



### Areas of Specialization:

Environmental Monitoring  
Sediment Biogeochemistry  
Shallow Groundwater Flow  
Coastal and Glacial Geology  
Environmental History  
Environmental Law

### Education:

Ph.D., Geology, University of California at Berkeley, 1997

Sc.B., Geology-Chemistry, Brown University, 1987

### Employment History:

LimnoTech, Ann Arbor, MI  
2015-pres.; Sr. Scientist

NOAA-Grt. Lakes Env. Res. Lab  
2011-15; Dep. Director/Dir.

USGS-Woods Hole, MA  
1997-2011; Sprvsr. Geologist

UC-Berkeley, Lawr. Berkeley Nat. Lab, Grad Stud Rsrch  
1994-97

ERM-West, Inc., Walnut Creek, CA, 1994-95, Sr. Env. Geol

Balsam Enviro. (now AECOM), Salem, NH, 1991-93, Proj. Geologist

Roy F. Weston, Inc., Concord, NH, 1988-91, Asst. Proj. Geol

John F. Bratton, Ph.D., is a Senior Scientist at LimnoTech with broad expertise in earth and environmental sciences, including successful leadership of projects involving large ecosystem monitoring and restoration with a nutrient reduction focus, remedial investigations for contaminated sites, and litigation support. He has worked as a consultant, researcher, educator, and science manager for over 30 years, especially in the Northeast, Great Lakes and Pacific regions, and has contributed to over 150 widely-cited scientific publications and research presentations. His publications cover groundwater-surface water interaction and contaminant transformations, coastal and glacial geology, freshwater and ocean sediment biogeochemistry, environmental history on decade to century scales, and environmental law and policy.

John previously served as Deputy Director and Acting Director of NOAA's Great Lakes Environmental Research Laboratory, and as a research group leader with the Coastal and Marine Geology Program of the U.S. Geological Survey in Woods Hole, Massachusetts. He received a doctorate from the University of California at Berkeley, and has taught undergraduate and graduate-level courses at institutions including Boston University, Au Sable Institute of Environmental Studies, Stonehill College, and Wayne State University.

### Select Professional Publications

Klump, J. Val, John Bratton, et al., 2018, Green Bay, Lake Michigan: A proving ground for Great Lakes restoration, *J. Great Lakes Research*, 44:825-828.

Wang, J., Kessler, J., Bai, X., ..., Bratton, J., et al., 2018, Decadal variability of Great Lakes ice cover in response to AMO and PDO, 1973-2017, *Journal of Climate*, 31:7249-7268.

Szymczycha, B., Kroeger, K.D., Crusius, J., and Bratton, J.F., 2017, Depth of the vadose zone controls aquifer biogeochemical conditions and extent of

anthropogenic nitrogen removal, *Water Research*, 123:794-801.

Verhamme, E.M. T.M. Redder, D. Schlea, J. Grush, J.F. Bratton, J.V. DePinto, 2016, Development of the Western Lake Erie Ecosystem Model (WLEEM): Application to connect phosphorus loads to cyanobacteria biomass, *Jour. of Great Lakes Research*, 42(6):1193-1205.

Bratton, J.F., 2016, Algal bloom researchers adjust to demand for data, *Great Lakes Connection, International Joint Commission* (online).

Gronewold, A.D., E.J. Anderson, B. Lofgren, ... J. Bratton, 2015, Impacts of extreme 2013-2014 winter conditions on Lake Michigan's fall heat content, surface temperature, and evaporation, *Geophys. Research Letters*, 42:3364-3370.

Baskaran, M., and J.F. Bratton, 2013, Investigating human-induced changes of elemental cycles in the Great Lakes, *Eos*, 94(28):248.

Bratton, John F., 2010, The three scales of submarine groundwater flow and discharge across passive continental margins, *Jour. of Geology*, 118:565-575.

Bratton, J.F., Böhlke, J.K., Krantz, D.E., and Tobias, C.R., 2009, Flow and geochemistry of groundwater beneath a back-barrier lagoon: The subterranean estuary at Chincoteague Bay, Maryland, USA, *Marine Chemistry*, 113:78-92.

