**Molly A. Albecker** malbecker@gmail.com • www.mollyalbecker.com

**APPOINTMENTS**

**2021 – Present**  **Postdoctoral Scholar**

Utah State University Advisor: Dr. Molly Womack

**2019-2021**  **Postdoctoral Scholar**

Northeastern University Marine Science Center

Advisors: Dr. Katie Lotterhos, Dr. Geoff Trussell

**2018-2019**  **Postdoctoral Scholar**

East Carolina University

Advisor: Dr. Michael McCoy

**EDUCATION**

**2013-2018**  **Ph.D.** East Carolina University

Interdisciplinary Doctoral Program in Biological Sciences

Dissertation Director: Dr. Michael W. McCoy

**2009-2011**  **M.S**. East Carolina University

Department of Biology

Thesis Director: Dr. Heather Vance-Chalcraft

**2003-2007**  **B.S.** University of Mary Washington

Department of Biology, Department of American Studies

**PEER-REVIEWED PUBLICATIONS** † Undergraduate mentee

11. **Albecker, M.A.**, Trussell, G.C., Lotterhos, K.E. A novel quantitative approach for co-gradient variation and countergradient variation. *Accepted* at *Ecology Letters.*

10. Lotterhos, K.E., **Albecker, M.A.**, Trussell, G.C. 2021. Evolution in Changing Seas. *Proceedings of the Royal Academy of Science, Biology*. Editorial for Special Issue on *Evolution in Changing Seas.* https://doi.org/10.1098/rspb.2021.2443.

9. **Albecker, M.A.**\* Wilkins, L.\*, Krueger-Hadfield, S.A., Bashevkin, S., Sewell, M.A., Hare, M., Hahn, M., Lotterhos, K.E., Kindsvater, H., & Reitzel, A. 2021. Does a complex life cycle promote or constrain adaptation to environmental change? Genome-informed approaches and insights for characterizing selection across stages of a life cycle.

*Proceedings of the Royal Academy of Science, Biology*. Special Issue on *Evolution in Changing Seas.* 288: 20212122. https://doi.org/10.1098/rspb.2021.2122 \*Co-first authors

8. **Albecker, M.A**., Stuckert, A.M.M., Balakrishnan, C.N., McCoy, M.W. 2021. Functional genomics of local adaptation to saltwater environments in an amphibian.

*Molecular Ecology.* https://onlinelibrary.wiley.com/doi/abs/10.1111/mec.15867

7. **Albecker, M.A**., † M. Pahl, † M. Smith, † J.G. Wilson, M.W. McCoy. 2020. Influence of density and salinity larval development of salt-adapted and salt-naïve frog populations. *Ecology and Evolution*. https://onlinelibrary.wiley.com/doi/pdf/10.1002/ece3.6069

6. Walker, D.M., Hill, A.J., **Albecker, M.A**., McCoy, M.W., Grisnik, M., Romer, A., Grajal-Puche, A., Camp, C., Kelchear, C., Wooten, J., Rheubert, J., Graham, S.P., 2019. Variation in the slimy salamander (*Plethodon* spp.) skin and gut microbial assemblages is explained by geographic distance and host affinity.

*Microbial Ecology.* 1-13.<https://doi.org/10.1007/s00248-019-01456-x>

5.**Albecker, M.A**. and McCoy, M.W. 2019. Local adaptation for enhanced salt tolerance reduces non-adaptive plasticity caused by osmotic stress.

*Evolution*.doi:10.1111/evo.13798

4. **Albecker, M.A**., Belden, L.K., and McCoy, M.W. 2018. Comparative analysis of anuran skin microbiome in freshwater and saltwater invaded wetlands.

*Microbial Ecology,* 78 (2), 348-360.

3. **Albecker, M.A**., † Brantley Jr., W.B., and M.W. McCoy. 2018. Habitat salinity alters dietary content and nematode infection in the American Green Treefrog, *Hyla cinerea.*

*Southeastern Naturalist,* 17(1), 155-165.

2. **Albecker, M.A**. and McCoy, M.W. 2017. Adaptive responses to salinity stress across multiple life stages in anuran amphibians.

*Frontiers in Zoology.* 14 (1), 40. https://doi.org/10.1186/s12983-017-0222-0

1. **Albecker, M.A**. and Vance-Chalcraft, H.D. 2015. Mismatched anti-predator behavioral responses in predator-naïve larval anurans.

*PeerJ*. 3:e1472; DOI 10.7717/peerj.1472

**MANUSCRIPTS IN PREP OR REVIEW**  (drafts available upon request)

1. McCoy, M.W., Hamman, E.H., **Albecker, M.A.**, Wodjak, J.M, Vonesh, J.R. Bolker, B.M. Size matters when predicting multiple predator effects.

