

# Cole Gregory Easson

## ***Curriculum Vitae***

Research Assistant Professor and Instructor  
Department of Biology  
Middle Tennessee State University  
Cole.Easson@mtsu.edu

## **EDUCATION**

Ph.D. in Environmental Toxicology, University of Mississippi, 5/08-8/13

Dissertation: Individual and Population Responses of the Caribbean Sponge, *Aplysina cauliformis*, to Natural and Anthropogenic Stressors.

*Multi-faceted research focusing on sponge disease epidemiology, anthropogenic stressors, and resource exchange. Used spatial analysis as a tool to characterize transmission of the disease Aplysina red band syndrome in natural populations. Experimentally assessed consequences of sponge-algal interactions under natural and elevated nutrient regimes. Evaluated the role of algal microbes in sponge stress, using stable isotopes to investigate the transfer of carbon and nitrogen between sponges and algae.*

B.S. in Biology, Minor in Mathematics, University of Mississippi, 2008

*Emphasis in marine biology with study abroad classes on marine and tropical ecology in Galapagos Islands and Belize. Used Quickbird and IKONOS image data to monitor seagrass loss in Belize.*

## **PROFESSIONAL EXPERIENCE**

2021-present	Full Time Temporary Instructor for BIOL 3250 and 3251, Genetics and Genetics laboratory, BIOL 1030 Exploring Life, BIOL 4140/4141 Invertebrate Zoology & BIOL 4351 Biometry laboratory. Mentoring 2 graduate students, 4 undergraduate students and 1 honors college undergraduate
2019-2020	Full Time Temporary Instructor for BIOL 3250 and 3251, Genetics and Genetics laboratory. <i>Teaching 4 sections with ~180 total students</i>
2018-present	Assistant Professor, Research-track, at Middle Tennessee State University. <i>Conducting collaborative research on microbially mediated ecological diversification in marine sponges and teaching genetics and genetics laboratory as adjunct instructor</i>
2017-2018	Adjunct Assistant Professor at Nova Southeastern University <i>Teaching Introduction to Bioinformatics BMME 8053 during spring and fall 2018 semesters. The course introduces students to the principles of bioinformatics and the processing of large <u>genetic datasets</u> in the UNIX/LINUX environment and online server resources.</i>

- 2015-2018 Research Scientist for Drs. Tracey T. Sutton and Jose V. Lopez at Nova Southeastern University. *Collaborative research funded by the Gulf of Mexico Research Initiative to investigate natural and anthropogenic forces that influence microbial communities in the northwestern Gulf of Mexico following the Deepwater Horizon oil spill and connect them to broader ecosystem processes. Specific duties include field collection of water column microbes, laboratory preparation, sequencing using Illumina MiSeq, and bioinformatics processing and multivariate statistical analysis of data in QIIME, Mothur, and R.*
- 2013-2015 Postdoctoral Research Fellow for Dr. Robert W. Thacker at University of Alabama at Birmingham  
*Collaborative research addressing fundamental evolutionary biology questions, including the evolutionary process of spatial diversification, symbiotic communities, and complex host-symbiont interactions. Research focused on co-speciation of marine sponges and their symbionts, and on designing and developing complex statistical workflows in the program R and online, to streamline processing of large comparative datasets.*
- 2011-2012 Research Associate for Drs. Marc Slattery and Deborah Gochfeld at University of Mississippi.  
*Field and laboratory research related to ocean acidification effects on coral reef landscapes, with a focus on mesophotic reefs, including a 12-day saturation diving mission in the Aquarius Underwater Habitat, and comparative studies on biodiversity of sponges in shallow and mesophotic reefs in both the Atlantic and Pacific.*
- 2010-2011 Teaching Assistant at University of Mississippi  
PHCG 541. Coral reef Stressors: Adaptation in Tropical Marine Ecosystems, taught in the Bahamas.  
*Lectured on anthropogenic stressors and their impacts on coral reef ecosystems. Led field and laboratory activities for students. Mentored independent student research projects*
- 2008-2013 Research Associate for Dr. Deborah Gochfeld at University of Mississippi.  
*Aplysina Red Band Syndrome: Investigating the Etiology, Pathogenesis, and Ecology of an Emerging Marine Disease. Funded by NSF and NOAA's National Institute for Undersea Science and Technology (NIUST).*  
*Field and laboratory experiments related to understanding the epidemiology of a sponge disease. Analyzed biochemical and physiological impacts of disease on the sponge and its host symbionts. Investigated mechanisms and impacts of exogenous stressors of*

*transmission and progression of the disease. Used spatial analysis to study disease transmission within a natural population.*

- 2007-2008 Research Assistant for Dr. Marc Slattery at University of Mississippi.  
*Assessment of Hurricane Katrina Impacts in an Estuary . Collected and processed ethinyl-estradiol samples collected in Grand Bay, Mississippi, to understand the impacts of anthropogenic inputs on estuarine organisms.*
- 2006-2007 Teaching Assistant, Department of Biology, University of Mississippi.  
BISC 161 and 163. Introduction to Biology.  
*Taught multiple laboratory sections of Introduction to Biology for majors over four semesters.*
- 2006-2007 Teaching Assistant, Department of Biology, University of Mississippi.  
BISC 445. Introduction to Coral Reef Ecology; Study Abroad, Belize.
- 2005-2007 Student Worker for Dr. Murray Nabors, Department of Biology at University of Mississippi.  
*Developed teacher resources for second edition of textbook, Botany. Assisted in teaching of the Honors section lecture component of Introduction to Biology for majors.*

## **TEACHING EXPERIENCE**

- 2021-present Full Time Temporary Instructor for BIOL 3250 and 3251, BIOL 1030, BIOL 4140, BIOL 5140, BIOL 4141, BIOL 5141, & BIOL 4351.
- 2018-2019 Adjunct Instructor for BIOL 3250 and BIOL 3251: Genetics and Genetics lab, Middle Tennessee State University (Covid-19 budget cuts that led to lay-off)
- 2019-2020 Full-Time temporary Instructor for 4 sections of BIOL 3250 and BIOL 3251: Genetics and Genetics laboratory & BIOL 4351 Biometry laboratory. Middle Tennessee State University
- 2018-2019 Adjunct Instructor for BIOL 3250 and BIOL 3251: Genetics and Genetics lab, Middle Tennessee State University
- 2017-2018 Instructor for BMME 3550: Introduction to Bioinformatics, Nova Southeastern University
- 2016-2018 Instructor, Microbiome Analysis Workshops, Nova Southeastern University

- 2010-2011 Teaching Assistant for PHCG 541: Coral reef Stressors, University of Mississippi
- 2006-2007 Teaching Assistant for BISC 445: Introduction to coral reef ecology, University of Mississippi
- 2006-2007 Teaching Assistant for BISC 151 and 153: Introduction to Biology laboratory for majors, University of Mississippi

## GRANTS AND AWARDS

- 2023 *Pending*: Collaborative Research Project in NSF Polar Program: Testing the Sponge Loop Hypothesis in Antarctica; A Novel Pathway for Benthic Food Webs. Requested funding \$447,821. National Science Foundation
- 2022 *Internally funding*: Student Award: Undergraduate Research Experience and Creative Activity (URECA) award to Ori Bergman for Fall 2022 and Spring 2023 semesters as a gold-level scholar to investigate picoplankton feeding in marine sponges using next-generation microbiome techniques.
- 2020 *External funding*: Stones River Watershed Association award to C. Easson and J. Williams (honors student) for July 2021-June 2022 to investigate biodiversity in the Stones River Watershed using metabarcoding of environmental DNA. \$6,500
- 2019 *Internally funding*: Student award: Undergraduate Research Experience and Creative Activity (URECA) award to Luis Zuniga for Fall 2019 and Spring 2020 semesters as a gold-level scholar to investigate symbiont transmission in marine sponges. Results presented at the Benthic Ecology Meeting in 2022
- 2019 ***External funding*: Collaborative Research Project in NSF Biological Oceanography Program. The Influence of Sponge Holobiont Metabolism on Coral Reef Dissolved Organic Matter and Reef Microorganisms. \$92,325. NSF Award Number: 1924540 (Subaward through Appalachian State University)**
- 2017 ***External funding*: Collaborative Research Project in NSF Biological Oceanography Program (lead-PI). Investigations into microbially mediated ecological diversification in sponges. \$272,552. NSF Award Number: 1915949**
- 2017 *Internally funding*: President's Faculty Research and Development Grant (PI) at Nova Southeastern University. Assessing shifts in sponge microbial communities across the Caribbean. \$14,677
- 2014 *External funding*: Institute for Pacific Coral Reefs (Co-PI with Dr. Chris Freeman). Variability in sponge-microbe symbioses throughout Moorea, French Polynesia. €4500

- 2014 *Internally funding: Career Enhancement Award, Office of Postdoctoral Education, University of Alabama at Birmingham (PI).* \$1500
- 2013 *Internally funding: Dissertation Fellowship, University of Mississippi Graduate School.* \$5000+tuition and benefits.
- 2012 *External funding: Charlotte Magnum Student Support award, Society for Integrative and Comparative Biology Annual Meeting,* Charleston, SC.

## PEER-REVIEWED PUBLICATIONS

- Deutsch, J. M., Green, M. O., Akavaram, P., Davis, A. C., Diskalkar, S. S., Du Plessis, I. A., