LAURA E. BAGGE

laurabagge.com | laura.elizabeth.bagge@gmail.com

EDUCATION

2017 **Ph.D. Biology**
Duke University, Durham, NC
Advisor: Dr. Sönke Johnsen

2011 **M.S. Marine Biology**
University of North Carolina Wilmington
Advisor: Dr. D. Ann Pabst

2008 **B.S. Marine Biology (with honors); *summa cum laude***
University of North Carolina Wilmington
Advisor: Dr. D. Ann Pabst

PROFESSIONAL EXPERIENCE

2020 - National Resource Council (NRC) Fellow at the Air Force Research Lab, Eglin

2019 - 2020 Postdoctoral Associate, Department of Mechanical and Aerospace Engineering
University of Florida and Air Force Research Lab, Postdoc Advisor: Ric Wehling

2017 - 2018 Postdoctoral Scholar, Department of Chemical Engineering and Materials Science
University of California Irvine, Postdoc Advisor: Alon Gorodetsky

2016 Bass Instructor, “Advanced Physiology,” Biology Department, Duke University

2014 - 2017 Visiting Student Researcher, Smithsonian National Museum of Natural History

PUBLICATIONS

Peer-reviewed:

Bagge, L.E., Kenton, A.C., Lyons, B.A., Wehling, M.F., and Goldstein, D.H. (2020). Mueller matrix characterizations of circularly polarized reflections from golden scarab beetles. *Applied Optics* 59(21): F85-F93. (OSA’s Editor’s Pick Award).

Bagge, L.E. (2019). Not as clear as it may appear: Challenges associated with transparent camouflage in the ocean. *Integrative and Comparative Biology*. 59(6): 1653-1663. (Editor’s Choice).

Chatterjee, A.*, Norton-Baker, B.*, **Bagge, L.E.**, Patel, P., and Gorodetsky, A.A. (2018). An introduction to color-changing materials and devices from the cephalopod protein reflectin. *Bioinspiration and Biomimetics*. 13: 045001. (*indicates graduate student mentees)

Bagge, L.E., Kinsey, S.T., Gladman, J., and Johnsen, S. (2017). Transparent anemone shrimp (*Ancylomenes pedersoni*) become opaque after exercise and physiological stress in correlation with increased hemolymph perfusion. *Journal of Experimental Biology*. 220: 4225-4233.

Netburn, A.N., Kinsey, J.D., Bush, S.L., Djurhuus, A., Fernandez, J., Hoffman, C.L., McVeigh, D., Twing, K.I. and **Bagge, L.E.** (2017). First HOV Alvin study of the pelagic environment at Hydrographer Canyon (NW Atlantic). *Deep Sea Research Part II: Topical Studies in Oceanography*. 150: 30-40.

Bagge, L.E., Osborn, K.J., and Johnsen, S. (2016). Nanostructures and monolayers of spheres reduce surface reflections in hyperiid amphipods. *Current Biology*. 26: 3071-3076.

Bagge, L.E., Koopman, H.N., Rommel, S.A., McLellan, W.A., and Pabst, D.A. (2012). Lipid class and depth-specific thermal properties in the blubber of two species of odontocete cetaceans, the short-finned pilot whale (*Globicephala macrorhynchus*) and the pygmy sperm whale (*Kogia breviceps*). *Journal of Experimental Biology*. 215: 4330-4339.

In advanced preparation (available upon request):
Bagge, L.E., Kier, W.M., Wehling, M.F., and Johnsen, S. Ultrastructural modifications for transparency in anemone shrimp. To be submitted to *Journal of Arthropod Structure and Development*.

Schweikert, L.E., **Bagge, L.E.**, Wheeler, B.R., Grace, M.S., Holford, T., Bolton, M.M., Bracken-Grissom, H.D., and Johnsen, S. An optical feedback mechanism for regulating skin color change. To be submitted to *Proceedings of the Royal Society B.*

Popular science (non-peer-reviewed):
Bagge, L.E. (2016). A living cloak of invisibility. *Biosphere*. 21:24-35.

