

# Julie M. Butler

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## EDUCATION & PROFESSIONAL EXPERIENCE

- 2020 – Cur Postdoctoral Scholar, Biology Department, Stanford University  
Advisor: Dr. Lauren O'Connell
- 2013 – 2019 Ph.D., Biological Sciences, Louisiana State University, NSF GRFP  
Dissertation: Impacts of Anthropogenic Noise on Fish Behavior, Physiology,  
Development, and Communication.  
Advisor: Dr. Karen Maruska
- 2009 – 2013 B.S., Biology, Texas A&M University; Honors Fellows; Research Scholars
- 2009 – 2013 B.S., Forensic and Investigative Sciences, Texas A&M University

## RESEARCH GRANTS & FELLOWSHIPS

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|--|-------------|
| Society for Integrative and Comparative Biology, GIAR (\$997)          | 2017        |
| Animal Behavior Society Student Research Grant (\$1000)                | 2016        |
| ASIH Raney Fund Award (\$908)  | 2014        |
| Sigma Xi Grant in aid of Research (\$700)                              | 2014        |
| NSF Graduate Research Fellowship (\$34,000/year for 3 years + tuition) | 2016 – 2019 |
| LSU Board of Regents Fellowship (\$30,000/year for 4 years + tuition)  | 2013 – 2016 |

## PUBLICATIONS (\* indicates undergraduate author)

1. **Butler, JM**, EM Herath\*, A Rimal\*, SM Whitlow\*, and KP Maruska. (2020). Galanin neuron activation in feeding, parental care, and infanticide in a mouthbrooding African cichlid fish. *Horm Behav.* Accepted.
2. **Butler, JM** and KP Maruska. (2020). Noise during mouthbrooding impairs maternal care behaviors and juvenile development and alters brain transcriptomes in the African cichlid fish *Astatotilapia burtoni*. *Genes, Brain and Behavior*. In press.
3. Maruska, KP, **JM Butler**, KE Field, C Forester\*, and A Augustus\*. (2020). Neural activation patterns related to energetic status and maternal mouthbrooding in an African cichlid fish. *Neuroscience*. In press.
4. **Butler, JM**, CM Anselmo\*, and KP Maruska. (2020). Female reproductive state is associated with changes in distinct arginine vasotocin cell types in the preoptic area of *Astatotilapia burtoni*. *J Comp Neurol*. In press.
5. Maruska, KP, **JM Butler**, CM Anselmo\*, and G Tandukar\*. (2020). Distribution of aromatase in the brain of African cichlid fish *Astatotilapia burtoni*: Aromatase expression, but not estrogen receptors, varies with female reproductive state. *J Comp Neurol*. 528: 2499-2522.
6. **Butler, JM** and KP Maruska. (2020). Underwater noise impairs social communication during aggressive and reproductive encounters. *Anim. Behav.* 164: 9-23.
7. Webb, J, KP Maruska, **JM Butler**, and M Schwalbe. (2020). The mechanosensory lateral line system of cichlid fishes: anatomy to behavior. In: *The Behavior, Ecology and Evolution of Cichlid Fishes: A Contemporary Modern Synthesis*. (Abate, ME, Noakes, DLG, eds). Springer Academic.
8. **Butler, JM**, SM Whitlow\*, LS Rogers, RL Putland, AF Mensinger, and KP Maruska. (2019). Reproductive state-dependent plasticity in the visual system of an African cichlid fish. *Horm Behav.* 114:104539.

9. **Butler, JM** and KP Maruska. (2019). Expression of *tachykinin3* and related reproductive markers in the brain of the African cichlid fish *Astatotilapia burtoni*. *J Comp Neurol*. 527:1210-1227.
10. **Butler, JM**, SM Whitlow, DA Roberts, and KP Maruska. (2018). Neural and behavioural correlates of repeated social defeat. *Sci Reports*. 8:6818.
11. Maruska, KP, **JM Butler**, and KE Field. (2018). Alternative Reproductive Phenotypes within Species. In: Encyclopedia of Reproduction, 2nd edition, Volume 6: Comparative Reproduction (Skinner, M.K., Swanson, P., section eds). Elsevier.
12. **Butler, JM**, SM Whitlow\*, AP Gwan\*, P Chakrabarty, and KP Maruska. (2017). Swim bladder morphology changes with female reproductive state in the mouth brooding African cichlid fish *Astatotilapia burtoni*. *J Exp Biol*. 220: 4463-4470. (highlighted in "Inside JEB" section).
13. Nikonov, AN, **JM Butler**, KE Field, J Caprio, and KP Maruska. (2017). Reproductive and metabolic state differences in olfactory responses to amino acids in a mouth brooding African cichlid fish. *J Exp Biol*. 220, 2980-2992.
14. Maruska, KP, **JM Butler**, KE Field, and DT Porter. (2017). Localization of GABAergic, glutamatergic, and cholinergic neurons in the brain of the African cichlid fish, *Astatotilapia burtoni*. *J Comp Neurol*. 525: 610-638.
15. **Butler, JM** and KP Maruska. (2016). Mechanosensory signaling as a potential mode of communication during social interactions in fishes. *Invited Commentary, J Exp Biol*. 219: 2781-2789.
16. **Butler, JM**, KE Field, and KP Maruska. (2016). Cobalt chloride treatment used to ablate the lateral line system also impairs the olfactory system in three freshwater fishes. *PLoS ONE*. 11(7): e0159521.
17. **Butler, JM** and KP Maruska. (2016). The mechanosensory lateral line system activates socially-relevant brain regions during territorial interactions. *Front Behav Neurosci*. 10:93.
18. **Butler, JM** and KP Maruska. (2015). The mechanosensory lateral line is used to assess opponents and mediates aggressive behaviors during territorial interactions in an African cichlid fish. *J Exp Biol*. 218: 3284-3294. (selected as "Editor's Choice" and featured in "Inside JEB").

#### **SELECTED PRESENTATIONS** (20+ total; 2013 – current)

1. **Butler, JM**, CM Anselmo, and KP Maruska. Female reproductive state is associated with changes in distinct arginine vasotocin (AVT) cell types in the preoptic area of *Astatotilapia burtoni*. Society for Integrative and Comparative Biology annual meeting. Tampa, FL. January 2019. Oral presentation as part of Best Student Presentation symposium (awarded 2<sup>nd</sup> place).
2. **Butler, JM**, SM Whitlow, LS Rogers, RL Putland, AF Mensinger, and KP Maruska. Reproductive state-dependent visual sensitivity in an African cichlid fish. Society for Neuroscience. San Diego, CA. November 2018. Poster presentation as part of the Trainee Professional Development Award program.
3. **Butler, JM** and KP Maruska. Reproductive state and behavioral context regulate expression and activation of *tachykinin3a* cells in the brain of the social African cichlid fish *Astatotilapia burtoni*. J.B. Johnston Club. San Diego, CA. November 2018. Oral presentation.
4. **Butler, JM**, SM Whitlow, and KP Maruska. Endocrine modulation via sex steroid receptor expression in the eye varies with female ovulation status in the social African cichlid *Astatotilapia burtoni*. Society for Integrative and Comparative Biology annual meeting. San Francisco, CA. January 2018. Oral presentation as part of Best Student Presentation symposium (awarded 2<sup>nd</sup> place).
5. **Butler, JM**, SM Whitlow, and KP Maruska. Exposure to anthropogenic noise during mouth brooding impacts maternal care behaviors and juvenile development in an African cichlid

- fish. Society for Integrative and Comparative Biology annual meeting. San Francisco, CA. January 2018. Poster presentation.
6. **Butler, JM** and KP Maruska. Social status and behavioral context regulate expression and activation of *tachykinin3a* cells in the brain of a social African cichlid fish *Astatotilapia burtoni*. Society for Behavioral Neuroendocrinology annual meeting. Long Beach, CA. June 2017. Poster presentation.
  7. **Butler, JM** and KP Maruska. Expression of *tachykinin3* in socially-relevant brain regions is regulated by social status in the African cichlid fish *Astatotilapia burtoni*. Society for Integrative and Comparative Biology annual meeting. New Orleans, LA. January 2017. Oral presentation.
  8. **Butler, JM** and KP Maruska. Underwater anthropogenic noise impacts aggressive interactions in a territorial African cichlid fish. Society for Integrative and Comparative Biology annual meeting. New Orleans, LA. January 2017. Poster presentation.
  9. **Butler, JM**, AP Gwan, P Chakrabarty, and KP Maruska. Swim bladder morphology changes with reproductive state and social status in the mouthbrooding African cichlid *Astatotilapia burtoni*. Joint Meeting of Ichthyologists and Herpatologists annual meeting. New Orleans, LA. July 2016. Poster presentation.
  10. **Butler, JM** and KP Maruska. Mechanosensory signaling is used as a form of communication during aggressive social encounters. International Congress on the Biology of Fishes. San Marcos, TX. June 2016. Oral presentation.

## HONORS & AWARDS

LSU Distinguished Dissertation Award in STEM (\$2000)	2020
LSU BioGrads Travel Award (\$400 per award, awarded 6 times)	2014 – 2019
Trainee Professional Development Award (\$1000), Society for Neuroscience	2018
Best Poster Presentation at LSU BioGrads Symposium	2018
Esprit de Femme Student Leadership Award, LSU (\$500)	2018
Top 3 in LA Sea Grant's Coastal Connections Competition (\$500)	2017
Graduate Student Travel Award, Society for Behavioral Neuroendocrinology (\$500)	2017
Best Poster Presentation at LSU BioGrads Symposium	2017
Finalist in regional 3 Minute Thesis competition (Top 8 of 48 competitors, \$150)	2017
1 <sup>st</sup> place at LSU's 3 Minute Thesis Competition	2016
2 <sup>nd</sup> place poster at the LSU Isiah Warner Research Symposium (\$400)	2016
Graduated with Undergraduate Research Scholars distinction from TAMU	2013
Graduated with Honors Fellows distinction from TAMU	2013
Outstanding Undergraduate Biology Student, Texas A&M University	2013
Gates-Muller Outstanding Student Award finalist, Texas A&M University	2013
Senior Honor Merit, Texas A&M University	2013
Various academic and leadership scholarships (totaling \$30,000+)	2009 – 2013

## OUTREACH & SCIENCE COMMUNICATION

1. Night at the Museum, LSU (April 2019) – Presentation and outreach event to ~100 community members on fish communication. Organized 5 hands-on activities.
2. LSU Geaux Science for Girls (2018 – 2019) – Outreach program for encouraging girls in science; organized events and science demonstrations in Southeast Louisiana; trained graduate and undergraduate students for work with program.
3. LSU Women in Science Outreach Team (2017 – 2019) – performed science experiments and demonstrations with elementary school kids at events such as Earth Day, Ocean Commotion, and Night at the Museum.
4. Girls Day at the Museum (June 2018, 2019) – interacted with middle-school aged girls about research and life in science.

5. TEDxLSU (March 2018) – Used story-telling to discuss fish communication and the negative impacts of human-made noise on fish.
6. Burt's Blog (2016 – 2020) – creator, author, and cartoonist for the online public blog about fish biology and research in the Maruska lab.
7. STEAM Night (2016 – 2018) – Westdale Heights Academic Magnet Elementary School. Demonstration on the electrical properties of the nervous system.
8. Neuroscience demonstrations (2016 – 2019) – travel to local elementary and middle schools to talk about neuroscience and lead short hands-on demonstrations.
9. Geaux Science Welcome Session (August 2015, 2016) – LSU College of Science. Interacted with undergraduate students and promoted involvement in research.
10. LSU Scholars Weekend (2015 – 2016) – volunteered for the Microscopy center to lead tours and demonstrations during LSU Scholars weekend.

### **TEACHING & MENTORING EXPERIENCE**

Mentored 25+ LSU undergraduate students	2013 – 2019
Panelist, mentor, and mock reviewer for LSU NSF GRFP workshops	2015 – 2020
Mentor to HHMI undergraduate completing independent research project	2014, 2018, 2019
Teaching Assistant, Louisiana State University, Vertebrate Physiology Lab	2013

### **ACADEMIC SERVICE**

LSU Women in Science, Founder and President, Louisiana State University	2015 – 2019
BioGrads President, Louisiana State University	2016 – 2018
BioGrads WebMaster, Louisiana State University	2015 – 2016
BioGrads Secretary, Louisiana State University	2014 – 2015
Graduate Student Recruitment Committee, Louisiana State University	2013 – 2015

*Peer Reviewer:* Animal Behaviour, Environmental Biology of Fishes, Hormones and Behavior, Journal of Experimental Biology, Journal of Fish Biology.

### **OTHER TRAININGS**

Neural Systems and Behavior, Marine Biological Laboratory, Summer 2015

### **PROFESSIONAL MEMBERSHIPS**

American Society of Ichthyologists and Herpetologists, Animal Behavior Society, J.B. Johnston Club, Sigma Xi, Society for Behavioral Neuroscience, Society for Integrative and Comparative Biology, Society for Neuroscience