*In Revision* at *PeerJ.*

1. **Albecker, M.A.**, Peniston, J. Barfield, M., R.D. Holt, M.W. McCoy. Adaptation to environmental change in organisms with complex life cycles: The influence of stage-specific selection and density dependence. *In prep.*
2. **Albecker, M.A.**, Bittar, T.B., Trussell, G.C., Lotterhos, K.E. Meta-analysis reveals patterns of cogradient and countergradient variation. *In prep.*
3. **Albecker, M.A.**, M.W. McCoy. Proteomic signatures of adaptation to saltwater environments in coastal anuran populations. *In prep.*

**GRANTS AND AWARDS**

**2019** Darwin Fellowship, University of Massachusetts Amherst(*Declined*)

**2019** Recipient of ECU Life Sciences Doctoral Dissertation Award

**2017** National Science Foundation Doctoral Dissertation Improvement Grant $19,175.00

**2017** Ecology Society of America Aquatic Section Travel Award $200.00

**2016** Pitt County Wildlife Club Scholarship $1,500.00

**2016** Graduate Women in Science Student Fellowship $6,321.00

**2016** Garden Club of America Scholarship $5,000.00

**2015** ECU Undergraduate Research and Creativity Award to Sarah Gill $1,000.00

**2014** Coastal Maritime Council Research Grant $1,000.00

**2013** North Carolina Sea Grant (*\*Co-P.I. with M.W. McCoy*) $76,415.00

**2013** Explorer’s Club Grant $2,500.00

**2013** North Carolina Herpetological Society Grant $780.00

**2011** Martha N. Jones Scholarship $500.00

**INVITED SEMINARS**

**2022** University of Houston Department of Biology, Ecology and Evolution, Houston TX

**2022** University of North Florida Department of Biology, Jacksonville FL

**2021** Utah State University Department of Biology seminar series, Logan UT

**2021** Northeastern University Marine Science Center seminar series, Boston MA

**2020** Invited Biology Seminar Speaker: Vassar University (*Cancelled due to Covid-19*)

**2019** Invited Ecology and Evolution Seminar: University of Massachusetts, Amherst

**2018** Invited EEBio Seminar: University of Virginia, Charlottesville, VA

**SELECTED PRESENTATIONS**

**2021** Albecker, MA, Trussell, GC, Lotterhos, KE.

Virtual Evolution: Society for Study of Evolution Annual Meeting

**2021** Albecker, MA, Lotterhos, KE, Trussell, GC.

Virtual Asilomar: American Society of Naturalists Meeting

**2018** Albecker, MA, McCoy, MW.

Ecological Society of American annual conference: New Orleans, Louisiana

**2018** Albecker, MA, Peniston, J, Barfield, M, Holt, RD, McCoy, MW.

American Naturalist Annual Meeting: Asilomar, California

**2017** Albecker, MA, McCoy, MW.

Research in Progress Seminar: East Carolina University

**2017** Albecker, MA, Peniston, J, Barfield, M, Holt, RD, McCoy, MW.

Ecological Society of America annual conference: Portland, Oregon

**2017** Albecker, MA, Beldon LK, McCoy, MW.

Research and Creative Week: East Carolina University

\* *Winner – Best Presentation for Doctoral Oral Natural Sciences*

**2016** Albecker, MA, McCoy, MW.

Three-minute Thesis competition: East Carolina University.

*\*Finalist*

**​2016** Albecker, MA, McCoy, MW. Lightning talk.

American Naturalist Annual Meeting: Asilomar, California

**2016** Albecker, MA, Beldon LK, McCoy, MW.

Ecological Society of America annual conference: Fort Lauderdale, Florida

**​2015** Albecker, MA, McCoy, MW.

Ecological Society of America annual conference: Baltimore, Maryland

**TEACHING**

**Instructor of Record**

**2017-2018**  Principles of Biology I (2 semesters)

**2015**  Principles of Ecology (1 semester)

**Teaching Assistant**

**2009-2011** Principles of Biology II Laboratory (4 semesters)

**Workshop Instructor**

**2020** Generalized Linear Mixed Effects Modeling Workshop (Virtual)

**MENTORING AND OUTREACH**

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**2021** Native American Summer Mentorship Program at USU (mentor)

**2019-2021**  Thesis committee member for master’s student at ECU

**2019** Northeastern University BEACHES program (mentor)

“Bridging Each Applicant’s Chance for Higher Education Success”

