

Answers from Sarah Kirn

February 3, 2016

What do you feel are the major concerns facing the citizen science community?

The biggest challenge I see for the CSA is finding the right (dynamic!) balance between supporting diversity and innovation and establishing consistency and quality across the field. In a field this young, allowing and encouraging practitioners to try new approaches, develop new platforms, forge new alliances, and explore new ways of creating projects and community is essential to the improvement of practice. At the same time, it is essential to establish and support practices and tools that can, across the whole field, support quality of experience and data that helps position citizen science as a robust approach to scientific research.

Hand in hand with this challenge is the challenge of identifying what best practices in fact are... Or, more realistically, which practices work best to achieve which outcomes with which audiences under which conditions. As the research base expands, how can the CSA support the meta-analysis of findings in such a way as to point to promising practices (for particular questions, audiences, outcomes, and conditions) without being overly prescriptive?

What skills and what types of experience would you bring to the CSA board? (If you self-nominated, this can be similar to what you wrote in the initial form.)

From 2002-2013 I managed all aspects of the Gulf of Maine Research Institute's Vital Signs program, a citizen science and science education project. My responsibilities included the development of the platform, protocols, education materials, teacher professional development, user experience, scientist experience, and fund-raising. During that time, I also developed a (short-lived) sister citizen science project in Ireland and Northern Ireland, from conceiving the project with Irish scientists, community members, and educators, through development and delivery of the technology platform and education experience for grade school students. This collaborative, people-empowering approach to creating opportunities for non-scientists – be they teachers, informal educators, middle school students, or fishermen – to participate in scientific research pervades the Gulf of Maine Research Institute's work and is my professional passion.

Since 2014 I have co-chaired the CSA's Education Working Group. In this role I have gained an appreciation for the common challenges faced by those pursuing science education through citizen science, as well as an appreciation for the value of the huge diversity in approaches and learning outcomes being pursued, and the inherent opportunity and promise to science and citizens of broadening participation in all aspects of citizen science. More concretely, I helped write the NSF AISL proposal that partially funded the CSA meeting in San Jose.

Sarah Landon Kirn

58 D Street, South Portland, Maine 04106
(207) 939-5371 slkirn@gmail.com

EDUCATION

- University of Maine**, Orono ME, Masters of Science in oceanography 2002
Thesis titled: *Planktonic Alexandrium spp. Hypnozygote cysts in the Gulf of Maine*
- Brown University**, Providence RI, Bachelors of Science, in geology-biology, 1995
Magna Cum Laude, Honors thesis titled: *Petrology of Mount Rainier pyroclastic eruption*
Recipient of the Brown University Geology Department Prize

WORK EXPERIENCE

- Education Programs Strategist** 2013- present
Gulf of Maine Research Institute, Portland, Maine
- Develop and write grant proposals and budgets in collaboration with program staff
 - Represent GMRI at national meetings and conferences (posters, talks, panel sessions)
 - Manage external relationships, including with national advisory group
 - Manage special projects
- Vital Signs Program Manager** May, 2002- 2013
Gulf of Maine Research Institute, Portland, Maine
- Managed all aspects of program, including staff members, budgets, grant proposal writing, grant reporting; successfully competed for over \$3 million in grants
 - Developed program elements, including educational resources, teacher professional development programs, learning experience design (see www.vitalsignsme.org)
 - Delivered trainings for citizens and professional development programs for K-12 teachers, including semester-long webinar-based training
 - Managed relationships with vendors, partners, funders, learning researchers, advisors
 - Delivered presentations and posters at national conferences
- National Science Foundation GK-12 Teaching Fellow** 2001-2002
University of Maine School of Marine Sciences, Orono, Maine
- Taught science lessons in 6th grade classroom
 - Awarded 6-week visiting fellowship in Tokyo, Japan, hosted by Dr. Yasuwo Fukuyo
- Teaching and Research Assistantships** 2000-2001
University of Maine School of Marine Sciences, Orono, Maine
- Teaching assistant in Introduction for Oceanography course
- Assistant to Director of Exhibits** 1998-1999
Montshire Museum of Science, Norwich, Vermont
- Wrote text for exhibits, contributed to exhibit design
 - Organized natural history collections
- Instructor and Licensed Captain, Sea Program** 1995 - 2000
Hurricane Island Outward Bound School, Rockland, Maine
- Lead 5- to 26-day sailboat-based courses for youth and adults in both Maine and Florida

