2013 RESEARCH SYMPOSIUM
Baltimore
October 8 – 9
Celebrating the Power of Environmental Education
Dear Friends and colleagues:

Welcome to Baltimore and to the NAAEE Research Symposium.

If you are a first time attendee, we wish you an especially warm welcome. Our aim is make the research symposium both educative and enjoyable. We want you to engage with the presented material but, even more, to engage with each other in current discussion and future collaboration. Our focus in this Symposium is on exploring the process of “doing” environmental education research. Rather than just presenting the findings of finished studies, we aim to devote our time to examining works in progress and to looking at the stories behind the research. The next two days are about assisting each other by sharing problems, processes, ethical dilemmas, new (and forgotten) techniques, and the emotional response to undertaking research.

Yours respectfully,

Charlotte Clark
Chair, NAAEE Research Special Interest Group and Research Symposium Co-Chair

Bob Coulter
Chair Elect, NAAEE Research Special Interest Group and Research Symposium Co-Chair
### TUESDAY

<table>
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| 9:00 AM – 9:15 AM | WELCOME & INTRODUCTIONS  
( Harborview Ballroom) |
| 9:15 AM – 10:30 AM | PLENARY—Ellen McCallie  
Reflecting on Our Careers: Circuitous Paths to Successful Careers  
(Harborview Ballroom) |
| 10:30 AM – 11:00 AM | BREAK |
| 11:00 AM – 11:45 AM | POSTERS I  
(Harborview Ballroom) |
| 11:45 AM – 12:30 PM | POSTERS II  
(Harborview Ballroom) |
| 12:30 PM – 1:30 PM | LUNCH  
(Morton’s Restaurant) |
| 1:30 PM – 2:30 PM | INTERACTIVE PRESENTATIONS  
(Two 30-minute back-to-back presentations per room)  
Camden I, Camden II, Severn I, Severn II & III, Sassafras |
| 2:30 PM – 3:00 PM | BREAK |
| 3:00 PM – 4:30 PM | WORKSHOPS  
Camden I, Camden II, Severn I, Severn II & III, Sassafras |
| 6:00 PM – 8:00 PM | RECEPTION  
(Potomac) |

### WEDNESDAY

<table>
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| 8:00 AM – 9:00 AM | GRAD STUDENT & FACULTY BREAKFAST  
( Loch Raven Room) |
| 9:00 AM – 10:00 AM | FORMAL PRESENTATIONS  
(Two 30-minute back-to-back presentations per room)  
Camden I, Camden II, Severn I, Severn II & III, Sassafras |
| 10:00 AM – 10:15 AM | BREAK |
| 10:15 AM – 11:15 AM | ROUNDTABLES I  
( Loch Raven Room) |
| 11:15 AM – 11:30 AM | BREAK |
| 11:30 AM – 12:00 PM | FORMAL PRESENTATIONS  
Camden I, Camden II, Severn I, Severn II & III, Sassafras |
| 12:00 PM – 1:00 PM | LUNCH  
(Morton’s Restaurant) |
| 1:00 PM – 2:00 PM | INTERACTIVE PRESENTATIONS  
(Two 30-minute back-to-back presentations per room)  
Camden I, Camden II, Severn I, Severn II & III, Sassafras |
| 2:00 PM – 3:00 PM | ROUNDTABLES II  
( Loch Raven Room) |
| 3:00 PM – 3:15 PM | BREAK |
| 3:15 PM – 4:30 PM | PLENARY/CLOSING—Charlotte Clark, Bob Coulter, and others  
(Harborview Ballroom) |
Ellen McCallie, PhD, is a program director in the Division of Research on Learning at the National Science Foundation. Originally trained as a tropical ecologist, Ellen has worked across the field of informal science education, in botanical gardens, natural history museums, science television, museum administration, and a national center. In the midst of these endeavors—and mid-career—Ellen returned to graduate school to study science education.

For years people have had two reactions to Ellen McCallie’s career path. One was, “Given the random things you’ve done, why would anyone hire you?” The second was, “Wow, we need someone with the breadth and depth of your experience. When can you start?” This session reflects on choosing a seemingly circuitous career path and the decisions we make along the way—and why. The workshop format means that while Ellen’s experiences may start the conversation, your career trajectory and next adventures are at the heart of this session.

**PRESENTATION DETAILS**

**11:00 AM – 12:30 PM**

**POSTERS**

**Reconceptualizing Teacher Professional Development for Climate Literacy Using Learning Progressions**

Ellen McCallie

Reflecting on Our Careers: Circuitous Paths to Successful Careers

Ellen McCallie, PhD, is a program director in the Division of Research on Learning at the National Science Foundation. Originally trained as a tropical ecologist, Ellen has worked across the field of informal science education, in botanical gardens, natural history museums, science television, museum administration, and a national center. In the midst of these endeavors—and mid-career—Ellen returned to graduate school to study science education.

