

William J. Ullman

Professor of Marine and Geological Sciences
School of Marine Science and Policy
University of Delaware
Lewes, DE 19958

Phone: (302) 645-4302

Email: ullman@udel.edu

FAX: (302) 645-4007

Personal Information:

Born 20 August 1952, Groningen, The Netherlands, U.S. Citizen. Married, with two children.

Educational History:

University of Michigan, School of Natural Resources, attended 1973.

Yale University, Department of Geology and Geophysics, B.S., 1975.

University of Michigan, Department of Atmospheric and Oceanic Sciences, M.S., 1977.

University of Chicago, Department of the Geophysical Sciences, Ph.D., 1982.

Professional History:

Research Fellow, Environmental Research Group, Research School of Earth Sciences, Australian National University, 1982 - 1984.

Postdoctoral Fellow, Chemistry Division, Argonne National Laboratory, 1984 - 1986.

Assistant Professor, College of Marine Studies, University of Delaware, 1986 - 1992.

Joint Assistant Professor, Department of Geology, University of Delaware, 1988 - 1992.

Guest Researcher, Chemistry Division, Argonne National Laboratory, 1991 - 1993.

Associate Professor, College of Marine Studies, University of Delaware, 1992 - 2000.

Joint Associate Professor, Department of Geology, University of Delaware, 1992 - 2000.

Chercheur et Professeur Associé, Centre de Géochimie de la Surface (CNRS) and Institute de Géologie (Université Louis Pasteur), Strasbourg, France. 1993 - 1994.

Professor, School of Marine Science and Policy (formerly College of Marine and Earth Studies; formerly College of Marine Studies), University of Delaware, 2000 - present.

Joint Professor, Department of Geological Sciences (formerly Department of Geology), University of Delaware, 2000 - present.

Visiting Scientist, Centre for Groundwater Studies, CSIRO Land and Water and Flinders University of South Australia, Adelaide, South Australia, 2001 - 2002.

Director, Oceanography Program, College of Marine and Earth Studies (formerly College of Marine Studies, now School of Marine Science and Policy), University of Delaware, 2003 - 2009.

Visiting Professor, Observatoire Océanologique de Banyuls-sur-Mer, Université Pierre et Marie Curie, Banyuls-sur-Mer, France. 2009 - 2010.

Faculty Fellow, Center for Science, Ethics and Public Policy, University of Delaware, 2012 - present.

Professional and Honorary Societies:

Geochemical Society; International Association of Geochemistry and Cosmochemistry; Geological Society of America; Geological Society of Australia; American Geophysical Union; Oceanography Society; Sigma Xi, The Scientific Research Society; American Association of University Professors.

Research Interests:

Oceanography of Shallow Estuaries and Lagoons; Biogeochemistry of the Coastal Zone; Land Use and Nutrient Export from Watersheds; Groundwater Discharge to the Coastal Zone; Groundwater/Surface Water Exchange; Chemistry of Sandy Beaches; Rock/Water Interactions; Role of Bacteria and Metabolic Products on Rock/Water Interactions; Ethical and Professional Education of Young Scientists and Engineers.

Graduate Student Advisement:

- Susan A. Welch, M.S. Marine Studies (Oceanography), 1991. Thesis topic: *The Effect of Organic Acids and Mineral Dissolution Rates and Stoichiometry*.
- Steven A. Skrabal, Ph.D. Oceanography, 1994. Dissertation topic: *The Estuarine and Marine Geochemistry of Titanium*.
- Susan A. Welch, Ph.D. Oceanography, 1996. Dissertation topic: *Effect of Bacteria and Microbial Metabolites on Bytownite Feldspar Dissolution at Earth's Surface Temperatures*.
- Judith M. Denver, M.S. Marine Studies (Oceanography), 1996. Thesis topic: *Hydrologic and Geochemical Processes at a Coastal Wetland Mitigation Site*.
- Maria G. Honeycutt, (Co-advised with David Krantz), M.S. Marine Studies (Oceanography), 1997. Thesis topic: *Processes and geologic history of the southwestern margin of Delaware Bay*.
- Hui Ma, (Co-advised with Richard Geider) M.S. Marine Studies (Oceanography), 1998. Thesis topic: *Nitrogen Mass-Balance for Indian River Bay*.
- James Maio, (Co-advised with Allan Thompson) M.S. Geology, 1999. Thesis topic: *Provenance of Sediments in Christina River and Iron Hill Run: A Quantitative Analysis of Minerals from the Iron Hill Gabbro*.
- Kathy A. Traexler, M.S. Marine Studies (Oceanography), 1999, Thesis topic: *Aluminum-Organic Complexes: Thermodynamic Stability and Effect on Glass Dissolution*.
- Megan Roadman, (Co-advised with Tom Church.) M.S. Marine Studies (Oceanography), 2001, Thesis topic: *Transfer of Atmospheric Nitrogen through Coastal Plain Watersheds*.
- Jennifer Jennings, M.S. Marine Studies (Oceanography), 2003, Thesis topic: *The Relationship Between Land Use and Nutrient Fluxes in the Inland Bays Watershed*.
- Rebecca L. Hays, M.S. Marine Studies (Oceanography), 2005. Thesis topic: *Discharge of Groundwater and Associated Nutrients Across an Estuarine Beachface, Cape Henlopen, Delaware*.
- Joshua W. Kasper, M.S. Geology, 2007. Thesis topic: *Numerical Simulation of Ground-Water Flow and Nitrate Transport at the Fairmount site, Sussex County, Delaware, USA*
- Rebecca L. Hays, Ph.D. (Oceanography), 2009. Dissertation topic: *Impact of Fresh Groundwater Discharge on Salt Marsh Vegetation: A Remote Sensing Approach*.
- Ellen M. McGuinness, M.S. (Oceanography), withdrawn 2012. Thesis topic: *Nutrient Loads to Indian River Bay (Delaware) from its Watershed—Rainfall, Runoff, and Seasonality*.
- Sarah J. Fischer, M.S. (Oceanography), expected 2013. Thesis topic: *Using stable isotopes to track sources and sinks of reactive nitrogen in the marsh-dominated Murderkill Estuary, a tributary to Delaware Bay*

Undergraduate Advisement:

- Laurie McLeod, Australian National University Summer Undergraduate Fellow, 1983-1984.
- Andrew Libson, National Science Foundation Summer Intern, 1987.
- Roxanne Flowers, National Science Foundation Summer Intern, 1990.
- Bradley Wealand, National Science Foundation Summer Intern, 1992.
- Sara E. Pratt, National Science Foundation Summer Intern, 1995. (Also advised for Senior Thesis, Department of Geology, University of Pennsylvania, 1996)
- Ilana D. Liebert, National Science Foundation Summer Intern, 1996.
- Lisa M. Pacheco-Bernier, National Science Foundation Summer Intern, 1998.
- Tracy Phelps, National Science Foundation Summer Intern, 1999.
- Bonnie Chang, National Science Foundation Summer Intern, 2000.
- Robert Bialas, National Science Foundation Summer Intern, 2003.
- Micheal Krasilovsky, Semester-in-Residence, Fall 2003
- Garrett Peters, Delaware Water Research Center Summer Intern, Summer 2006
- Kara E. Winslow, National Science Foundation Summer Intern, 2007.
- Maëlla A. Dréan, Visiting Scholar, Institut Universitaire de Technologie, Université de Perpignan, France, Summer 2008
- Andrew Grammatikos, Lerner School of Business, University of Delaware, Summer Intern, 2009

William Gagne-Maynard, Carleton College, National Science Foundation, Summer Intern, 2012
Karine Lebaron, Visiting Scholar, Institut Universitaire de Technologie, Université de Perpignan,
France, Summer 2013
Elisabeth Schlaudt, Furman University, National Science Foundation, Summer Intern, 2013

Student Advisory Committee Service:

