Curriculum Vitae: Sarah E. Kingston

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I leverage genomic data sets to illuminate fundamental ecological and evolutionary processes in wild populations. My broad interests include population and phylogenomics as well as adaptive responses to a dynamic environment. I focus on immersive, inquiry-based teaching approaches.

Professional Preparation

University of Maryland	BEES*	PhD
The College of Charleston – the Graduate School	Marine Biology	MSc
The College of William and Mary	History	BA

*Behavior, Ecology, Evolution, and Systematics

Appointments

2022 – curr.	Assistant Professor of Marine Ecology/ Biological Oceanography and Chief Science Officer for Marine Biodiversity and Conservation, Sea Education Association
2021 – 2021	Lecturer, University of California Santa Cruz, Department of Ecology & Evolutionary Biology, UC Natural Reserves, California Ecology & Conservation
2019 – curr.	Research Affiliate, University of Maine School of Marine Sciences
2019 – 2019	Visiting Assistant Professor, University of Maine School of Marine Sciences, Darling Marine Center, Semester By the Sea
2017 – 2019	Visiting Assistant Professor of Biology, Bowdoin College Biology Department & Schiller Coastal Studies Center
2014 – 2017	Doherty Marine Biology Postdoctoral Scholar, Bowdoin College Biology Department & Schiller Coastal Studies Center
2012 – 2013	Postdoctoral Researcher, Smithsonian Institution (NMNH)
2011 – 2012	Graduate Research Fellowship, Smithsonian, Frontiers in Phylogenetics (NMNH)
2008 – 2011	Graduate Research Assistantship, Smithsonian, Multiple Sequence Alignment (NMNH)
2007 – 2008	Graduate Research Assistantship, Smithsonian, Early Bird project (NMNH)
2005 – 2007	Graduate Teaching Assistantship, University of Maryland
2005 – 2006	Darwin Fellowship, University of Maryland
2002 – 2005	Lab Manager and Lab Technician, NOAA Fisheries, Marine Mammal Genetics Laboratory
1999 – 2001	Graduate Teaching Assistantship, The College of Charleston
1998 – 1999	Environmental Consultant, Murphy & Maconachy, Inc.

Peer-reviewed Publications

Prasad M.P, Detchou D.K., Wang F., Ledwidge L.L, **Kingston S.E.**, Horch H.W. 2021. Transcriptional expression changes during compensatory plasticity in the terminal ganglion of the adult cricket *Gryllus bimaculatus*. *BMC Genomics*. 22: 742. 10.1186/s12864-021-08018-x

Khaitov V., Marchenko J., Katolikova M., Väinölä R., **Kingston S.E.**, Carlon D.B., Gantsevich M., Strelkov P. 2021. Species identification based on a semi-diagnostic marker: evaluation of a simple conchological test for distinguishing hybridizing mussels *Mytilus edulis* L. and *M. trossulus* Gould. *PLoS ONE*. 16(7): e0249587. 10.1371/journal.pone.0249587

Martino P., Carlon D.B., **Kingston S.E.** 2019. Blue mussel (genus *Mytilus*) transcriptome response to simulated climate change in the Gulf of Maine. *Journal of Shellfish Research*. 38(3): 587-602. 10.2983/035.038.0310. **[anchor author – advisor/ lab PI]**

Kingston S.E., Martino P., Melendy M., Reed F., Carlon D.B. 2018. Linking genotype to phenotype in a changing ocean: inferring the genomic architecture of a blue mussel stress response with genome-wide association. *Journal of Evolutionary Biology*. 31: 346-361. 10.1111/jeb.13224.

Rodríguez-Clark K.M., Davidson B., **Kingston S.E.**, Coyle B.J., Huddleston C., Duchesne P., Braun M.J. 2018. Evaluating a potential source of founders for *ex situ* conservation efforts: Genetic differentiation between disjunct populations of the endangered Red Siskin (*Spinus cucullatus*). *Endangered Species Research*. 36:183-196. 10.3354/esr00898.

Fernandez Robledo J.A., Marquis N.D., Countway P.D., Record N.R, Irish E.L. Schuldt M., **Kingston S.E.**, Bishop T., Messerman N.A., Bowden T.J. 2018. Pathogens of marine bivalves in Maine (USA): a historical perspective. *Aquaculture*. 493: 9-17. 10.1016/j.aquaculture.2018.04.042.

Reddy S., Kimball R.T., Pandey A., Hosner P.A., Braun M.J., Hackett S.J., Han K-L., Harshman J., Huddleston C.J., **Kingston S.E.**, Marks B.D., Miglia K.J., Moore W.S., Sheldon F.H., Witt C.C., Yuri T., and Braun E.L. 2017. Why do phylogenomic data sets yield conflicting trees? Data type influences the avian tree of life more than taxon sampling. *Systematic Biology*. 66:857-869. 10.1093/sysbio/syx041.

Kingston S.E., Parchman T.P., Gompert Z., Buerkle C.A., and Braun M.J. 2017. Heterogeneity and concordance in locus-specific differentiation and introgression between species of towhees. *Journal of Evolutionary Biology*. 30: 474-485. 10.1111/jeb/13033. ***cover image***

Kingston S.E., Navarro-Sigüenza A.G., García-Trejo E.A., Vázquez H., Fagan W.F., Braun M.J. 2014. Genetic differentiation and habitat connectivity across towhee hybrid zones in Mexico. *Evolutionary Ecology.* 28(2): 277-297. 10.1007/s10682-013-9673-8.

Kingston S.E., Jernigan R.W., Fagan W.F., Braun D., Braun M.J. 2012. Genomic variation in cline shape across a hybrid zone. *Ecology and Evolution* 2(11): 2737–2748. 10.1002/ece3.375.

Kingston S.E., Adams L.D., Rosel P.E. 2009. Testing mitochondrial sequences and anonymous nuclear markers for phylogeny reconstruction in a rapidly radiating group: molecular systematics of the Delphininae (Cetacea: Odontoceti: Delphinidae). *BMC Evolutionary Biology* 9:245. 10.1186/1471-2148-9-245. ***highly accessed***

Kingston S.E., Rosel P.E. 2004. Genetic differentiation among recently diverged Delphinid taxa determined using AFLP markers. *Journal of Heredity* 95:1-10. 10.1093/jhered/esh010.

Manuscripts in Development

Wang, F., Fisher, H., Ledwidge, L., O'Brien, J., **Kingston, S.E.**, Beckman, J., Johnson, J., Portillo, L.M., Al Musawi, T., Rubenstein, A., Michaelson, D., Horch, H.W. Transcriptional expression changes during compensatory plasticity in the prothoracic ganglion of the adult cricket *Gryllus bimaculatus*. Submitted. *PLoS ONE*. PONE-D-21-36774. https://www.biorxiv.org/content/10.1101/2021.11.24.469824v1

Kingston S.E., Starr C.K., Luzzio A.M., Walker E.H. What's in a snail? Divergence among those which we call ecotypes (Gulf of Maine *Littorina saxatilis*).

Kingston S.E.*, Jahner J.P*, Parchman T.L.*, Navarro-Sigüenza A.G., García-Trejo E.A., Cicero C., Klicka J., Braun M.J. Strong geographic signal in phylogeographic patterns and hybridization among three towhee species (genus *Pipilo*) in North America. *shared first authorship

Luzzio A.M., **Kingston, S.E**. Landscape genomics of Gulf of Maine benthic bivalve populations: linking genotype and environmental variation in *Nucula proxima* and *Arctica islandica*. **[anchor author – advisor/ lab PI]**

Lim, H.C., Bennett, K.F.P., Justyn, N.M., **Kingston, S.E.**, Long, K.M., Powers, M.J., Brawn, J., Hill, G.E., Braun, M.J. Genomic basis of sexually selected traits in an avian hybrid zone.

Baldwin M., Wirthlin M., Toda Y., Dikow R., Driver R., Shogren E., Bennett K., Frandsen P., Bursell M., Lim H.C., **Kingston S.E.**, Louder M.I.M., Minx P., Tomlinson C., Zimin A., DuVal E., Anciaes M., Bay R., Ruegg K., Smith T.B., Ferreria C, Berv J., Long K., Moncrieff A., White N.D., Friedrich S., Mello C., Kimball R., Braun E., Blake J., Day L.B., Boyle A., Fuxjager M., Schlinger B., Warren W.C., Ryder T.B., Loiselle B., Braun M.J., Balakrishnan C.N. Genome evolution in neotropical manakins, a clade of birds under strong sexual selection.