AWARDS, HONORS, AND FELLOWSHIPS

Research Grants and Fellowships:

2020	National Academies of Sciences, Engineering, Medicine, NRC Fellow ($168,000)
2016	Bass Instructional Fellowship (fall semester Duke tuition and stipend)
2016	Society for Integrative and Comparative Biology Grant-in-Aid ($1000)
2014	Smithsonian NMNH Rathbun Student Grant for Crustacean Research ($1000)
2014	The Crustacean Society Fellowship in Anatomy/Paleobiology ($1000)
2013	Sigma Xi Grant-in-Aid of Research ($970)
2012 - 2016	Ray J. Tysor Summer Research Fellowship, Duke University ($5000/summer)
2012 - 2015	Biology Grant-In-Aid, Duke University ($1000/summer)
2012	Fernald Fellowship, Friday Harbor Laboratories ($2300)

Travel and Other Awards:

2019	Light and Color in Nature Conference Travel Award ($1500)
2016	Domestic Dissertation Travel Award ($2000)
2013	The Crustacean Society Best Student Poster at SICB ($100)
2013	Ray Huey Best Poster Award, Division of Ecology and Evolution SICB ($150)
2010	Graduate School Travel Grant, UNCW ($500)
2010	Graduate Student Association, UNCW ($250)
2009	NC Maritime Museum Scholarship ($250)
2009	Biology Graduate Student Association, UNCW ($500)
2007 - 2008	Corbett Scholarship, UNCW ($6350)
2007 - 2008	Bolles Marine Biology Scholarship, UNCW ($3100)
2006 - 2008	SMART Grant, and Merit Scholarship ($4000)

TEACHING EXPERIENCE

2021	**Mentor**, "Invertebrate Vision Characterization", AFRL Scholars Program (mentor for Undergraduate students completing a summer research project)
2021	**Instructor of Record**, "Bioinspired Sensing Systems" Short Course University of FL Research Engineering and Education (to be held as a virtual course in Spring 2021)
2016	**Bass Fellow, Instructor of Record**, "Extreme Animal Adaptations" (Advanced Physiology course: sole instructor and course designer) Department of Biology, Duke University
2015 - 2017	**Preparing Future Faculty Program**, Duke University and Guilford College
2015 - 2017	**Certificate in College Teaching Program**, Duke University
2015	**Teaching Assistant**, "Organismal Evolution" Department of Biology, Duke University
2013 - 2014	**Teaching Assistant**, "Animal Physiology Lab" Department of Biology, Duke University
2011	**Teaching Assistant**, "Human Anatomy and Physiology II Lab" Department of Biology and Marine Biology, University of NC Wilmington
2010	**Teaching Assistant,** "Human Anatomy and Physiology I Lab" Department of Biology and Marine Biology, University of NC Wilmington
2009	**Teaching Assistant**, "Animal Physiology Lab" Department of Biology and Marine Biology, University of NC Wilmington
2006 - 2007	**Instructor, Marine Quest Program**, University of NC Wilmington K-8 teacher, and developer of new curricula in STEM

INVITED PRESENTATIONS

2020	"Donuts with Doolittle Institute" Presentation Series, Niceville, Florida
2019	"Adaptation and Evolution in Biological Materials" Symposium, Annual Meeting for the Society of Integrative and Comparative Biology, Tampa, Florida
2018	University of California, Santa Barbara
2018	La Sierra University, Riverside, California
2015	Guilford College, Greensboro, North Carolina

SELECT 1st AUTHOR CONTRIBUTED PRESENTATIONS (* indicates best presentation award)

