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## Survey response

### Candidate statements and CV/resume

Please enter your name and email address below. [First Name]
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Cathlyn (Cat)
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Please enter your name and email address below. [Last Name (Surname)]
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Stylinski
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Please enter your name and email address below. [Email address]
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What do you feel are the major concerns facing the citizen science community?
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<p>The citizen science field has experienced tremendous growth over the last decade; however, with growth come growing pains. Although not exhaustive, I believe there are five key concerns that our community and particularly the Association must address. First is the low diversity of citizen science volunteers. While there are exceptions, most endeavors are dominated by white older adults, often with disposable incomes. This fairly homogenous group is and should remain a valued constituent, but we must expand beyond it to include greater racial, ethnic and socioeconomic diversity. To do so, we need to reframe citizen science as relevant to minority, low income, rural, tribal and other marginalized communities and work with community leaders to form meaningful connections with these groups. Second, by its nature, citizen science brings together a variety of stakeholders with diverse needs, experiences and expectations. We need to expand our efforts to support dialogue and sharing across disciplines (social science to science), between practitioners and researchers, and among professionals and non-professionals. Particularly challenging is giving voice to the volunteers who lack access to professional distribution channels like conferences and journals. Third, as our practice brings in unpaid volunteers to assist other stakeholders in their work activities and career advancement, we need to reflect on ethical considerations and development of appropriate guidelines. These considerations include transparency of research intent and risks, roles and responsibilities of all participants, rules of engagement, data ownership and sharing, recognition in project efforts, cultural sensitivity, and treatment of vulnerable populations (e.g., volunteers without US citizenship). Fourth and related to these issues of diversity, dialogues and ethics, we need to continue to support deeper engagement of volunteers within citizen science efforts—beyond the more typical data collector role. While not all of these efforts can or should be co-created, the citizen science community will benefit from more bidirectional communication between stakeholders and a willingness to consider different viewpoints, opening the door to better address complex socioenvironmental challenges. Finally, we need to promote and support measures of impacts on education, science and societal elements. Many projects lack the expertise and resources to conduct evaluation of targeted outcomes. When evaluation occurs, it is typically limited to participants' self-reported assessment (e.g., rarely including performance assessment). The limited application of evaluative measures impedes capacity to improve specific projects and to generalize across the field. Efforts are underway to address this challenge, such as the development of a common measure through the DEVISE project, but more is needed to move our field forward, demonstrate its collective impact, and understand the gaps and challenges.</p>
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What skills and what types of experience would you bring to the CSA board?

I bring relevant expertise and experience in science education, and specifically citizen science, that will allow me to contribute in productive and important ways to the Citizen Science Association Board of Directors. First, I am a trained scientist with graduate degrees in biology (M.S) and ecology (Ph.D.) that resulted in several peer-reviewed science publications. Second, as a tenured university faculty member, I have over 15 years of experience in designing, evaluating and researching science education projects that target K-12 and public audiences. While not limited to citizen science, all focus on engaging these audiences in place-based investigations and dialogues aligned with relevant science issues and authentic science practices and tools. Third, I have been leader in multiple sectors within the citizen science field. From 'soup to nuts,' I designed citizen science projects at local and continental scale, collaborating with other established efforts such as Nature's Notebook and working with rural, distributed, and K-12 citizen scientists. I have addressed data-related issues including recently co-authoring a paper on aligning volunteer ground-based observations with satellite imagery (Elmore, Stylinski & Pradhan 2016). I have extensive experience in supporting volunteers/students using geospatial technologies to collect and analyze environmental data (Stylinski & Doty 2013). I have conducted evaluation for citizen science efforts and am currently co-leading an NSF grant and a related follow-up NSF proposal on innovative ways to understanding volunteers' skills (using embedded assessments). I am co-author of two publications from this work (Becker-Klein, Peterman & Stylinski 2016, Peterman, Becker-Klein, Stylinski & Grack Nelson in press) and will lead a third this year (comprehensive survey of approaches, assessments and challenges of a diverse array of citizen science endeavors). I have been an active member in the Association. With collaborators, I published in the first issue of the Citizen Science: Theory and Practice journal (Becker-Klein et al. 2016), presented at the first CSA conference (Stylinski, Pradhan & Elmore 2015), and have an accepted presentation for the 2017 meeting. I have reviewed for the journal, am co-chair for the Research and Evaluation Working Group, and will be co-leading our working group meeting and an Evaluation 101 workshop at the May gathering. Finally, I bring excellent skills in written and oral communication and collaborative teamwork. I have successfully crafted and managed over \$2M in science education research and programming grants. I have led large diverse teams of researchers and practitioners to meet project goals and co-facilitate a community-of-practice among informal science education practitioners.

