

Bess Caplan  
1000 Hilltop Circle, TRC 173  
Baltimore, MD 21250

410-455-1863  
caplanb@caryinstitute.org

- Education
- 2004-2006, Towson University, Towson, MD
- M.S., Environmental Science
- 1999-2002, University of Maryland, College Park, College Park, MD
- B.S., Environmental Science and Policy
  - College Park Scholars Citation, Environmental Studies
  - Minor Certificate, Women's Studies
- Professional Education Experiences
- Ecology Education Program Leader, Baltimore Ecosystem Study (7/08-present)
- Work to infuse an understanding of the city as an ecological system into school and community-based education programs through curriculum development, teacher workshops, and community outreach.
  - Conduct research into student thinking about biodiversity, water and carbon, to inform the development and implementation of effective teaching strategies to foster student progress towards more sophisticated environmental understandings and skills.
- Naturalist Educator, Audubon Naturalist Society, Chevy Chase, MD (6/04-8/04)
- Designed and implemented original nature programs for students.
  - Supervised and evaluated college interns and high school volunteers.
- Outdoor Science Educator, Camp High Trails, Angeles Oaks, CA (9/02-5/03)
- Designed and implemented environmental and adventure based-lessons and facilitated leadership training and teamwork building amongst middle school students.
- Other Professional Experiences
- Environmental Scientist II, Straughan Environmental Services, Inc., Columbia, MD (6/06-7/08)
- Project management including managing scope, schedule, budget and client contact.
  - Develop ecological designs including stream, wetland and forest restorations.
  - Conduct geomorphic assessments, habitat assessments, water quality monitoring and public outreach.
- Biological Science Aid, United States Forest Service, Baltimore, MD (12/05-5/06)
- Collaborated with the Baltimore Ecosystem Study to collect and analyze atmospheric and water quality data in the Baltimore region.
  - Performed database updates, protocol reviews, and routine measurements of stream stage and discharge at designated locations applying uniform and established methods.
- Intern, Maryland Environmental Trust, Crownsville, MD (6/05-8/05)
- Monitored and inspected Maryland conservation easements for violations of easement contracts.
  - Acted as liaison between easement owners and the MET office and maintained easement database.
- Intern, Maryland Department of the Environment, Baltimore, MD (8/04-2/05)
- Served on the development team for the Maryland Association of Floodplain Managers
  - Advised MDE on procedures for educating floodplain residents on floodplain safety.
  - Performed site inspections for development areas in the Maryland floodplain.
  - Reviewed variances, permits and policy pertaining to the floodplain.
- Research
- Research Assistant, Harrison Program on the Future Global Agenda, College Park, MD (9/00-5/01)
- Researched the role of democracies in promoting sustainable development.
  - Analyzed impacts of urban growth, deforestation, pollution, agriculture, consumption and waste on the future supply of resources in the United States.
  - Reviewed legislation and formulated hypotheses for their impacts on natural resources.
- EPA Fellowship, National Network for Environmental Management and Studies, 2005-2006; Master's thesis, analyzed the ability of the Riparian Ecosystem Management Model to model urban riparian buffer systems.
- Environmental Studies Practicum, 2000-2001; developed an original research project analyzing the effects of science education on an individual's view of nature.

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Pathways to Environmental Literacy, NSF Math Science Partnership Project, 2009-2014; collaborate on innovative research efforts into how students think and learn about topics in environmental science; research into effective professional development and teaching methods in environmental science.

Conference  
Presentations  
and Posters

- Caplan, B., A.R. Berkowitz, S. Haines, R. Foot, T. Grant, E. Keeling, C. Harris. 2011. The Baltimore Partnership for Environmental Science Literacy. Presentation to NSF Site Review Team. Fort Collins, CO. February 24, 2011.
- Caplan, B., A.R. Berkowitz. 2010. Baltimore Ecosystem Study III: Education, Engagement and Outreach. Baltimore Ecosystem Study Annual Meeting. Baltimore, MD. Poster. 10/27/10.
- Caplan, Bess., Alan R. Berkowitz, Sarah Haines, Eric Keeling, Cornelia Harris, Tammy Newcomer, Patrick Bond, Richard Foot, Terry Grant. 2010. Baltimore Partnership for Environmental Science Literacy. Annual Meeting of the Pathways to Environmental Science Literacy Math Science Partnership Project. Baltimore, MD. Poster. 9/21/10.
- Caplan, B., S. Haines. 2011. The Baltimore Partnership for Environmental Science Literacy, Improving Urban Science Teaching and Learning. National Science Teacher Association Regional Conference, San Francisco. CA. March 2011.
- Caplan, B., S. Rajendran. 2011. Teaching the Carbon Cycle in an Urban Classroom. Maryland Association of Environmental and Outdoor Education Annual Conference. February 12, 2011.
- Caplan, B., B. Covitt. 2011. Tracing Water and Substances in Water through the Schoolyard: A New Perspective on Teaching the Water Cycle. Sustaining the Blue Planet: Global Water Education Conference. September 2011.
- Caplan, B., T. Newcomer. 2011. A Learning Progression for Water in Socio-ecological Systems. BES Annual Meeting. October 2011.
- Caplan, B., S. Haines. 2011. Teaching Culturally Relevant Ecology: Strategies for Improving Environmental Science Literacy. NSTA Conference, New Orleans. November 10, 2011.
- Holifield, Quin, Belt, Ken, Bossiwa, Tia, and Bess Caplan. Leaves and Bugs: Using Litter Bags in Education and Stream Ecosystem Studies. Maryland Water Monitoring Council 17th Annual Conference. Poster. December 1, 2011.
- Caplan, B., A.R. Berkowitz. Baltimore Ecosystem Study III. Education, Engagement and Outreach. All Scientist Meeting of the Long Term Ecological Network. Poster. September 2012.
- Pickett, S., et. al. The Baltimore Ecosystem Study: From Sanitary to Sustainable City. All Scientist Meeting of the Long Term Ecological Network. Poster. September 2012.
- Caplan, B., Berkowitz, A., Virtudes, J., Belt, K. Supporting the Use of Micro Storm Water Management Facilities in Secondary Education. Baltimore Ecosystem Study Annual Meeting. Baltimore, MD. 10/25/2012.
- Caplan, B., Mollett, N., Doherty, J., Gunckel, K. Student Understanding and Learning of Key Environmental Science Principles. Baltimore Ecosystem Study Quarterly Project Meeting. Baltimore, MD. 1/24/13
- Caplan, B., Charnes, M. Engaging Students in using Scientific Arguments to Answer Scientific Questions. Maryland Association for Environmental and Outdoor Education Annual Conference. Ocean City, MD. 2/2/13.