Bratton, J.F., 2007, The importance of shallow confining units to submarine groundwater flow, *Int'l Assoc. of Hydrol. Sciences Publication 312*, p. 28-36.

Bratton, J.F., et al., 2003, Eutrophication and carbon sources in Chesapeake Bay over the last 2700 years: Human impacts in context, *Geochimica et Cosmochimica Acta*, 67(18):3385-3402.

Bratton, J.F., S.M. Colman, E.R. Thieler, and R.R. Seal, II, 2002, Birth of the modern Chesapeake Bay estuary 7,400 to 8,200 years ago and implications for global sea-level rise, *Geo-Marine Letters*, 22:188-197.

## Key Project Experience

**Great Lakes Observing System (GLOS).** Dr. Bratton is the project manager for the GLOS data management and communications support contract, and the the GLOS Ocean Technology Transition project for Lake Erie Harmful Algal Bloom Early Warning System. The binational monitoring network includes real-time instruments on fixed structures and buoys throughout the Great Lakes. LimnoTech responsibilities include subcontractor team management, deploying and recovering observing system assets, developing and maintaining web-based data delivery products, and coordinating data streams, data services, and ongoing system optimization and enhancement for user and data provider needs.

**Great Lakes “State-of-the-Science” Assessments.** Dr. Bratton has managed several projects and supported government agencies and Great Lakes Water Quality Agreement annex committees that required synthesis of the most recent research results for the Great Lakes. This work has included assessments of the following topics from 2016 to present for the U.S.-Canada International Joint Commission (IJC), Great Lakes Office (Ontario):

- Great Lakes information coordination and flow (subcontract to Great Lakes Commission)
- Trophic status assessment for each of the Great Lakes to support the Triennial Assessment of Progress technical report,
- Assessment of fertilizer and manure application in the western Lake Erie Basin,
- Impacts of unrefined liquid hydrocarbons on water quality and the aquatic ecosystems of the Great Lakes basin,
- Understanding declining offshore productivity in the Great Lakes

**Support of U.S. Army Corps of Engineers Research, Management, and Outreach.** Dr. Bratton has overseen three support contracts for research on mitigation of impacts of munitions and heavy metals at Army facilities that has been conducted at the Engineer Research and Development center in Vicksburg, MS. He has also briefed USACE staff, and supported joint meetings with partners including congressional staff, leadership of other agencies, and environmental non-profit groups on approaches to reduce sediment and nutrient loading to Lake Erie, and resulting impacts on harmful algal blooms in the lake.

**Incorporating Science-Based Adaptive Management into Great Lakes Restoration.** As part of the federal USEPA-led Regional Working Group, including the U.S. Army Corps of Engineers, Dr. Bratton contributed significantly to development of the *Science-Based Adaptive Management Process for Great Lakes Restoration Initiative Action Plan II* (2014). This process was designed to identify the most critical ecosystem problems in the Great Lakes, select projects to address those problems,

assess effectiveness of actions implemented, and inform future restoration efforts.

**Understanding Coastal Aquifer Systems.** Dr. Bratton led a national effort to study groundwater-surface water interactions in coastal settings including sandy shorelines, marshes, limestone karst environments, and rocky coasts. The project showed that onshore water table fluctuations interacted with daily and monthly tidal cycles to move groundwater from land to sea, but with significant chemical transformations of nitrogen species and other compounds in the subsurface mixing zone both under the shore and offshore prior to discharge.

**Documenting Chesapeake Bay’s Environmental History.** By collecting continuous sediment cores up to 68 feet long using novel techniques, and analyzing physical, geochemical, and biological proxy data from the cores, Dr. Bratton contributed to a team that helped document the detailed history of Chesapeake Bay and its watershed. A chronology was constructed that showed when the Bay transitioned from fresh to brackish water during post-glacial sea level rise, how sedimentation rates increased in the Bay after agricultural development of the watershed, and how and where seasonal hypoxia developed in Bay bottom waters as a result of excess nutrient delivery.

