

Alison Cawood

Smithsonian Environmental Research Center
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EDUCATION

- 2012 **Scripps Institution of Oceanography, University of California, San Diego**
PhD in Oceanography
Dissertation Title: Laboratory and *In Situ* Investigations of Factors Affecting the Growth and Survivorship of the Scyphozoan Jellyfish *Aurelia* sp1
- 2005 **College of Charleston** Charleston, South Carolina
Bachelor of Science in Marine Biology
Bachelor of Arts in Hispanic Studies
Minor: Latin American and Caribbean Studies

CURRENT APPOINTMENT

- 2014-present **Citizen Science Coordinator, Smithsonian Environmental Research Center (SERC)**
Developed and manage the newly formed SERC citizen science program. Recruit, train, and manage volunteers, work with researchers to design citizen science programs, write grants and secure funding, manage budgets. Supervise other outreach staff members. Mentor undergraduate interns and visiting research fellows. Plan and manage SERC public outreach events.

PAST APPOINTMENTS

- 2012-2014 **Instructor, Reality Changers College Apps Academy**
Worked with high school students on college and scholarship lists, preparation, and applications. Assisted with the development of curriculum for future College Apps Academy instructors.
- 2008-2014 **Tutor/Counselor, Reality Changers**
Developed and managed the “Junior Jumpstart” program to prepare students for the college application process. Helped high school seniors finalize college lists, prepare applications, write essays, and apply for scholarships. Led weekly warm-up activities focused on SAT preparation. Tutored math and science as needed. All of the students in the Reality Changers program are aspiring first-generation college students.
- 2013 **Adjunct Professor, University of San Diego**
Designed and taught an upper-level undergraduate lecture and laboratory Invertebrate Zoology course.
- 2011-2012 **Science Education Liaison, California Current Long Term Ecological Research (LTER) Program**
Provided high school teachers involved with the California Current LTER program with accurate scientific information that can be used in their classrooms. Helped LTER scientists in presenting their research in a way that is useful for teachers.
- 2012 **Instructor, University of California, San Diego Academic Connections Program**

- Conceived, planned, and co-instructed a three week field-based course for high school students entitled “Exploring Local Ecosystems”. The course introduced students to basic ecological concepts through field and laboratory activities and classroom discussions.
- 2011 **Teaching Assistant, University of California, San Diego**
Assisted in an entry level undergraduate course, “The Oceans.” Led two discussion sections per week covering fundamentals of physical, chemical, geological, and biological oceanography.
- 2009-2011 **Fellow/Instructor, Scripps Classroom Connection National Science Foundation GK-12 program**
Created lesson plans and taught marine science, biology, and earth science classes at Mission Bay High School in San Diego, California under the supervision of a teaching mentor.
- 2010 **Educational Materials Developer, Cal-ECHOES Research Cruise**
Developed lesson plans associated with the Cal-ECHOES research cruise to be implemented in local high school science classrooms.
- 2009 **Education and Outreach Coordinator, SEAPLEX Research Cruise**
Coordinated blog and worked with teachers to create lesson plans associated with the SEAPLEX research cruise.
- 2008 **Instructor, University of California, San Diego Academic Connections Program**
Conceived, planned, and co-instructed a three week course for advanced high school students entitled “A Hands-On Introduction to Marine Invertebrates”. The course introduced students to the major groups of marine invertebrates through lecture, discussion, and laboratory activities.
- 2005 **Intern, Smithsonian Tropical Research Institute (STRI)**
Assisted with a research projects related coral growth, fish behavior, and mangrove ecology. Led tours of research station for tourists and school groups.
- 2005 **Assistant Scientist/Watch Chief, College of Charleston Transects Program**
Instructed undergraduate students in the collection and processing of oceanographic samples.
- 2002-2004 **Biology and Chemistry Supplemental Instructor, College of Charleston**
Provided group tutoring sections in biology and chemistry for undergraduate students.