Competitive Funding in Review and Development

NSF IOS IEP - Mapping genomic architecture to resilient phenotypes: revealing local adaptation in response to environmental change *2022-2025 in revision* **$ 455,665**
Padilla, Kingston, Milke, Meseck

Competitive Funding **Research Funds to Date: $ 266,224**

Maine Sea Grant - Identifying Seed Source Populations Supporting the Culture of Atlantic Sea Scallops in Coastal Maine *2020 - 2022* $ 149,874
Rawson, Xue, Kingston, Cleaver, Jekielek

The Davis Foundation - Inferring source populations for the Atlantic sea scallop (*Placopecten magellanicus*) in coastal Maine *2018 - 2019* $ 9,200
Cleaver, Kingston, Hoppin

Quahog Bay Conservancy *2016 - 2018* $ 6,500
Kingston, Carlon, Martino

Phocus Family and Rusack Research Funds *2014 - 2018* $ 16,000
Kingston

Smithsonian Institution Trust Research Award *2008 - 2010* $ 40,000
Braun, Kingston

Frontiers in Phylogenetics Fellowship, Smithsonian Institution *2011 - 2012*
Kingston

Darwin Fellowship, University of Maryland *2005 – 2006*
Kingston

Maine Outdoor Heritage Fund *2015 - 2017* (advisor for 1 undergraduate advisee) $ 10,000
Life Sciences Fellowships *2015 - 2018* (3 advisees) $ 14,000
Doherty Coastal Studies Research Fellowship *2018* (2 advisees) $ 8,650
Grua-O'Connell Research Award *2016 - 2017* (2 advisees) $ 4,000
Edward E. Langbein Sr. Fellowship *2017* (1 advisee) $ 4,000
Freedman Research Fellowship *2017* (1 advisee) $ 4,000

Courses

As Faculty:

Marine Biodiversity and Conservation (CAS NS 450, XAS NS 325 SEA semester)
Marine Biodiversity and Conservation students will focus their attention on the Southeast and Northeast U.S. Continental Shelf Large Marine Ecosystems (LMEs) along the US east coast; ocean ecosystems and resources shared with our international neighbors the Bahamas and Canada, respectively. Regional research highlights will include the famed Gulf Stream current and enigmatic Sargassum algae to the south, the historic fishing areas of Chesapeake Bay and Georges Bank to the north, and migrating, endangered Right whales and offshore energy exploration and development that compete for space and protection in both regions. Original research conducted by students during this project-based applied science and policy semester at sea program directly contributes to ongoing efforts to properly manage multiple stakeholder needs of these important marine resources.

California Ecology and Conservation (NRS BIOL/ENVS 188 University of California, Santa Cruz, UC Natural Reserve System)
Experiential focus on the process of science; travel to amazing field stations in the University of California's Natural Reserve System. At each stop, students learn a foundation of natural history and about relevant ecological concepts and conservation challenges. The course then emphasizes practice in observation and hypothesis formulation, hypothesis testing, research design, data collection, statistical analysis, graphing, presenting, and writing. Throughout the term, each student answers questions and solves challenges of their own choosing. As a team, the class tackles every part of the scientific process, all outdoors in some of the most awe-inspiring landscapes the state has to offer. Students and instructors spend 50 days immersed in the California wilderness at a variety of UC Natural Reserves.

Marine Molecular Ecology and Evolution (BIOL2330/ENVS2233 in the Bowdoin Marine Science Semester)
Students apply molecular data to ecological and evolutionary questions in coastal and marine contexts. Hands-on work includes field sampling, data generation, and analysis of molecular data sets (using Next Generation Sequencing technologies). The course emphasizes robust sampling design in both ecological and population genetic contexts. Theoretical foci include evolutionary and population genetic concepts and analytical tools: tenets of Hardy-Weinberg Equilibrium, Wright-Fisher model, the coalescent, evolutionary processes and signatures in the genome, speciation, maintenance and breakdown of reproductive isolation, spatial patterns and phylogeography, selection, and linking genotype to phenotype. Students learn and apply the theoretical principles of population genetics and molecular evolution through lectures, discussions, group problem sets, bioinformatic analyses, computer-based simulations, scientific paper writing, and an independent study project. A class project involves a long-term sampling program that uses molecular tools to understand temporal and spatial change in the ocean.