**CATHLYN D. STYLINSKI**  
**UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE - APPALACHIAN LABORATORY**  
**301 BRADDOCK ROAD FROSTBURG MD 21532**

**Professional Preparation**

San Diego State University	San Diego CA	Radio-Television	B.S., 1987
San Diego State University	San Diego CA	Biology	M.S., 1994
University of California Davis & San Diego State University	Davis CA & San Diego CA	Ecology	Ph.D., 2000

**Appointments**

2008-present	Senior Agent (tenured), University of Maryland Center for Environmental Science, Appalachian Laboratory, Frostburg, MD
2001-2008	Assistant Professor/Agent, University of Maryland Center for Environmental Science, Appalachian Laboratory, Frostburg, MD.
2000-2001	Director of Science Content, Cal. Institute for Biodiversity, Walnut Creek, CA.
1995-1999	NASA Graduate Fellow, University of California Davis/San Diego State University, Davis/San Diego, CA.
1985-1991	Video production (technical and creative aspects of production) KPBS (Public), KGTV (ABC), ESPN and others, San Diego, CA.

**Select publications and presentations**

- Peterman K., Becker-Klein R., Stylinski C. and Grack Nelson A. (In Press). Exploring Embedded Assessment to Document Scientific Inquiry Skills within Citizen Science. In C. Herodotou, M. Sharples, and E. Scanlon (Eds.), *Citizen Inquiry: A Fusion of Citizen Science and Inquiry Learning*.
- Becker-Klein R., Peterman K. and Stylinski C. (2016) Embedded assessment as an essential method for understanding public engagement in citizen science. *Citizen Science: Theory and Practice*: 1(1):8. DOI: <http://doi.org/10.5334/cstp.15>.
- Elmore A.J., Stylinski C. and Pradhan K. (2016) Synergistic use of citizen science and remote sensing for continental-scale measurements of forest tree phenology. *Remote Sensing* 8(6), 502; doi:10.3390/rs8060502
- Stylinski C., Pradhan K. and Elmore A. (2015) *Linking ground-based volunteer observations with moderate resolution satellite observations of phenology* Citizen Science Association Conference, San Jose, CA
- Parker C., Stylinski C., Bonney C., Schillaci R. & McAuliffe C. (2015) Examining the quality of technology implementation in STEM classrooms: Demonstration of an evaluative framework. *Journal of Research on Technology in Education* 47(2):105-121.
- Stylinski C., R. Youngs, J. Heimlich, and S. Palmquist (2014) Identifying opportunities to align informal educator perceptions with audience expectations in climate change education National Association for Research in Science Teaching Conference. Pittsburgh, PA
- Stylinski C.D. & C. Doty (2013) *The Inquiring with GIS (iGIS) Project: Helping teachers create and lead local GIS-based investigations*. In: Pages 161-190. MaKinster J.G., Trautman N.M. & Barnett M. (Eds.) *Teaching Science and Investigating Environmental Issues with Geospatial Technology: Designing Effective Professional Development for Teachers*, Springer Publishing Co
- Stylinski C.D., Parker C. & McAuliffe C. (2012) Integrating informal education experiences in K-12 technology-intense teacher professional development. American Education Research Association Conference Proceedings. Vancouver, B.C.
- Groffman P., Stylinski C., Nisbet M.C., Durate C.M., Jordan T., Burgin A., Previtali M.A. & Coloso J. (2010) Restarting the conversation: Challenges at the interface between ecology

and society. *Frontiers in Ecology and the Environment* 6(8):284-291.

