichment alters the chemical quality of leaf detritus: Impacts on foraging decisions of crayfish (*Orconectes virilis*). **J. N. Am. Benthol. Soc.** 22(3):410-422.

Tuchman, N.C., R.G. Wetzel, S.T. Rier, K.A. Wahtera, and J.A. Teeri. 2002. Elevated atmospheric CO₂ lowers leaf litter nutritional quality for stream ecosystem food webs. **Global Change Biol.** 8:163-170.

Rier, S.T., N.C. Tuchman, R.G. Wetzel, and J.A. Teeri. 2002. Elevated CO₂ induced changes in the chemistry of quaking aspen (*Populus tremuloides*) leaf litter: Subsequent mass loss and microbial response in a stream ecosystem. **J. N. Am. Benthol. Soc.** 21(1):16-27.

Burks, R.L., N.C. Tuchman, C.A. Call, J.E. Marsden. 2002. Colonial Aggregates: Effects of spatial position on zebra mussel responses to interstitial water quality gradients. **J. N. Am. Benthol. Soc.** 21(1):64-75.

Biggs, B.J.F., N.C. Tuchman, R.L. Lowe, and R.J. Stevenson. 1999. Resource stress alters

hydrological disturbance effects in a stream periphyton community. **Oikos** 85(1):95-108.

MANUSCRIPTS PUBLISHED (cont'd)

Johnson, R.E., N.C. Tuchman and C.G. Peterson. 1997. Changes in vertical microdistribution of Diatoms within a developing periphyton mat. **J. N. Am. Benthol. Soc.** 16(3):503-519.

Peterson, C.G. and N.C. Tuchman. 1996. Substratum-associated microbiota. **Wat. Environ. Res.** 68: 755-768.

Tuchman, N.C. 1996. The role of heterotrophy in algae. **In:** Algal Ecology; Freshwater Benthic Ecosystems. Eds. R.J.Stevenson, M.Bothwell, and R.L.Lowe. **Academic Press.** 753 pp.

Tuchman, N.C. and C.G. Peterson. 1995. Substratum-associated microbiota. **Wat. Environ. Res.** 67: 702-713.

Peterson, C.G. and N.C. Tuchman. 1994. Substratum-associated microbiota. **Wat. Environ. Res.** 66: 602-611.

Tuchman, N.C. and R.H. King. 1993. Changes in mechanisms of summer detritus processing between wooded and agricultural sites in a Michigan headwater stream. **Hydrobiologia** 268:115-127.

Tuchman, N.C. and C.G. Peterson. 1993. Substratum-associated microbiota. **Wat. Environ. Res.** 65: 548-558.

Tuchman, N.C. 1993. The relative importance of microbes versus macroinvertebrate shredders in the process of leaf decay in lakes of differing pH. **Can. J. Fish. Aquat. Sci.** 50: 2707-2712.

Peterson, C.G. and N.C. Tuchman. 1992. Substratum-associated microbiota. **Wat. Environ. Res.** 64: 625-632.

Tuchman, N.C. and R.J. Stevenson. 1991. Effects of selective grazing by snails on benthic algal succession. **J. N. Am. Benthol. Soc.** 10(4): 430-443.

Stevenson, R.J., C.G. Peterson, D.B. Kirschtel, C.C. King, and N.C. Tuchman. 1991. Density-dependent growth, ecological strategies, and effects of nutrients and shading on benthic diatom succession in streams. **J. Phycol.** 27: 59-69.

Tuchman, N.C. 1988. Effects of different intensities and frequencies of disturbance by snail herbivory on periphyton succession. Univ. of Louisville Press. Louisville, KY. 220 pp.

Brooks, N.C. 1983. Effects of agricultural land use on leaf litter processing rates in a central Michigan stream. M.S. thesis. Central Michigan Univ. Press. Mt. Pleasant, MI. 102 pp.

MANUSCRIPTS IN PREPARATION

Tuchman, N.C., K.J. Jankowski, P. Geddes, D. Larkin, R Wildova and D. Goldberg. Consequences of *Typha x glauca* invasion in an oligotrophic Great Lakes coastal wetland.

Jankowski, K.J, P Geddes, D. Larkin, and N. Tuchman. Patterns and controls of denitrification in a freshwater marsh invaded by the exotic cattail, *Typha x glauca*.

Tuchman, N.C., K.J. Jankowski, M. Freyman, and P. Geddes. Mechanisms of *Typha x glauca* invasion in Great Lakes coastal wetlands: The roles of litter and nitrogen accumulation in soils.

Tuchman, N.C., R.G. Wetzel, S.T. Rier, B. Swedo , and S. Abichandani. Elevated atmospheric CO₂ alters leaf litter nutritional quality: Impacts on three trophic levels in stream food webs.