PUBLICATIONS

- Simkanin, C. and **A.M. Cawood** (2017). Junior scientists: Senior scientists as allies for equity. *Nature* 546: 352. doi: 10.1038/546352e
- Gorsky, G., M.D. Ohman, M. Picheral, S. Gasparini, L. Stemmann, J.B. Romagnan, **A.M. Cawood**, and F. Prejger (2010). Digital zooplankton image analysis using the ZooScan integrated system. *Journal of Plankton Research* 32(3): 285-303. doi: 10.1093/plankt/fbp124
- Benham, C., **A.M. Cawood**, G.S. Cook, A. Darnell, P.C. Davison, M.C. Goldstein, A.E. Johnson, T. Konotchick, E.M. Moldanado, A.L. Pasulka, J.C. Prairie, S.M. Moseman, V. Tai, C.A. Tanner, T. Vardi, T.S. Whitty, L.A. Levin (2008). Marine Metapopulations. *Marine Ecology*, 29: 319-320. doi: 10.1111/j.1439-0485.2008.00243.x
- King, R.A. and **A.M. Cawood** (2007). A revision of the genus *Chiridotea* (Isopoda: Chaetiliidae) with species redescrptions and a key. *Journal of Crustacean Biology* 27(1): 121-139.

ACADEMIC PRESENTATIONS

- 2020 **Cawood, A.M.** Citizen Science in Coastal and Marine Systems. ASLO Ocean Science Conference. San Diego, CA. (Talk)
- 2019 **Cawood, A.M.** Orchids in the Classroom – Generating and Using Data with K-12 Students. Mid-Atlantic Regional Archives Conference. Cambridge, MD. (Invited Talk)
- 2019 **Cawood, A.M.** Lessons learned – Exploring the use of citizen science in the Chesapeake Bay Parasite Project. Coastal and Estuarine Research Federation Conference. Mobile, AL. (Talk)
- 2019 Mirfattah, J.², M. Noble, and **A.M. Cawood**. Understanding the Impact of Volunteer Demographics on Data Quality. Citizen Science Association Conference. Raleigh, NC. (Talk)
- 2019 Larash, C., J. Park³, Carter, M.², and **A.M. Cawood**. Orchids in Classrooms: Using Orchid Conservation to Improve Student Attitudes towards Science. Citizen Science Association Conference. Raleigh, NC. (Talk)
- 2019 Guiral, L.², C. Larash, and **A.M. Cawood**. But We Can't Even Buy Bricks Here! Transforming Existing Protocols to Engage Citizen Scientists. Citizen Science Association Conference. Raleigh, NC. (Poster)
- 2018 **Cawood, A.M.**, S. Sudhaker¹, and N. Zagami¹. Orchids in the Classroom – Using Orchids and Citizen Science to Improve Student Attitudes Towards Science. Native Orchid Conference. Edgewater, MD. (Invited Talk).
- 2017 **Cawood, A.M.**, J. Hubbard², and M. Sharova. Transitioning a Project from a “Traditional” Research Project to a Citizen Science One: A case study. Citizen Science Association Conference. St. Paul, MN. (Talk).
- 2017 Sharova, M. and **A.M. Cawood**. Exploring a Continuum of Engagement in a Citizen Science Program. Citizen Science Association Conference. St. Paul, MN. (Talk).
- 2017 Brier, J., A. Wiggins, **A.M. Cawood**, and M. Sharova. Evaluating Science Outcomes in Citizen Science: A framework for evaluation. Citizen Science Association Conference. St. Paul, MN. (Poster).
- 2016 **Cawood, A.M.** Impacts of *Phragmites* on Tree Growth and Survival during Marsh Migration. Restore America's Estuaries Conference. New Orleans, LA. (Talk)
- 2016 **Cawood, A.M.** Using Authentic Data for Education: Exploring Opportunities and Challenges. Patuxent River Conference. Edgewater, MD. (Talk)
- 2015 **Cawood, A.M.**, T. Thomas, and K. Carroll³. The Urban Ecology Engagement Initiative – Student-driven research of the Anacostia Watershed. Citizen Science Association Conference. San Jose, CA. (Poster)
- 2015 Gibb, J.G. and **A.M. Cawood**. Citizen Science: The Smithsonian Environmental Research Center's Approach to Public Involvement in Archaeology. Society for Historical Archaeology Annual Meeting. Seattle, Washington. (Talk)
- 2012 **Cawood, A.M.** Impacts of acute salinity changes on the survivorship of *Aurelia* sp1 polyps, ephyrae, and juvenile medusae. ASLO Ocean Sciences Conference. Salt Lake City, Utah. (Poster)
- 2010 Goldstein, M.C., **A.M. Cawood**, M. C. Aguilera, A. Reisewitz, L. Dickens³. Using Social Networking Tools For Low Cost, High Impact Outreach: The Scripps Environmental Accumulation of Plastic Expedition (SEAPLEX). AGU Ocean Sciences Meeting. Portland, Oregon. (Talk)
- 2008 **Cawood, A.M.** and M.D. Ohman. Cross-shore patterns of abundance and distribution of mesozooplankton examined using digital image analysis. CalCOFI Conference. La Jolla, California. (Poster)
- 2008 **Cawood, A.M.** and M.D. Ohman. Cross-shore differences in mesozooplankton examined using digital image analysis. ASLO Ocean Sciences Conference. Orlando,