- Richard Cox, M.S. Geophysical Sciences, University of Chicago, 1986. Thesis topic: *Chemical Weathering Reactions within Aquifers of the Pasco Basin, Washington State.*
- Shiang Ho Lin, Ph.D. Marine Studies (Applied Ocean Sciences), 1989. Dissertation topic: *Interaction Between Biofilm Formation and Calcareous Deposition Under Cathodic Protection Conditions.*
- Martin E. Lebo, Ph.D. Oceanography, 1990. Dissertation topic: *Biogeochemical Phosphorus Cycling in the Delaware, an Urbanized Coastal Plain Estuary.*
- Elaine Kotler, M.S. Geology, 1990. Thesis topic: *Abrasion and Dissolution Resistance of Modern Reef-Dwelling Foraminifera of Discovery Bay, Jamaica: Implications for Test Preservation and Paleoecological Analysis.*
- Elizabeth Tsamakis, M.S. Marine Studies (Oceanography), 1991. Thesis topic: *The Association of Trace Elements with Sedimentary Phases in the Great Marsh, Delaware.*
- Michael Bock, M.S. Marine Studies (Oceanography), 1993. Thesis topic: *Feeding and Food Resources on an Intertidal Sandflat.*
- John Jamerlan, M.S. Marine Studies (Oceanography), 1993. Thesis topic: *Nitrogen Uptake and Regeneration in Delaware Bay: Testing Isotope Dilution Models in a High-Nutrient Environment.*
- Katherine W. Bock, M.S. Marine Studies (Oceanography), 1993. Thesis topic: *Paleoenvironmental Interpretation of the Late Pleistocene of Gomez Pit, Virginia.*
- Timothy G. Ferdelman, Ph.D. Oceanography, 1995. Dissertation topic: *Oceanographic and Geochemical Controls on Sulfur Diagenesis in Coastal Sediments*
- Bruce R. Overman, M.S. Marine Studies (Oceanography), 1995. Thesis topic: *Assessing Nutrient Limitation in Delaware's Inland Bays.*
- Anna Farrenkopf, M.S. Marine Studies (Oceanography), 1993. Thesis topic: *Vertical Distribution of Dissolved Iodine Species in the Northwest Indian Ocean.*
- Kim Eckels, M.S. Marine Studies (Oceanography), 1995. Thesis topic: *The effects of Preconditioning Nitrogen Source on Uptake by *Skelotonema costatum*.*
- Hugh MacIntyre, Ph.D. Oceanography, 1996. Dissertation topic: *Photosynthesis in Variable Light Fields: Regulation of Rubisco Activity.*
- Lexia Valdes, M.S. Marine Studies (Marine Biology and Biochemistry), 1998. Thesis topic: *Determination of Potential Submerged Aquatic Vegetation (SAV) Restoration Sites in the Delaware Inland Bays: Analysis of SAV Habitat Requirements.*
- Dawn Castle, M.S. Marine Studies (Oceanography), 1998. Thesis topic: *Microbial Utilization of Dissolved Organic Matter in Delaware Bay: The Effects of Temperature.*
- Tamara Saltman, M.S. Marine Studies (Marine Biology and Biochemistry), 1998. Thesis topic: *A Study of the Effectiveness of Phragmites Use in Municipal Sludge Dewatering Beds.*
- Jennifer Roberts-Rogers, Ph.D. Geological Sciences, University of Texas at Austin, 2000. Dissertation Topic: *Microbial Contribution to Silicate Diagenesis.*
- Marie G. Honeycutt, Ph.D., Marine Studies (Oceanography), 2003. Dissertation topic: *Coastal Changes in Delaware and Maryland: Influence of Antecedent Geology and Modern Shoreface Processes on Long- and Short-Term Shoreline Migration.*
- Kathleen Scheiderich, M.S., Marine Studies (Oceanography), 2004. Thesis topic: *Sea-surface paleohydrography in the Indian and Pacific Oceans: Investigating the closure of the Indonesian Seaway.*
- Benjamin J. Wheeler, M.S. Marine Studies (Oceanography), 2005. Thesis topic: *A global biodiversity study of high temperature mud pool microbial communities and geochemistry.*
- Ryan Dale, M.S. Marine Studies (Oceanography), 2006. Thesis topic: *Localized effects of temperature and salinity microhabitats on the biology of the polychaete *Marenzelleria viridis* in groundwater seeps.*

- Valerie Bateman, M.S. Geology, 2006. Thesis topic: *Amino acid racemization and interlaboratory comparisons using gas chromatography, reverse-phase liquid chromatography, and ion-exchange liquid chromatography on mollusk shells from the Pacific and Atlantic coasts.*
- Tracy Elsey, PhD., Marine and Earth Studies (Marine Biosciences), 2010. Dissertation topic: *Inter- and Intraspecific Sequestration of Nutrient, Carbon, and Other Elements by Salt Marsh Plant Species.*
- Katrina I. Twing, M.S., Marine and Earth Studies (Marine Biosciences), 2009. Thesis topic: *Detection of pathogenic-like Epsilonproteobacteria in Delaware waterways.*
- Matthieu Chatelain, PhD, Observatoire Océanologique de Banyuls-sur-mer, Université Pierre et Marie Curie, 2010. Dissertation topic : *Flux dissous à l'interface eau-sédiment sous des écoulements oscillants (Dissolved ion fluxes at the sediment-water interface due to overlying oscillating flows)*
- Dack Stuart, M.S., Marine Science (Oceanography) 2010. Thesis topic: *Accumulation of Sediment and Radionuclides in Tidal Marshes of the Murderkill River Estuary.*
- James Heiss, M.S. Geological Sciences. 2011. Thesis topic: *Swash Zone Groundwater Dynamics and Associated Fine Particle Transport in a Sandy Beach, Cape Henlopen, Delaware.*
- Nicholas Venti, PhD, Oceanography, 2011. Dissertation topic: *Investigating the link between low- and high-latitudes during the Pliocene climate transition: the orbital scale role of the Kuroshio Current system.*
- Sean Krepski, M.S. Geological Sciences. 2011. Thesis topic: *Iron-organic interactions in the extracellular stalk fibrils of aerobic neutrophilic iron-oxidizing bacteria.*
- Maddy Russell, M.S. Marine Policy. 2011. Thesis topic: *Wastewater disposal policy for coastal Delaware.*
- Cristina Fernandez, M.S., Geological Sciences. 2012. Thesis topic: *Effects of heterogeneity and transient forcing on submarine groundwater discharge, fresh and salt water mixing, and porewater geochemistry.*
- Katherine Lee, M.S., Marine Science (Marine Biosciences), 2012. Thesis topic: *Benthic diatoms as biological indicators of water quality in Delaware's Inland Bays.*
- Brandon Boyd, M.S., Marine Science (Oceanography), 2012. Thesis topic: *Quantifying sediment accretion in impounded marshes of the Delaware Estuary using radionuclide chronologies.*
- Andre Scheinwald, M.S., Marine Science (Oceanography). Thesis topic: *High-resolution foraminiferal Climate record of Marine Isotope Stages (MIS) 6-8, expected 2012*
- Robert K. Poirier, M.S., Marine Science (Oceanography). Thesis topic: *Assessing the distribution and influence of deep water masses throughout the Atlantic Ocean for the last ~250Kyr, expected 2013.*

Invited Lectures at Other Universities and Research Institutions (since tenure):

- University of Nevada, Reno, Hydrology and Hydrogeology Program, 17 January 1992: Organic Acids and Mineral Dissolution. Do Bacteria Eat Rocks?
- Université Louis Pasteur, Strasbourg, France, Institute de Géologie, February 1992: Organic Acids and Feldspar Dissolution. Do Bacteria Eat Rocks?
- Vrije Universiteit Brussels, Brussels, Belgium, Dept. of Analytical Chemistry, February 1992: Organic Acids and Feldspar Dissolution.
- Pacific Northwest Laboratory, Richland, Washington, Geochemistry Section, 22 July 1992: Organic Acids and Feldspar Dissolution: Do Bacteria Eat Rocks?
- Department of Energy, Germantown, Maryland, Subsurface Science Informational Meeting, 11 August 1992: Geomicrobiology and Geochemical Processes.
- University of South Carolina, Biology Department and Marine Studies Program, March 1993: Organic Acids and Mineral Dissolution: Do Bacteria Eat Rocks?
- Centre de Géochimie de la Surface, Centre National de la Recherche Scientifique, January 1994: Fate of Br during Evaporite Precipitation on Playa Lakes.
- Symposium on Chemical and Biological Controls on Mineral Growth and Dissolution, American Chemical Society Meeting, Anaheim, CA, 2-6 May 1995: Panel Discussion on the Role of Bacteria on Mineral Water Exchange--Future Research.
- Department of Geology, Louisiana State University, Baton Rouge, LA, 22 March 1996: The Microbiogeochemistry of Weathering.

- Chemical Technology Division, Argonne National Laboratory, Argonne, IL, 9 April 1996: The Microbiogeochemistry of Weathering.
- Centre de Géochimie de la Surface (CNRS) and Institute de Géologie, Université de Strasbourg, Strasbourg, France, 6 December 1996: The Microbiogeochemistry of Weathering.
- Environmental Sciences Division, Lawrence Livermore National Laboratory, Livermore, CA, 12 June 1997: The Microbiogeochemistry of Weathering.
- Laboratoire de Géophysique and Tectonophysique Interne (CNRS), Grenoble, France, 12 December, 1997: The Microbiogeochemistry of Weathering.
- Sea Education Association, Woods Hole, MA, 30 January 1998: Estuarine Oceanography: Ongoing Studies and Future Opportunities in Delaware (Recruiting Talk).
- Sea Education Association, Woods Hole, MA, 3 June 1999: Estuarine Oceanography: A Problem in Watershed Hydrology (Recruiting Talk).
- Commonwealth Scientific, Industrial, and Research Organization, Division of Land and Water, Adelaide, Australia, 30 March 2000: The Microbiogeochemistry of Silicate Weathering.
- Australian National University, Research School of Earth Sciences, 4 April 2000. The Microbiogeochemistry of Silicate Weathering.
- Flinders University, School of Physics, Chemistry, and Earth Sciences, 7 June 2001, The Microbiogeochemistry of Silicate Weathering.
- Stony Brook University, Marine Sciences Research Center, 3 Feb. 2006. Down Below the High Tide Line: Groundwater Transport and Discharge of Nitrogen to Coastal Plain Estuaries.
- Salisbury University, Henson School of Science and Technology, 16 Oct. 2006. Groundwater Transport and Discharge of Nitrogen to Coastal Plain Estuaries.
- Maryland Coastal Bays Program, Scientific and Technical Advisory Committee, 24 Sept. 2008. Groundwater Transport and Discharge of Nitrogen to Coastal Plain Estuaries.
- Ocean Leadership Conference, Ocean Science Educators Retreat, 18 November 2008. Scientific Ethics and Professional Practice.
- Temple University, Department of Civil and Environmental Engineering, 27 March 2009. Groundwater Transport and Discharge of Nitrogen to Coastal Plain Estuaries.
- Stroud Water Research Center, 6 May 2009. Groundwater Transport and Nitrogen Loads to Delaware Estuaries.
- Observatoire Océanologique de Banyuls-sur-Mer (Université Pierre et Marie Curie) 5 November 2009. Groundwater Discharge and Nitrogen Transport to Coastal Plain Estuaries: Examples from Delaware (USA).
- Centre de Formation et de Recherche sur les Environnements Méditerranéens (CEFREM), Université de Perpignan Via Domitia. 9 December 2009. Groundwater Discharge and Nitrogen Transport to Coastal Plain Estuaries: Examples from Delaware (USA).
- Laboratoire d'Écologie Fonctionnelle (ECOLAB) at the École Nationale Supérieure Agronomique de Toulouse (ENSAT). 8 January 2010. Groundwater Discharge and Nitrogen Transport to Coastal Plain Estuaries: Examples from Delaware (USA).
- Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, VA. 9 September 2010. Trust, Integrity, Honor, and Proper Conduct of Research.
- Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, VA. 9 September 2010. Scientific Ethics and Professional Practice.
- Ocean Sciences Educators' Retreat, Consortium for Ocean Leadership, Institute of Marine and Environmental Technology, Baltimore, MD, 14 September 2012. Professional Development Programs for Marine, Earth, and Environmental Scientists.
- Stony Brook University, School of Marine and Atmospheric Sciences, 26 April 2013. Continuous Automated Water Quality Monitoring for Watershed and Estuarine Management and Research.

Public Service

Lectures to the Surrounding Community (since tenure):

- 27 February 1992. "Nutrient Cycling in the Inland Bays Estuary." Sponsored by the Sea Grant Marine Advisory Service and the Citizen's Monitoring Committee of the Inland Bays National Estuary Program.
- 12 June 1992. "Nutrients in the Inland Bays: Where is it Leading?" Joint meeting of the Citizens Advisory and Implementation Committees, Inland Bays National Estuary Program.
- 17 March 1993. "How Vicious is the Nutrient Cycle?" Sponsored by the Sea Grant Marine Advisory Service and the Citizen's Monitoring Committee of the Inland Bays National Estuary Program.
- 13 February 1995. "The Problem with Phosphorus in Delaware's Inland Bays" (Options for Reducing Phosphorus in Delaware's Inland Bays: Looking for Solutions--sponsored by the Sea Grant Marine Advisory Service and the Citizen's Monitoring and Advisory Committees of the Inland Bays National Estuary Program.)
- 23 May 1996. "Delaware's Inland Bays: How to Make an Estuarine Soup." Kiwanis Club of Rehoboth Beach, Delaware, breakfast meeting.
- 24 July 1996. "Nutrient Distributions in the Inland Bays." Presentation to the Joint Meeting of the Citizens and Scientific and Technical Advisory Committees, Center for the Inland Bays.
- 11 Jan 2001. "Nutrient Inputs to Estuaries," Vegetable Growers Association of Delaware, Harrington, Delaware
- 24 Jan. 2003. "The Inland Bays CISNet Program, Cooperative Research for Environmental Planning in Eastern Sussex County, Delaware." Scientific and Technical Advisory Committee, Center for the Inland Bays.
- 13 May 2003. "Source of Nutrients to Delaware's Inland Bays," Regional Wastewater Planning Group, Rehoboth Beach Delaware
- 3 Dec. 2004. Research and Demonstration Project Priorities for the Inland Bays (2005-2010): Water Quality/Chemistry Scientific and Technical Advisory Committee Meeting, Center for the Inland Bays.
- 24 July 2006. Nutrient Chemistry of the Broadkill River and Estuary: Past, Present, and Future? Broadkill Tributary Action Team Meeting, Sea Grant Marine Advisory Service.
- 10 Nov 2006. Groundwater discharge to the coastal zone: Why is Lewes? Lightship Overfalls Foundation, Lewes, Delaware.
- 4 August 2008. Presentation to the on Ocean Outfalls for Municipal Wastewater. Rehoboth Beach Board of Commissioners Workshop, Rehoboth Beach, Delaware
- 1 November 2008, Public presentation on Ocean Disposal of Municipal Wastewater. Rehoboth Beach Board of Commissioners Workshop, Rehoboth Beach, Delaware
- 22 April 2009. A Community Solar Utility for Lewes (CSUL). Lewes Board of Public Works, Lewes, Delaware
- 26 May 2009, A Community Solar Utility for Lewes (CSUL). Progressive Democrats of Sussex County, Lewes, Delaware
- 14 August 2009. A Community Solar Utility for Lewes (CSUL) Final Recommendations. Lewes Board of Public Works, Lewes, Delaware (Presentation given with student Andrew Grammatikos)
- 22 September 2010. Design with Evolving Nature. Sustainability 2010 Conference. American Institute of Architecture, Delaware Chapter. Virden Center, Lewes.

Service to the College and University:

- Oct. 1987 - 1992 and 1994. Coast Day exhibit on nitrogen content of Sussex County ground waters.
- May 1988 - May 1993. Faculty Senate Library Committee
- Dec. 1988 - May 1993. Chairman, CMS Library Committee
- Sept. 1989 - June 1993. Officer of University of Delaware Chapter, Sigma Xi, The Scientific Research Society - Acting Vice-President (Sept.-Dec., 1989); President-Elect (Jan. - Aug. 1990); President (Sept. 1990 - June 1993).