Tuchman, N.C. R. Barbiero, P.Geddes and L. Bradford. Changes in the southwestern Lake Michigan littoral benthic food web dynamics since the invasion of the zebra mussel: Summary of a 10-year study.

PAPERS PRESENTED and PUBLISHED ABSTRACTS

Tuchman, N.C., K.J. Jankowski, P. Geddes, D. Larkin, and L. Barham. 2007. The Impact of Non-native Cattail *Typha x glauca* on Wetland Structure and the Biogeochemical Cycling of Nitrogen. North American Benthological Society Annual Meetings, Columbia, SC.

Wildova, R., D.E. Goldberg, A.A. Snow, P.M. Sweeney, and N.C. Tuchman. 2006. How invasive cattail changes North American Wetlands. Wetlands 2006 Symposium; Applying Scientific, Legal, and Management Tools for the Great Lakes and Beyond. Traverse City, MI.

Freyman, M., K.J. Jankowski, and N.C. Tuchman. 2006. Effects of litter accumulation of the invasive cattail *Typha x glauca* on a Great Lakes Coastal Marsh. Great Lakes Coastal Wetlands Annual Conference, Madison, Wisconsin.

Taber, A.P., M. Wencel, L.R. Janus, S.T. Rier, N.C. Tuchman, and J.J. Kelly. 2006. Impacts of aspen leaves grown under elevated carbon dioxide on detritivore bacterial and fungal communities. American Society of Microbiology meetings, Orlando, FL.

Jankowski, K.J. and N.C. Tuchman. 2005. The impact of *Typha x glauca* on species diversity and soil N in a Great Lakes coastal marsh. N. Am. Benthological Society, New Orleans, LA.

PAPERS PRESENTED and PUBLISHED ABSTRACTS (cont'd)

- Angeloni, N.L., K.J. Jankowski, N.C. Tuchman, & J.J. Kelly. 2005. Effects of an invasive cattail species on sediment microbial communities in a wetland ecosystem. Soil Ecology Society, Argonne, IL.
- Jankowski, K.J., S. Shattuck, and N.C. Tuchman. 2005. The impact of the invasive cattail *Typha x glauca* on the physicochemical environment and plant species diversity of a Great Lakes coastal marsh. Great Lakes Coastal Wetlands Annual Conference, Green Bay, Wisconsin.
- Wetzel, R.G. and N.C. Tuchman. 2004. Interactions of atmospheric CO₂ enrichment and light on chemical composition of wetland plants and their decomposition. International Conference on Wetlands, Utrecht, The Netherlands.
- Tuchman, N.C., R.G. Wetzel and S.T. Rier. 2004. Elevated atmospheric CO₂ alters leaf litter nutritional quality: Effects on 3 trophic levels in streams. North American Benthological Society, Vancouver, British Columbia.
- Wetzel, R.G. and N.C. Tuchman. 2004. Interactions of atmospheric CO₂ enrichment and light on chemical composition of wetland plants and their decomposition. Ecological Society of America, Portland, Oregon.
- Angeloni, N., L.R. Janus, J. McCormack, S.T. Rier, N.C. Tuchman, and J.J. Kelly. 2004. Growth of Quaking Aspen Trees under Elevated Atmospheric CO₂ Alters Soil Bacterial and Fungal Communities. American Society for Microbiology, New Orleans, Louisiana.
- Wetzel, R.G. and N.C. Tuchman. 2003. Natural photolytic alteration of dissolved organic matter leached from wetland plants. Society for Wetland Scientists, New Orleans, Louisiana.
- Kelly, J.J., J. McCormack, L.R. Janus, N. Angeloni, S.T. Rier, and N.C. Tuchman. 2003. Elevated atmospheric CO₂ alters belowground microbial communities associated with quaking aspen roots. American Society for Microbiology, Washington, D.C.
- Rier, S.T., N.C. Tuchman and R.G. Wetzel. 2003. Influence of elevated atmospheric CO₂ on the chemistry and *in situ* decomposition of leaf litter from three common riparian tree species in northern Michigan. North American Benthological Society, Athens, GA.
- Kominoski, J.S., N.C. Tuchman, P.A. Moore, C.G. Peterson, and R.G. Wetzel. 2003. DOC derived from elevated CO₂-altered leaf litter: Impacts on stream periphyton growth and community structure. 51st Annual meeting, North American Benthological Society, Athens, Georgia.
- Tuchman, N.C., B. Swedo, S. Abichandani, S.T. Rier, and R.G. Wetzel. 2002. Elevated atmospheric CO₂ alters leaf litter nutritional quality: Impacts on three trophic levels in detritus based aquatic food webs. 50th Annual meeting, North American Benthological Society, Pittsburgh, Pennsylvania.