The Omics Revolution: Computational Genomics and Big Data in the Field of Biology (BIOL2577 Bowdoin College)
This course features the application of computational tools to the evolving analytical landscape of genomic- and transcriptomic-scale data in the field of organismal biology. Students learn the concepts of appropriate experimental design and data collection for hypothesis testing using big data. Students gain coding skills needed to navigate the ever-changing analytical framework in bioinformatics. We analyze real data sets of DNA and RNA sequences, some collected from marine animals in the Gulf of Maine. Practical applications emphasize the fundamentals of both frequentist and Bayesian statistical frameworks.

Benthic Ecology (BIOL 2232/ENVS2232 in the Bowdoin Marine Science Semester)
The principles of marine ecology emphasizing the hard- and soft-bottom communities of Casco Bay and Harpswell Sound. Field trips and field exercises demonstrate the quantitative principles of marine ecological research, including good practices in sampling designs and field experiments. A class field project designs and implements a long-term study, based at the Schiller Coastal Studies Center, to monitor and detect changes in community structure driven by climate change in the twenty-first century.

The Biology of Marine Invertebrates (SMS480/INT510 University of Maine, Darling Marine Center)
Emphasis is on body plan and design of marine invertebrates, including investigating how body design facilitates living in selected marine habitats. After a quick review of the marine phyla, lectures discuss functional organization of invertebrates' bodies. Emphasis in the lab sessions is on identification of coastal Maine invertebrates. Lectures, labs and field trips are integrated into a single class experience.

Evolution, guest lectures (BIOL3300 Bowdoin College)

As Graduate Teaching Assistant:
Principles of Genetics (BSCI222 University of Maryland, College Park)
Introductory Biology (College of Charleston, SC)
Animal Physiology (College of Charleston, SC)

Synergistic Activities

Pathogens of Bivalve Molluscs in Maine working group (2017 - current) Member of a collaborative research group pioneered by Bigelow Laboratory for Ocean Sciences aimed at assessing pathogens of bivalve populations in the Gulf of Maine to support and inform growth of the aquaculture industry in the state of Maine. Undergraduate summer research and honors thesis opportunities for students are made possible by this collaboration.

Founding Instructor, Bowdoin Marine Science Semester (2015 – 2018) The Bowdoin Marine Science Semester (BMSS) is an immersion experience for upper-level undergraduate students designed to emphasize field-based scientific research and inquiry-based learning. The BMSS incorporates 4 courses taught one at a time in sequence. In addition to teaching and developing course modules, I piloted an overarching statistical framework and R tutorial program for the BMSS students throughout the semester. While each instructor is primarily responsible for a specific course module, linkages between the modules are emphasized and instructors act as advisors for students' semester-long independent study projects. Independent study projects are student-driven from hypothesis-forming through experimental design, execution, data analysis and presentation. The BMSS includes several remote field experiences: rocky intertidal community monitoring and population genomics sampling of intertidal organisms on Kent Island in the Bay of Fundy and Hurricane Island in the Gulf of Maine; phytoplankton community sampling in estuarine and oceanic environments in the Gulf of Maine; reef community monitoring and trophic dynamics in the Gulf of California, Baja California Sur and Hawai'i, Hawai'i.

Founding Contributor, Protocols Committee, Data Management Committee, Northeastern Coastal Station Alliance (NeCSA) (2014 – current) Founding member of an effort among field stations in the Gulf of Maine to coordinate and contribute to long term monitoring efforts in a time where climate change is predicted to have greater impact on the Gulf of Maine than many

other marine systems across the globe. This field station network received a planning grant from NSF (2015), two seed grants from Maine Sea Grant (2016, 2017), and is in the process of aiming for coordinated funds to spur monitoring efforts as well as education and outreach. I was a co-chair of the Protocols and Sensors Committee for the Alliance and a member of the Data Management Committee.

Benthic Ecology Meeting planning group (2016 meeting) Member of Organizing Committee, Scientific Committee, Web Development and Social Media, and Graphic Design for the 45th Benthic Ecology Meeting in Portland, ME, March 16-19, 2016.

Genome-enabled Research on Manakins (2012 – current) Contributor to a research group focused on highly interdisciplinary genome-enabled research on manakins as a model for integrative physiological, ecological, and evolutionary research. The group was formed via an NSF-funded Catalysis Meeting and funded by an NSF Research Coordination Network grant to facilitate collaboration among many researchers and institutions across the globe.