- Nov. 1991 - present. Editorial Advisory Committee Member, Delaware Situation Reports Series, Sea Grant Marine Communication Office.
- Sept. 1992 - June 1993 and Sept. 1994. June 1996, Served as College of Marine Studies Representative to the Faculty Senate Committee on Committees and Nominations.
- May 1992 - July 1996. Lewes Campus Representative to the UofD Chapter of the American Association of University Professors.
- Oct. 1994 - Dec. 1996. Organized and convened the Lewes Invitational Seminar Series.
- Oct. 1995 and 1996. Organized and participated in Hands-On Science demonstration at Coast Day, on behalf of the Delaware Elementary Science Consortium.
- Fall 1995. served as a consultant to the Ecosystem Health Project, Center for Marine Policy.
- Spring 1996. University Library Culling Project, CMS Representative.
- Spring 1996. Represented the College of Marine Studies in a meeting with consultants from Coopers and Lybrand to discuss University financial procedures that impact faculty research programs.
- Spring 1996. Represented the College of Marine Studies in a meeting with Barbara Sharkey, Treasurer's Office, to devise an acceptable policy concerning the reimbursement of expenses for foreign nationals who are guests of the University.
- Oct. 1997. With Scott Andres, organized a demonstration on well drilling for Coast Day 1997
- Fall 1997 - Spring 1998. Physical Ocean Science Planning Committee.
- Spring 1998 - Spring 1999 - Geology Department Internal Review Committee.
- Fall 1998 - Spring 1999. Geological Oceanography Search Committee
- Fall 1999, Fall 2000, Fall 2001. Coast Day demonstrations concerning nutrient cycling in the Inland Bay estuarine system.
- Spring - Summer 1999. Coastal Processes Search Committee, Sea Grant Marine Advisory Service.
- Summer 1999 – 2000. Geological Oceanography Search Committee
- Spring 2002, 2003, 2004. Solicited nominations and chaired the committee that evaluated nominees for the Thomas Hinkle award given at Honors Day.
- Fall 2002 – Winter 2004. CMS Equipment Committee, Chairman.
- Fall 2002, Fall 2003. Coast Day demonstrations concerning nutrient inputs to the Inland Bays from atmospheric deposition and groundwater.
- Summer 2002 – Summer 2009. Lewes Campus Representative to the UofD Chapter of the American Association of University Professors.
- Mar. 2003 and Mar. 2004. Review of applicants to NSF Research Experience for Undergraduate Program, College of Marine Studies.
- June 2003 – June 2009. Director, Oceanography Program, and Member, College of Marine Studies (now School of Marine Science and Policy) Academic Council
- Summer 2003—Submitted NSF GK-12 Fellowship Program Application on behalf of the College of Marine Studies (Scientist-in-Residence Program for Secondary School Classrooms in Southern Delaware)
- Spring 2004. Participated in External Search for Coastal Geologist, Department of Geology
- May-June, 2004. Deputy Associate Dean for Admissions Purposes, College of Marine Studies.
- Sept. – Dec., 2004. Chairman, Promotion Review Committee, Marine Advisory Service, Delaware Sea Grant College Program, University of Delaware
- Feb. 2004. Participant, Delaware Geological Survey, External Review.
- Fall 2004. Convener, College of Marine Studies, Professionalism in Marine Studies Seminar Series
- Sept. – Dec. 2004. Member, Search Committee, Physical Scientist, University of Delaware, Georgetown
- Spring 2007: Convener, College of Marine and Earth Studies, Professionalism Seminar Series
- Spring 2007 to May 2008: Chair, Geobiology/Geomicrobiology Search Committee, Department of Geological Sciences.
- Fall 2008, Fall 2010, Fall 2011. Coast Day. Academic Programs in the School of Marine Science and Policy.
- December 2009 – December 2010: Promotion and Tenure Committee, School of Marine Science and Policy. (Sabbatical Replacement)
- February-May 2010. Organized CEOE Professionalism Seminar Series for Graduate Students

February-May 2012. Attended Blue and Gold Leadership Training Program, University of Delaware, Newark, DE.

March-April 2012. Promotion and Tenure Committee, School of Marine Science and Policy (Temporary Representative of the Oceanography Program)

19 February 2013. Sea Grant Marine Advisory Service. Workshop on Public Outreach for Sponsored Research: Nitrogen sources, sinks, and cycling along a freshwater continuum in the marsh dominated Murderkill Estuary (Delaware)

Service to Professional Organizations:

Paper Reviews (since tenure)

Journals

Chemical Geology	Water Resources Research
Geochimica et Cosmochimica Acta	Geological Society of America, Bulletin
Limnology and Oceanography	Mineralogical Society, UK (Book Series)
Marine Chemistry	Journal of Environmental Engineering
Geoderma	Geomicrobiology Journal
Estuaries (and Coasts)	American Mineralogist
Delaware Estuary Situation Report	Ichnos
Estuarine, Coastal and Shelf Science	Environmental Science and Technology
Geochemical Journal (Japan)	Atmospheric Environment
Aquatic Geochemistry	Applied Geochemistry
Earth Science Reviews	Environmental Management
Geophysical Research Letters	Bulletin of Environmental Contamination and Toxicology
Journal of Hydrology	Analytica Chimica Acta
Biogeochemistry	

Proposal Reviews (since tenure)

Agencies

Department of Energy, Office of Health and Environmental Research	Department of Energy, Office of Basic Energy Research
Environmental Protection Agency, STAR Fellowship Program	North Carolina, Water Resources Research Institute
National Science Foundation, Chemical Oceanography	Department of Energy, Small Business Technology Transfer Program
NOAA/Cooperative Institute for Coastal and Estuarine Environmental Technology	National Science Foundation, Atmospheric Chemistry
New Jersey, Sea Grant	National Science Resource Center
American Chemical Society, Petroleum Research Fund	U.S./Israel Binational Agricultural Research and Development Fund
National Science Foundation, Hydrological Sciences	Department of Energy, Coastal Ocean Program
National Science Foundation, Geology and Paleontology	National Science Foundation, Marine Geology and Geophysics
WHOI Sea Grant Program	Israel Science Foundation
Center for the Inland Bays	New York Sea Grant
National Science Foundation, Environmental Chemistry and Biogeochemistry	American Chemical Society, Petroleum Research Fund
National Institute of Climate Change Research	NOAA Center for Sponsored Coastal Ocean Research

NOAA South Florida Research Program

Maryland Sea Grant

Other Service to Professional Organizations (since tenure):

- Sigma Xi, The Scientific Research Society, (Acting Vice President, University of Delaware Chapter, 1988-89; President-elect, University of Delaware Chapter, 1989-90; President, University of Delaware Chapter, 1990 - 1993).
- Spring 1987 -present, Served on the Scientific and Technical Advisory Committee of the Inland Bays National Estuary Program and, its successor, the Center for the Inland Bays. (Chairman, 1999 – 2001 and 2010 to present)
- May 1992 - Served on a review panel for the Department of Energy, Office of Health and Environmental Research, Subsurface Science Program.
- 5-8 October 1993, Chaired a session at the European Workshop on Chemodynamics of Groundwaters: From Molecular to Regional Scale. (Mt. St. Odile, France)
- 2-6 May 1995 - Invited speaker at panel discussion on future research directions. American Chemical Society Symposium on Chemical and Biological Controls on Mineral Growth and Dissolution, Anaheim, CA.
- Summer 1997 – Fall 2003 – Served as a member of the Technical Advisory Panel for the National Ocean Science Bowl, Consortium for Oceanographic Research and Education, Washington, DC. (Chaired Geology/Geography Subcommittee, Fall 1997)
- 26 -27 April 1998, Science Judge for the Semi-Final and Final Competitions, National Ocean Science Bowl, Consortium for Oceanographic Research and Education, Gallaudet College, Washington, DC.
- 28 - 29 April 1998, Hosted (with Drs. J.M. Zachara and F.J. Wobber) Department of Energy Workshop: Biogeochemical Manipulation for Scale-up of Laboratory Research to the Field. DOE/Office of Health and Environmental Research. Virden Center, Lewes DE.
- 30 August - 3 September 1998, Organized and Chaired (with Dr. P.C. Bennett) a session at the 8th V.M. Goldschmidt Conference of the Geochemical Society entitled: Biotic vs. Abiotic Control of Geochemical Processes. (Toulouse, France).
- 10 -12 April 1999, Science Judge for the Semi-Final and Final Competitions, National Ocean Science Bowl, Consortium for Oceanographic Research and Education, Gallaudet College, Washington, DC.
- June 1999 - Jan 2001, Chairman, Scientific and Technical Advisory Committee, and Member, Board of Directors, Center for the Inland Bays.
- July 2000 – Review panel for Environmental Protection Agency, Estuarine Indicators Program.
- Feb. - Oct. 1999, New Jersey Sea Grant, Scientific Advisory Committee
- Aug. 2001- present, Editorial Board, *Chemical Geology*.
- Fall 2003 –Technical Advisory Panel, National Ocean Science Bowl.
- Dec. 2003- Jan 2004. Peer Reviewer of “Chemical Thermodynamics of Zirconium: Hydrolysis,” Thermodynamic Data Base Project, Nuclear Energy Agency, Paris.
- February 2004 – EPA STAR Graduate Fellowship Panel
- March 2004 – External Program Reviewer, Marine Science Graduate Program, University of North Carolina at Wilmington.
- April 2004: Review Panel for Center for the Inland Bays, Research and Demonstration Project Program.
- October, 2005: Co-organizer and convenor of a special session, “Atmospheric Inputs of Nutrients and Contaminants to Estuaries,” at the Estuarine Research Federation 2005 Meeting, Norfolk, VA (16-20 October 2005).
- October, 2005. Invited presentation: Nutrient Transport into, (within,) and out of Estuaries: A Mass Balance Synthesis. Estuarine Research Federation 2005 Meeting, Norfolk, VA (16-20 October 2005).
- November, 2005 – Technical Advisory Panel, National Ocean Science Bowl.
- November, 2007 – Technical Advisory Panel, National Ocean Science Bowl
- November, 2008 – Invited presentation to the Ocean Science Educators Retreat, Ocean Leadership Conference: “Scientific Ethics and Professional Practice,” Washington, DC. (18 November 2008.)