PAPERS PRESENTED and PUBLISHED ABSTRACTS (cont'd)

- Adams, J.A., N.C. Tuchman, and P.A. Moore. 2002. The effect of elevated CO₂ detritus on the foraging decisions of crayfish (*Orconectes virilis*). Annual meeting, American Society of Limnology and Oceanography, Hawaii.
- Adams, J.A., N.C. Tuchman, and P.A. Moore. 2002. The effect of elevated CO₂ detritus on the foraging decisions of crayfish (*Orconectes virilis*). XXIV annual meeting, American Chemosensory Society.
- Wetzel, R.G. and N.C. Tuchman. 2002. Solar radiation as the simultaneous autotrophic and heterotrophic modulator of aquatic ecosystems. Invited lecture, Annual meetings of the American Society of Limnology and Oceanography, Victoria, British Columbia.
- Wetzel, R.G. and N.C. Tuchman. 2001. Effects of CO₂ enrichment on the production of degradation products of *Typha latifolia* and their natural photodegradation and biological utilization. Annual meeting, Ecological Society of America, Madison, Wisconsin.
- Rier, S.T., N.C. Tuchman, and R.G. Wetzel. 2001. Microbial responses to changes in leaf litter nutritional quality induced by leaf growth under elevated atmospheric CO₂. 49th Annual meeting, North American Benthological Society, LaCrosse, Wisconsin.
- Wetzel, R.G. and N.C. Tuchman. 2001. Effects of CO₂ enrichment on the production of humic degradation products, their natural photodegradation, and biological utilization. Annual meeting, Society for International Limnologists, Sydney, Australia.
- Wahtera, K.A., N.C. Tuchman, and R.G. Wetzel. 2000. Elevated atmospheric CO₂-induced changes in leaf litter chemistry: Effects on *in situ* aquatic microbial activity and leaf decomposition rates. 48th Annual meeting, North American Benthol. Society, Keystone, CO.
- Tuchman, N.C., K.A. Wahtera, and R.G. Wetzel. 1999. Elevated atmospheric CO₂-induced changes in leaf litter chemistry: Effects on aquatic microbial activity and detritivore growth. 47th Annual meeting, North American Benthological Society, Duluth, Minnesota.
- Tuchman, N.C. 1997. Changes in Southwestern Lake Michigan food web dynamics since the invasion of the zebra mussel: Summary of a 5 year study. 45th Annual meeting, North American Benthological Society, San Marcos, Texas.
- Schollett, M.A. and N.C. Tuchman. 1997. Organic nutrient preferences for benthic diatoms: An approach to understanding heterotrophic metabolism. 14th Annual meeting, North American Diatom Symposium, Pellston, Michigan.

PAPERS PRESENTED and PUBLISHED ABSTRACTS (cont'd)

- Schollett, M.A., N.T. Udovich, N.C. Tuchman, and J. Smarrelli, Jr. 1996. Organic nutrient preferences for benthic diatoms: an approach to understanding heterotrophic metabolism. 44th Annual meeting, North American Benthological Society, Kalispell, Montana.
- Tuchman, N.C., N. Gormly and L. Bradford. 1996. Zebra mussel effects on the southwestern Lake Michigan food web. North American Benthological Society, Kalispell, Montana.
- Call, C.A., N.C. Tuchman, and J. Smarrelli, Jr. 1995. The effects of individual location and ambient flow rate on filtration in large zebra mussel colonies. 5th International Zebra Mussel and other Aquatic Nuisance Organisms Conference, Toronto, Ontario.
- Tuchman, N.C., M.A. Schollett, N.T. Udovich, and J. Smarrelli, Jr. 1995. Suppression of bacterial metabolism in periphyton communities using antibiotics. 43rd Annual meeting, North American Benthological Society, Keystone, Colorado.
- Call, C.A., N.C. Tuchman, and J. Smarrelli, Jr. 1995. Effects of individual location and flow rate on filtration in zebra mussel colonies. 43rd Annual Meeting, North American Benthological Society, Keystone, Colorado.
- Johnson, R.E. and N.C. Tuchman. 1994. A novel approach to studying the effects of density-dependent resource limitations on vertical distribution of diatoms in periphyton mats. 42nd Annual meeting, North American Benthological Society, Orlando, Florida.
- Tuchman, N.C., J.R. Panella, P. Donovan, and J. Smarrelli. 1994. Facultative heterotrophy as a survival mechanism for light-limited benthic diatoms. 42nd Annual meeting, North American Benthological Society, Orlando, Florida.
- Call, C.A., J.E. Marsden, and N.C. Tuchman. 1994. Vertical migration and mortality in dense zebra mussel colonies as a response to changes in interstitial water quality. 4th International Zebra Mussel Conference. Madison, Wisconsin.
- Bradford, L. and N.C. Tuchman. 1994. Changes in a Lake Michigan benthic rock reef community since the invasion of zebra mussels. 42nd Annual meeting, North American Benthological Society, Orlando, Florida.
- Call, C.A., J.E. Marsden, and N.C. Tuchman. 1994. Vertical migration and mortality in dense zebra mussel colonies as a response to changes in interstitial water quality. 42nd Annual meeting, North American Benthological Society, Orlando, Florida.
- Tuchman, N.C., J. Panella, and J. Smarrelli. 1993. Determination of shade-induced heterotrophic metabolism in a benthic diatom, *Achnanthes rostrata*. 41st Annual meeting, North