Invited Speaking and Workshops

Southern Oregon University, Biology Program Seminar "Saxy Science: the genomic architecture differentiating ecotypes of *Littorina saxatilis* in the Gulf of Maine" – November 2021

Northeastern University, Boston Campus Teaching Seminar "Teaching using inquiry-based and experiential pedagogies" – July 2021 [remote via zoom due to COVID-19]

Coastal Carolina University, Marine Biology Seminar "Saxy Science: the genomic architecture differentiating ecotypes of *Littorina saxatilis* in the Gulf of Maine" – May 2021 [remote via zoom due to COVID-19]

California Ecology and Conservation Seminar, James San Jacinto Mountains Reserve "Saxy Science: the genomic architecture differentiating ecotypes of *Littorina saxatilis* in the Gulf of Maine" – Apr 2021

University of Alaska Fairbanks College of Fisheries and Ocean Sciences EPSCoR Seminar Series "Fisheries and Aquaculture in a Changing Ocean: an 'Omic Approach" – May 2020 [remote via zoom due to COVID-19]

Got 'Omics? II: an interactive practical session focused on introducing tools for genomic sequence analysis (co-instructor and developer) – March 2020, Annual Meeting of the National Shellfisheries Association, Baltimore, MD [cancelled due to COVID-19]

Towson University Department of Biological Sciences Seminar Series "Saxy Science: the genomic architecture differentiating ecotypes of *Littorina saxatilis* in the Gulf of Maine" – January 2020, Towson, MD

University of Maine School of Marine Sciences Seminar Series "A Snail Story: Phenotypic and genotypic divergence in *Littorina saxatilis* in the Gulf of Maine" – September 2019, Orono, ME

Advances in Marine Mussel Research "Adaptive potential in a changing ocean: unraveling the genomic architecture of a climate stress response in blue mussels (*Mytilus edulis* and *M. trossulus*) in the Gulf of Maine" – August 2019, Chioggia, Italy

Woods Hole Oceanographic Institution Seminar Series "A Snail Story: Phenotypic and genotypic divergence in *Littorina saxatilis* in the Gulf of Maine" – August 2019, Falmouth, MA

Sars International Centre for Marine Molecular Biology Guest Seminar "Life in a dynamic environment: pattern and process in wild marine populations" – May 2019, Bergen, Norway

Stony Brook University Department of Ecology and Evolution Seminar Series "A Snail Story: Phenotypic and genotypic divergence in *Littorina saxatilis* in the Gulf of Maine" – April 2019, Stony Brook, NY

Bowdoin College Faculty Seminar Series "Saxy Science: student-driven investigation of ecological divergence in the intertidal snail, *Littorina saxatilis*" – May 2018, Brunswick, ME

Salve Regina University Biology and Biomedical Sciences Seminar Series "Omic-scale inference in a changing ocean: from genotype and phenotype to adaptation and speciation" – April 2018, Newport, RI

Introductory Genomics Workshop "Got Omics?" (co-instructor and developer) – March 2018, Annual Meeting of the National Shellfisheries Association, Seattle, WA

University of Richmond Department of Biology Seminar Series "Omic-scale inference in a changing ocean: from genotype and phenotype to adaptation and speciation" – November 2017

NeCAN (Northeast Coastal Acidification Network) webinar series "Will Gulf of Maine populations evolve in the next century? Estimating the evolutionary response of blue mussels to multivariate climate stress" D. Carlon & S. Kingston – July 2017

Bowdoin College Bioinformatics Summer Workshop (instructor and developer) – July 2016, Orrs Island, ME

The Story Collider (True, Personal Stories About Science - "On the Hook") – July 2014, Frontier, Brunswick, ME

RAD sequencing bioinformatics workshop, Smithsonian Tropical Research Institute (SNP genotype-by-sequencing instructor) – February 2012, Panama City, Panama

Advising

1 Master's student (University of Maine)
Committee member; genomics and bioinformatics advisor

75 undergraduate students (Bowdoin College, UCSC)
Advised undergraduates (Bowdoin, Wheaton, Barnard, UC System) in summer fellowship, immersive semester project, multi-semester independent study, and honors thesis settings. More than two thirds of these advisees represent women and underrepresented minorities. Under my supervision, students have utilized next generation sequencing tools to explore population genomics, trait evolution, RNA expression profiles, and evolutionary response of intertidal organisms to climate change. Students have presented their work at regional and national scientific meetings and contributed as authors on peer-reviewed manuscripts. In collaboration with myself and a state agency, one advisee received a $10k grant from the Maine Outdoor Heritage Fund to link genotype, phenotype, and environmental parameters in benthic bivalve populations.