**Characterizing and Restoring Contaminated Sites.** Dr. Bratton has been involved in all phases of site investigations and remediation work for clients from New Jersey to Maine, as well as in California and Washington. He has worked with contaminants including PCBs, solvents, heavy metals, mercury, radioisotopes, nitrate, and petroleum products at harbors, landfills, waste lagoons, airports, chemical plants, tanker truck depots, wastewater treatment plants, bulk fuel storage sites, and manufacturing facilities. Dr. Bratton has also supported toxic tort litigation efforts and CERCLA negotiations.

## Other Project Experience.

### **Federal and International (Canada)**

- Environment and Climate Change Canada; scientific leadership and project management of Lake Huron science assessment report, and Co-operative Science and Monitoring Initiative planning workshop and proceedings volume
- U.S. Environmental Protection Agency, Great Lakes National Program Office; technical review of Lake Erie nutrient loading data management plan
- NOAA/Integrated Ocean Observing System Office of Technology Transfer project for Harmful Algal Bloom Early Warning System (Lake Erie) operational transition
- NOAA National Centers for Coastal Ocean Science; co-Principal Investigator of project led by Ohio State University titled: Linking process models and field experiments to forecast algal bloom toxicity in Lake Erie

- U.S. Army Corps of Engineers; Buffalo District (NY) and Engineer Research and Development Center, MS; contributed to technical aspects and project management of research related to mitigation of sediment and nutrient runoff from watersheds to the Great Lakes
- Alameda Naval Air Station, CA: designed sampling plan templates for 200+ parcels as part of Base Realignment and Closure, conducted stable isotope investigation through Department of Energy environmental research program of intrinsic bioremediation of refinery wastes and major aviation fuel spill at the site including soil gas sampling and vacuum line gas separation
- Oak Knoll Naval Hospital, Treasure Island Naval Station, and Novato Housing Facility, CA: wrote sampling plans for hospital campus sewer system possibly impacted by radioisotopes and hydrocarbons, and other Navy facilities slated for closure and transfer

#### **Litigation Support and Oversight**

- Cable Huston LLP, OR; served as project manager and contributed to expert report preparation to support cost allocation of sediment remediation in Portland Harbor
- Vinson & Elkins LLP, DC; reviewed technical material and contributed to expert report preparation for a complex urban waterway Superfund site in New York City with sediments impacted by hydrocarbons, PCBs, and metals for a confidential client
- Perkins Coie LLP, WA; contributed to technical review of information and expert report preparation related to cost allocation of a large Superfund cleanup of contaminated sediments in an industrial waterway in Seattle for a confidential client

#### **Municipal/State**

- Utah Dept. of Environmental Quality, Literature summary to support the Utah Lake Water Quality Study; technical reviewer
- Bay Area Clean Water Agencies, review of the *Scientific Basis to Assess the Effects of Nutrients on San Francisco Bay Beneficial Uses*, lead reviewer

#### **Industrial and Non-Profit**

- CH2M-Hill for confidential client, NJ: prepared guidance documents for managed natural recovery and adaptive management; reviewed technical committee documents (RI/FS, pilot remedial studies) for Berry's Creek Study Area and associated Superfund sites in Meadowlands salt marshes and waterways impacted by mercury, PCBs, organic chemicals, and heavy metals