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**Why Deny and How Can We Talk to Climate Deniers?**

11:00 to 11:45 am Harborview Ballroom

How do climate change deniers justify their ideas? Analysis of open-ended comments from a recent survey provides clues to a variety of beliefs that lead to a doubtful or dismissive perspective. Understanding this diversity should help educators in developing effective communication strategies.

Presenter:
Martha C. Monroe, University of Florida

**Intersections: Mobile Device Technology, High School Students, and Field Ecology**

11:00 to 11:45 am Harborview Ballroom

This presentation describes diverse high school youths’ engagement in a field ecology summer program that provided them many “first-time” experiences in nature. We will describe how we used mobile technology to enhance student learning and their engagement in environmental science.

Presenters:
Terry Tomasek, Elon University
Lacey Denise Hufiling, University of North Carolina at Greensboro
Heidi B. Carlone, University of North Carolina at Greensboro
Catherine Matthews, University of North Carolina at Greensboro

**Perspectives on Nature and the Environment: High School Religion Textbooks of Korea**

11:00 to 11:45 am Harborview Ballroom

Currently many of the religion-established high schools in Korea teach a subject titled “Religion.” This presentation will share results of analysis of religion textbooks in terms of their perspectives on nature and the environment.

Presenters:
Ji-Cheol Yoo, Korea National University of Education
Chankook Kim, Korea National University of Education
Locating in Space and Time: Discourse Analysis in Environmental Education
11:00 to 11:45 am  Harborview Ballroom
Humans exist within complex social and ecological systems that connect their situated local reality to larger global phenomena over time. This presentation uses preliminary dissertation data to examine how qualitative discourse analysis might examine this situated dimension of human existence.

Presenter: Joseph A. Henderson, University of Rochester

Using Photovoice to Identify Students’ Knowledge of Local Environmental Issues
11:00 to 11:45 am  Harborview Ballroom
The presenter will facilitate a discussion regarding the use of Photovoice as a tool to determine students’ knowledge of local environmental concerns. A research project in which students have used Photovoice to define human impact will be described.

Presenter: Patricia Patrick, Texas Tech University

Green Corps: Participatory Field Research
11:00 to 11:45 am  Harborview Ballroom
Green Corps, a high school urban agriculture work study program is engaged in a longitudinal evaluation of the effect of the program on participants. Discussion will focus on participatory research models and applications to out-of-school programs.

Presenter: Julia Ferguson, Cleveland Botanical Garden

Understanding World Views for Rational Debate and Societal Acceptance of EE
11:00 to 11:45 am  Harborview Ballroom
For over 30 years, media and politics have created polarized environmental worldviews. What worldviews really exist, and how do we get back to rational debate on the beliefs and values we mostly share? Understanding worldviews can reframe ready acceptance of environmental education.

Presenter: Richard R. Jurin, University of Northern Colorado

Thematic Analysis of Educators’ Environmental Education Improvement Plans
11:00 to 11:45 am  Harborview Ballroom
Educators created EE improvement plans as part of EE Teaching courses during three recent spring semesters. The template, analysis, and preliminary findings will be discussed. Findings reveal educators’ perceptions of EE and pathways toward improvement.

Presenter: Steven C. Kerlin, University of Wisconsin-Stevens Point

Public Participation in the Goliath Grouper Fishery
11:00 to 11:45 am  Harborview Ballroom
Preliminary research identifies stakeholders and their perspectives regarding management changes for Florida’s controversial goliath grouper (Epinephelus itajara) fishery. Future methods for assessing management outcomes and the effects of stakeholder education will be explored.

Presenter: Jessica Sutt, University of Florida

Citizen Science Projects Inspire Young Adults to Pursue Science Careers
11:00 to 11:45 am  Harborview Ballroom
The Summer Youth Science Leadership program at the Great Smoky Mountains Institute at Tremont has inspired local young adults to pursue careers in science through engaging citizen science summer research projects and interactions with research scientists.

Presenters:
Zena Tennenbaum, Middle Tennessee State University
Kim Sadler, Middle Tennessee State University

The Role of Social Learning for Social-Ecological Systems in Korean Village Groves Restoration
11:00 to 11:45 am  Harborview Ballroom
This study introduces the Korean Village Groves Restoration Projects (VGRP) through the lens of social learning, and discusses implications of the VGRP for resilience in villages impacted by industrialization and the decline of traditional forest resources.

Presenters: Eunju Lee, Cornell University
Marianne Krasny, Cornell University
Developmental Evaluation to Support Sustainability Science in Elementary Classrooms
11:00 am to 11:45 am Harborview Ballroom
The Teacher Institute for Science and Sustainability at the California Academy of Sciences has partnered with SRI International to engage in design-oriented evaluation aimed at improving program quality for supporting elementary teachers’ classroom instruction in sustainability and scientific practices.

Presenters:
Vera Michalchik, SRI International
Emily Harris, California Academy of Sciences

The “Field” of EE as a Landscape: An Emerging Metaphor
11:00 am to 11:45 am Harborview Ballroom
We ask you to respond to emerging visual constructions of the field of EE. We wish to create both an accessible image, and a space for discussion of EE identity and the relationships and connections between educators in the “field.”

Presenters:
Joe E. Heimlich, Ohio State University Extension
Charlotte Clark, Duke University
Heidi Ballard, School of Education, University of California
Nicole Ardoin, Stanford University

Leafsnap: Engaging Urban Students with Local Tree Diversity and Evolution
11:45 am to 12:30 pm Harborview Ballroom
This is an NSF funded project that uses Leafsnap, a tree identification app, to engage urban middle school students in biodiversity. We seek to learn how Leafsnap can impact student appreciation and learning of local biodiversity in an evolutionary context.

Presenter: Yael Wyner, The City College of New York

Social Learning and Collaborations: Increasing Resilience in Rural Communities
11:45 am to 12:30 pm Harborview Ballroom
This presentation addresses social learning based approaches to disseminate information facilitating ecological and economic uplift in rural communities. When properly applied, environmental education can be a powerful tool to increase the resilience of communities dependent upon agriculture and natural resource extraction.

Presenter: Dan Calvert, Oregon State University

Exploring Cognitive, Affective, and Normative Factors Affecting Students’ Learning in Climate Change Education
11:45 am to 12:30 pm Harborview Ballroom
Learn about an ongoing research project which is focusing on (1) the factors affecting students’ learning and (2) characteristics of educative curriculum in climate change. Theoretical background, research methodology and procedure for data analysis will be included.

Presenters:
Jie Li, University of Florida
Martha C. Monroe, University of Florida

Undergraduates Learning Sustainability While Living It: Factors for Success
11:45 am to 12:30 pm Harborview Ballroom
We examine the success of an undergraduate sustainability semester that combined seven students, fourteen-day long team taught courses, one applied project, weekly field trips, living challenges, a watershed canoe trip, and regular doses of fun, local food, and academia.

Presenter: Jonathon Schramm, Merry Lea Environmental Learning Center of Goshen College

Environmental Discourses in Borana Oromo: A Focus on Narratives
11:45 am to 12:30 pm Harborview Ballroom
This study explored the discourses of environmental narratives in Borana Oromo of southern Ethiopia. The findings revealed dominant environmental beliefs and values, which are organized under discourses of environmental necessity and survival, scarcity and security, hopelessness, inclusion and exclusion, seniority, responsibility, and obedience and disobedience.

Presenter: Teshome Tafesse, Addis Ababa University
Global Warming and Its Uncertainty: How Certain It Is in EE Textbooks of Korea
11:45 am to 12:30 pm Harborview Ballroom
This presentation will share results of analysis of secondary EE textbooks on global climate change. It may lead us to discussions on how to incorporate recent scientific findings in textbooks and how to deal with the ‘uncertainty’ of environmental issues educationally.

Presenters:
Miran Kim, Korea National University of Education
Chankook Kim, Korea National University of Education

Young People’s Evolving Critical Inquiry of Environmental Justice Issues
11:45 am to 12:30 pm Harborview Ballroom
This presentation explores the evolution of a participatory research and gardening project co-developed by a team of youth and adult researchers. Specific attention is given to the opportunities and challenges of doing participatory environmental justice research with young people.

Presenter: Bijan Kimiagar, CUNY Graduate Center

Civic Ecology Practice in Iran: The Case of the Nature Cleaners
11:45 am to 12:30 pm Harborview Ballroom
An Iranian civic ecology practice called Nature Cleaners is presented in terms of its origin, activities, and expansion through social networking, and is compared with counterpart civic ecology practices in the United States.

Presenters:
Zahra Golshni, University of Illinois at Urbana-Champaign
Marianne Krasny, Cornell University

Preservice Teachers’ Perceptions About Teaching the Environment at School
11:45 am to 12:30 pm Harborview Ballroom
What opportunities for teaching about Nature do new teachers anticipate when they arrive at school? Two researchers present their ongoing pair of studies. Join us to discuss ways these data can aid teachers bringing Nature to school.

Presenters:
Erica Blatt, College of Staten Island
Timothy G. Thomas, James Madison University

Voices of Bangladeshi Environmental Youth Leaders: A Narrative Study
11:45 am to 12:30 pm Harborview Ballroom
This poster will review my study of five young Bangladeshi environmental youth leaders participating in the U.S. State Department grant funded Earth Champions Program (ECP) who competed for and won funding to design and implement community projects in Bangladesh.

Presenter:
Paige Jackins, Antioch University New England

Utilizing Needs Assessment to Inform EE Program Development and Evaluation
11:45 am to 12:30 pm Harborview Ballroom
This session will present needs assessment as a critically useful process in the planning, implementation, and evaluation of EE programs. The session will use a national project as a case example to illustrate potential issues during program development and administration.