- March 2010- May 2012. Chairman, Scientific and Technical Advisory Committee and Member, Board of Directors, Center for the Inland Bays.
- September, 2010. Invited participant on panel concerning authorship practices in science. Authorship in Science: What, me worry? Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, VA. (10 September 2010)
- 15-26 October 2010. Technical Advisory Panel, National Ocean Science Bowl, Consortium for Ocean Leadership, Washington, DC.
- 30 August 2011. Organized and convened a technical workshop on Water Supply, Wastewater, Agricultural, and Environmental Needs of Coastal Communities in the 21st Century, Lewes, DE, in collaboration with the Sea Grant Marine Advisory Program and the Center for the Inland Bays.
- 23 June 2012. Attended AAAS Workshop on Article 13: The right of all people to benefit from science and its applications. Center for Society Ethics and Public Policy, University of Delaware, Newark, DE.
- 13-14 September 2012. Presented at Ocean Sciences Educators' Retreat, Consortium for Ocean Leadership, Baltimore, MD. "Professional Development Programs for the Marine, Earth, and Environmental Scientists"
- 15-16 October 2012 – Technical Advisory Panel, National Ocean Science Bowl, Consortium for Ocean Leadership, Washington, DC.

Other Forms of Public Service (since tenure):

- August 1992: Commentary in *The Whale*: "Principal Nitrogen Input to the Bays is from Groundwater."
- February 1993: Article in *Del-Chem Bulletin* (with Dr. Nancy Targett): "Research in the Fields of Chemistry and Biochemistry at the Graduate College of Marine Studies, University of Delaware."
- Fall 1994 - present: Served on the Monitoring Subcommittee of the Scientific and Technical Advisory Committee of the Center for the Inland Bays.
- June 1995: Attended, on behalf of the Cape Henlopen School District, Lewes, the Elementary Science Leadership Institute, National Science Resources Center, Smithsonian Institution.
- Sept. 1995 - 2000: Science advisor to Cape Henlopen elementary teachers involved in Delaware Elementary Science Consortium "Hands-On Science for All" Program.
- May 1996 – Dec. 2000: Advisory Committee for the initiation and planning of afterschool enrichment programs for Cape Henlopen middle-school students: The Cape Carousel Program.
- May 2007 – Present: Murderkill Working Group. (Providing advice to Kent County Levy Court and the Delaware Department of Natural Resources and Environmental Control on water quality issues in the Murderkill Watershed and Estuary.)
- June – Aug. 2009: Prepared a technical and financial plan for municipal solar generation for the City of Lewes. The Community Solar Utility for Lewes (CSUL)
- 14 June 2012: Participated in a workshop on "Walkability," City of Lewes, DE.

Research Activities

Extramural Research Funding:

- Feb. 1982 - Sept. 1984. Salt Lakes Evaporites and Aeolian Deposits. Australian National University.
- July 1983 - June 1984. Climatic Response of Sediments 10-20° South. Australian Marine Science and Technology Scheme. AUS \$125,000. (With T. Torgersen and A.R. Chivas)
- April 1987 - Feb. 1988. Groundwater Fluxes to the Great Marsh. Delaware Sea Grant. \$5,000. (With A.S. Andres)
- Nov. 1987 - Aug. 1990. Iodine Transformations in Sediments. National Science Foundation. \$110,076.
- Feb. 1988 - Sept. 1990. Determination of Iodine Concentrations and Speciation in Estuarine Waters. American Chemical Society, Petroleum Research Fund. \$18,000.
- Jan. 1989 - Jan. 1990. Biogeochemistry of Titanium. University of Delaware Research Foundation. \$13,000.

- May-Oct. 1989. Evaluation of the Solution Thermodynamics of the Plutonium(VI) Carbonate System. Argonne National Laboratory. \$19,000.
- May-Oct. 1990. Evaluation of the Solution Thermodynamics of the Pu(III)-, Pu(IV)-, Pu(V)-, and Pu(VI)- Sulfate Systems. Argonne National Laboratory. \$19,500.
- April-Dec. 1991. Evaluation of the Solution Thermodynamics of the Np(III)-, Np(IV)-, Np(V)- and Np(VI)- Sulfate Systems. Argonne National Laboratory. \$18,000.
- April 1991 - March 1992. Phosphorus Fluxes and Utilization in Rehoboth and Indian River Bays. Inland Bays National Estuarine Program. \$60,928. (With R.J. Geider)
- Aug. 1991 - July 1994. The Effect of Bacteria and Microbial Metabolites on Mineral Dissolution in Subsurface Environments. Department of Energy, Office of Health and Environmental Research. \$351,643. (With D.L. Kirchman)
- April 1991 - June 1993. Functional Values of Early Stages of Marsh Development in Mitigation Sites: A Largely Undervalued Contribution. Delaware Department of Transportation. \$42,373. (With J.L. Gallagher and D.M. Seliskar)
- Aug. 1993 - July 1994. Academic Sabbatical at Université Louis Pasteur and the Centre de Géochimie de la Surface in Strasbourg, France. University of Delaware and Université Louis Pasteur (salary only).
- Sept. 1994 - Jan. 1995. NEA-TDB Review of Plutonium Thermodynamics. Yucca Mountain Project Office, Lawrence Livermore National Laboratory. \$35,000.
- Jan. 1995 - Sept. 2000. Microbially Mediated Mineral Dissolution in Subsurface Environments. Department of Energy, Office of Health and Environmental Research. \$324,013. (With D.L. Kirchman)
- March - Oct. 1997. Critical Review of Neptunium and Plutonium Thermodynamics. U.S. Contribution to the Nuclear Energy Agency Thermodynamic Data Base Project. Yucca Mountain Project Office, Lawrence Livermore National Laboratory. \$16,982.
- March - Oct. 1997. Critical Review of Nickel and Zirconium Thermodynamics. Yucca Mountain Project Office, Lawrence Livermore National Laboratory. \$15,000.
- Feb. - Oct. 1998. Critical Review of Neptunium and Plutonium Thermodynamics. U.S. Contribution to the Nuclear Energy Agency Thermodynamic Data Base Project. Yucca Mountain Project Office, Lawrence Livermore National Laboratory. \$6,000.
- Oct. 1998 - Mar. 2000. Stormwater Sampling and Analysis in the Inland Bays. Delaware Department of Natural Resources and Environmental Control. \$62,000 (+\$17,523 UofD match). (With J.R. Scudlark and A.S. Andres)
- Oct. 1998 - June. 2002. CISNet: Nutrient Inputs as a Stressor and Net Nutrient Flux as an Indicator of Stress Response in Delaware's Inland Bays Ecosystem. U.S. Environmental Protection Agency. \$600,000. (With K.-C. Wong, J.A. Madsen, J.R. Scudlark, D.E. Krantz, A.S. Andres, and T.E. McKenna).
- Feb. 1999 - Jan. 2001. The Search for Groundwater Seeps: Coastal Hydrogeology and Hydrogeochemistry as Determinants of Biological Habitat and Ecosystem Productivity. Delaware Sea Grant College Program. \$171,200 (includes \$43,892 State and UofD match). (With D. Miller).
- Feb. 2000 - Jan. 2003. Water Resources Graduate Fellowship: Baseflow and Storm Discharges of Nutrients to Delaware's Inland Bays. Delaware Water Resources Research Center. \$144,002 (includes \$96,002 of UofD match). (With J.R. Scudlark).
- Feb. 2001 - Jan. 2003. The Biogeochemical Environment of Coastal Groundwater Seeps. Delaware Sea Grant College Program. \$219,225 (includes UofD match) (With D. Miller and J. Madsen)
- Feb. - Dec 2001. Visiting Fellowship, School of Physics, Chemistry, and Earth Sciences, Flinders University, Adelaide, South Australia (AUS\$3000 travel only).
- July. - Dec. 2001. Visiting Fellowship, CSIRO Land and Water, Adelaide, South Australia (AUS\$9500 travel and expenses only).
- Jan. 2003 - Jun. 2004. Nanticoke River Watershed Project. Delaware Department of Natural Resources and Environmental Control, \$99,687 (With A.S. Andres and K.B. Savidge)
- Feb. 2003 - Jan. 2005. Ecohydrological Processes at Freshwater Seeps Across Estuarine Beach Faces, Delaware Sea Grant College Program \$293,529 (includes \$97,741 State and UofD match) (with D. Miller).

