

Blair, Hannah B

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Current Institution	Stony Brook University	Department	
Location	100 Nicholls Rd, Stony Brook, NY 11794		
Highest Degree	Ph.D.	Institution Stony Brook University, Marine and Atmospheric Sciences	Date 2022/12 exp
Thesis Advisor	Joe Warren		
Thesis Title	The spatiotemporal distribution, abundance, and composition of acoustic measurements of fish and zooplankton across the southeastern US shelf break		
Research Interests	Primary Trophic and spatial dynamics of pelagic ecosystems		
Secondary			
Discipline(s)	Oceanography		
Position(s) applied	PDLARS (complete) US Citizen/Residency: Yes		
1.	Joseph Warren, Stony Brook University, joe.warren@stonybrook.edu		
2.	Jennifer Miksis-Olds, University of New Hampshire, j.miksisolds@unh.edu		
3.	Susan E. Parks, Syracuse University, sparks@syr.edu		
Ad Source:	Email forwarded by my adviser		
Received Materials	PDLARS	<i>Curriculum Vitae:</i> file (PDF, PDF, 2022/07/28) <i>Statement of contribution to diversity, equity and inclusion:</i> file (Word, PDF, 2022/07/28) <i>Letter of interest, including a brief description of how this position relates to your career plans:</i> file (Word, PDF, 2022/07/28)	

Hannah Blair

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Curriculum Vitae

88 Middle Island Blvd

Middle Island, NY 11953

Education

- Dec. 2022** **Ph.D. Candidate Marine and Atmospheric Science**, Stony Brook University
(Expected) Dissertation: *The spatiotemporal distribution, abundance, and composition of acoustic measurements of fish and zooplankton across the southeastern US shelf break*
- 2015** **M.S. Biology**, Syracuse University
Thesis: *Effects of anthropogenic noise on the nighttime foraging behaviors of the North Atlantic humpback whale (Megaptera novaeangliae)*
- 2013** **B.S. Honors Wildlife Ecology and Management**, Arkansas State University
Honor's Thesis: *Comparative Lipid Profiles of Psychrotolerant and Psychrophilic Pathogenic Fungi: Does Lipid Content Influence Host Niches?*
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Research Experience

- 2022-present** **Sunrise Wind Area Copepod Assessment (EcoPod)**
Stony Brook University, Stony Brook, NY
Chief scientist, research assistant. Planned and organized logistics for research cruise to assess spatio-temporal dynamics of copepod zooplankton in New York and Southern New England waters. Collected mobile multifrequency hydroacoustic data at sea from pole-mounted EK60 and EK80 echosounder systems. Collected CTD profiles and ring net tow zooplankton samples.
- 2017–2021** **Atlantic Deepwater Ecosystem Observatory Network (ADEON) & Acoustic and Environmental Observation Network (AEON)**
2021–present Stony Brook University, Stony Brook, NY
Research assistant, graduate quantitative analyst.
Fieldwork: Collected mobile multifrequency hydroacoustic data and hydrographic data at sea from hull-mounted, pole-mounted, and tow-fish configurations. Set up EK60 and EK80 echosounder systems. Collected Bongo net tow and Isaacs Kidd Midwater Trawl epipelagic and mesopelagic samples. Co-trained and managed three undergraduate techs in net tow sampling and processing.
Analysis: Processed and cleaned hydroacoustic data using Echoview. Classified multifrequency active acoustic data (dB differencing). Spatiotemporal and mixed-effects glm modeling of mobile ship-collected and stationary autonomously-collected hydroacoustic data and concurrent hydrographic data using R. Measured, identified, and estimated densities of zooplankton and fish from net tow samples. Work has been written up as one first-author publication with three additional manuscripts currently in-progress.
- 2017–present** **New York Offshore Monitoring and Ocean Indicators Program**
Stony Brook University, Stony Brook, NY
Co-chief scientist, assistant scientist. Monitored hydroacoustic data for fish school detection and directed when to fish trawl sample. Assisted in midwater fish trawl and catch processing (identified fish, cephalopod and crustacean species and collected

length and mass data). Assisted with CTD casts and processing water samples. Collected zooplankton ring net tows. Processed net samples using ZooSCAN digitizing scanner.