American Benthological Society, Calgary, Alberta, Canada.

PAPERS PRESENTED and PUBLISHED ABSTRACTS (cont'd)

- Zenchak, K.A. and N.C. Tuchman. 1992. The effects of crayfish grazing on benthic algal community dynamics in southwestern Lake Michigan. 40th Annual meeting, North American Benthological Society, Louisville, Kentucky.
- Krema, P.B. and N.C. Tuchman. 1992. Determination of the importance of benthic algae, macroinvertebrates and detritus to crayfish secondary production in *Orconectes propinquus*. 40th Annual meeting, North American Benthological Society, Louisville, Kentucky.
- Panella, J., J. Smarrelli and N.C. Tuchman. 1992. Shade-induced heterotrophy in *Achnanthes rostrata*. 40th annual meeting, North American Benthological Society, Louisville, Kentucky.
- Zenchak, K.A. and N.C. Tuchman. 1991. The effects of crayfish grazing on benthic algal community dynamics in Southwestern Lake Michigan. 11th biennial North American Diatom Symposium, Clemson, South Carolina.
- Panella, J., J. Smarrelli and N.C. Tuchman. 1991. Facultative heterotrophy in *Achnanthes rostrata* under laboratory conditions. 11th biennial North American Diatom Symposium, Clemson, South Carolina.
- Tuchman, N.C., R. Jan Stevenson and K. A. Zenchak. 1991. Effects of snail and crayfish grazing on benthic algal succession rates and direction. 39th Annual meeting, North American Benthological Society, Santa Fe, New Mexico.
- Zenchak, K.A. and N.C. Tuchman. 1991. The effects of crayfish grazing on benthic algal community dynamics in southwestern Lake Michigan. 39th Annual meeting, North American Benthological Society, Santa Fe, NM.
- Johnson, R.E., N.C. Tuchman and J. Smarrelli. 1991. The effect of density on the distribution of photosynthetically active cells in benthic algal mats. 39th Annual meeting, North American Benthological Society, Santa Fe, New Mexico.
- Tuchman, N.C. 1989. Limiting factors that induce stalk formation in benthic diatoms. 10th biennial meeting of the North American Diatom Symposium, Lake Itasca, Minnesota.
- Tuchman, N.C., R.E. Youssef, R.J. Pane and I.S. Zabaneh. 1989. Effects of light intensities on Lake Michigan algal community development. IL State Academy of Science, Chicago, IL.
- Tuchman, N.C. 1989. Effects of light level on benthic diatom stalk production. North American Benthological Society, Guelph, Ontario.

PAPERS PRESENTED and PUBLISHED ABSTRACTS (cont'd)

Tuchman, N.C. 1988. Effects of grazing on algal community resilience and resistance. North American Benthological Society, Tuscaloosa, Alabama.

Stevenson, R.J., C.C. King and N.C. Tuchman. 1988. Benthic algal succession: is there a common theme? Phycological Society of American meetings, Pacific Grove, California.

Kirschtel, D.B., N.C. Tuchman, C.C. King, C.G. Peterson and R.J. Stevenson. 1987. Periphyton succession: community response to nutrient enrichment. 9th North American Diatom Symposium, Tomahawk, Wisconsin.

Stevenson, R.J., N.C. Tuchman, D.B. Kirschtel, C.C. King, and C.G. Peterson. 1987. Periphyton succession: can population accumulation patterns be used to assign species to guilds? 9th North American Diatom Symposium, Tomahawk, Wisconsin.

Brooks, N.C. 1986. Effects of acidity on the leaf decay process in four northern Michigan lakes. North American Benthological Society, Lawrence, Kansas.

Godshalk, G.L. and N.C. Brooks. 1985. A leaf litter budget study on two southern Mississippi streams. North American Benthological Society, Corvallis, Oregon.