- Oct. 2004- Mar.2006. Millsboro Pond Project: The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®), \$78,148. (With A.S. Andres and K.B. Savidge)
- Nov. 2004- Mar 2006. NEA-TDB Peer Review of “Chemical Thermodynamics of Zirconium.” Lawrence Livermore National Laboratory, \$10,000.
- Aug.- Dec. 2005, “Dissolved Oxygen Levels at Three Contrasting Sites Along the Lewes-Rehoboth Canal, Delaware (1 August – 30 September 2005)” Lewes Board of Public Works, \$22,000.
- Feb. 2006 to Jan. 2007, Millsboro Pond Project 06-07: The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer. Delaware Department of Natural Resources and Environmental Control. \$71,019. (With A.S. Andres)
- June 2007 to Nov. 2008. Water, Salt, and Nutrient Balances in an Estuarine Salt Marsh (Murderkill River Estuary, Kent County, Delaware). Kent County Delaware. \$127,821 (With K.-C. Wong)
- July 2007 to June 2008. Millsboro Pond Project (Continuing). The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. \$49,891. (With A.S. Andres)
- Oct. 2007 to Sept. 2009. RAISE Project: Research and Integrity in Science and Engineering. National Science Foundation. \$100,000 (with T.M. Powers and M.E. Greene)
- Sept. 2008 to May 2009. RAISE-2: Research and Integrity in Science and Engineering. University of Delaware Graduate Improvement and Innovation Grant. \$67,000. (with T.M. Powers and M.E. Greene)
- July 2008 to June 2009. Millsboro Pond Project (Continuing): The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. (\$49,967. With A.S. Andres)
- February 2009 to January 2010. Fluid and Fine-Grained Particle Dynamics in the Variably Saturated Zone of Sandy Estuarine Beachfaces. Delaware EPSCoR. \$49,987 (with Holly Michael)
- April to September 2009. A Community Solar Utility for Lewes. Lewes Board of Public Works and Delaware Sea Grant College Program (\$6000).
- September 2009 to June 2010. Millsboro Pond Project (Continuing): The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control . (\$49,931. With A.S. Andres)
- September 2009 to January 2010. Visiting Professor Stipend, Observatoire Océanologique de Banyuls-sur-mer, Université Pierre et Marie Curie, Paris VI (3991€).
- September 2009 to January 2010. Localization of Direct Fresh Groundwater Discharge from Rocky Coastlines to Mediterranean Coastal Embayments (Côte Vermeille, France). Naturalia et Biologia, Paris, France (2500€).
- July 2010 to June 2011. Millsboro Pond Project (Continuing): The Determination of Total Nutrient Loads from Millsboro Pond to the Indian River Estuary from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. (\$69,956. With A.S. Andres)
- October 2011 to 30 September 2015. Installation, Operation, and Maintenance of a WET Labs/Satlantic Land-Ocean Biogeochemical Observatory (LOBO) on the Murderkill River at Bowers, Delaware, and the Determination of Water and Nutrient Budgets in the Murderkill Estuary. Kent County Levy Court. (\$369,927. With K.-C. Wong).
- October 2011 to September 2012. Nanticoke at Bridgeville Project: The Determination of Total Nutrient Loads from the Nanticoke Watershed above the USGS Nanticoke at Bridgeville Gauging Site (USGS 01487000) from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. (\$82,339, with A.S. Andres)

- October 2011 to September 2012. Supplement to Nanticoke at Bridgeville Project: The Determination of Total Nutrient Loads from the Nanticoke Watershed above the USGS Nanticoke at Bridgeville Gauging Site (USGS 01487000) from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. (\$17,537, with A.S. Andres)
- February 2012 to January 2014. Nitrogen sources, sinks, and cycling along a freshwater to seawater continuum in the marsh-dominated Murderkill Estuary (Delaware). Delaware Sea Grant College Program. (\$40,000. With J.K. York)
- October 2012 to September 2013. Nanticoke at Bridgeville Project: The Determination of Total Nutrient Loads from the Nanticoke Watershed above the USGS Nanticoke at Bridgeville Gauging Site (USGS 01487000) from Data Provided by an Automated Nutrient Analyzer (Greenspan, Aqualab®). Delaware Department of Natural Resources and Environmental Control. (\$92,202, with A.S. Andres)
- January 2013 to December 2015. Hydrological Control of Particle Entrainment and Nitrogen Cycling in Beach Aquifer Mixing and Reaction Zones, National Science Foundation, Hydrological Sciences (\$510,544, with H.A. Michael)

Publications:

- Rhoads, D. C., J. Y. Yingst, and W. J. Ullman. 1978. Seafloor stability in central Long Island Sound: Part 1. Temporal changes in erodibility of fine-grained sediments, in M. Wiley, Ed., *Estuarine Interactions*, Academic Press, New York, pp. 221-224.
- Ullman, W. J. and R. C. Aller. 1980. Dissolved iodine flux from estuarine sediments and implications for the enrichment of iodine at the sediment water interface. *Geochimica et Cosmochimica Acta* 44:1177-1184.
- Ullman, W. J., and R. C. Aller. 1982. Diffusion coefficients in nearshore marine sediments. *Limnology and Oceanography* 27:552-556.
- Ullman, W. J. and R. C. Aller. 1983. Iodine remineralization in terrigenous nearshore sediments. *Geochimica et Cosmochimica Acta* 47:1423-1432.
- Ullman, W. J. and G. T. Tissue. 1983. Determination of bromine and iodine in U.S.G.S. Standard Marine Mud (MAG-1). *Geostandards Newsletter* 7:289-290.
- Aller, R. C., J. Y. Yingst, and W. J. Ullman. 1983. Comparative biogeochemistry of water in intertidal *Onuphis* (polychaeta) and *Upogebia* (crustacea) burrows: temporal patterns and causes. *Journal of Marine Research* 41:571-604.
- Aller, R. C., J. E. Mackin, W. J. Ullman, C.-H. Wang, S.-H. Cai, J.-C. Jiang, Y.-N. Siu, and J.-Z. Hong. 1983. Early chemical diagenesis and sediment-water solute exchange in the East-China Sea, in *Proceedings of a Conference on Sedimentation on the Continental Shelf, with Special Reference to the East China Sea*, Hangzhou, People's Republic of China, April 12-16, 1983. China Ocean Press, Beijing - Springer Verlag, New York, pp. 777-794.
- Aller, R. C., J. E. Mackin, W. J. Ullman, C.-H. Wang, S.-H. Tsai, J.-C., Jiang, Y.-N. Siu, and J.-Z. Hong. 1985. Early chemical diagenesis, sediment-water solute exchange, and storage of reactive organic matter near the mouth of the Chang Jiang, East China Sea. *Continental Shelf Research* 4:227-251.
- Ullman, W. J. and R. C. Aller. 1985. The geochemistry of iodine in nearshore carbonate sediments. *Geochimica et Cosmochimica Acta* 49:967-978.
- Torgersen, T., M. R. Jones, A. W. Stephens, D. E. Searle, and W. J. Ullman. 1985. Late Quaternary hydrologic changes in the Gulf of Carpentaria. *Nature* 313:785-787.
- Ullman, W. J. 1985. Evaporation rate from a salt pan: estimates from chemical profiles in near-surface groundwaters. *Journal of Hydrology* 79:365-373.

