

Jason Macrander
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Positions Held

2018 – Present	Assistant Professor of Marine Biology , Florida Southern College, Lakeland Department of Biology.
2016 – 2018	Postdoctoral Research Fellow , University of North Carolina, Charlotte Department of Biological Sciences. Adviser: Dr. Adam Reitzel

Education

2011 – 2016	Doctor of Philosophy , Ohio State University Evolution, Ecology, and Organismal Biology. Adviser: Dr. Meg Daly Graduate Interdisciplinary Specialization: College and University Teaching
2008 – 2010	Masters of Science , University of Nebraska – Lincoln Ecology, Evolution, and Behavior. Adviser: Dr. Guillermo Orti
2002 - 2007	Bachelor of Science (dual degrees), University of Nebraska – Lincoln Biological Sciences. Fisheries and Wildlife.

Acquired Funding (*Equipment Value)

2021 – 2022	Faculty/Student Collaborative Research Program at FSC. “Are Reef Safe Sunscreen Really Safe?”	\$6,000
2018 – 2021	Be Curious Mini-Grants [3 awards]. Florida Southern College.	\$1,500
2021	Equipment: Shallow draft boat (e.g., Carolina Skiff) Source: Mosaic (<i>In collaboration with Marine Bio Faculty and Kathy Ellis</i>)	\$50,000*
2020 – 2021	Faculty/Student Collaborative Research Program at FSC. Assessment of the elasmobranch community in eastern Hillsborough Bay, Tampa Bay, Florida. CO-PI: Dr. Gabe Langford (Rebudgeted due to COVID 19)	\$6,091
2020	Equipment: Trident Remotely Operated Vehicle (ROV) Source: Sofar Ocean (<i>In collaboration with Marine Bio Faculty and Matthew Eicholtz</i>)	\$1,500*
2019 – 2021	<i>Protect Our Reefs</i> Grants Program. Testing the suitability of an actinarian model for scleractinian coral bleaching.	\$14,379
2019	Faculty/Student Collaborative Research Program at FSC. The effects of micro-plastics on venom expression and survivorship in the model cnidarian <i>Nematostella vectensis</i> .	\$5,625
2014 – 2016	National Science Foundation. Dissertation Research: The role of gene duplication and symbiont association in the evolution of sea anemone venom (Co-PI with Meg Daly) [Award Number 1401014]	\$19,687
2012 - 2013	Columbus Zoo – Ohio State University. Evolution of Sea Anemone Venom Genes. (Co-PI with Meg Daly)	\$4,600
2008 - 2009	University of Nebraska Biological Sciences Special Funds	\$1,000

Publications [Since 2018](*N: 28, h-index: 12, i-index:16, RG Score: 28.28, *undergraduate **graduate mentee*)

- *Frias, A, *Cook, K, *Kratz, J, *Manzi, S, **Macrander, J.** (*In Prep*). Impact of microplastics in sea anemone *Nematostella vectensis* defense mechanisms, survivability, and behavior.
- *Vossgaetter, L, Larson, P, **Macrander, J.** (*In Revision*). A new color morph of *Calappa flammea* (Herbst, 1794), with implications for the taxonomy of *Calappa Weber*, 1795 (Decapoda: Brachyura: Calappidae). *Journal of Crustacean Biology*
- Shachkova, MY, Landau, M, Surm J, **Macrander J**, Singer, SA, Reitzel, AM, Moran, Y. 2020. Toxin-like neuropeptides in the sea anemone *Nematostella* unravel recruitment from the nervous system to venom. PNAS. 117 (44) 27481-27492.
- Klumpen, AML, **Macrander, J**, Reitzel, AM, Stampar, SN. 2020. Transcriptomic Analysis of Four Cerianthid (Cnidaria, Ceriantharia) Venoms. *Marine Drugs* 18:413.

- Shachkova, MY, **Macrander, J**, Surm, JM, Aharoni, R, Menard-Harvey, SS, *Klock, A, Leach, WB, Reitzel, AM, Moran Y. 2020. Some Like It Hot: Population Specific Adaptations in Venom Production to Abiotic Stressors in a Widely Distributed Cnidarian. *BMC Biology*.
- Shachkova, MY, Singer, SA, **Macrander, J**, Reitzel, AM, Peigneur, S, Tytgat, J, Moran, Y. 2019. The birth and death of toxins with distinct functions: a case study in the sea anemone *Nematostella*. *Molecular Biology and Evolution*. 36: 3001 – 2012.
- Stampar SN, Broe MB, **Macrander J**, Reitzel AM, Brugler MR, Daly M. 2019. Linear Mitochondrial Genome in Anthozoa (Cnidaria): A Case Study in Ceriantharia. *Scientific Reports* 9:6094..
- Ivanina, A., Borah, B., Rimkevicius, T., **Macrander, J.**, Piontkivska, H., Sokolova, I., Beniash, E. 2018. The role of the vascular endothelial growth factor (VEGF) signaling in biomineralization of the oyster *Crassostrea gigas*. *Front. Mar. Sci.* 5:309
- Macrander, J.**, Panda, J., Janies, D., Daly, M., Reitzel, A.M. 2018. Venomix: A simple bioinformatic pipeline for identifying and characterizing toxin gene candidates from transcriptomic data. *PeerJ* 6:e5361
- Leach, W.B., **Macrander, J.**, Peres, R., Reitzel, A.M. 2018. Transcriptome-wide analysis of differential gene expression in response to light:dark cycles in a model cnidarian. *Comp. Biochem. Physiol. Part D Genomics Proteomics*. 26: 40 – 49.
- Reitzel, A.M., **Macrander, J.**, Mane-Padros, D., Fang, B., Sladek, F.M., Tarrant, A.M. 2018. Conservation of DNA and ligand binding properties of retinoid X receptor from the placozoan *Trichoplax adhaerens* to human. *J. Steroid Biochem. Mol. Biol.*
- Columbus-Shenkar, Y.Y., Sachkova, M.Y., **Macrander, J.**, Fridrich, A., Mondepalli, V., Reitzel, A.M, Sunagar, K., Moran, Y. 2018. Dynamics of venom composition across a complex life cycle. *eLife*: e35014.
- Carrier, T.**, **Macrander, J.**, Reitzel, A. 2018. A microbial perspective on the life-history evolution of marine invertebrate larvae: if, where, and when to feed. *Marine Ecology*: e12490.
- Krishnarajuna, B., MacRaild, C.A., Sunanda, P., Morales, R.A.V., Peigneur, S., **Macrander, J.**, Daly, M., Raghothama, S., Dhawanf, V., Chauhanf, S., Tytgat, J., Pennington, M.W., Norton, R.S. 2018. Structure, Folding, and Stability of a Minimal Homologue of ShK from *Anemonia sulcata*. *Peptides*. 99: 169 – 178.
- Macrander, J.**, Dimond, J., Bingham, B., Reitzel, A. 2018. Transcriptome sequencing and characterization of *Symbiodinium muscatinei* and *Elliptochloris marina*, symbionts found within the aggregating sea anemone *Anthopleura elegantissima*. *Marine Genomics*. 37: 82 – 91.