Brooks, N.C. and R.H. King. 1983. Effects of agricultural land use on leaf litter processing rates in a central Michigan stream. North American Benthological Society, LaCrosse, Wisconsin.

PROFESSIONAL SOCIETY MEMBERSHIPS

Society for Conservation Biology
The Ecological Society of America
North American Benthological Society

Society of Limnology and Oceanography
Nat'l Council of Univ. Research Administrators
Society of Research Administrators

GENERAL ACADEMIC AWARDS

2002 – life. University Faculty Scholar Award, Loyola University Chicago.

1999 Nominated and subsequently included in *Who's Who in America's Teachers*.

1996 – life. Sujak Master Teacher Award in the College of Arts & Sciences, Loyola Univ. Chicago.

1988 Biology Teacher of the Year, awarded by the Loyola University chapter of $\beta\beta\beta$.

1984 – 1988 Graduate Academic Fellowship at the University of Louisville. 4 yrs full stipend.

LOYOLA UNIVERSITY TEACHING ACTIVITIES

1) **General Biology I (Biology 101)**: All lectures in the semester: majors requirement; 45+

students. New preparation for this course.

LOYOLA UNIVERSITY TEACHING ACTIVITIES (cont'd)

- 2) **General Biology II (Biology 102):** All lectures in the semester: majors requirement; 170+ students.
- 3) **Honors General Biology II (Biology 125H):** All lectures in the semester; majors requirement for honors students; 40+ students.
- 4) **General Biology II (Biology 125):** All lectures in the semester; majors requirement; 40 students
- 5) **Ecology (Biology 265):** All lectures in the semester; majors requirement; 50+ students.
- 6) **Limnology (Biology 316/416):** All lectures in the semester as well as one 5-hour laboratory or field trip each week; elective. Graduate level course.
- 7) **Wetland Ecology (Biology 327/417):** All lectures in the semester as well as one 5-hour laboratory or field trip each week. New graduate level course that I developed.
- 8) **Special Topics: Research in Wetland Ecology (Biology 395/495):** Direct 15-18 students in researching wetland restoration. Undergraduate and graduate level course that I developed.
- 9) **Solutions To Environmental Problems: Biodiesel (Biol 395):** Designed and developed this interdisciplinary course with 13 faculty from 9 different academic units. Built a biodiesel lab and produced biodiesel for campus vehicles, developed a business plan for the operations, and produced a documentary, web site, and partnered with a local high school.
- 10) **Global Change Biology (Biology 395/495):** All lectures in the semester. New course I developed for Biology majors and Environmental Studies Program majors.
- 11) **Restoration Ecology (Biology 395/495):** Team-taught course that I developed with Dr. Roberta Lammers and Dr. Marty Berg for Biology majors and Environ. Studies Program majors.
- 12) **Research Techniques (Biology 425):** One lecture in a semester. Graduate level course.
- 13) **Community Ecology (Biology 462):** All lectures and discussions in the semester. Graduate level course that I developed.

UNIVERSITY OF MICHIGAN BIOLOGICAL STATION TEACHING ACTIVITIES

1992 – 2000 (summers). Limnology (Biology 480): All lectures and field trips. 5 credit upper division rigorous field and lecture course. Individual student research projects required in addition to small group research projects, oral presentations, and papers.