#### **Select Professional Service**

- Wayne State Univ. T-RUST Advisory Board, 2017-pres.
- Presenter, Operational Ecosystem Modeling to Support Adaptive Management in the Great Lakes; Integrated Modeling for Adaptive Management of Estuarine Systems Workshop, Univ. of California-Davis, 2015
- U.S.-Canada International Joint Commission, Science Advisory Board—Research Coordination Committee, 2013-2015
- U.S.-Canada Great Lakes Water Quality Agreement Annex 10 (Science) Subcommittee, 2013-2015
- Steering committee, NASA/NOAA/MTRI Great Lakes Workshop Series on Remote Sensing of Water Quality, 2013-2014
- Co-director, Great Lakes Biogeochemistry Initiative, including NSF-funded workshop at Wayne State University; Purdue, San Francisco, and Italy town hall meetings; and journal articles; 2013-2015
- Convener, Climate Change Executive Forum, Federal Executive Institute, Leadership for a Democratic Society Program, Charlottesville, Virginia, 2013
- Presenter, A conceptual typological model for coastal environments in the Great Lakes, 56th Annual Conference of the International Association for Great Lakes Research, 2-6 June 2013, Purdue University, West Lafayette, Indiana
- Great Lakes Restoration Initiative Regional Working Group and Science Subgroup, 2012-2014
- Presenter, Coupling hydrodynamic and ecological models in North America's freshwater seas, 2<sup>nd</sup> NOAA-Norway/Statoil Science Workshop, NOAA Headquarters, Silver Spring, Maryland, 2012
- USGS Chesapeake Bay Science Advisory Committee, 2006-2010
- Session co-chair, Geological Society of America Annual Meeting, What goes up must come down: The science and policy of dam removal, 2005
- USGS Atlantic Coastal Plain Science Advisory Committee, 2003-2010
- Chair, Geological Society of America Research Grants Committee, 2002
- Manuscript reviewer for *Geology*, *Marine Geology*, *Marine Chemistry*, *Limnology & Oceanography*, *Science of the Total Environment*, *Estuaries and Coasts*, *American Assoc. of Petroleum Geologists Bulletin* and *AAPG Books*, *Journal of Hydrology*, *Water Resources Research*, *Journal of Marine Systems*, *Elsevier Developments in Paleontology*, *Journal of Great Lakes Research*.
- Proposal reviewer: Ocean Drilling Program, National Science Foundation, Natural Environment Research Council (U.K.), Natural Sciences and Engineering Research Council of Canada (NSERC), European Science Foundation, American Chemical Society Petroleum Research Fund, BMBF-MOST German-Israeli Research Fund, Federal Energy Regulatory Commission, Sea Grant, NOAA Hollings Fellowship Program, Dept. of Commerce Econ. Dev. Agency.

## Select Technical Reports (since 2015)

Impacts of Unrefined Liquid Hydrocarbons on Water Quality and Aquatic Ecosystems of the Great Lakes Basin, 2018, prepared for International Joint Commission, Science Advisory Board, 97 p.

Understanding Declining Offshore Productivity in the Great Lakes, 2018, prepared for International Joint Commission, Science Advisory Board, 84 p.

Assessment of Fertilizer and Manure Application in the Western Lake Erie Basin, 2017, prepared for U.S. Dept. of State, International Joint Commission, Science Advisory Board, 82 p.

Integrated Modeling for Adaptive Management of Estuarine Systems, 2016, Report to the National Science Foundation on Workshop, Univ. of California-Davis, May 21-22, 2015, 43 p.

Great Lakes Trophic Status Review and Update, 2016, prepared for U.S. Department of State, International Joint Commission, 40 p.

State of Lake Huron Workshop Proceedings, 2016, Great Lakes Maritime Heritage Center, Alpena, Michigan, U.S.A., November 4-5, 2015, prepared for Environment Canada, 47 p.

Lake Huron Partnership Science and Monitoring Synthesis, 2015, prepared for Environment Canada, 106 p.

Draft Literature Review of References Relevant to Proposed Net Pen Aquaculture in Michigan Waters of Lake Huron, 2015, prepared for Kent Herrick, Herrick Foundation, and Aquaculture Research Corporation, 14 p.

## Published Abstracts/Presentations (since 2010)

Allan, D. and J.F. Bratton, 2018, Fertilizer Application in the Western Lake Erie Basin: Implications for Water Quality. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 22, 2018.

Bratton, J.F., D.L. Bradley, J.M. Daley, R. Hecky, J.V. DePinto and M. Burrows, 2018. Understanding Declining Offshore Productivity in the Great Lakes. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 22, 2018.

Bratton, J.F. and T.A.D. Slawewski, 2018. Assessing barriers to information flow to decision makers in the Great Lakes. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 22, 2018.

Daley, J.M., J.F. Bratton, M. Murray, D. Allan and M. Child, 2018, Assessment of Impacts of Unrefined Liquid Hydrocarbons on Aquatic Ecosystems of the Great Lakes. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 19, 2018.

Murray, M.W. and J.F. Bratton, 2018. Potential Ecological  
[www.limno.com](http://www.limno.com)

Impacts of Unrefined Liquid Hydrocarbons in the Great Lakes. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 22, 2018.

Schlea, D.A., J.F. Bratton, N. Barabás, M. Child, D. Allan and M.W. Murray, 2018. Assessment of Fertilizer and Manure Application and Impacts in the Western Lake Erie Basin. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 21, 2018.

Verhamme, E.M., J.F. Bratton, T.A.D. Slawewski, B. Pearson, K. Paige, B. Stubbs and M. Herzog, 2018. Development of a Lake-wide Operational Observing System: Lake Erie Case Study. Presented at IAGLR 2018 Conference, Scarborough, Ontario. June 21, 2018. Bratton, John F., Tim Dekker, Jeremy Grush, Anouk Savineau, Daniel Herrema, Theresa Himmer, 2017, MNR in Brackish Marshes: An Example from the New Jersey Meadowlands, in: A. Bullard and P. White (Chairs). Remediation and Management of Contaminated Sediments—2017. Ninth International Conference on Remediation and Management of Contaminated Sediments (New Orleans, LA; January 2017). C-024. ISBN 978-0-9964071-2-0, Battelle Memorial Institute, Columbus, OH.

Klump, J. Val, John Bratton, Kevin Fermanich, Robert Howe, 2017, Moving Science Forward with an Ecological and Socio-Economic Framework: Results of the CIGLR Science Summit in Green Bay. State of Lake Michigan Conference, 8 November 2017, Green Bay, WI.

Verhamme, Edward M., John F. Bratton, Jennifer Daley, Hans Holmberg, 2017, Monitoring and Modeling of Harmful Algal Blooms in Lake Erie and Other Great Lakes to Protect Drinking Water and Guide Mitigation of Nutrient Sources, Presentation 233, Society of Environmental Toxicology and Chemistry (SETAC) North American 38th Annual Meeting, November 12-16, Minneapolis, MN.

Bratton, John F., John Wolfe, Jennifer Daley, Gregory Peterson, Edward Verhamme, Tim Dekker, Theodore Slawewski, 2017, Conceptual Design of Adaptive and Integrated Approaches to Monitoring of Post-Remediation Recovery: Examples from Great Lakes Areas of Concern, Society of Environmental Toxicology and Chemistry (SETAC) North American 38th Annual Meeting, November 12-16, Minneapolis, MN.

Verhamme, E.M., Rucinski, D.R., Bratton, J., Schlea, D.A., Depinto, J.V., and Redder, T.M., 2017, Towards Operational Modeling of Great Lake Embayments: A2EM, 60th Annual Conference of the International Association for Great Lakes Research, 15-19 May 2017, Detroit, MI, Abstracts, p. 430.

Boles, C.M.W., T.M. Redder, G.W. Peterson, J.F. Bratton, 2016, Wetland Treatment in the Maumee Watershed, Great Lakes Sedimentation Workshop, Ann Arbor, MI, 22 June 2016.

Bratton, J.F., Verhamme, E.M., and Bridgeman, T.B., 2016, Just-in-time data delivery: Adaptation of HABS researchers to changing data sharing expectations, 59th



Annual Conference of the International Association for Great Lakes Research, 6-10 June 2016, University of Guelph, Ontario, Abstracts, p. 30.

Pebbles, V., Slawicki, T., Molnar, S., and Bratton, J., 2016, Identification and assessment of information flows to improve Great Lakes water quality decisions, 59th Annual Conference of the International Association for Great Lakes Research, 6-10 June 2016, University of Guelph, Ontario, Abstracts, p. 234.