SOTL Related Publications

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- Collins, P and **Macrander J** (2019) Toxic circumstances: using bioinformatics to understand natural selection. *National Center for Case Study Teaching in Science, University at Buffalo, State University of New York.*

Presentations and Invited Talks (Since 2018)

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- Macrander, J.** 2020 Evolution of *Nematostella vectensis* venom components. SBE Session: Phylogenomics and molecular evolution, Virtual Conference
- Macrander, J.**, Sachkova, M, Surm, J, Leach, W, Ketchum, R, Reitzel, A, Moran, Y. 2020. A Multi-omic Approach to Evaluate Environmental Influence and Population Dynamics of Venom Production in *Nematostella vectensis*. Society for Integrative and Comparative Biology, Austin, TX
- Macrander, J.**, Sachkova, M., Leach, W., Ketchum, R., Klock, A., Moran, Y., Reitzel, A. 2018. Toxin assemblage and prey community in the model sea anemone *Nematostella vectensis* throughout their natural range. Cnidofest, St. Augustine, FL.
- Macrander, J.**, Panda, J., Janies, D., Daly, M., Reitzel, A.M. 2018. POSTER: Venomix: A simple bioinformatic pipeline for identifying and characterizing toxin gene candidates from transcriptomic data. Society for Integrative and Comparative Biology, San Francisco, CA.
- Macrander, J.** Sachkova, M.Y., Moran, Y., Reitzel, A.M. 2018. The starlet sea anemone (*Nematostella vectensis*) as an emerging model organism for venom studies. Society for Integrative and Comparative Biology, San Francisco, CA.

Mentoring and Awards

Graduate Students Mentored

- Jyothirmayi Panda (Venomix package for toxin gene identification; MS-CS 2017) UNCC

Undergraduate Students Mentored

- Abby Tarleton (Effects of sunscreen on sea anemone survivorship; B.S. 2023) FSC
- Andrea Frías Vellón (Effects of microplastics on sea anemone life history traits; B.S. 2022) FSC
- Lenny Vossgatter (Molecular methods and color morph of the Calappa flammea; B.S. 2020) FSC
- Jackie Krantz (Evolution of ShK toxin domains in sea anemones; B.S. 2020) FSC
- Serena Manzi (Contrasting sea anemones stress response with symbiont association; B.S. 2020) FSC

Teaching Experience and Professional Development

Instructor of Record (FSC only)

- BIO1520 – **Introduction to Marine Biology** (2018^{FA}, 2019^{FA}, 2020^{FA}) Lecture
- BIO1600 – **Organismal Diversity** (2019^{SP}) Labs
- BIO 2220 – **Biology of Fishes** (2020^{SP}) Lecture and Labs
- BIO 2500 – **Ecology and Evolution** (2018^{FA}, 2020^{FA}) Lecture and Labs
- BIO 3700 – **Genetics** (2019^{SP}, 2020^{SP}, 2021^{SP}) Lecture and Labs
- BIO 3770 – **Bioinformatics** (2019^{SP}, 2021^{SP}) Lecture
- BIO 4560/2 – **Introduction to Molecular Research/Research Molecular Biology** (2021^{SP})

SOTL Professional Development and Instruction

- **FSC Professional Development Initiatives** (2018 – 2020)
 - Mastery grading
 - Summer course redesign
 - Advising Matters: Excellence in Academic Advising
 - Learning Assessment Techniques: Assessing Student Learning Early and Often
 - Moving from Teaching to Learning and Outcomes-Based Assessment: A Reading Group
 - Preparing to Teach Online

Service and Outreach (Since 2018)

College/Departmental Service

- IACUC Committee (2018 – Present)
- Distance Learning Committee (2019 – Present)
- Safety Committee (2019 – Present)
- Student Club Faculty Advisor
 - Rho Rho Rho (Tri-Rho) Marine Biology Honors Society (2019 – Present)
 - Sailing Club (2019 – Present)

Reviewer/Editor

- *Toxins, Marine Drugs, Scientific Reports, Molecular Biology and Evolution, PeerJ, Journal of Proteomics, Marine Biology, Toxicon, Molecular Ecology, Systematic Biology, Wiki Journal, Biology Open, Hydrobiologia, Genes, International Journal of Molecular Sciences*
- Guest Editor for Marine Drugs Special Issue "Anthozoan Toxins: Using New Approaches to Understand Their Composition, Distribution, and Function"