2015-2017 Rorqual whale foraging behavior and acoustic differentiation of fish prey species in Cape Cod Bay

Stony Brook University, Stony Brook, NY

Graduate quantitative analyst. Developed methodology for discriminating backscatter data from two important forage fish, Atlantic herring (*Clupea harengus*) and sand lance (*Ammodytes* spp.), from multifrequency hydroacoustic data using decibel differencing and target strength models. Built and tested a preliminary whale feeding lunge detection algorithm using hydrophone tag data.

2013–2015 Effects of ship noise on humpback whale foraging behaviors

Syracuse University, Syracuse, NY

Graduate quantitative analyst. Determined methods of quantifying humpback whale foraging behaviors. Measured ship noise using Raven 1.5 software. Analyzed data using mixed effects linear models using R. Published work as a first-author publication.

2013–2015 NSF National Ecological Observatory Network (NEON) soundscapes project

Syracuse University, Syracuse, NY

Research assistant. Set up passive acoustic recorders and associated equipment in Harvard Forest, MA and conducted monthly maintenance. Organized passive acoustic data from multiple field sites. Identified acoustically-signaling species using Raven 1.5 software. Preliminary data were presented as part of a conference presentation.

2012 Investigating salt tolerance of the seashore mallow plant, a potential biofuel

University of Delaware College of Earth, Ocean, and Environment, Lewes, DE

Research Experience for Undergraduates (REU) Fellow. Conducted research on germination and growth success of several ecotypes of the coastal marsh plant seashore mallow under varying saline conditions. Developed methodology for experimental trials testing and recording growth stages of seedlings. Ran statistical analyses and interpreted results written up in a report.

2011-2013 Bat Ecology Lab – Comparative lipid profiles of a pathogenic fungus and a non-pathogenic relative

Arkansas State University, Jonesboro, AR

Research assistant. Cultured *Geomyces pannorum* and extracted lipids from *Geomyces* cultures. Prepared samples for Thin-Layer Chromatography and for MALDI-TOF Mass Spectrometry analysis. Performed TLC and for MALDI-TOF MS analysis. Counted *Geomyces* fungal spores.

2010-2011 STAR Herbarium

Arkansas State University, Jonesboro, AR

Lab technician. Organized and alphabetized cabinets of herbarium plant specimens. Pressed recently collected specimens. Assisted graduate students with research.

2011-2012 Foraging Red-tailed hawk study

Arkansas State University, Jonesboro, AR

Volunteer Research Assistant. Assisted in sampling rodent prey populations using Sherman live traps. Set up traps, weighed and ear-tagged captured rodents, and recorded data.

Publications

Blair HB, Miksis-Olds JL, and Warren JD. (2021). Spatial variability of epi- and mesopelagic 38 kHz backscatter from nekton and macrozooplankton across the southeastern US shelf break. *Marine Ecological Progress Series* 669:33-50. [[link](#)]

Blair HB, Merchant ND, Friedlaender AS, Wiley DN, and Parks SE. (2016). Evidence for ship noise impacts on humpback whale foraging behaviour. *Biology Letters* 12:20160005. [[link](#)]

Pannkuk EL, **Blair HB**, Fischer AE, Gerdes CL, Gilmore DF, Savary BJ, and Risch TS. 2014. Triacylglyceride composition and fatty acyl saturation profile of a psychrophilic and psychrotolerant fungal species grown at different temperatures. *Fungal Biology* 118:792-799. [[link](#)]

Presentations

T.D. Keiling, H.B. Blair, B.M. Lucca, J.D. Warren (2022) **Active acoustics, net tows, and fish trawls: Monitoring the offshore ecosystem of the New York Bight**. New York Chapter American Fisheries Society [virtual]

H.B. Blair, J. Miksis-Olds, J.D. Warren (2021) **Spatial variability of epi- and mesopelagic backscattering layers remains relatively constant over multi-year monitoring across the southeastern U.S. shelf break**. Acoustics in Focus: 180th Meeting of the Acoustical Society of America [virtual]

J. Miksis-Olds, **H.B. Blair**, J.D. Warren (2021) **Atlantic deepwater ecosystem observatory network: Patterns of acoustic backscatter and community structure of the U.S. Outer Continental Shelf**. Acoustics in Focus: 180th Meeting of the Acoustical Society of America [virtual]

B.M. Lucca, **H.B. Blair**, J.D. Warren (2021) **Seasonal variations in multi-year active acoustic surveys of fish and zooplankton in the New York Bight**. Acoustics in Focus: 180th Meeting of the Acoustical Society of America [virtual]

J.D. Warren, **H.B. Blair**, B.M. Lucca (2020) **Pelagic fish and zooplankton abundance and distribution in the New York Bight**. State of the Science Workshop on Wildlife and Offshore Wind Energy 2020: Cumulative Impacts [virtual]

H.B. Blair, J.D. Warren, J. Miksis-Olds (2019) **Measuring spatial variability in shelf-break mesopelagic ecosystems using active acoustics**. Northeast Regional Environmental Acoustics Symposium [Providence, RI]

B.M. Lucca, **H.B. Blair**, J.D. Warren (2017) **Acoustic quantification of abundance, biomass, and size class of Atlantic menhaden (*Brevoortia tyrannus*) in a shallow estuary in Long Island, New York**. The Journal of the Acoustical Society of America 2017 Spring Conference

[Boston, MA]

S.L. Denes, S.E. Parks, L. Matthews, **H.B. Blair**, P. Varshney, K. Fristrup. (2015) **Continental scale acoustic monitoring program: One year of data**. The Journal of the Acoustical Society of America 2015 Spring Conference [Pittsburgh, PA]

H.B. Blair, S.E. Parks, D.A. Cusano, N.D. Merchant, A.S. Friedlaender, M.T. Weinrich, D.N. Wiley (2014) **Effects of anthropogenic noise on North Atlantic humpback whale (*Megaptera novaeangliae*) nighttime foraging behavior**. Animal Behavior Society 2014 Conference [Princeton, NJ]

H. Blair, E. Pannkuk, B. Savary, T. Risch. (2013) **Comparative Lipid Synthesis and Acyl Saturation of Psychrotrophic and Psychrotolerant *Geomyces* spp. Fungi**. Ronald E. McNair Conference [Seattle, WA]; Create @ ASTATE [Jonesboro, AR]

H. Blair, E. Pannkuk, A. Fischer, K. Arter, C. Gerdes, B. Savary, and T. Risch. (2013) **How does *Geomyces destructans* infect bats?** Southeastern Bat Diversity Network Colloquium [Pikeville, TN] **First Place, Best Poster Presentation**

H. Blair, E. Pannkuk, B. Savary, T. Risch. (2012) **Comparative Lipid Profiles of Mesophilic and Psychrophilic Pathogenic Fungi: Does Lipid Content Influence Host Niches?** Ronald E. McNair Research Symposium [Jonesboro, AR]

H. Blair, J.L. Gallagher. (2012) **Varying Salt Tolerance within Seashore Mallow (*Kosteletzkya pentacarpos*) Germplasm**. University of Delaware College of Earth, Ocean, and Environment REU Symposium [Lewes, DE]

Management and Instruction Experience

2015– 2016, Graduate Teaching Assistant

2017, 2020 Stony Brook University, Stony Brook, NY

Assisted the director of the Sustainability Studies department with book research, class organization, and grades. Guest lectured, wrote quizzes, and assisted with grading for Physical Oceanography. Taught computer lab-based lab section and assisted in field-based lab sections and grading for Long Island Marine Habitats.

2017 Guest Lecturer

Stony Brook University, Stony Brook, NY

Taught lecture in Bioacoustics course on using multifrequency active acoustics to differentiate organisms.

2014– Graduate Teaching Assistant

2015 Syracuse University, Syracuse, NY

Taught Introductory Biology lab sections, including overseeing the lab exercises and teaching introductory biology concepts. Taught Anatomy & Physiology II Recitation.