2020	***Air Force Research Laboratory RW Fair, virtual meeting**
2020	Air Force Research Laboratory Biotech Days, Dayton, Ohio
2020	Society of Integrative and Comparative Biology, Austin, Texas
2019	IEEE RAPID Conference, Miramar Beach, Florida
2019	International Conference on Invertebrate Vision, Bäckaskog, Sweden
2019	Thirteenth International Conference on Light and Color in Nature, Bar Harbor, Maine
2018	Society for Integrative and Comparative Biology, San Francisco, California
2017	Society of Integrative and Comparative Biology, New Orleans, Louisiana
2016	Twelfth International Conference on Light and Color in Nature, Granada, Spain
2016	Living Light Conference, San Diego, California
2016	Society for Integrative and Comparative Biology, Portland, Oregon
2014	Society for Integrative and Comparative Biology, Austin, Texas
2013	***Society for Integrative and Comparative Biology, San Francisco, California**
2011	Society for Integrative and Comparative Biology, Salt Lake City, Utah
2011	Southeast and Mid-Atlantic Marine Mammal Symposium, Conway, SC
2009	Society for Marine Mammalogy Biennial Conference, Quebec City, Canada
2009	***Southeast and Mid-Atlantic Marine Mammal Symposium, Wilmington, NC**

OUTREACH

2019 – present	**AFWISE (Air Force Women in Science);** board member in 2019
2011 – 2017	**Rho Tau GWIS (Graduate Women in Science);** secretary 2012-2014 and **WISE (Women in Science and Engineering);** 2011-2012 leader for WiS Biology Events: USA science and Engineering Festival; Brilliant and Beautiful Foundation SMART Scholars Science Workshop; Girl Scouts Outreach at Meredith College
2014 – present	**Selected scientific outreach presentations**: Skype a Scientist (2019, 2020) Invited Talk, Postdoc Symposium, Awarded “Best Talk”, Irvine, CA (2018) Invited Talk, Tarbut V’Torah Community Day School, Irvine, CA (2018) Duke INSPIRE’s Outreach Event. Awarded “Favorite Scientist” (2017) Live Q&A session with NC Museum of Natural Sciences, Daily Planet (2016) Coastal Carolina Dive Symposium (2015) Nerd Nite Triangle (2014)

SELECTED MEDIA COVERAGE

Science News: “See-through shrimp flex invisible muscle” by Susan Milius, April 19, 2014.

Science (AAAS): “When they try to escape, these invisible shrimp become visible” by Elizabeth Pennisi, Jan 6, 2016.

National Geographic: “This Ocean Creature Makes Its Own Invisibility Cloak” by Mark Strauss, Dec 9, 2016.

Smithsonian Magazine: “The Master of Disguise of the Ocean Reveals Its Secrets” by Emily Underwood, Jan 2017.

Optics and Photonics News: “Sea creatures’ nanostructures fool predators” by Patricia Daukantas, Nov 2016.

Environmental Monitor: “How midwater crustaceans vanish from predators” by Daniel Kelly, Nov 2, 2016.

Physics World: “Bacteria nanospheres may help camouflage tiny crustaceans” by Michael Allen, Nov 2016.

The Christian Science Monitor: “Is this tiny transparent ocean animal wearing an invisibility cloak?” by Eva Botkin-Kowacki, Oct 27, 2016.

Smithsonian.com: “These sea creatures have a secret superpower: invisibility cloaks” by Jackson Landers, Oct 27, 2016.

Science Daily, Phys.org, Daily Mail: “Midwater ocean creatures use nanotech camouflage,” Oct 27, 2016.

PROFESSIONAL SERVICE AND SOCIETIES

The Optical Society of America
Society for Integrative and Comparative Biology
The Crustacean Society
Sigma Xi
Duke AAUS Dive Control Board Member
Reviewer for *Current Biology*, *Journal of Experimental Biology*, *Applied Optics, Functional Ecology, PeerJ,* and *Scientific Reports*
Special Topics Editor for *Applied Optics*

RESEARCH AND FIELD EXPERIENCE

2016	Selected Early Career Scientist on UNOLS Training Cruise, *R/V Atlantis*, Scientist in the Deep Submergence Vehicle *Alvin* on dive #4831
2013, 2014	Field Assistant at Carrie Bow Cay, Caribbean Coral Reef Ecosystem Program
2014	Visiting Scientist at the Smithsonian Marine Station at Ft. Pierce, FL
2011, 2012	Scientist and AAUS Diver on the *R/V Kilo Moana*, HI and *R/V Endeavor*, RI