Verhamme, E.M., Depinto, J.V., Schlea, D.A., Redder, T.M., and Bratton, J.F., 2016, Western Lake Erie Ecosystem Model: An operational model for the scientific and management community, 59th Annual Conference of the International Association for Great Lakes Research, 6-10 June 2016, University of Guelph, Ontario, Abstracts, p. 315-316.

Bradley, Doug, Ed Verhamme, John Bratton, Tim Dekker, 2015, Cheaper, easier, better tools for characterizing the thermal plume environment, 4th Electric Power Research Institute Thermal Ecology and Regulation Workshop, 15-16 September 2015, Cedar Rapids, Iowa, p.26.

Bratton John F., J. Wolfe, 2015, Operational Ecosystem Modeling to Support Adaptive Management in the Great Lakes, Integrated Modeling for Adaptive Management of Estuarine Systems Workshop, National Science Foundation, University of California-Davis, May 21-22, 2015

Bratton, J.F., 2015, Connections between algal blooms, land use history, and glacial lake plains in the Great Lakes, 58th Annual Conference of the International Association for Great Lakes Research, 25-29 May 2015, University of Vermont, Burlington, VT.

Bratton, J.F., C.A. Stow, M. Baskaran, T.H. Johengen, N.R. Morehead, D. Palladino, A. Burtner, and L. Eaton, 2014, Post-mussel phosphorus signals in porewater of Lake Huron sediment cores, Joint Aquatic Sciences Meeting, Session # 022, Portland, OR, 18-23 May 2014.

Michael, H., A.H. Sawyer, K.D. Kroeger, C.J. Russoniello, C. Fernandez, L. Konikow, J.F. Bratton, O. Lazareva, A.S. Andres, K. Crespo, C.S. Chan, T. Stieglitz, J. Banaszak, and D. Krantz, 2014, Stratigraphic controls on submarine groundwater discharge, groundwater-surface water mixing, and associated chemical fluxes to an estuary, Ocean Sciences Meeting, Session #060, Honolulu, HI, 23-28 February 2014.

Liou, L., R.A. Shuchman, S. Greb, G.A. Leshkevich, J.F. Bratton, J. Read, J. Lekki, C.N. Brooks, and A.G. Grimm, 2014, Initial results from the workshop on developing a Great Lakes remote sensing community, 57th Annual Conference of the International Association for Great Lakes Research, McMaster University, Hamilton, Ontario, Canada, 26-30 May 2014.

Michael, H., K.D. Kroeger, C. Fernandez, L. Konikow, A.H. Sawyer, C.J. Russoniello, and J.F. Bratton, 2013, Impact

of groundwater flowpaths on subsurface denitrification and nutrient loading to an estuary. American Geophysical Union Fall Meeting, 9-13 December 2013, San Francisco, CA.

Andres, A., H.M. Scott, J. Madsen, C. Russoniello, C. Fernandez, J. Bratton, and V.A. Cross, 2013, Integration of multiple geophysical techniques to image a submarine groundwater discharge zone, NGWA Summit --The National and International Conference on Groundwater, 28 April-2 May 2013, San Antonio, TX.

Bratton, J.F., J. Wang, A.D. Gronewold, B.M. Lofgren, and M. Colton, 2013, Tools for prediction and management of climate change impacts on natural resources in the Great Lakes and the Arctic, 11th Annual Climate Prediction Applications Science Workshop, Climate Information for Natural Resource Management, 23-25 April 2013, Logan, UT.

Baskaran, M., and J.F. Bratton, 2013, Report on the workshop entitled "Recent Changes in the Biogeochemistry of the Great Lakes System" held on 11-13 March, 2013 at Wayne State University, Detroit, MI, 56th Annual Conference of the International Association for Great Lakes Research, 2-6 June 2013, Purdue University, West Lafayette, IN.

Bratton, J.F., 2013, A conceptual typological model for coastal environments in the Great Lakes, 56th Annual Conference of the International Association for Great Lakes Research, 2-6 June 2013, Purdue University, West Lafayette, IN.

