

# Anthony A. Snead

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## EDUCATION

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### Ph.D. Biology

Fall 2018 - Present

University of Alabama, Tuscaloosa, AL

Dissertation: Integrative Approaches to Estimate Abundance and Illuminate Factors Governing Population Connectivity in the mangrove rivulus fish, *Kryptolebias marmoratus*.

Committee Members: Ryan L. Earley, Julia Cherry, William Ellis, Paige Ferguson, Jeff Lozier

GPA: 4.0

### B.S. Environmental Biology

Fall 2016 - Summer 2018

University of South Florida

GPA: 3.75

## PUBLICATIONS

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### Peer-Reviewed

- X. Snead AA & Earley RL (202X). Dispersal in New World Mangrove Forests: Diverse Strategies and Limitations Imposed by History and the Matrix Between Patches. Manuscript draft available – anticipated submission date, December 2022.
- X. Snead AA, Marson K, Earley RL (202X). Disentangling the Impact of Biotic and Abiotic Variables on Species Abundance within the Intertidal. Manuscript draft available – anticipated submission date, November 2022.
- X. Snead AA, Quackenbush CR, Trojahn S, McDonald A, Lins L, Cornelius C, Adams PE, Ma D, Haag E, Silvestre F, Kanamori A, Earley RL, Kelley JL (202X) Plasticity in Gene Expression in Response to Embryonic Environment. Manuscript draft available – anticipated submission date, November 2022
4. Snead AA & Clark R (202X). The Biological Hierarchy, Time, and Temporal ‘Omics in Evolutionary Biology: A Perspective. *Integrative & Comparative Biology* **In Press**.
3. Snead AA & Alda F (202X). Time Series Sequences for Evolutionary Inferences. *Integrative & Comparative Biology* **In Press**.
2. Snead AA & Earley RL (2022). Predicting the in-Between: Present and future habitat suitability of an intertidal euryhaline fish. *Ecological Informatics* 68:101523.
1. Davidson J, Summerfelt S, Espmark AMO, Mota V, Marancik D, Earley RL, Snead AA, Good C (2021). Effects of ozone on post-smolt Atlantic salmon (*Salmo salar*) performance, health, and maturation in freshwater recirculation aquaculture systems. *Aquaculture* 533:736208.

### Special Issues

1. Organizer/Associate Editor, *Integrative & Comparative Biology*, 202X. Special issue on “Temporal Genomics.”, **In Press**

### Media Coverage

1. Schmelzer H. 2022. Microevolution can guide conservation efforts. *NatureVolve* 11:26-29.  
\* Interview & Popular Science Article Spotlight

## GRANTS AND FELLOWSHIPS

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(\$92,887.50 total)

11. Ecological Society of America Conference Funding (Southeast Chapter)  
*Montreal: 2022*

**\$400**

10. University of Alabama Graduate Travel Award <i>Summer 2022</i>	<b>\$500</b>
9. University of Alabama Aquatic Biology Enhancement Assistantship <i>2022-2023 Academic Year</i>	<b>\$54,538</b>
8. RCN for Evolution in Changing Seas 2020 Call for Working Groups <i>Implications of Methodology on Temporal Genomic Inferences</i> (One of Three Project Leads out of 9 Collaborators)	<b>\$1,5762.50</b>
7. RCN for Evolution in Changing Seas <i>2020 Virtual Lab Meeting Training Program</i>	<b>\$500</b>
6. 25 <sup>th</sup> Summer Institute in Statistical Genetics Scholarship <i>Module 9, 14, &amp; 17</i>	<b>\$900</b>
5. E.O. Wilson Biodiversity Fellowship Summer 2020 <i>Population Genetic and Environmental DNA Sampling in the Florida Keys</i>	<b>\$6,944</b>
4. Bishop-Stackman Marine Science Endowed Scholarship <i>Environmental DNA Sampling in the Florida Keys</i>	<b>\$500</b>
3. Office of Research and Economic Development Small Grant Program <i>Validating a Non-Invasive Method for Estimating Abundance in Threatened or Cryptic Marine Fishes.</i>	<b>\$5,844</b>
2. Sigma Xi Grants In Aid of Research <i>Escaping the Patch: The Role of Ocean Currents in Determining Population Connectivity in <i>Kryptolebias marmoratus</i>.</i>	<b>\$1,000</b>
1. The College Academy of Research, Scholarship, and Creative Activity Grant <i>If You Can't See It, It Doesn't Exist. Or Does It? Validating a Technique to Estimate Abundance in a Vulnerable, Highly Enigmatic Marine Fish.</i>	<b>\$5,999</b>

## TALKS AND SEMINARS

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### *Organized*

Temporal Genomics Lecture Series (Virtual) Funded by RCN-ECS	<b>2021</b>
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### *Invited*

Stranded within the Intertidal: Species-specific Responses to Environmental Change Fresno State (Virtual; April 1 <sup>st</sup> , 2022)	<b>2022</b>
Crossing Disciplines: An Integrative Approach to Evolutionary Ecology Saint Leo University (Virtual; February 9 <sup>th</sup> , 2021)	<b>2021</b>

## PRESENTATIONS

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### *Oral*

Temporal Genomics Working Group Update René Clark, Brendan Reid, Allyson Salazar Sawkins, John Whalen, Katrina Catalano, Kyra Fitz, Eric Garcia, Kyle Jaynes, <b>Anthony A. Snead</b> , Malin Pinsky RCN for Evolution in Changing Seas 2022 Integration and Training Workshop	<b>2022</b>
Life within the intertidal: Abiotic and biotic drivers of species abundance <b>Anthony A. Snead</b> , Kristy Marson, Ryan L. Earley CSEE & ESA 2022 Joint Meeting	<b>2022</b>
Left behind: habitat suitability shifts of a euryhaline fish <b>Anthony A. Snead</b> & Ryan L. Earley FSBI Symposium ( <i>3-minute Speed Talk &amp; Poster</i> )	<b>2022</b>

**Poster**

Validating a non-invasive method for estimating abundance in threatened or cryptic marine fishes **2021**  
Ryan L. Earley & **Anthony A. Snead**  
University of Alabama Faculty Research Day

**WORKSHOPS ATTENDED**

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Explore & work with harmonized continental-scale biodiversity data from NEON and the US LTER **2022**  
**Ecological Society of America (ESA 2022)**

Write a good title, give a better talk **2022**  
**Ecological Society of America (Early Career Ecologist Section)**

Coral Health Index Workshop **2022**  
**Dr. Michael Sweet, Dr. Raquel Pixoto, & Dr. Christian Voolstra**

Workshop on Molecular Evolution **2022**  
**The Marine Biological Laboratory, University of Chicago**

Statistical Methods Seminar Series **2022**  
*Integrated Step-Selection Analysis*  
*Multi-Species (Species Interactions) Occupancy Modeling*  
*Nimble*  
*Hidden Markov Models in Ecology*  
**Ecological Forecasting Initiative & ESA Statistical Ecology Section**

High-Performance Computing Cluster Workshop Series **2021**  
*Pytorch*  
*Miniconda*  
**University of Alabama**

25<sup>th</sup> Summer Institute in Statistical Genetics- Funded (\$900) **2020**  
*Module 9: Quantitative Genetics*  
*Module 14: Association mapping: GWAS and Sequencing Data*  
*Module 17: Computational Pipeline for WGS Data*  
**University of Washington**

5<sup>th</sup> edition Population Genomics **2020**  
**Physalia**

Southeastern Computational School: eDNA and QIIME 2 Software Training **2018**  
**The University of Tennessee at Chattanooga**

**RESEARCH EXPERIENCE**

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**Graduate Researcher** **Fall 2018 - Present**

*The Earley Lab, University of Alabama*

- Quantifies the impact of abiotic variables on levels of gene flow and genetic divergence between populations of *Kryptolebias marmoratus*
- Investigates eDNA concentration's relation to density over time as a proxy for traditional measures of species abundance.
- Evaluates the abiotic and biotic factors which impact occupancy and abundance in *Kryptolebias marmoratus* through ecological niche modeling and Bayesian hierarchical models.
- Identifies the genomic and epigenomic variants driving sexual plasticity while quantifying associated gene expression patterns.