**2017** Ecological Society of America SEEDS program (mentor)

**2014-2016**  Invite-A-Scientist • Bayboro Middle School

**2013-2017**  SciRen Teaching Network contributor/presenter

**Undergraduate Mentorship**

**2021** **Alia Donley, Austin John** – Utah State University

Laboratory assistance, trained in animal husbandry

**2020-2021**  **Dylan F. Titmus** – Northeastern University

Honors Thesis: Inter- and intra-specific variation in survival of *Littorina spp.* marine snails after exposure to hot and cold extremes

**2015-2016** **Sarah Gill** – East Carolina University

Honors Thesis: Osmoregulatory Adaptations of *Hyla cinerea* in coastal wetlands

*\* Undergraduate Research and Creative Activity Award: $1,000.00*

**2016-2018** **Ben Brantley** – East Carolina University

Honors Thesis: Diet and nematode infection differ between coastal and inland populations of green tree frogs (*Hyla cinerea*)

\* *Published in* *Southeastern Naturalist*

**2017-2018** **Matt Pahl, Melanie Smith, Jefferson Gray Wilson** – East Carolina University

Performed laboratory work for “Influence of density and salinity larval development of salt-adapted and salt-naïve frog populations”

*\* Co-authors on manuscript published in Ecology and Evolution*

**2015-2016** **Anisah Nwokolo, Hannah Bergman** – East Carolina University

Trained to perform histology and immunohistochemistry

**2013-2015** **Tara McFarland, Christopher Thaxton** – East Carolina University

Trained to perform fieldwork and amphibian surveys

**SERVICE**

**Peer Reviewer**: *Global Change Biology, Aquatic Ecology, Ecology and Evolution, Biotropica,* *Oecologia,* *Behavioral Ecology*, *Ecological Entomology, Scientific Reports,*

*J. of Herpetology, Evol. Applications, Int. and Comp. Biology, Microbial Ecology*

**2021** Co-Editor for *Proc. Royal Soc. Biol.* Special Issue on *Evolution in Changing Seas*

**2020-2021** Director of Research Coordinated Network for Evolution in Changing Seas (RCN-ECS) readings discussion series

**2019-2021** Diversity and inclusion committee member for RCN-ECS

**2016-2018** Panel Member: Graduate student funding workshop

**2016-2017** Graduate Student Rep., Rho Tau Chapter of Graduate Women in Science

**2016**  Founding member of Rho Tau Chapter of Graduate Women in Science

**2016** Research in Progress seminar Series: Graduate Student Funding Panelist at ECU

**2015** Vice President of Biology Graduate Student Association

**2014** Treasurer of Biology Graduate Student Association

**POSTER PRESENTATIONS**

**2017** Graduate Education Day – North Carolina Legislative Building

**2014** Climate Change Symposium hosted by NC State and NOAA

**2014** NC Sea Grant Poster Reception

**2014**  NC Sea Grant Funded Research Symposium

**PROFESSIONAL MEMBERSHIPS**

**2017-Present** Society for Study of Evolution

**2017-Present** American Society of Naturalists

**2017-Present** Ecological Society of America

**2016-2018** Graduate Women in Science

**2016-2017**  Society of Integrative and Comparative Biology

**2013-2017**  The Coastal Society

**2013-2017** North Carolina Herpetological Society

**2013-2018**  ECU Biology Graduate Student Association

**MEDIA HIGHLIGHTS**

**2017** **Video Interview by WRAL (NC)**

*Tree Frogs Adapt to Saltwater Intrusion*

https://www.wral.com/sea-change-/16961739/

**2017** **Blog Post for NC Sea Grant Website by Molly Albecker**

*Indicators of Hope: Coastal green treefrogs develop salt tolerance*

https://ncseagrant.ncsu.edu/currents/2017/10/indicators-of-hope-coastal-green- treefrogs-develop-salt-tolerance/

**​2016** **Virginian-Pilot Article by Jeff Hampton**

*Amphibians don’t like salt water… until now, and the little green treefrog in N.C.*

https://www.pilotonline.com/news/environment/article\_f01c993f-3ddc-5543- ae22-f00c86a97d29.html

**2016** ***CoastWatch* Magazine article by Janna Sasser**

*Leaping out of the lab: Green treefrogs show adaptation, offer inspiration*. https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2016-2/spring- 2016/leaping-out-of-the-lab-green-tree-frogs-show-adaptation-offer-inspiration/

**2015** **Wildlife Society Article by Joshua Rapp Learn**

*How frogs cope with road salt and brackish water*

https://wildlife.org/how-frogs-cope-with-road-salt-and-brackish-water/

**​2015** **East Carolina News Article by Doug Boyd**

*#Science: Graduate students share research on social media*

https://biology.ecu.edu/graduate-students-share-research-on-social-media/