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- Caplan, B., Dodd, J. An Interdisciplinary Approach to Science Education. Maryland Association for Environmental and Outdoor Education Annual Conference. Ocean City, MD. 2/8/14.
- Caplan, B., Berkowitz, A.R., Schueler, S. Students Riffing on Data in the First Ever Baltimore Data Jam. Baltimore Ecosystem Study Annual Meeting, Baltimore, MD. October 2014.
- Caplan, B. Maryland Stream Ecology Data Jam. Maryland Association for Environmental and Outdoor Education Annual Conference. Ocean City, MD. 2/6/15.
- Caplan, B., Education and Experimentation as Incubators of Stewardship. Ecological Society of America Annual Conference. August 2015.
- Caplan, B., and Alan Berkowitz. Baltimore Ecosystem Study Education: Teaching Ecology in and of Schoolyards and Urban Ecosystems. All Scientist Meeting of the Long Term Ecological Network. Poster. Estes Park, CO. August 2015.
- Caplan, B., Ashton III, R., Djeuf, J., Potts, C., McDaniels, E., Walker, N., Johnson, M., Keane, S., Swan, C. Baltimore Ecosystem Study – Young Environmental Scientists. Baltimore Ecosystem Study Annual Meeting. Poster. Baltimore, MD. October 2015.
- Caplan, B., Berkowitz, A.R., Mourad, T., Bohanan, G. Strategies for Designing Lessons and Educational Pathways to a Sustainable Future. North American Black Science Educators. Washington, DC. 11/16/15.
- Caplan, B. Baltimore Ecosystem Study – Young Environmental Scientists. 3<sup>rd</sup> Life Discovery Conference. Baltimore, MD. 3/18/16.
- Hance, D., Harris, D., Johnson, A., McNeil, J., Kay, L., Brusaferrero, R., Caplan, B., Swan, C. Baltimore Ecosystem Study – Young Environmental Scientists. Baltimore Ecosystem Study Annual Meeting. Poster. Baltimore, MD. October 2016.
- Caplan, B. Jamming with Data. Maryland Association for Environmental and Outdoor Education Annual Conference. Towson, MD. 2/4/17.
- Haametz, I., Caplan, B. Seeds of Change – Design Based Environmental Education. Maryland Association for Environmental and Outdoor Education Annual Conference. Towson, MD. 2/2/17.
- Caplan, Bess, Alan R. Berkowitz. Comp Hydro Baltimore: How one high school project integrated Environmental Science and Computational Science to solve issues of flooding in Baltimore. National Association for Science Teacher Association. Baltimore, MD. October 5, 2017.
- Caplan, Bess, Alan R. Berkowitz. Comp Hydro Baltimore -An Innovative Approach to Addressing Surface Water System Learning in Baltimore. BES Annual Meeting, Baltimore, MD. October 25, 2017.
- Caplan, Bess, Amanda Morrison. A 3-D approach for teaching and learning about surface water systems through computational thinking, data visualization and physical models. American Geophysical Union Fall Meeting. New Orleans, LA. December 15, 2017.
- Caplan, Bess, Garret Love, Alan R. Berkowitz. An Integrated Approach to Water Science and Computational Literacy. Association for Science Teacher Education, Baltimore, MD. January 5, 2018.
- Groffman, Peter, et. al. Socio-Ecological Revitalization of an Urban Watershed. *Frontiers in Ecology and the Environment*. May 2012.
- Caplan, Bess, et. al. Investigating Water Pathways in Schoolyards. *Green Teaching*. V. 98, pgs. 28-33. December 2012.

Publications

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- Covitt, Beth. Kristin L Gunckel, Bess Caplan, Sara Syswerda. Teachers' use of Learning Progression-based Formative Assessment in Water Instruction. *Applied Measurement in Education*. Accepted November 2017.