UNDERGRADUATE and GRADUATE STUDENT SUPERVISION

2007	Michal Olszewski, undergraduate research assistant (co-mentor)
2007	Patrick Grucelski, undergraduate research assistant (mentor)
2007	Terry Kowalski, undergraduate research assistant (mentor)
2007	Jeffrey Price, NSF Research Experiences for Undergrads (mentor)
2006	Natalie Kmytuyk, undergraduate Mulcahy Scholar (co-mentor)
2006	Cindy Stowell, undergraduate Mulcahy Scholar (co-mentor)
2006	Raphael Porto, undergraduate Mulcahy Scholar (co-mentor)
2006 – present	Lane Barham, graduate student (mentor)
2006 – present	Kara Borden, UIC MS student (committee member)
2006	Alexander Cuthbert-Smith, post-bac student researcher (mentor)
2005-2006	Scott Mestrezat, Mulcahy Undergraduate Researcher (mentor)
2005	Emily Kay, Post-bac student researcher (mentor)
2005 - 2006	Brian Schuetz, Post-bac student researcher (mentor)
2005	Hannah Shadis, NSF Research Experience for Undergrads (mentor)
2005	Chester Elliott, NSF Research Experience for Undergrads (mentor)
2004 -2006	Kathi Jo Jankowski, Master's student (mentor)
2004 - present	Monika Freyman, Master's student (mentor)
2004	Sharon Shattuck, NSF Research Experience for Undergrads (mentor)
2004	Nicholas Tefft, Program for Undergraduate Research Experience (mentor)
2004	Chester Elliott, Undergraduate Researcher (mentor)
2004	Brandon Dowd, Undergraduate Researcher (mentor)
2004	Laura Pickering, Program for Undergrad Research Experience (co-mentor)
2004 - 2005	Erica Mynarich, Undergrad Researcher (mentor)
2003	Alison Varty, Research Technician (supervisor)
2003	Allison Poor, Undergraduate researcher (supervisor)
2003	Shane Lishawa, Research Technician (supervisor)
2003	Margaret Cowan, Research Technician (supervisor)
2003	Peter Cowan, Research Technician (supervisor)
2003	Laurel Billings, Research Technician (supervisor)
2003 - present	Anna Taber, Master's student (committee member)
2003 – 2005	Jennifer Smith, Master's student (committee member)
2003 -2007	Jennifer Koshorek, Master's student (committee member)
2003- 2004	Emily Farrer, Univ. of Michigan Graduate Student (UMBS mentor)
2002-2004	Matthew Pierle, Research Technician (supervisor)
2002-2003	Mark Bradburn, Research Technician (supervisor)
2002 –2003	Nicole Miller, Undergraduate Research (BIOL 299/Mulcahy Scholar mentor)
2002 –2003	Katherine Baxtrom, Undergraduate Research (BIOL 299)
2002 –2003	John Kominoski, Master's Student (advisor)
2001 –2002	Christina Zorzi, Undergraduate Research (BIOL 299)
2001 –2002	Shanti Abichandani, (Mulcahy Scholar mentor)
2001 – 2007	Margot McDonald, Masters Student (committee member)

2001 - 2006 Eric Brown, Masters Student (advisor)

UNDERGRADUATE and GRADUATE STUDENT SUPERVISION (cont'd)

2001 – 2006 Priscila Andrade, Masters Student (committee member)
 2001 - 2005 Holly Arrigoni, Masters student (committee member)
 2001 – 2003 Julie Adams, Ph.D. Candidate, BGSU (UMBS mentor)
 2001 Barbara Swedo, Research Experience for Undergrads (UMBS mentor)
 2001 Barbara Swedo, Undergraduate Research (BIOL 299)
 2000 – present Lincoln Bradford, Master's student (mentor)
 2000 – 2001 Kristen Yanko, Masters Student, left the program (committee member)
 2000 - present Elizabeth Lehigh, Ph.D. Candidate, Western Mich. Univ. (committee member)
 2000 Lisa Sasso, (Mulcahy Scholar mentor/BIOL 397H)
 2000 Alison Varty, NSF Research Experience for Undergrads (UMBS mentor)
 2000 Elizabeth Bernier, NSF Research Experience for Undergrads (UMBS mentor)
 2000 - 2001 Alexander Pavlovich, Masters Student, left the program (advisor)
 1999 Paul Marek, (Mulcahy Scholar mentor)
 1999 Nicole Russo, (Mulcahy Scholar mentor)
 1999 Grace Kilbane, (Mulcahy Scholar mentor)
 1999 Shaun Gill, Directed Reading (BIOL 493)
 1999 Grace Kilbane, Individual Study (BIOL 399)
 1999 Monique Baumel, Directed Reading (BIOL 493)
 1999 Mahya Shudnow, NSF Research Experience for Undergrads (UMBS mentor)
 1999 - 2001 Max Kanter, Masters Student (committee member)
 1998 - 2001 Kirk Wahtera, Masters Student (advisor)
 1998 - 2003 Monique Baumel, Masters Student (advisor)
 1998 Brian Brewer, Individual Study (BIOL 399)
 1998 Jennifer Joly, Directed Reading (BIOL 493)
 1998 Daniel Ng, Directed Reading (BIOL 493)
 1997 Monique Baumel, Individual Study (BIOL 399)
 1997 Monique Baumel, Teaching in Biology (mentor) (BIOL 510)
 1997 - 2005 Laura Rice, UIC Ph.D. Candidate (committee member)
 1996 - 2001 Nicole Vidales, Masters Student (committee member)
 1996 Sergey Maryanchik, Independent Study (BIOL 399)
 1996 (spring) Monique Baumel, Individual Study (BIOL 399)
 1996 (fall) Monique Baumel, Individual Study (BIOL 399)
 1995 - 2006 Nia Haller, Masters Student (committee member)
 1995 Alyssa Tomoff, NSF Research Experience for Undergraduates (UMBS mentor)
 1995 Romi Snivley, Senior Honors Thesis (BIOL 397H)
 1995 Jerry Martin, Senior Honors Thesis (BIOL 397H)
 1995 Angela Marshall, Senior Honors Thesis (BIOL 397H)
 1994-1996 Linda Benning, Masters Student (committee member)
 1994-1996 Heather Biga, Masters Student (committee member)
 1994 Aleks Shakhnet, Undergraduate Research (BIOL 299)
 1994 Jodi Sedlock, Undergraduate Research (BIOL 299)

