Authentic science learning, focus on place, and changes in underserved students' views about science and its role in their future.

Bill Zoellick, Schoodic Institute at Acadia National Park

Citizen Science has the potential to engage students who have been underserved by traditional science instruction because it involves them in authentic scientific work. But "authentic" can be understood in different ways, focusing on scientific outcomes, process, or students' contribution (Brown, et al., 1989; van Eijck & Roth, 2009). This paper presents early results from exploration of two research questions: (1) What is the association between students’ pre-existing attachment to place and differences in science self-efficacy and/or career expectations related to science? (2) What is the association between different student perceptions of the authenticity of the science learning and changes in science self-efficacy and/or place attachment? Working with students in three different programs over the course of a school year, including two programs focused on students at risk of not completing high school, the study uses repeated anonymous surveys of place attachment, science self-efficacy, and career expectations. This paper is intended not only as a vehicle to share initial findings, but also as a stimulus for more conversation within the CSA research community about the nature of “authentic science learning” and its impact on students.

Unpacking assumptions about what matters to teachers and students in citizen science

Emily Harris, University of California, Davis

Citizen and community science (CCS) has long been positioned as a way for students to engage in authentic science learning experiences and become participants in scientific communities of practice (Lave & Wenger, 1991; Tinker, 1997). But is involvement in authentic science what actually motivates teachers to bring CCS to school and, subsequently what engages youth? This paper explores the following research questions: 1) Why do teachers decide to incorporate citizen and community science (CCS) into their classrooms? 2) What do students find meaningful about CCS? 3) Is what draws teachers to CCS the same as what engages students? We explore these questions by analyzing youth and educator interviews from several qualitative case studies where youth ages 8-18 participate in CCS, using a combined inductive and deductive approach. Preliminary analyses suggest that educators often value CCS as it offers opportunities for participation in "real" science. Some youth participants find this authentic science framing meaningful, particularly those who already identify with science. Yet many young people find different aspects meaningful, such as social connection, time outdoors, or personal investigation, and still others don’t articulate a strong connection to CCS. This research has implications for how to encourage youth voice through CCS and how educators can frame CCS such that all young people can engage in personally consequential ways.