Horvatin, P.J., T.G. Nettesheim, K.R. Newman, K. Majerus, C.T. Braverman, K. Glassner-Shwayder, J.R. Keough, J.F. Bratton, R. Kolka, L.M. Carl, M.C. Colton, C.A. Stow, M. Faust, C. Krueger, D.B. Bunnell, H.M. Stirratt, C.A. Czarnecki, and E. Drott, 2013, An adaptive science-based framework for Great Lakes restoration. 56th Annual Conference of the International Association for Great Lakes Research, 2-6 June 2013, Purdue University, West Lafayette, IN.

Wang, J., X. Bai, J. Austin, R.A. Assel, J.F. Bratton, M.C. Colton, J. Lenters, B.M. Lofgren, D.J. Schwab, and A.H. Clites, 2013, A record breaking low ice cover over the Great Lakes during winter 2011/2012, 2013, 56th Annual Conference of the International Association for Great Lakes Research, 2-6 June 2013, Purdue University, West Lafayette, IN.

Bratton, J.F., H. Reeves, N. Granneman, and L. Lemke, 2013, Gaps in understanding the role of groundwater in Great Lakes biogeochemical processes, Recent Changes in the Biogeochemistry of the Great Lakes System Workshop, 11-13 March 2013, Wayne State University, Detroit, MI.

Michael, Holly A., Christopher J. Russoniello, Cristina Fernandez, Leonard F. Konikow, A. Scott Andres, John F. Bratton, Joel F. Banaszak, and David E. Krantz, 2012, Geologic effects on subsurface salinity distributions,

groundwater flowpaths, and aquifer-estuary exchange in Indian River Bay, Delaware, USA, 22nd Salt Water Intrusion Meeting, 17-22 June 2012, Búzios, Brazil.

Bratton, John F., Kevin D. Kroeger, Steven A. Ruberg, Holly A. Michael, and David E. Krantz, 2012, Comparison of methods and results in recent studies of direct groundwater discharge to the Atlantic coast and Great Lakes, 22nd V.M. Goldschmidt Conference, 24-29 June 2012, Montreal, Quebec, Canada.

Bratton, John F., and Mark Baskaran, 2012, Recent advances in understanding of biogeochemical and hydrological processes in the Great Lakes Basin using natural and anthropogenic tracers, International Association for Great Lakes Research Annual Conference, 13-17 May 2012, Cornwall, Ontario.

Kroeger, K.D., C. Fernandez, C. Russoniello, A.S. Andres, J.F. Bratton, J.K. Böhlke, L. Konikow, H.A. Michael, 2012, Denitrification and nitrogen loading at the aquifer/estuary interface: The role of coastal hydrology and implications for management of nitrogen loads, AGU Ocean Sciences Meeting, Salt Lake City, UT.

Bratton, John F., 2011, Conceptualizing and studying submarine groundwater flow and discharge at beach to shelf scales, Geological Society of America Annual Meeting, Paper No. 158-1, 9-12 October 2011, Minneapolis, MN (invited).

Bratton, John F., Nalepa, Thomas F., and Fusaro, Abigail J., 2011, Evolution of the Great Lakes ecosystems through time: Ice, innovation, introduction, and invasion, Geological Society of America Annual Meeting, Paper No. 214-13, 9-12 October 2011, Minneapolis, MN.

Michael, H., Fernandez, C., Russoniello, C., Andres, A.S., Kroeger, K., Krantz, D., Banaszak, J., Musetto, A., Myers, K., Konikow, L., and Bratton, J., 2011, Geologic and hydrologic control of porewater chemistry and submarine groundwater discharge into Indian River Bay, Delaware, Goldschmidt Conference Abstracts, Mineralogical Magazine, vol. 75, no. 3, p. 1462, 14-19 August 2011, Prague, Czech Republic,

Fernandez, C., Kroeger, K.D., Bratton, J.F., Russoniello, C.J., Musetto, A.I., Andres, A.S., Michael, H.A., 2011, Porewater salinity distribution and geochemical characterization beneath Indian River Bay, Delaware, National Ground Water Association Ground Water Summit, 1-5 May 2011, Baltimore, MD.