Presenter:
Juna Z. Snow, University of California at Berkeley
1:30 PM – 2:30 PM
INTERACTIVE PRESENTATIONS

Fishing for Data: A Review of Angler Diary Programs
1:30 to 2:00 pm                  Camden II
This presentation reviews volunteer angler data collection programs, compares their relative successes, and engages discussion on strategies to improve the research. In addition, we discuss the application of citizen science to answering fisheries research questions and to reducing stakeholder conflict.

Presenter:
Chelsey Crandall, University of Florida

Translating Existing Research into New Approaches for Evaluating Environmental Literacy
1:30 to 2:00 pm                  Sassafras
Informal environmental education realities challenge evaluation best practices. Inspired by NAAEE and NSF Frameworks, Shedd Aquarium is piloting outcomes-based environmental literacy evaluation. To better demonstrate impact, further research may transition the field from homemade, program-specific instruments to consistent, rigorous tools.

Presenter:
Stephanie Bohr, John G. Shedd Aquarium

Creating a Handbook of Research on Environmental Education: Lessons Learned
1:30 to 2:00 pm                  Severn I
This session examines the process of creating the International Handbook of Research in Environmental Education. Discussion with editors and chapter authors attending the symposium will address lessons learned and looks at what happens when you think everything is finished.

Presenters:
Michael Brody, Montana State University
Justin Dillon, King’s College London
Arjen Wals, Wageningen University

Using Reflective Practice to Foster a Climate Change Education Community-of-Practice
1:30 to 2:00 pm                  Severn II/III
This session will describe our use of reflective practice strategies to cultivate a climate change education community-of-practice among educators from informal learning environments and will include a discussion on nurturing and measuring the development of such a network.

Presenters:
Cathlyn Styinski, University of Maryland Center for Environmental Science
Sasha Palmquist, Palmquist & Associates
Joe E. Heimlich, Ohio State University Extension
Renae Youngs, Lifelong Learning Group, COSI

Combining Cultural and Environmental Education for Middle Schoolers in Hawai‘i
2:00 to 2:30 pm                 Camden I
Incorporating cultural education with environmental education is an important frontier of environmental education. How does this work? We use findings from a cultural/environmental education program in Hawai‘i to spur discussion on the interface of cultural education and environmental education.

Presenters:
Rachelle Gould, Stanford University
Nicole Ardoin, Stanford University

Of Environmental Identities, Endpoints, Trajectories, and Complexities
2:00 to 2:30 pm                 Sassafras
In this session, we will explore our objectives in studying environmental identity, specifically focusing on the implications of an idealized environmental identity, the notion of trajectories, and the issue of identity complexity. Be ready to discuss and deliberate!

Presenter:
Sarah Riggs Stapleton, Michigan State University
Exploring “Place Meanings” as an Educational Tool in EE Settings
2:00 to 2:30 pm Severn I
The presenters will facilitate a discussion regarding the significance of ‘place meanings’ in our current research with pre-service teachers, and as an educational tool to draw upon in our teaching about the environment in both formal and informal EE settings.

Presenters:
Erica Blatt, College of Staten Island
Patricia Patrick, Texas Tech University

Informal Learning and Native Language in USA and Russia Mountain Systems
2:00 to 2:30 pm Severn II/III
This interactive presentation will describe a collaborative research project between Montana State University, USA and Gorno-Altaisk State University, Altai Republic, Russian Federation. We will discuss native students’ collaborative research related to native language use in learning ecological sciences in informal settings.

Presenter:
Michael Brody, Montana State University

3:00 PM – 4:30 PM WORKSHOPS
Are We There Yet? Taking Qualitative Inquiry Seriously
3:00 to 4:30 pm Sassafras
From an editor’s perspective, much qualitative research in environmental education is qualitative in name only. Using studies from journal articles and methodology courses, I argue that doing qualitative research requires serious study beyond the level of methods.

Presenters:
Paul Hart, University of Regina
Catherine Hart, University of Regina

The Emotional Experience of Graduate School: Coping and Communication Tools
Graduate Student Professional Development Workshop
3:00 to 4:30 pm Severn I
This session is focused on giving graduate students a space to talk about the emotional highs and lows of graduate work. We will also focus on providing ways to effectively communicate and channel those emotions.

Presenters:
Kathayoon Azra Khalil, Stanford University
Susan Caplow, University of North Carolina at Chapel Hill

6:00 PM – 8:00 PM RECEPTION
Please join us on Tuesday evening at 6:00 pm in the Potomac Room for an informal social reception for Research Symposium participants. Enjoy hors d’oeuvres, a cash bar, and great conversation and company.
**WEDNESDAY**

**8:00 AM – 9:00 AM**

**GRAD STUDENT & FACULTY BREAKFAST**

Loch Raven Room

We invite faculty and doctoral students to a breakfast on Wednesday to discuss career paths and professional advancement tips and advice. Table topics could include making a post-doctoral choice, publishing across institutions, understanding researcher and journal metrics, and writing as if your life depended on it.