PUBLICATIONS

- Le, T. Shemwell, J.T., Capps, D.K., Kirn, S., Voyer, C. (2014). Obstacles and supports for effective reasoning with evidence in authentic science investigations. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Morrisseau, S.J., S.L. Kirn. (2012). "Vital Signs: Designing for Student and Teacher Participation in a Scientific Research Community," a case study in Annenberg Innovation Lab's *Designing with Teachers*:

Participatory Approaches to Professional Development in Education. Erin Reilly and Ioana Literat, Editors. May be downloaded as a pdf from <http://www.gmri.org/about/newsItem.asp?ID=170> or read online at <http://www.slideshare.net/amandafo/pd-working-groupv5a>.

- Kirn, S.L., D.W. Townsend, N.R. Pettigrew. (2005). "Suspended *Alexandrium spp.* hypnozygote cysts in the Gulf of Maine" *Deep Sea Research II* 52: 2543-2559.
- Kirn, S.L., D.W. Townsend. (2002). "Planktonic *Alexandrium spp.* Hypnozygote cysts in the Gulf of Maine: A Shallow Water Trap?" *Eos, Transactions, American Geophysical Union*, 83(4), Ocean Sciences Meeting Supplement, Abstract OS11U-02.
- Rutherford, M.J., S. Kirn, D.Y. Venezky. (1995). "Petrologic melt and sulfide inclusion evidence for pre-eruption gas phase production in silicic calc-alkaline magmas" *Eos, Transactions, American Geophysical Union*, 76:17, Suppl., p. 267.

INVITED PRESENTATIONS AND POSTERS

2015. "Developing a Framework for Citizen Science in Education – Join the Conversation!," chaired panel presentation at the Citizen Science Association Conference, San Jose, CA.
2015. "Taking Deeper Learning Outside," a citizen science-based deeper science learning workshop, Delivered at Deeper Learning 2015 Conference, San Diego, CA
2014. "Geo-Education: Teaching About Connections in the 21st Century World," panel presentation Teaching and Learning Conference, Washington, DC
2013. "Investigate with Vital Signs" and "Vital Signs – Citizen Science as a context for scaffolding deeper learning" presentation and workshop at joint Hewlett Foundation Open Educational Resources Grantees Meeting and Deeper Learning 2014 Conference, San Diego, CA
2013. "The Gulf of Maine Research Institutes' Vital Signs Program: What, How, and Why" invited presentation at National Geographic Society, Washington, DC, October 2013
2013. "Designing with Teachers: Participatory Approaches to Professional Development in Education." Digital Media and Learning Conference, member of panel presenting, Chicago, IL
2013. "Assessing Critical Thinking in Vital Signs: a look at reasoning in arguments for species identification" co-presented with researchers from the University of Maine, International Teacher-Scientist Partnership Conference, Boston, MA
2012. "Vital Signs: Explore, Share, Learn," poster presented at Public Participation in Science Research Conference, Portland, OR
2007. "Vital Signs: Open Source Data Input Tools" invited talk at Citizen Science Toolkit Conference, Cornell Lab of Ornithology, Ithaca, NY

PROFESSIONAL TRAININGS

- Facilitative Leadership for Social Change, Interaction Institute for Social Change, September 2013
- Lift360 Leadership Intensive (formerly Institute for Civic Leadership), Chi Class, September 2014-April 2015

SYNERGISTIC ACTIVITIES

- Chair, Citizen Science Association's Education Working Group (March 2014 to present)
- Member, Citizen Science Association's Web/Communications working group (2012 to 2014)
- Treasurer, Waterfront Alliance, an organization whose mission is to protect and promote both traditional and new uses of the working waterfront surrounding Portland Harbor (2015-present)
- Member, Knightville Neighborhood Ad Hoc Parking and Traffic Committee, South Portland Maine, (August 2014 – present)