2012 Undergraduate Teaching Assistant

Arkansas State University, Jonesboro, AR

Collected, prepared, and identified fall plant specimens to family for dissection by the Plant Systematics course of Spring 2012.

Science Communication

[Alan Alda Center](#) for Communicating Science (2016) – Graduate training courses taken in science communication training, online and media, communicating science to decision makers, decision support training, and tools for dissemination to the public.

Invited Seminar (2015) – Impacts of ship noise on the nighttime foraging behaviors of the North Atlantic humpback whale (*Megaptera novaeangliae*). Syracuse University Project Advance (SUPA)

Skills & Certifications

● Software: R/RStudio, Echoview, Microsoft Office (Word, Excel, Powerpoint), & Raven; beginner MATLAB, Python, SAS, & ArcGIS ● Instruments: Simrad EK80, EK60 echosounder systems, ZooSCAN optical scanner, Seabird 19+ CTD ● Identification: zooplankton, marine fish, marine mammal ● Sea time (>100 days) ● Oceanographic sampling experience: Bongo and ring net tows, Isaacs Kidd Midwater Trawl, Rosette, CTD, secchi disk ● Science communication: verbal and written ● Certifications: PADI Open Water SCUBA (2012), U.S. Coast Guard Auxiliary Boating Safety (2015), ‘Scientists Teaching Science’ course (Center for Inclusive Education, 2021) ●

Memberships, Affiliations, and Associations

SoMAS Graduate Programs Committee

Graduate Representative (2021-present)

SoMAS Graduate Student Club

Assistant Event Organizer (2020-2021)

Member (2015-present)

Syracuse University Biology Graduate Student Organization

Postdoc and Grad Career Advising Committee Representative (2013-2015)

Member (2014-2015)

Arkansas State University Wildlife and Fisheries Society

President (2011-2013)

Member (2009-2013)

Honors and Awards

Graduate Council Fellow, Stony Brook University (2015-2020)
McNair Fellowship, Syracuse University (2013-2014)
Undergraduate Grant, Arkansas Academy of Sciences (2012)
Ronald E. McNair Postbaccalaureate Achievement Program Scholar (2011-2013)
Arkansas State University Honors College (2009-2013)
Chancellor's List, Arkansas State University (2009-2013)
Governor's Distinguished Scholarship, Arkansas Department of Higher Education (2009-2013)
University Honors Scholarship, Arkansas State University (2009-2013)

References

Dr. Joseph Warren	joe.warren@stonybrook.edu • 631-632-5045
Dr. Jennifer Miksis-Olds	j.miksisolds@unh.edu • 603-862-5147
Dr. Susan Parks	sparks@syr.edu • 315-443-4672

Statement of Contribution to Diversity, Equity, and Inclusion

Hannah Blair

07/28/2022

Perhaps contrary to common belief, in science, creativity is not simply helpful; it is critical. Creativity produces new ideas and better problem solving, keeping scientific endeavors moving forward. A diversity of perspectives, approaches, and information generates the creativity so necessary for innovative science, and therefore, diversity itself enhances science. This is not just assumption or hopeful thinking; diverse teams make more fact-based and innovative decision-making (Phillips et al. 2009; Nathan & Lee 2013, Gaither et al. 2018). Papers with more diverse authors have higher impact factors and stronger citations (Freeman & Huang 2014). It is simply fact; diversity improves science.

I encourage diversity in science in the context of both teaching and mentoring. Society tells minority and first-generation college students that science isn't for people like them. In the classroom, I strive to ensure students have every chance to discover an interest in science without any preconceived notions that science is 'too hard' holding them back from even trying. I use active learning methods whenever possible; for example, when explaining concepts of physical oceanography, I will call on pairs or small groups of students to come up and draw diagrams demonstrating physical processes on the board, allowing them to use each other as sounding boards. Not only do these strategies support active engagement with the lecture material, they help minority students feel less alone, providing an avenue to engage with their fellow students and to discover they are not the only ones struggling with the material. I also aim to highlight diverse scientists in the reading material. Any required reading assignments are authored by scientists of all cultures, races, and genders, and I invite similarly diverse speakers to give guest lectures.