Parker C., C.D. Stylinski, M. Darrah, P. Gupta, B. Akbayin and C. McAuliffe (2010) Integrating innovative technology applications into the classroom: A preliminary review of ITEST Teacher Education. *Journal of Technology and Teacher Education* 18(2):203-230.

Storksdieck M. and C.D. Stylinski (2010) The role and influence of news media on public understanding of environmental issues. In: Pages 131-146 R. Stevens and J. Dillon (Eds.) *Environmental Education: Learning, Culture and Agency*, SensePublishers, Rotterdam, The Netherlands (UMCES #4491).

### **Synergistic Activities**

**Lead and Co-Lead of Education Research and Evaluation:** *Citizen Science Embedded Assessment* (NSF-AISL), *Validating an Innovative Technology Classroom Observation Protocol in High School Classrooms* (NSF-PRIME), *MADE-CLEAR Researching an Informal Climate Change Education Community of Practice* (NSF-CCEP-II), *Promoting STEM Career Interest in the Classroom: An Exploratory Study Linking Teacher Professional Development with Changes in Teaching Practices* (NSF-ITEST), *Summative Evaluation of Portal to the Public: Expanding the National Network* (NSF-AISL)

**Lead of Public and K-12 Education Outreach Projects:** *PopClock Citizen Science* (NSF-IOE #1238885), *Inquiring with GIS* (NSF-ITEST); *Student-Teacher-And-Scientist (STAR) Partners*; *Chesapeake FieldScope*, *Mapping and Monitoring Maryland Streams*, *Chesapeake Teacher Research Fellowship* (all NOAA); *Citizens Restoring American Chestnuts*, *Partners in Ecology and Restoration of Schoolyards* (private foundation)

**Reviewer/Advisor:** (1) Manuscript reviews for Cornell University Press, *Citizen Science: Theory and Practice*, *Agriculture and Human Value*, *Journal of Environmental Education*, *Oecologia*; *Conservation Biology*, *Ecology and Society*, *Frontiers in Ecology and the Environment*; (2) Panel review for NSF *Division of Research on Learning in Formal and Informal Settings* NOAA *Environmental Literacy*; (3) Conference proposal reviews for *North America Association of Environmental Education Research Symposium*; (4) Document/program review of NOAA *Mid-Atlantic K-12 Environmental Literacy Strategy*, *Maryland State Leadership Team for the Development of Next Generation of Science Standards*; (5) Committee membership for *National Socio-Environmental Synthesis Center Education Committee*, *Maryland Association for Environmental and Outdoor Education Board*, *National Ecological Observatory Network Mid-Atlantic Domain Science and Education Coordination Committee*, *American Institute of Biological Sciences Education Committee*, *Ecological Society of America Education Section* secretary/treasurer.

**Lead/Invited Contributor:** (1) Leader for 2015-present *Citizen Science Association Research-Evaluator Group* (co-chair), 2013-2015 *North American Association for Environmental Education Research Symposium* (chair and chair-elect); 2012 *American Geophysical Union Conference* (session chair); 2012 *Sesync Socio-Environmental Synthesis Education: Goals, Resources and Tools workshop* (co-organizer); 2008 *National Conference on Geospatial Technologies in K-12 Education* (invited keynote); 2008 *NSF-ITEST PI Summit Workshop* (co-chair); (2) Contributor for 2015 *AAAS Convening on Evaluation of Public Engagement with Science*, 2015 *CAISE Convening on Broader Impacts + Informal Science Education*, 2014 *NSF DCL New Science and Engineering Indicators for K-12 STEM Education*, 2014 *NSF Broader Impacts Infrastructure Summit*, 2013 *National Socio-Environmental Synthesis Center, Fisher Learning Exchange Workshop*, 2009 *Out-of-School-Time (OST) STEM: Building Experiences, Building Bridges Conference*, 2009 *Cary Conference XIII Effective Communication of Science in Environmental Controversies*