Highlighted Leadership, Service, and Administrative Roles

California Ecology and Conservation – statistical analysis tutorial development, career development enrichment
Bowdoin Marine Science Semester – curriculum development, travel logistics, field safety, collecting permit management, program leadership, social media and outreach (> $80k annual operating budget, 4 years)

Benthic Ecology Meeting – organization and on-site logistics for international meeting of >500 participants (plenary, 5 concurrent sessions, and a poster session over 4 days; > $100k operating budget)
Bowdoin College Schiller Coastal Studies Center, search committees – search committee member (x4 positions/ postings)
Bowdoin College Schiller Coastal Studies Center, Marine Lab Startup – startup equipment purchasing, set-up, and training (molecular and marine experimental) post laboratory renovation; > $100k budget
Frontiers in Phylogenetics, NMNH – organized annual phylogenetics symposia (national and international invited speakers) for >150 participants; organized monthly phylogenetics seminar series (> $70k operating budget)
PhD admissions committee, University of Maryland – Program in Behavior, Ecology, Evolution, and Systematics
Marine Mammal Genetics Laboratory Manager – management of technician and graduate student employees, project management, DNA sequencing equipment operation, maintenance, and administration
Graduate Student Association President – Program in Behavior, Ecology, Evolution, and Systematics, University of Maryland
Graduate Student Association President – Graduate Program in Marine Biology, College of Charleston

Partnerships with Industry and Community Stakeholders

Mook Sea Farm – oyster disease, oyster growth and response to ocean acidification
Manomet – invasive green crab research and monitoring
Tenants Harbor Fisherman's Co-op, Midcoast Maine Collaborative Scallop Project, Hurricane Island Center for Science and Leadership – sustainable scallop fishery, population source tracking in historically productive fisheries habitats
Maine Outdoor Heritage Fund and Maine Mapping Initiative – clam landscape genetics

Peer Review Service

NOAA Fisheries Saltonstall-Kennedy Grant Program
Woods Hole Sea Grant
Molecular Ecology
Journal of Shellfish Research
Movement Ecology
The Auk
Marine Mammal Science
Northeastern Naturalist
Wilson Ornithological Society (student awards)
National Shellfisheries Association (student awards)

Professional Training

February 2021 – **S.H.A.R.K.S. (Silenced Histories, Anti-Racism, Kinship, and 'Science')**, UC Natural Reserves and California Ecology and Conservation, Blue Oak Ranch Reserve, Hamilton, CA (participant)
August 2019 – **Introduction to Genome Annotation and Apollo software**, Manakin Research Coordination Network (participant)