- McLeod, L. C., R. Rudowski, and W. J. Ullman. 1985. Pure gypsum separates from "dirty" evaporites. *Journal of Sedimentary Petrology* 55:596-597.
- Ullman, W. J. and L. C. McLeod. 1986. The late-Quaternary salinity record from Lake Frome, South Australia: Evidence from Na⁺ found in stratigraphically-preserved gypsum. *Paleogeography, Palaeoclimatology and Palaeoecology* 54:153-170.
- Ullman, W. J. and F. Schreiner. 1986. Calorimetric determination of the enthalpies of U(VI)-, Np(VI)-, and Pu(VI)-SO₄⁻² complexes in aqueous solution at 25°C. *Radiochimica Acta* 40:179-183.
- Ullman, W. J. and M. W. Sandstrom. 1987. Dissolved nutrient fluxes from nearshore sediments of Bowling Green Bay, central Great Barrier Reef Lagoon (Australia). *Estuarine, Coastal and Shelf Science* 24:289-303.
- Ullman, W. J. and F. Schreiner. 1988. Calorimetric determination of the enthalpies of the carbonate complexes of U(VI), Np(VI), and Pu(VI) in aqueous solution at 25°C. *Radiochimica Acta* 43:37-44.
- Collerson, K. D., W. J. Ullman, and T. Torgersen. 1988. Groundwaters with unradiogenic ⁸⁷Sr/⁸⁶Sr ratios from the Great Artesian Basin, Australia. *Geology* 16:59-63.
- Ullman, W. J., G. W. Luther, III, R. C. Aller, and J. E. Mackin. 1988. Dissolved iodine behavior in estuaries along the east coast of the United States. *Marine Chemistry* 25:95-106.
- Luther, G. W., III, C. B. Swartz, and W. J. Ullman. 1988. Direct determination of iodide in seawater by cathodic stripping square wave voltammetry. *Analytical Chemistry* 60:1721-1724.
- Mackin, J. E., R. C. Aller, and W. J. Ullman. 1988. The effects of iron reduction and transient state diagenesis on iodine, ammonium, and boron distributions in sediments from the Amazon Continental Shelf. *Continental Shelf Research* 8:363-386.
- Torgersen, T., J. Luly, P. De Deckker, M. R. Jones, D. E. Searle, A.R. Chivas, and W. J. Ullman. 1988. Late Quaternary environments of the Carpentaria Basin, Australia. *Paleogeography, Paleoclimatology, and Paleoecology* 67:245-261.
- Ullman, W. J. and R. C. Aller. 1989. Nutrient release rates in sediments from Saginaw Bay, Lake Huron. *Hydrobiologia* 171:127-140.
- Ullman, W.J., G.W. Luther, III, G.J. de Lange, and J.R.W. Woittiez. 1990. Iodine chemistry in deep anoxic basins and overlying waters of the Mediterranean Sea. *Marine Chemistry* 31:153-170.
- De Lange, G.J., J.J. Middleburg, P. Van Gass, W.J. Ullman, G. Catalano, J.R.W. Woittiez, N.A.I.M. Boelrijk, and G.P. Klinkhammer. 1990. Sulphate-related equilibria in the hypersaline brines of Tyro and Bannock basins, eastern Mediterranean. *Marine Chemistry* 31:89-112.
- Skrabal*, S.A., W.J. Ullman, and G.W. Luther, III. 1992. Estuarine distributions of dissolved titanium: comparisons with iron and silica. *Marine Chemistry* 37:83-103.
- Welch*, S.A., and W.J. Ullman. 1992. Dissolution of feldspars in oxalic acid solutions. In Y.K. Kharaka and A. S. Maest, Eds, *Proceedings of the 7th Water Rock Interaction Meeting, Park City Utah (13- 18 July 1992)*, A.A. Balkema, Rotterdam. pp. 127-130. (Extended Abstract).
- Welch*, S.A. and W.J. Ullman. 1993. The effect of organic acids on plagioclase dissolution rates and stoichiometry. *Geochimica et Cosmochimica Acta* 57:2725-2736.
- Ullman, W.J., and K.D. Collerson. 1994. The Sr-isotope record of late-Quaternary hydrologic changes around Lake Frome, South Australia. *Australian Journal of Earth Sciences* 41:37-45.
- Vandevivere*, P., S.A. Welch*, W.J. Ullman and D.L. Kirchman. 1994. Enhanced dissolution of silicate minerals by bacteria at near-neutral pH. *Microbial Ecology* 27:241-251.
- Ullman, W.J. 1995. The fate and accumulation of bromide during playa salt deposition: An example from Lake Frome, South Australia. *Geochimica et Cosmochimica Acta* 59:2175-2186.
- Abdelouas, A., J.L. Crovisier, W. Lutze, W.J. Ullman, and F. Risacher. 1995. Occurrence of silhydrite in a soda lake on the Bolivian Altiplano. *Clay Minerals* 30:77-82.

- Welch*, S.A., and W.J. Ullman. 1996. Feldspar dissolution in acidic and organic acid solutions: Compositional and pH dependence of dissolution rate. *Geochimica et Cosmochimica Acta* 60:2939-2948.
- Ullman, W.J., D.L. Kirchman, S.A. Welch*, and P. Vandevivere*. 1996. Laboratory evidence for microbially mediated silicate mineral dissolution in nature. *Chemical Geology* 132:11-17. (Invited Review)
- Welch*, S.A. and W.J. Ullman, 1998. Competitive adsorption at surface aluminum sites: An approach to determining feldspar dissolution rates in mixed proton/ligand systems. *Proceedings of the V.M. Goldschmidt Conference 1998 (Toulouse, France)*. *Mineralogical Magazine* 62A:1559-1560. (Extended Abstract).
- Rogers, J.R., P.C. Bennett, and W.J. Ullman, 1998, Biochemical release of a limiting nutrient from feldspars. *Proceedings of the V.M. Goldschmidt Conference 1998 (Toulouse, France)*. *Mineralogical Magazine* 62A:1283-1284. (Extended Abstract).
- Welch*, S.A. and W.J. Ullman, 1999. The effect of microbial glucose metabolism on bytownite feldspar dissolution rates between 5 and 35°C. *Geochimica et Cosmochimica Acta* 63:3247-3259.
- Welch*, S.A. and W.J. Ullman, 2000. The temperature dependence of feldspar dissolution in organic acids. *Chemical Geology* 167:337-354.
- Lemire, R.J., J. Fuger, H. Nitsche, P. Potter, M.H. Rand, J. Rydberg, K. Spahiu, J.C. Sullivan, W.J. Ullman, P. Vitorge, and H. Wanner, 2001. *Chemical Thermodynamics of Neptunium and Plutonium*. Elsevier, Amsterdam. 845 pages.
- Lamontagne, S. A., Herczeg, F. Leaney, J. Dighton, J. Pritchard, and W.J. Ullman, 2001. Nitrogen attenuation by stream riparian zones: Prospects for Australian landscapes. *Proceedings of 8th Murray Darling Basin Groundwater Workshop, (4-6 September 2001, Victor Harbor, South Australia)*, Murray Darling Basin Commission 6 pages. (Extended Abstract).
- Ullman, W.J., K.C. Wong, J.A. Madsen, J.R. Scudlark, D.E. Krantz, A.S. Andres, and T.E. McKenna, 2001. Nutrient Transport and Cycling in an Agriculturally Impacted Coastal Watershed: Multidisciplinary Approaches to Interdisciplinary Environmental Problems. *Proceedings of the 5th annual Environmental Engineering Research Event (20 – 23 November 2001, Noosa North Shore Retreat, Queensland)*. Flinders University of South Australia, Adelaide. 10 pages. (Extended Abstract)
- Ullman, W.J. and S.A. Welch*, 2002. Organic Ligands and Feldspar Dissolution. In: R. Hellmann and S.A. Wood, Eds. *Water-Rock Interactions, Ore Deposits, and Environmental Geochemistry: A Tribute to David A. Crerar*. *Geochemical Society Special Publication Number 7*, 3-35.
- Ullman, W.J. and S.A. Welch*, 2002. Weathering: Mineral Dissolution and Microbial Metabolism. In: G. Bitton, Ed. *The Encyclopedia of Environmental Microbiology*, John Wiley and Sons. 3375-3389.
- Ullman, W.J., B. Chang*, D.C. Miller and J.A. Madsen, 2003. Groundwater mixing, nutrient diagenesis, and discharges across a sandy beachface, Cape Henlopen, Delaware (USA). *Estuarine, Coastal, and Shelf Science* 57:539-552.
- Roadman*, M.J., J.R. Scudlark, J.J. Meisinger and W.J. Ullman, 2003. Validation of Ogawa passive samplers for the determination of gaseous ammonia concentrations in agricultural settings. *Atmospheric Environment* 37:2317-2325.
- Miller, D.C., and W.J. Ullman, 2004. Ecological consequences of estuarine groundwater discharge at Cape Henlopen, Delaware Bay, U.S.A. *Ground Water* 42:959-970.
- Scudlark, J.R., J.A. Jennings*, M.J. Roadman*, K.B. Savidge, and W.J. Ullman, 2005. Atmospheric nitrogen inputs to the Delaware Inland Bays: The role of ammonia. *Environmental Pollution* 135:433-443.

- Volk*, J.A., K.B. Savidge, J.R. Scudlark, A.S. Andres, and W.J. Ullman, 2006. Nitrogen loads through baseflow, stormflow, and underflow from the watershed to Rehoboth Bay, Delaware. *Journal of Environmental Quality* 35:1742-1755 (doi:10.2134/jeq2005.0373)
- Hays*, R.L., and W.J. Ullman, 2007. Direct determination of total and fresh groundwater discharge and nutrient loads from a sandy beachface (Cape Henlopen, Delaware, USA). *Limnology and Oceanography* 52:240-247.
- Hays*, R.L., and W.J. Ullman, 2007. Dissolved nutrient fluxes through a sandy estuarine beachface (Cape Henlopen, Delaware, USA): Contributions from upland groundwater, seawater, and diagenesis. *Estuaries and Coasts* 30:710-724
- Wong, K.-C., B. Dzwonkowski*, and W.J. Ullman, 2009. On the temporal and spatial variability of sea level and volume flux in the Murderkill River estuary. *Estuarine, Coastal, and Shelf Science* 84:440-446.
- Kasper*, J.W., J.M. Denver, T.E. McKenna, and W.J. Ullman, 2010. Simulated source-area dynamics of a stream incising an unconfined sand aquifer, *Hydrogeology Journal* 18:1855-1866.
- Volk*, J.A., J.R. Scudlark, K.B. Savidge, A.S. Andres, R.J. Stenger, and W. J. Ullman, 2011. Intra- and inter-annual trends in phosphorus loads and comparison with nitrogen loads to Rehoboth Bay, Delaware. *Estuarine, Coastal, and Shelf Science* (96:139-150; DOI 10.1016/j.ecss.2011.10.023)
- Dzwonkowski*, B., K.-C. Wong, and W.J. Ullman, 2013. Water level and velocity characteristics of a salt marsh channel in the Murderkill estuary, Delaware. *Journal of Coastal Research* (in press)
- Heiss*, J.W., W.J. Ullman, and H.A. Michael, 2013. Wave Swash-Induced Infiltration and Water Table Dynamics in Sandy Beach Aquifers. *Journal of Geophysical Research – Oceans* (in revision)