**9:00 AM – 10:00 AM**

**FORMAL PRESENTATIONS**


9:00 to 9:30 am          Camden II

Residential EE programs produce numerous benefits for their participants. However, there is limited understanding of what happens during the learning experience that leads to these outcomes. We developed and field tested innovative metrics to measure ‘slippery’ outcomes that occur during a program’s process.

Presenters:
Nicole Ardoin, Stanford University
Kathleen M. O’Connor, Stanford University
Maria DiGiano, Stanford University

**Refining Civic Ecology Hypotheses Through Narrative Collaborative Inquiry**

9:00 to 9:30 am          Sassafras

Civic ecology practices provide opportunities for integrated learning about community and the environment in cities and other stressed social-ecological systems. We conducted research coupled with an online course to refine a set of 10 hypotheses defining civic ecology practices.

Presenters:
Marianne Krasny, Cornell University
Philip Silva, TreeKiT
Keith Gordon Tidball, Cornell University

**Being “Smart”/Being “Me”: Identities, Field Ecology, and School Science**

9:00 to 9:30 am          Severn I

Typical school science promotes identities and images of “smartness” that exclude and discourage diverse youth. Can we disrupt these disturbing trends? We examine how summer herpetology research experiences provided spaces for youth to step beyond institutionally sanctioned views of “smart.”

Presenters:
Heidi Carlone, University of North Carolina at Greensboro
Tess Anne Hegedus, University of North Carolina at Greensboro
Lacey Denise Huffling, University of North Carolina at Greensboro
Terry Tomasek, Elon University
Catherine Matthews, University of North Carolina at Greensboro

**Exploring Activism as Pedagogy Within Indigenous Ecological Movements**

9:00 to 9:30 am          Severn II/III

Socio-ecological conflicts over resource development in Indigenous territories currently exist across Canada. In this presentation I will discuss a developing study into the pedagogical experiences of Indigenous ecological activists through my lens as a Métis scholar and educator.

Presenter: Greg Lowan-Trudeau, University of Calgary
GreenData: Can Kids Use Data to Make Sense of Their World?
9:30 to 10:00 am                Sassafras
Can middle school students use data effectively to understand environmental issues? We thought we knew; research data is making us think again. Join this session to explore some intriguing research issues with real implications as schools strive to meet new academic standards.

Presenter: Bob Coulter, Missouri Botanical Garden

Who Can I Be Here? Identity and Place in Residential EE
9:30 to 10:00 am                Severn I
Through participant observation, interviews, and students’ own documentation of their experience, this study explores how students’ identity and sense of place develop as they participate in a residential EE program, and how they connect the experience to their everyday lives.

Presenter: Kathleen M. O’Connor, Stanford University

The Company You Keep: Personal and Professional Relationships in EE
9:30 to 10:00 am                Severn II/III
Integrating qualitative and quantitative data can be challenging. I will talk about combining interviews with a social network analysis survey to achieve a deeper understanding of relationships among environmental education professionals and how these relationships impact the diffusion of information.

Presenter: Kathayoon Azra Khalil, Stanford University

Using Formative Evaluation to Bridge the Research Practice Gap in EE
10:15 to 11:15 am                Loch Raven
The presenters will discuss the gap between research suggested practices and teaching realities and solutions for bridging it. A case study will be provided to show how formative evaluation can be used. Both practitioners and researchers are welcome to participate by sharing their experiences.

 Presenters:
Jie Li, University of Florida
Martha C. Monroe, University of Florida

Discovering Aquarium Volunteer Environmental Identities and Conservation Beliefs
10:15 to 11:15 am                Loch Raven
Zoos and aquariums are among the best informal education avenues for individuals to further develop conservation beliefs. This study focuses on how staff and volunteers embedded in an aquarium actively form their environmental identity and conservation beliefs and values.

Presenter: Michelle A. Mileham, Oregon State University

Development of Professional Networks to Foster Innovation in Environmental Education
10:15 to 11:15 am                Loch Raven
We use social network analysis to investigate changes in professional networks of diverse EE and youth development professionals engaged in activities designed to foster exchange of ideas and practice, and to evaluate the impact of these changes in networks on environmental education programs.

 Presenters:
Yue Li, Cornell University
Marianne Krasny, Cornell University

Using Activity Theory to Inform Online Community Education Research
10:15 to 11:15 am                Loch Raven
Online community education for sustainability occurs within larger socio-cultural dimensions, often involving complex settings. In this context, activity theory provides guidelines that account for the entire range of technological and cultural factors that impact on learners at the community level.

 Presenters:
Claudio Aguayo, University of Waikato
Chris Eames, University of Waikato
Where Do We Go? The Scope of Montana’s Outdoor Education
10:15 to 11:15 am                Loch Raven
To promote healthy kids and families, connect kids and families with nature, and support place-based education, a survey of the scope of outdoor and nature education opportunities in Montana was completed. But, how do we best support these initiatives?
Presenter: Amanda Obery, Montana State University

Three-Eyed Seeing: Exploring Indigenous Ecological Knowledge in Culturally Complex Contexts
10:15 to 11:15 am                Loch Raven
This presentation reports on an evolving study into the rich challenge and complexity encountered by students and educators in culturally diverse educational settings in Canada that emphasize Indigenous ecological knowledge and philosophy.
Presenter: Greg Lowan-Trudeau, University of Calgary

Worlds Collide on Community-Based EE: Practitioner and Researcher Perspectives
10:15 to 11:15 am                Loch Raven
This roundtable will present the culmination of two paths, one of a researcher and the other of a practitioner, that seek to articulate and enhance community-based EE through the use of a framework and simulation activity based on their work.
Presenters:
Olivia Aguilar, Denison University
Akiima Price, Akiima Price Consulting

Challenges in Doing Post-Critical Environmental Education Research in Socio-Ecological Identity
10:15 to 11:15 am                Loch Raven
This presentation focuses on challenges faced while exploring the ways in which environmental educator identities are formulated. Reflections on critically and post structurally-informed narrative approaches are used to explore the processes of identity construction of environmental educators and researchers.
Presenter: Catherine Hart, University of Regina

Family Engagement at Touch-Tank Exhibits: Cognition, Affection, and Conservation Attitudes
10:15 to 11:15 am                Loch Raven
How do families appropriate experiences at museum live animal exhibits? Do such experiences promote conservation attitudes? We use a grounded theory approach to make sense of meaningful events influencing learning and affection while families engage in live animal, touch-tank activities.
Presenter: Susan O’Brien, Oregon State University

11:30 AM – 12:00 PM
FORMAL PRESENTATIONS

Publishing and Reviewing in Environmental Education: Some Do’s and Don’ts
11:30 am to 12:00 pm                Camden I
A panel of journal editors and editorial board members will provide some insight into the art and science of publishing in peer-reviewed journals. Topics will include: choosing journals; interpreting reviewers’ comments; and, what to do if you get rejected.
Presenters:
Justin Dillon, King’s College London
Paul Hart, University of Regina
Nicole Ardoin, Stanford University

What Counts as K–12 School-Based Environmental Science Education?
11:30 am to 12:00 pm                Camden II
This position paper examines the school-based environmental science education (ESE) research of the last decade. We analyze what counts as knowledge and practices within the literature and conclude with our vision for what should count as ESE in K-12 schools.
Presenters:
Elizabeth Hufnagel, Penn State University
William S Carlsen, Penn State University

Using Participatory Action Research Methodologies
11:30 am to 12:00 pm                Sassafras
Students, teachers, fishermen, and climate scientists… oh my! This session will explore the process of bringing all stakeholders to the table to develop an online learning community to explore the local effects of climate change on coastal communities across the nation.
Presenter: Ruth Kermish-Allen, Island Institute
Facilitating Pro-Environmental Behavior Following Nature-Based Tourism Experiences
11:30 am to 12:00 pm                Severn I
The interdisciplinary study aims to foster environmentally related behaviors following nature-based tourism experiences. We developed and tested technology-based platforms for transforming interest in environment and natural history into everyday stewardship. Research sites were Año Nuevo State Park and Galápagos Islands.

Presenters:
Mele Wheaton, Stanford University
Nicole Ardoin, Stanford University

Science Express: Innovative Engagement About Climate Change on Mass Transit
11:30 am to 12:00 pm                Severn II/III
Science Express is a three year NSF project that brings together educational researchers, informal science educators, and communication experts to develop and test a new model of informal science learning about climate change on the Boston T.

Presenter:
David Lustick, University of Massachusetts Lowell

How Might Developing Environmental Action Competence Be Integrated into Public High Schools?
1:00 to 1:30 pm               Camden II
This presentation will explore how sustained, infused, environmental education (EE) is being implemented in a public high school partnership academy. We will discuss the issues involved in researching the impacts of infused EE on the development of students’ environmental action competence.

Presenters:
Anne Kinney Stephens, UC Davis and California Department of Education
Ann Marie Kennedy, GEO Academy

Understanding the Organizational Landscape of Environmental Learning Opportunities (Part 1 of 2)
1:00 to 1:30 pm               Severn II/III
In this two-part session, we present an ongoing mixed-method study investigating environmental learning in the San Francisco Bay Area. We first discuss how social network analysis is revealing a diverse mosaic of organizations comprising the “supply side” of environmental learning.

Presenters:
Deborah Wojcik, Stanford University
Nicole Ardoin, Stanford University
Kathayoon Azra Khalil, Stanford University

Developing a National Grant Program’s Evaluation System: Benefits and Challenges
1:00 to 1:30 pm                Sassafras
What are the benefits and challenges of a national environmental education evaluation system for program managers, participants, researchers? We will share our insights based on developing an evaluation system for NOAA B-WET’s grant program and seek your suggestions for improvements.