1994 - 1997 Neil Udovich, Masters Student, left the program (co-advisor)
UNDERGRADUATE and GRADUATE STUDENT SUPERVISION (cont'd)

1994 - 1997 Marc Schollett, Masters Student (co-advisor)
 1993 - 1994 Romi Snivley, Undergraduate Research (BIOL 299)
 1993 - 1994 Jerry Martin, Undergraduate Research (BIOL 299)
 1993 Jodi Sedlock, Internship in Biology (BIOL 398)
 1992 - 2001 Laurel Nida, U of Michigan Masters Student (committee member)
 1992 - 1997 Patrick Donovan, Masters Student (co-advisor)
 1992 - 1995 Christopher Call, Masters Student (advisor)
 1992 - 1995 Lincoln Bradford, Masters Student, took LOA after 1995 (advisor)
 1991 - 1994 Patricia Krema, Masters Student (advisor)
 1991 Patricia Krema, Directed Reading (BIOL 493)
 1991 - 1992 George Vass, Undergraduate Research (BIOL 299)
 1991 Kristi Zenchak, Individual Study (BIOL 399)
 1990 - 1994 Jeff Panella, Masters Student (co-advisor)
 1990 Michael Bert, Undergraduate Research (BIOL 299)
 1990 John Grace, Undergraduate Research (BIOL 299)
 1990 George Hejna, Undergraduate Research (BIOL 299)
 1989 - 1992 Kristi Zenchak, Masters Student (advisor)
 1989 Ibrahim Zabaneh, Senior Honors Thesis (BIOL 397H)
 1989 Randall Pane, Undergraduate Research (BIOL 299)
 1989 Riad Youssef, Undergraduate Research (BIOL 299)
 1989 - 1992 Jean Replicon, SSOM Ph.D. Student (committee member)
 1988 - 1995 Ronald Johnson, Masters Student (advisor)
 1988 Ronald Johnson, Individual Study (BIOL 399)
 1988 Terry Swade, Senior Honors Thesis (BIOL 397H)

HIGH SCHOOL STUDENT SCIENCE PROJECT SUPERVISION

2002 Alexander Cooloorgeon, Lane Tech High School
 1994 Katheryn Hayes, Lincoln Park High School
 1993 Katheryn Hayes, Lincoln Park High School
 1991 M. Daniels, Lincoln Park High School
 1990 Lize VanderVoort, Lincoln Park High School

LOYOLA UNIVERSITY BIOLOGY DEPARTMENTAL COMMITTEES

2004 – present Promotion and Tenure Committee
 2003 Aquatic Ecologist Search Committee (Chair)
 2000 - 2004 Undergraduate Curriculum Committee
 1999 - 2002 Development of Biology track of Environmental Studies Program (Chair)
 1998 - 2000 Departmental Senior Assessment Committee (Chair in 1998-99)
 1998 - 2001 Departmental Promotion and Tenure Committee (Chair in 1998-99)

PROFESSIONAL SOCIETY COMMITTEE SERVICE

2002 - 2003	Chair, Executive Committee, North American Benthological Society
1997 - 2002	Co-Chair, Scientific Awards Committee, North American Benthological Society
1995 - 2003	Executive Committee, North American Benthological Society