- Florida. (Poster)
- 2005 **Cawood, A.M.** A revision of the genus *Chiridotea* (Isopoda: Chaetiliidae). College of Charleston, School of Science and Mathematics Annual Student Poster Session. Charleston, South Carolina. (Poster)
- 2005 **Cawood, A.M.** and G. Sancho. Distribution of benthic infaunal crustaceans across the continental shelf off of Charleston, SC. College of Charleston, School of Science and Mathematics Annual Student Poster Session. Charleston, South Carolina. (Poster)
- 2004 **Cawood, A.M.** Mentoring in Honors Programs: Stories of Successes and Failures. Southern Regional Honors Conference. Wilmington, North Carolina. (Talk)

INVITED PUBLIC AND EDUCATOR PRESENTATIONS

- 2020 **Cawood, A.M.** Zombie Crabs!!! Or how we engage citizen scientists in the Chesapeake Bay Parasite Project. Maryland Department of Natural Resources Annual Educator Professional Development Conference. Wheaton, MD. (Invited Talk)
- 2020 **Cawood, A.M.** Engaging Volunteers to Study Climate Change. Montgomery County Community College Smithsonian Fellows Program. (Invited Talk)
- 2019 **Cawood, A.M.** The Power of Citizen Science in Environmental Research. Heritage Harbour. Annapolis, MD. (Invited Talk)
- 2018 **Cawood, A.M.** The Power of Citizen Science in Environmental Research. Hermitage Museum and Gardens, Norfolk, VA. (Invited Talk)
- 2018 **Cawood, A.M.** Public Engagement in Science. University of Maryland School of Medicine, Baltimore, MD. (Invited Talk)
- 2018 **Cawood, A.M.** Urban Ecosystems. Edgewater Library. Edgewater, MD. (Invited Talk)
- 2018 **Cawood, A.M.** Panelist. AAAS Colloquium: Citizen Science. Washington, DC (Invited Talk).
- 2018 **Cawood, A.M.** The Urban Ecology Engagement Initiative – Orchids in the Classroom. Smithsonian Institution, Washington DC. (Invited Talk)
- 2018 Ogburn, M., **Cawood, A.M.**, and J. Ogburn. Rhode to Restoration. Severn River Commission. Annapolis, MD. (Invited Talk)
- 2017 **Cawood, A.M.** SERC Citizen Science Directions. Federal Crowdsourcing and Citizen Science Community of Practice Meeting. National Museum of Natural History, Washington, DC. (Invited Talk)
- 2017 **Cawood, A.M.** and T. Thomas. The Urban Ecology Engagement Initiative: Using Inquiry to Engage Students and Teachers in Watershed Research. Smithsonian Institution, Washington DC. (Invited Talk)
- 2016 **Cawood, A.M.** Citizen Science at the Smithsonian Environmental Research Center. Anne Arundel Community College People Leading People. Edgewater, MD. (Invited Talk)
- 2016 **Cawood, A.M.** So You Want To Do Citizen Science... Maryland Department of Natural Resources Annual Educator Professional Development Conference. Columbia, MD. (Invited Talk)
- 2016 Thomas, T. and **A.M. Cawood**. Exploring Urban Waterways with K-12 Students. Smithsonian Institution, Washington DC. (Invited Talk)
- 2015 **Cawood, A.M.**, T. Thomas, K. Carroll³. The Urban Ecology Engagement Initiative: A Project to Involve Students in Studying the Anacostia Watershed. Smithsonian Institution. Washington, DC. (Invited Talk)
- 2014 **Cawood, A.M.** We Can Do It, You Can Help! Citizen Science at SERC. Smithsonian Environmental Research Center Evening Lecture Series. Edgewater, MD. (Invited Talk)

1 = High school student
2 = Undergraduate intern

3 = K-12 educator

GRANTS

- 2020 PI, National Science Foundation. Research Experience for Undergraduates Site: Global Change Ecology at the Smithsonian Environmental Research Center (\$352,803)
- 2020 PI, Smithsonian American Women's History Initiative Programming Grant, Through her microscope: Using stories of past and present women in science to engage library audiences. \$13,700.
- 2019 PI, Smithsonian Youth Access Grant, Orchids in the Classroom (\$243,139)
- 2018 PI, Smithsonian Youth Access Grant. Orchids in the Classroom (\$234,523)
- 2018 PI, A. Anne Ellingsen Bowers Endowment. Developing evaluation tools for SERC's Shorelines Connections Field Trip Program (\$5,000)
- 2017 PI, Smithsonian Youth Access Grant. Orchids in the Classroom (\$193,107)
- 2017 PI, National Fish and Wildlife Foundation. Rhode to Restoration: Collaboration to Restore Rhode River's Water Quality (MD) (\$265,375)
- 2016 Co-PI, National Science Foundation. Research Experience for Undergraduates Site: Global Change Ecology at the Smithsonian Environmental Research Center (\$307,507)
- 2016 PI, Smithsonian Youth Access Grant. The Urban Ecology Engagement Initiative: Using Inquiry to Engage Students and Teachers in Watershed Research (\$239,997)
- 2015 Co-PI, Smithsonian Youth Access Grant. Urban Ecology Engagement Initiative (\$352,930)
- 2014 Co-PI, University of Maryland-Smithsonian Institution Seed Grant. Between Land and Water: Archaeological Exploration of Changing Human Relations in Chesapeake Ecology (\$50,000)
- 2014 PI, Smithsonian Youth Access Grant. Urban Ecology Engagement Initiative (\$347,445)

HONORS AND AWARDS

- 2019 Smithsonian Innovation in Education Award
- 2014 SERC Director's Award of Appreciation
- 2012 Scripps Institution of Oceanography Graduate Student Teaching Fellowship
- 2012 Scripps Institution of Oceanography Tegner Research Fellowship
- 2011 Scripps Institution of Oceanography Samuel Scripps Fellowship
- 2010 National Science Foundation GK12 Teaching Fellowship
- 2009 National Science Foundation GK12 Teaching Fellowship
- 2007 Scripps Institution of Oceanography Michael Mullin Research Fellowship
- 2005 Cum Laude Graduate
- 2005 Honors Program Graduate
- 2005 Outstanding Graduate Marine Biology Award
- 2005 Outstanding Graduate Hispanic Studies Award
- 2004 Navy League Scholarship Award
- 2004-present Phi Kappa Phi
- 2004-present Sigma Delta Tau (Spanish Honor Society)
- 2001-2005 College of Charleston Palmetto Fellowship
- 2001-2005 College of Charleston Catherine Corelli Scholarship

COMMUNITY AND PROFESSIONAL SERVICE

- 2019-present Chair, 2021 Citizen Science Association Conference

- 2018-present Co-Chair, Citizen Science Association Research and Evaluation Working Group
2018-present Member, Smithsonian Environmental Research Center Sustainability Committee
2018-present Member, Smithsonian Environmental Research Center Science Committee
2018-present Member, Smithsonian Environmental Research Center Public Engagement Committee
2018-2019 Vice Chair, 2019 Citizen Science Association Conference
2018-2019 Co-Chair, 2019 Citizen Science Association Conference Symposia Sub-Committee
2017-present Member, Smithsonian Council of Education Directors
2017-present Member, Federal Crowdsourcing and Citizen Science Community of Practice
2016-2019 Member, Smithsonian Education Strategic Planning Working Group
2016-present Member, Smithsonian Citizen Science Working Group
2016-2017 Member, Planning Committee, Smithsonian Conservation Commons Earth Optimism Summit
2016-2017 Member, Smithsonian Environmental Research Center Evening Lecture Series Committee
2015-2017 Member, Smithsonian Environmental Research Center Open House Committee
2015-2017 Member, Maryland Water Monitoring Council Citizen Science and Public Engagement Working Group
2015-present Member, Citizen Science Association Research and Evaluation Working Group
2014-2018 Member, Baltimore Ecosystem Study Long Term Ecological Research Site Education Advisory Committee
2014-2016 Member, Anne Arundel County School District Science Advisory Board
2014 Member, Program Committee, Citizen Science Association 2015 Conference
2009-2012 Student Representative, Scripps Institution of Oceanography Experimental Aquarium Committee
2008-2012 Student Representative, Scripps Institution of Oceanography Aquarium and Museum Committee
2006-2012 Member, Scripps Community Outreach Program for Education
2009-2010 Student Representative, Scripps Institution of Oceanography Faculty Educational Policy Committee
2008-2010 Student Representative, Scripps Institution of Oceanography Budget Committee
2007-2008 Education Volunteer, Birch Aquarium at Scripps
2007 Member, Scripps Institution of Oceanography Annual Teacher Evaluation Committee
2004-2005 Instructor of English as a Second Language, Our Lady of Mercy Mission
2002-2005 Volunteer Exhibit Guide, South Carolina Aquarium

PROFESSIONAL TRAINING

- Video for Scientists. SciFund Challenge. September-October 2019.
Enhancing Diversity, Equity, and Inclusion in the Coastal Sector. Restore America's Estuaries. American Geophysical Union. September 18, 2019.
Media Training 101. Phillips Media Relations. Smithsonian Environmental Research Center. November 8, 2018.
Sustaining Biological Infrastructure: Strategies for Success. Ecological Society of America. The Conference Center at the Maritime Institute, Linthicum Heights, MD. June 19-21, 2018.
Ocean-Climate Connections Faculty/Graduate Student Collaborative Workshop. Center for Ocean Sciences Education Excellence (COSEE). Scripps Institution of Oceanography, University of California, San Diego. La Jolla, CA. October 5-7, 2011.

Communicating Ocean Sciences to Informal Audiences (COSIA). Scripps Institution of Oceanography, University of California, San Diego. La Jolla, CA. Spring 2010.

EXPERIENCE WITH K-12 STUDENTS AND EDUCATORS

2019 Presenter, Fairfax County School District Professional Development Workshop
2019 Presenter and Organizer, Orchids in the Classroom Professional Development
2018 Judge, South River High School Science Fair
2018 Presenter, Washington DC Public Schools Global Education Professional Development Expo
2018 Presenter and Organizer, Orchids in the Classroom Professional Development
2017 Presenter and Excursion Leader, NOAA Educators Professional Development Day
2017 Presenter and Excursion Leader, JASON Learning National Educators' Conference
2017-present Science Advisor, Journey Montessori Middle School
2017-2018 Judge, Charles H. Flowers High School Science Fair
2017-2018 Advisor, Student Science Fair Projects (11 students), Charles H. Flowers High School
2016-present Advisor, Student Science Fair and Senior Capstone Projects (20 Students) South River High School
2016, 2019 Judge, South River High School Senior Capstone Night
2016 Participant, Southern Middle School Science Teachers Networking Series
2016 Presenter, Smithsonian Associates GEAR-UP program in Lafayette, LA
2015-present Organizer, SERC-Anne Arundel County Public Schools Summer Teacher Externship Program
2015-2017 Evaluator, South River High School STEM Student Senior Capstone Project Proposals
2015-2019 Presenter, South River High School STEM Pathways Night
2015-2016 Participant, Southern High School Community Partner/Educators Networking Series
2015 Member, Anne Arundel County Public Schools STEM Curriculum Development Committee
2015 Presenter, Central Middle School STEM Expo
2014-2016 Organizer and Curriculum Developer, Urban Ecology Engagement Initiative, Washington DC. Prince George's County, MD
2014-present STEM Advisor, Washington DC United Planning Organization's Providing Opportunities with Educational Readiness (POWER) Program