(* Work of Student or Postdoctoral Fellow in Research Group)

Additional Publications of Students and Postdoctoral Fellows:**

- Vandevivere*, P., and D.L. Kirchman. 1993. Attachment stimulates exopolysaccharide synthesis by a bacterium. *Applied and Environmental Microbiology* 59:3280-3286.
- Welch*, S.A., and P. Vandevivere*. 1995. Effect of microbial and other naturally occurring polymers on mineral dissolution. *Geomicrobiology Journal* 12:227-238.
- Skrabal*, S.A. 1995. Dissolved and particulate titanium in the Delaware Estuary, U.S.A.: Comparisons with iron and implications for its flux to the ocean, in K.R. Dyer, Ed., *Changes in Fluxes in Estuaries*, Olsen and Olsen, London, pp. 85-89.
- Skrabal*, S.A. 1995. Distribution of dissolved titanium in Chesapeake Bay and the Amazon River Estuary. *Geochimica et Cosmochimica Acta* 59:2449-2458.

(* Student or Postdoctoral Fellow in Research Group)

(** Work performed under my supervision and with support from my research program)

Theses:

- Ullman, W. J. 1975. *The stabilization of the water sediment interface by the presence of extracellular products of microorganisms*. Senior Thesis, Department of Geology and Geophysics, Yale University.
- Ullman, W. J. 1982. *The sedimentary geochemistry of iodine and bromine*. Doctoral Dissertation, Department of the Geophysical Sciences, University of Chicago.

Significant Technical Reports (Limited Circulation):

- Church, T.M. and W.J. Ullman. 1987. Submarine Groundwater Discharges to the Ocean: The Potential for a Significant Continent to Ocean Flux. Submitted to the Marine Chemistry Program, National Science Foundation (16 January 1987).
- Ullman, W.J. 1989. Dissolved Silica, Ammonia, Phosphate, and Iodine in Winyah Bay, South Carolina: Mixing Curves and Bottom Fluxes. Cruise Report, NOAA Ship Ferrel, 2-4 August 1987. Submitted to South Carolina Sea Grant Program (21 January 1988).
- Ullman, W.J. and S.A. Skrabal*. 1989. Dissolved Nutrient Distributions in Winyah Bay, South Carolina, Cruise Report, NOAA Ship Ferrel, 6-8 August 1988. Submitted to South Carolina Sea Grant (20 January 1989)
- Tissue, T. and W.J. Ullman. 1989. Final Cruise Report, South Carolina Sea Grant Project FE-88-07-SG, NOAA Ship Ferrel, 2-11 August 1988. Cape Lookout Bight, NC, to Charleston, SC. Submitted to South Carolina Sea Grant Program.
- Sullivan, J.C. and W.J. Ullman. 1989. Critical Review of Thermodynamic Data in the Plutonium(VI) - Carbonate System. Interim Report. Submitted to Lawrence Livermore Laboratory (26 May 1989).
- Sullivan, J.C. and W.J. Ullman. 1989. Critical Review of Thermodynamic Data in the Plutonium(VI) - Carbonate System. Final Report. Submitted to Lawrence Livermore Laboratory (30 September 1989).
- Geider, R.J., W.J. Ullman, S.A. Skrabal*, S.A. Welch*. 1989. A Salinity Transect and Nutrient Survey of Rehoboth and Indian River Bays, Cruise Report, 3 and 17 October 1989. Submitted to the Inland Bays National Estuary Program (1 November 1989).
- Ullman, W.J., S.A. Skrabal* and S.A. Welch*. 1990. A Nutrient Survey of Winyah Bay, South Carolina, 6-7 November 1989. Cruise Report FE-89-12-SG. Submitted to the Delaware Sea Grant Program (25 February 1990).
- Sullivan, J.C. and W.J. Ullman. 1990. Critical Review of Thermodynamic Data in the Pu(III)-, Pu(IV)-, Pu(V)- and Pu(VI)- Sulfate Systems. Interim Report. Submitted to Lawrence Livermore Laboratory (29 June 1990).
- Sullivan, J.C. and W.J. Ullman. 1990. Critical Review of Thermodynamic Data in the Pu(III)-, Pu(IV)-, Pu(V)- and Pu(VI)- Sulfate Systems. Final Report. Submitted to Lawrence Livermore Laboratory (28 September 1990).
- Ullman, W.J. and J.C. Sullivan. 1991. Critical Review of Thermodynamic Data in the Np(IV)-, Np(V)- and Np(VI)-Sulfate Systems. Interim Report. Submitted to Argonne National Laboratory (1 July 1991).
- Ullman, W.J., Ed. 1992. A Day in the Life of Delaware's Forgotten Bay: A Scientific Survey of Little Assawoman Bay, Inland Bays Estuary Program, Delaware Department of Natural Resources and Environmental Control, Dover, Delaware. 30 p.
- Ullman, W.J., R.J. Geider, S.A. Welch*, L.M. Graziano and B. Overman. 1993. Nutrient Fluxes and Utilization in Rehoboth and Indian River Bays: Report of the FOIBLES Group (Friends of the Inland Bays Lagoonal and Estuarine Systems). Submitted to the Inland Bays Estuary Program, Delaware Department of Natural Resources and Environmental Control, September, 1993.
- Zachara, J.M., F.J. Wobber, and W.J. Ullman, 1998. DOE/OHER Workshop Report. Biogeochemical Manipulation for Scale-up of Laboratory Research to the Field. Submitted to the Natural and Accelerated Bioremediation Research (NABIR) Program, Department of Energy, Washington, DC. <http://www.lbl.gov/NABIR/nabir-frc/oberworkshop.pdf>
- Ullman, W.J., J.R. Scudlark, and A.S. Andres, 2001. Storm-water sampling and Analysis in the Inland Bays. Submitted to Delaware Department of Natural Resources and Environmental Control, January 2001.

- Ullman, W. J., A. S. Andres, J. R. Scudlark, and K. B. Savidge, 2002. Storm-Water and Base-Flow Sampling and Analysis In the Delaware Inland Bays: Preliminary Report of Findings 1998-2000: Open File Report No. 44, Delaware Geological Survey, Newark DE. 44 p.
<http://www.udel.edu/dgs/Publications/pubsonline/OFR44.pdf>
- Lamontagne, S., J. Deighton, and W.J. Ullman, 2002. Estimation of groundwater velocity in riparian zones using point dilution tests. *CSIRO Land and Water Technical Report 14/02*. 16 p.
<http://www.clw.csiro.au/publications/technical2002/tr14-02.pdf>
- Andres, A. S., K. Savidge, J. Scudlark, and W. Ullman. 2002. Delaware Inland Bays Tributary Total Maximum Daily Load Water-Quality Database. Delaware Geological Survey, Digital Publication. DP 02-02 <http://www.udel.edu/dgs/ftp/cisnet/CHEMDATA/dibwqdb.zip>
- Lamontagne, S., A.L. Herczeg, J.C. Dighton, J.L. Pritchard, J.S. Jiwan, and W.J. Ullman. 2003. Groundwater-surface water interactions between streams and alluvial aquifers: Results from the Wollombi Brook (NSW) study (Part II—Biogeochemical processes. *CSIRO Land and Water Technical Report 42/03*. 64 p. <http://www.clw.csiro.au/publications/technical2003/tr42-03.pdf>
- Andres A. S., W.J. Ullman, and K.B. Savidge, 2007. Storm-Water and Baseflow Sampling and Analysis in the Nanticoke River Watershed: Preliminary Report of Findings 2002-2004. Open File Report No. 46. Delaware Geological Survey 20 p.
<http://www.udel.edu/dgs/Publications/pubsonline/OFR46.pdf>
- Ullman, W.J., and A. Grammatikos*, 2009. A Community Solar Utility for Lewes: A Feasibility Study, June-August 2009. Final Report. Submitted to the Lewes Board of Public Works, Lewes, DE. 4 November 2009.
- Ullman, W.J., J.R. Scudlark and J.A. Volk, 2010. Standard Operating Procedure for the Calculation of N and P Deposition from the Atmosphere to Waters of Delaware's Inland Bays. Report to the Center for the Inland Bays. 11 p. http://www.inlandbays.org/wp-content/uploads/2011/01/CIB_Atmos_Dep_SOP_FINAL.pdf

(*Work of Student or Postdoctoral Fellow in Research Group)