OTHER PROFESSIONAL ACTIVITIES/SERVICES

2006	Participant, American Jesuit Colleges and Universities Leadership Conference, Chicago, IL
2006	Participant, The Conference Board's Women's Leadership Conference: Advancing the Woman Leader: The Organizational Challenge, NY, NY.
2006 (fall)	Served on NSF review panel, Frontiers in Integrative Biological Research (FIBR).
2006 (spring)	Served on NSF review panel, Frontiers in Integrative Biological Research (FIBR).
2005 (fall)	Served on NSF review panel, Frontiers in Integrative Biological Research (FIBR).
2004	Served on NSF review panel, Long-Term Ecological Research (LTER) Program.
2004 – 2006	U of Michigan Biological Station seminar series coordinator.
2004	Reviewer and judge, JSHS High School Science Fair.
2004 - present	U of Michigan's NSF- IGERT Program Review and Selection Committee.
2003 – present	Aquatic Initiatives Committee of the Chicago Wilderness.
2006 – present	Sustainability Task Force of the Chicago Wilderness.
2006 – present	Executive Committee of the Chicago Wilderness.
2003	Site reviewer for the NSF-funded Luquillo LTER Site in Puerto Rico.
2002-2003	Served as Program Officer for the Ecosystem Studies Program, Division of Environmental Biology at the National Science Foundation, Arlington, VA.
2002	Participated in the U.S. Climate Change Science Program Planning Workshop for Scientists and Stakeholders, Washington, D.C.
2002	Served on NSF Division of Environmental Biology review panel for the Long-Term Ecological Research (LTER) competition.
2001 – 2005	Director of the Elevated CO ₂ Research Facility at the University of Michigan Biological Station.
1995 – present	<i>ad hoc</i> reviewer for the promotion and tenure of faculty who are in my research area at the University of San Francisco, University of California at Berkeley, The Ohio State University, The University of Missouri-Rolla, University of Denver, DePaul University, University of Oklahoma.
1995-2004	Conduct Science Units and Science Field Trips for all grades (K-5) at Braeside Elementary School, Highland Park, IL
1991-1996	Professional Consultant for Integrated Lakes Management, Inc., Gurnee, IL
1991-1993	Chicago Junior Sciences and Humanities Symposium Advisory Board
1990 – present	<i>ad hoc</i> grant proposal reviewer for 26 proposals submitted to the following funding agencies: National Science Foundation, U.S. Environmental Protection Agency, U.S. Department of Energy, Illinois-Indiana Sea Grant, Ohio Sea Grant,

New York Sea Grant, Michigan Sea Grant.

OTHER PROFESSIONAL ACTIVITIES/SERVICES (cont'd)

- 1989 – present *ad hoc* manuscript reviewer for 61 manuscripts submitted to the following journals: *Ecology*, *Global Change Biology*, *Canadian J. Fisheries and Aquatic Sciences*, *Limnology and Oceanography*, *Freshwater Biology*, *J. North American Benthological Society*, *Archiv für Hydrobiologie*, *Oikos*, *Hydrobiologia*, *J. Phycology*, *Canadian J. Botany*, *J. Freshwater Ecology*, *American Midland Naturalist*, and *J. Great Lakes Research*.
- 1988-1990 Wetlands Consultant for Young Environmental Services, Inc., Glenview, IL

RESEARCH SEMINARS AND OTHER PUBLIC SPEAKING

- 2007 Invited speaker at U of I-Chicago School of Engineering, Environmental/Water Resources.
- 2005 Invited speaker at Cornell University, Dept of Ecology and Evolutionary Biology.
- 2004 Invited speaker at the University of Montana, College of Forestry.
- 2004 Invited speaker at Western Michigan University, Department of Biology.
- 2004 Invited speaker for University of Illinois at Chicago's Ecology and Evolution seminar series.
- 2004 Invited speaker at The University of Montana, Division of Biological Sciences.
- 2003 Invited speaker at Eastern Michigan University, Department of Biology.
- 2003 Invited speaker at Virginia Polytechnic University, Department of Biological Sciences.
- 2002 Invited speaker at the Smithsonian Environmental Research Center.
- 2002 Invited speaker at Western Michigan University, Department of Biology.
- 2002 Invited speaker at Bucknell University, Department of Biology.
- 2002 Invited speaker at the National Science Foundation, Division of Environmental Biology.
- 2002 Invited speaker at the University of Alabama, Department of Biological Sciences.
- 2001 Invited speaker for Bowling Green State University's Biology Departmental seminar series.
- 2001 Research seminar at Loyola University Chicago Department of Biology seminar series.
- 2000 Invited speaker for the University of Georgia's Institute of Ecology seminar series.
- 2000 Invited speaker for the University of Michigan Biological Station research seminar series.
- 1998 Invited speaker for University of Illinois at Chicago's Ecology and Evolution seminar series.
- 1997 Invited seminar speaker University of Chicago, Ecology and Evolutionary Biology Dept.
- 1996 Interviewed on the "Insight" Program on CNN International; 8 minute live television interview on the impacts of the zebra mussel invasion on waterways in the U.S.
- 1995 Invited seminar speaker U.S. Environmental Protection Agency.
- 1994 Invited speaker for Central Michigan University's Department of Biology seminar series.
- 1993 Invited speaker for DePaul University's Department of Biology seminar series.
- 1993 Invited speaker for Michigan State University's Kellogg Biological Station seminar series.
- 1992 Invited speaker for Northern Illinois University Department of Biology seminar series.
- 1989 Invited speaker for dinner address at the American College Physicians Society annual meetings, Chicago, Illinois. Topic: The Ecological and Economic Impacts of Global Change.