In the lab, I enjoy getting the chance to mentor budding scientists. I introduce potentially intimidating tasks such as using dichotomous keys to identify zooplankton in ways that anyone can appreciate; the weird world of zooplankton makes for endless images of intriguing animals the trainee has never seen. I explain to undergrads interested in graduate school the steps by which to find a program to apply to, which questions to ask of their potential lab, and the sources through which to acquire funding, things that I've learned over years in graduate school that someone unfamiliar with academia would never know. As part of the LGBT community I can help others in the community in additional ways, by providing more personalized advice on navigating academia and serving as an example to aspiring LGBT scientists.

My value of fostering diversity and inclusion in science aligns well with Cornell's commitment to diversity and legacy of "any person any study." Whether teaching a classroom of students or working one-on-one in the lab, I consistently strive to support minority and first-generation students in science.

Literature Cited

Freeman, R.B., Huang, W., 2015. Collaborating with people like me: Ethnic coauthorship within the United States. *J. Lab. Econ.* 33, S289-S318.

Gaither, S.E., Apfelbaum, E.P., Birnbaum, H.J., Babbitt, L.G., Sommers, S.R., 2018. Mere Membership in Racially Diverse Groups Reduces Conformity. *Soc. Psychol. Personal. Sci.* 9, 402–410.

Nathan, M., Lee, N., 2013. Cultural Diversity, Innovation, and Entrepreneurship: firm-level Evidence from London. *Econ. Geogr.* 89, 367–394.

Phillips, K.W., Liljenquist, K.A., Neale, M.A., 2009. Is the pain worth the gain? the advantages and liabilities of agreeing with socially distinct newcomers. *Personal. Soc. Psychol. Bull.* 35, 336–350.

28 July 2022

Dear Hiring Committee,

My name is Hannah Blair, and I ask you to consider my application for the postdoctoral position investigating advanced acoustic survey approaches and the spatial ecology of fish and invertebrates in the Laurentian Great Lakes. As a PhD candidate who specializes in the collection and analysis of active acoustic data for fish and zooplankton, I am an outstanding fit for this position.

In my master's degree I studied bioacoustics and modeled the responses of night-foraging humpback whales to ship noise, determining that they undergo significant behavioral changes when subjected to vessel noise. The project sparked my interest in understanding such responses in the context of concurrent prey field data, as part of the larger trophic and spatial dynamics of pelagic ecosystems. I developed skills in active acoustics and spatial statistics in my Ph.D. at Stony Brook University, researching fish and zooplankton spatial behavior and diversity. I investigated the spatiotemporal patterns of fish and zooplankton backscatter in the highly dynamic and productive Gulf Stream and shelf break regions off the southeastern US, and how this critical trophic group can be studied more efficiently and in new ways by long-term stationary acoustic instruments. I have developed research plans for, collected, processed, and analyzed active acoustics data using R and Echoview to characterize the spatiotemporal movement and distribution of pelagic biomass. I've groundtruthed these analyses via detailed diversity data from net samples, using both microscope and ZooSCAN optical scanner to identify and quantify diverse assemblages of fish and zooplankton species. I'm eager to apply my knowledge of aquatic organisms alongside my skills in conducting applied active acoustics research to further explore spatial behavior across trophic levels in open-water ecosystems, and am particularly excited about the opportunities presented by emerging automated technology, all of which aligns precisely with the goals of this postdoctoral position.

In addition to my strong research background in the areas relevant to this postdoctoral study, I have developed excellent written and oral communication skills. I have two published first-author publications, was a coauthor on a third, and have three more first-author publications in progress. I have presented my work at two invited talks and nine conferences and symposiums, one of which was recognized with an award for best poster presentation. I have further developed my communication and management skills by actively mentoring and training seven undergraduate students, two graduate students, and two techs at Syracuse and Stony Brook Universities, as well as giving two guest lectures in undergraduate courses in Bioacoustics and Physical Oceanography.

My combination of research, technical, and communication skills makes me an ideal candidate for this position. Thank you for your time and consideration, and I look forward to hearing more about the position.

Sincerely,
Hannah Blair