MENTORSHIP

Undergraduates and Recent Graduate Interns at the Smithsonian Environmental Research Center

Nicole Esch (Fall 2019), Perrin Davidson (Summer 2019), Dylann Middleton (Summer 2019-Fall 2019), Mackenzie Carter (Fall 2019-Spring 2019), Jasmine Mirfattah (Summer 2018), Laura Guiral (Summer 2018), Samantha Snowden (Spring 2018), Cosette Larash (Fall 2017), Andy Yeh (Summer 2017), Shannan Stafford (Summer 2017), Jennifer Ascencio (Summer 2017), Jessica Hubbard (Spring 2017), Leorah McGinnis (Fall 2016), LaKeisha Thompson (Summer 2016), Ruth Dickey-Chasins (Summer 2016), JieYuen Ong (Fall 2015), Jenna Davis (Fall 2015), Jacob Saindon (Summer 2015), Caroline Kanaski (Summer 2015), Sarah Janesko (Summer 2015), Sarah Grady (Summer 2015), Sarah Hansen (Summer 2014)

High School Student Interns at the Smithsonian Environmental Research Center

Joseph Lough (Fall 2019), Aidan Stephan (Fall 2019), Anna Barber (Fall 2019), Kalinda Stengel (Fall-Spring 2019), Uma Tikkar (Summer 2019), Jocelyn Pratt (Summer 2019), John Hair (Spring 2019-Summer 2019), Jacob Haley (Spring 2019-Summer 2019), Joe Lewis (Spring 2019-Summer 2019), Jack Drohat (Summer 2018-Spring 2019), Bryce Rice-Woolf (Fall 2018), Lydia Boyer (Fall 2018, Fall-Spring 2019), Claire Twomey (Fall 2018), Rob Rutkai (Summer 2018), Cole Kindig (Spring 2018-Summer 2018), Daniel DeRycke (Spring 2018-Summer 2018), Zach Livesay (Spring 2018), Joey Miller (Summer 2017-Fall 2017), Rachel Kang (Summer 2017)

Undergraduates at Scripps Institution of Oceanography, University of California, San Diego
Marie Whitecotton (Fall 2010-Summer 2011), Leslie Nanniga (Fall 2009-Summer 2010),
Todd Langland (Summer 2007- Spring 2009)

PROFESSIONAL SOCIETIES

2019-present Coastal and Estuarine Research Foundation
2016-present American Association for the Advancement of Science
2014-present Citizen Science Association
2006-present Association for the Sciences of Limnology and Oceanography

REVIEWER

Biological Conservation
Heinz Family Foundation
National Science Foundation
Citizen Science: Theory and Practice
Smithsonian Scholarly Studies
Social Sciences and Humanities Research Council of Canada

RESEARCH EXPERIENCE

2015-present Smithsonian Environmental Research Center
– Develop and evaluate the effectiveness of programming to involve middle and high school students in urban ecology research
– Piloting a citizen science scientific outcome study
– Evaluating the data collection abilities of volunteers of different ages and experience levels in collecting data for invasive species research
– Embedded assessment in citizen science projects
2008-2012 Scripps Institution of Oceanography, UCSD
– Developed laboratory experiments involving *Aurelia* sp1
– Developed a field program to sample *Aurelia* sp1 and associated environmental variables
– Used HPLC with fluorescent derivatization of amino acids
– Participated in the CCE-LTER process cruises to collect zooplankton samples
– Used the ZooScan imaging system to examine zooplankton
2005 Smithsonian Tropical Research Institute, Bocas del Toro, Panama
– Assisted with incubations of corals, titrations of water samples, tissue sampling, chlorophyll and protein measurements, and aquarium maintenance
– Assisted with collection, marking, and processing of fish, and aquarium maintenance
– Assisted with capture and release of bats

- 2004-2005 - Assisted with sampling and observations of mangrove root communities
College of Charleston
- Examined the distribution, abundance, and diversity of infaunal
 crustaceans
- 2004-2005 Southeastern Regional Taxonomic Center
- Revised the isopod genus *Chiridotea*