**Undergraduate Researcher** **Fall 2016 - Summer 2018**

*Freshwater Ecology Lab, University of South Florida*

- Surveyed and identified littoral benthic invertebrates throughout the Tampa Bay area to assess urban pond health.

- Sampled, identified, and measured over 5,000 fish to assess the difference between urban pond types for direct application within urban planning.
- Assessed differences between pond types for both benthic invertebrate and littoral fish community composition and biodiversity.
- Completed geospatial analysis to derive pond characteristics from satellite imagery.

**Undergraduate Researcher**

**Fall 2012 - Spring 2013**

*Saint Leo University, Saint Leo, FL*

- Quantified mangrove forest health throughout Tampa Bay using quartile plots.
- Measured the abundance and distribution of galls located on red mangroves throughout Tampa Bay.
- Investigated the relationship between salinity and gall formation on red mangroves.
- Aided in artificial oyster reef experiments to quantify the abiotic factors affecting reef success.

**Research Volunteer**

**Fall 2012 - Spring 2013**

*Mangrove Watch,  
Tampa, FL*

- Conducted mangrove forest surveys throughout Tampa Bay.
- Employed video surveillance of shoreline habitat throughout Tampa Bay to assess mangrove health.
- Quantified mangrove forest health through individual tree tagging and measurements.
- Led groups of volunteers in collecting key data to serve as mangrove forest health baselines used in long-term monitoring programs.

**TEACHING EXPERIENCE**

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***University of Alabama***

*Instructor of Record*

**Fall 2018 – Summer 2022**

- Biology II Laboratory
- Biology II Laboratory for Non-majors
- Introduction to Principles of Biology

\*Instructor of Record indicates that the individual formatted, developed, and presented instructional material in compliance with department and course guidelines, while also being solely responsible for grading and course management.

*Graduate Teaching Assistant*

**Spring 2021**

- Research Seminars in Biology
- Biological Sciences Seminar

**PROFESSIONAL MEMBERSHIPS**

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The Ecological Society of America (ESA)	<b>2022 - Present</b>
The International Biogeography Society	<b>2022 - Present</b>
The Society for Integrative and Comparative Biology (SICB)	<b>2022 - Present</b>
The Research Coordinate Network for Evolution in Changing Seas (RCN-ECS)	<b>2020 - Present</b>
The Society for the Study of Evolution (SSE)	<b>2020 - Present</b>
Sigma Xi	<b>2020 - Present</b>
The American Association for the Advancement of Science (AAAS)	<b>2018 - 2022</b>
The Fisheries Society of the British Isles (FSBI)	<b>2018 - Present</b>
University of Alabama Biology Graduate Student Association (UA BGSA)	<b>2018 - Present</b>

**PROFESSIONAL SERVICE**

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***Internal***

UA Biological Sciences Diversity, Equity, & Inclusion Committee **Fall 2021 – Present**  
Graduate Student Representative

***External***

1000 Genomes ONT Sequencing Consortium **2022 - Present**  
Member  
RCN-ECS 2022 Reading Group - Temporal Data and Evolutionary Change **Spring 2022**  
Co-Organizer

***Journals Reviewed for:***

*Ecological Processes* (11/21)

*Molecular Phylogenetics and Evolution* (4/22)

**OUTREACH**

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Denver Metro Regional Science & Engineering Fair <i>Volunteer Judge</i>	<b>Spring 2022</b>
Meet a Bama Biologist <i>Scientific Volunteer</i>	<b>Spring 2021 - Present</b>
UA Undergraduate Research & Creative Activity Conference <i>Volunteer Judge</i>	<b>Spring 2021, 2022</b>
UA STEM Showcase <i>Volunteer Judge</i>	<b>Spring 2021</b>
Letters to a Pre-Scientist <i>Scientific Volunteer</i>	<b>Fall 2020 - Present</b>
UA SafeZone <i>Ally/Trainer</i>	<b>Fall 2019 - Present</b>
The University of Alabama's Night at the Museum <i>Volunteer Biology Instructor</i>	<b>Spring 2019</b>
Skype a Scientist <i>Scientific Volunteer</i>	<b>Spring 2018 - Present</b>

**REFERENCES**

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Dr. Ryan Earley  
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Dr. Malin Pinsky  
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