Presenters:
Michaela Zint, Univ. of Michigan
Anita Kraemer, eeEvaluations

Developing Teacher Pedagogical Content Knowledge in Environmental Education
1:30 to 2:00 pm               Camden I
Effective environmental educators have rich pedagogical content knowledge. This paper highlights a tool for developing this knowledge, and reports on a research project that used Activity Theory to explore the development of a teacher’s pedagogical content knowledge in environmental education.

Presenters:
Chris Eames, University of Waikato
Sally Birdsall, The University of Auckland

EE on the Fringes: Flight or Fight
1:00 to 1:30 pm                Severn I
While EE research flourishes in progressive places, cultural and contextual challenges still exist in many places. The intent of this session is to discuss limitations, possibilities, and support mechanisms for furthering EE research and practices in conservative environments.

Presenter:
Carie Green, Idaho State University
How Do Nature Experiences Help Develop Environmental Sensitivity? A Case Study in Taiwan
1:30 to 2:00 pm
Camden II
Significant life experience studies have indicated nature experiences have great influences on the development of environmental sensitivity. However, we don’t know enough detail about this process. This study tries to reveal how affective attributes in nature experiences can help to promote environmental sensitivity.

Presenters:
Yu-Chi Tseng, National Taiwan Normal University
Shun-Mei Wang, National Taiwan Normal University

Responsive Evaluation for Community-Based EE Programs
1:30 to 2:00 pm
Sassafras
How do we capture the full impact of high quality projects without overwhelming participants? This session will share the responsive evaluation strategy, incorporating video-making, for an evaluation plan that meets the needs of participants and funders like the National Science Foundation.

Presenter: Ruth Kermish-Allen, Island Institute

Natural Resource Career Paths: Applying the Social Cognitive Career Theory
1:30 to 2:00 pm
Severn I
Natural resource professions need to attract young adults from diverse backgrounds. However, application of career theory in natural resources is limited. This study hopes to improve recruitment by applying the Social Cognitive Career Theory to examine individual career paths.

Presenters:
Kelly Balcarczyk, West Virginia University
Dave Smaldone, West Virginia University
Steve Selin, West Virginia University

Environmental Learning and Behavior in Everyday Life: Surveys and Community Listening Sessions (Part 2 of 2)
1:30 to 2:00 pm
Severn II/III
Building on the previous session, we discuss two complementary studies that explore environmental learning and behavior among San Francisco Bay Area residents: community listening sessions conducted in partnership with local organizations and a survey of more than 1200 residents.

Presenters:
Nicole Ardoin, Stanford University
Janel Schuh, Stanford University
Deborah Wojcik, Stanford University

2:00 PM – 3:00 PM
ROUNDTABLES II

Influences on Risk Perceptions of Climate Change in Adolescents
2:00 to 3:00 pm
Loch Raven
This presentation will summarize preliminary findings from a study on how adolescents perceive climate change. Recent literature suggests that adult perceptions are formed primarily through worldviews, and this study will examine the degree to which this is true among adolescents.

Presenters:
Kathryn Tate Stevenson, North Carolina State University
Renee Strynad, North Carolina State University
Sarah J Carrier, North Carolina State University

Video as a Communication Tool: Forest Landowners and Climate Change
2:00 to 3:00 pm
Loch Raven
Explore the possibilities of video as a tool for Extension and education. This session will evaluate message framing in video for communicating climate change mitigation and adaptation strategies to forest landowners, and general strategies for using video effectively.

Presenter: Shelby Krantz, University of Florida

Educating for Informed Participation in the Move Toward Environmental Sustainability
2:00 to 3:00 pm
Loch Raven
We share experiences and findings from a series of workshops conducted to introduce faculty from higher education, K-12, and informal environmental educators to environmental and sustainability curricula. We seek discussion regarding continuing research on sharing ideas through an online learning community.

Presenters:
Carol C Johnston, Mount St. Mary’s College, Los Angeles
Manisha Manisha Javeri, California State University at Los Angeles
Abeer Almarakshi, California State University at Los Angeles
Does Outdoor Field Experience Connect University Students to Nature?
2:00 to 3:00 pm    Loch Raven
Often debated in the presenter’s own school, she wonders how effective outdoor field experiences are for connecting university students to nature over both the short and long term. Come offer your thoughts and register your own interest in participating in a multi-university study.
Presenter: Shelby Gull Laird, Charles Sturt University

Impacts of EE Masters for Teachers: 20 Years and Beyond
2:00 to 3:00 pm    Loch Raven
What impact have we had on the over 200 graduates of the University of Wisconsin’s MS in EE for pK-12 teachers? The survey results presented this session will explore how graduates of this MS felt the program met the NAAEE standards.
Presenter: Jessica Tomaszewski, College of Natural Resources, Continuing Education

Using Online Data to Examine Nature Experiences
2:00 to 3:00 pm    Loch Raven
This study will examine Appalachian Trail through-hikers’ experiences of and connections to nature through a qualitative analysis of online hiking journals. The discussion will revolve around the challenges and opportunities of using online data.
Presenter: Vanessa Ann Klein, Kent State University