January 2017, June 2017, July 2018 – **Northeastern Coastal Station Alliance (NeCSA) Intertidal Monitoring Workshop and Pilot Program,** Bowdoin College Schiller Coastal Studies Center, Orrs Island, ME and Schoodic Institute, Acadia National Park (organizer and participant, Protocols and Sensors Committee co-chair)
April 2018 – **Genome-enabled Research on Manakins**, Gamboa, Panama (participant, 5 days)
April 2016, April 2017, April 2018 – **Bias Training and Inclusive Pedagogy Seminars**, Bowdoin College Center for Learning and Teaching and the Center for Sexual and Gender Diversity, Brunswick, ME (participant)
November 2016 – **Women Professors in STEM Panel** organized and hosted by Bowdoin College's student-run Howell House, Brunswick, ME (invited panel member)
April 2014 – **Gulf of Maine Field Stations Workshop**, Bowdoin College, Brunswick, ME (participant) collaborated with other members of field stations in the Gulf of Maine to create a formal network for monitoring oceanic change and coordinating student-oriented research and funding opportunities
May 2013 – Annual Frontiers in Phylogenetics Spring Symposium, **Genome-scale Phylogenetics**, Smithsonian Institution, Washington, DC (organizing committee, logistical support, and participant, 2 days)
January 2013 – **Catalysis Meeting: Genome-enabled Research on Manakins**, NESCent, Durham, NC (participant, 4 days)
May 2012 – Annual Frontiers in Phylogenetics Symposium and Workshop, **Sequence Alignment and Tree Estimation**, Smithsonian Institution, Washington, DC (participant and logistical support, 3 days)
February 2012 – **RAD sequencing bioinformatics workshop** (GBS advisor, 2 weeks, 10 participants), taught library prep for GBS technique, STRI, Panama City, Panama
January 2012 – **Genomics Initiative Workshop on Sequence Capture for Next Generation Phylogenomics**, Smithsonian Institution, Washington, DC, collaboration with Brant Faircloth (LSU), (participant and logistical support, 5 days)
October 2011 – **Workshop on Comparative Genomics**, Smithsonian Institution, Washington, DC (participant and logistical support, 5 days)
April 2011 – **Next Generation Sequencing: Transformative Technology for Biodiversity Science**, Smithsonian Institution, Washington, DC (participant and logistical support, 3 days)
May 2010 – Smithsonian National Museum of Natural History **Advanced ArcGIS** course
April 2010 – Smithsonian National Museum of Natural History **Intro to ArcGIS** course
Nov 2009 – An Introduction to **WinBUGS for Ecologists** (Hierarchical Bayesian Modeling), Patuxent Wildlife Research Center
June 2009 – Smithsonian **Workshop on Molecular Evolution**

Field work

2021 – California Ecology and Conservation, teaching inquiry-based skills in desert and coastal chaparral ecosystems
2019 – eDNA experiment to detect DNA concentration and fragment size variation based on distance from target species aggregations, Damariscotta River, Maine
2018 - 2019 – eDNA monitoring survey, Gulf of Maine and Hawai`i
2018 – shallow benthic monitoring survey of coral reefs off the western coast of Hawai`i
2015 - 2018 – shallow benthic monitoring survey of rocky reefs in the Gulf of California, Isla Espiritu Santo and La Ventana
2015 - current – rocky intertidal monitoring survey in the Gulf of Maine and Bay of Fundy

2014 - current – intertidal survey of Littorine snails (*Littorina obtusata* and *L. saxatilis*) in the Gulf of Maine and Bay of Fundy
2014 - current – intertidal survey of blue mussels (*Mytilus edulis* and *M. trossulus*) in the Gulf of Maine and Bay of Fundy
2008 - 2009 – collecting effort targeting towhee hybrid populations (*Pipilo maculatus* and *P. ocai*) across the Transvolcanic Belt in Mexico
2002 - 2005 – small craft biopsy effort targeting *Tursiops truncatus* > 2 miles offshore (SC, GA)
2002 - 2004 – population health assessment-oriented live capture effort targeting estuarine and coastal *T. truncatus* (SC, NJ)

Highlighted Skills

Next generation sequencing molecular laboratory techniques (including reduced-representation library preparation techniques): whole-genome sequencing, metagenomic barcoding, eDNA, RAD tags, Genotype by Sequencing (GBS), Ultra Conserved Element (UCE) target enrichment, exome target enrichment, RNAseq on Illumina and Oxford Nanopore Technologies sequencing platforms.

Bioinformatic pipeline tools include: bowtie2, tophat2, cufflinks, bwa, samtools, stampy, STACKS, integrative genomics viewer (IGV), genome analysis toolkit (GATK), velvet, GEMMA, piMASS, MrBayes, Structure, fastStructure, Migrate-N, IMa2, RaxML, PAUP*, MAFFT, MUSCLE, SATe, GARLI, edgeR, cummerbund, guppy/albacore, Canu, MaSuRCA

UNIX and Linux shell, R, ArcGIS, WinBUGS, Circuitscape

SCUBA (NAUI open water)

Small boat handling

Marine mesocosm experimental set-up/maintenance (manipulation of temperature, CO_2, O_2)

Social Media

twitter and instagram @bowdoinscsc (2016 – 2018); @scarletscience
www.linkedin.com/in/sarahekingston1998

Websites

https://research.bowdoin.edu/kingston-lab/
https://research.bowdoin.edu/marine-laboratory/

ORCiD: https://orcid.org/0000-0003-1607-1789
Google Scholar: https://scholar.google.com/citations?user=t-TJOMAAAAAJ&hl=en