Familiarity, Participation, and Engagement with EE programs (Iranian Community)
2:00 to 3:00 pm    Loch Raven
An exploratory study of Iranian parents’ familiarity, perception and preferences as well as potential barriers and incentives to have their kids participate in the out-of-school environmental programs.
Presenter: Zahra Golshni, University of Illinois at Urbana-Champaign

Digging into Environmental Education: Reflecting on School Gardens in Under-Resourced Communities
2:00 to 3:00 pm    Loch Raven
Drawing upon research from primary schools in Cape Town, South Africa, this session explores teachers’ and principals’ experience of on-site gardens in under-resourced schools. The data analyzed in this study provides insight critical to the implementation and design of school gardens.
Presenter: Hannah Rich, Stanford University

3:15 PM – 4:30 PM
PLENARY/CLOSING
Harborview Ballroom
In our closing session, we will look back and ahead. Bob Coulter will facilitate an evaluation of the Research Symposium with an eye to the format and content for next year. As this session also serves as the official annual meeting of the Environmental Education Research Special Interest Group (EESIG) of NAAEE, we will elect a President-Elect for the SIG (who also serves with Bob as the co-chair of the 2014 Research Symposium).

Presenters:
Charlotte Clark, Duke University
Bob Coulter, Missouri Botanical Garden
ENVIRONMENTAL EDUCATION
WE NEED FOR
THE WORLD WE WANT

There has never been a greater need for environmental education—or a
greater opportunity. Our country is facing unprecedented environmental, social, and
economic challenges—from the world’s changing climate and loss of species and habitats,
to declines in civic engagement, decreasing access to nature, and other threats. Environmental
education has the potential to transform lives and society by addressing these challenges
through helping to create a motivated and committed citizenry. Environmental education
informs, inspires, and enlightens. It builds human capacity, influences attitudes, and can lead
to action. And most importantly, it can help people make informed decisions about the
environment that lead to informed stewardship and a more sustainable society.
NAAEE: Be the change

For more than four decades, NAAEE has been a leader in promoting excellence in environmental education throughout North America. NAAEE is the only national membership organization dedicated to strengthening environmental education and increasing the visibility and effectiveness of the field. With more than 16,000 members and supporters, including affiliations with 54 state and provincial environmental education organizations and members in 30 countries, NAAEE’s influence stretches across North America and around the world.

If you’ve been a member for a while, you might have noticed that NAAEE is going through some exciting changes. We are building on our 42-year foundation and looking ahead to shape our organization in a way that can better meet the environmental and social challenges of the next decade.

And for those of you who are new to NAAEE, here’s an overview of our key achievements to date:

- **Annual Conference:** NAAEE has convened an annual professional conference for environmental education professionals since 1971, averaging more than 900 participants. Our conferences are designed to promote innovation in the field, networking, new tools and resources, and dissemination of best practices.

- **Tools and Resources Promoting Effective Practice:** From its start, NAAEE has provided its members and supporters with access to high-quality professional resources. One of the most significant publications in the last decade has been the “Guidelines for Excellence” series, which help best practices in the field. (For more information, visit naaee.org)

- **Leadership and Capacity Building:** NAAEE offers unique services in professional development and support, networking, and access to relevant research for both environmental educators and the organizations that train, employ, and support those educators. Through workshops and training, including support of certification, NAAEE has led efforts to professionalize the field.

- **Active Participation in the National Training Consortium since 1990:** As part of the National Environmental Education Act of 1990, the Office of Environmental Education in the U.S. Environmental Protection Agency awards a five-year national training grant to a consortium of organizations. Over the last 22 years, NAAEE has been an integral partner in each consortium and we are honored to be part of the current EECapacity project.

- **Advocating for Environmental Education:** NAAEE is a non-partisan organization that plays a leadership role in helping to raise the profile of environmental education at the national level and work with key partners to increase funding and support for the field.

- **Providing a Common Ground:** NAAEE has helped to promote the exchange of information and ideas among professionals from all backgrounds and sectors, including our Affiliates, funders, corporations, government agencies, and other NGOs and stakeholders.

We will keep you updated on our planning process and want to thank you all for your support of NAAEE and the field of environmental education. And we are just a phone call, email, Facebook post, blog, or tweet away—so let us know what you’re thinking as we work together to create our future.
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Thanks to the National Wildlife Federation for their on-going support of environmental education and for their help with printing this program.

National Wildlife Federation is a voice for wildlife, dedicated to protecting wildlife and habitat and inspiring the future generation of conservationists.

We believe that helping wildlife survive the challenges of the 21st century like climate change and habitat loss is best done by:

• Working with diverse groups to achieve our common conservation goals.

• Forming resilient and sustainable solutions to problems facing our environment and wildlife.

• Focusing on the future of conservation as well as the present, to ensure America's wildlife legacy lives on.

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Environmental Education We Need for the World We Want

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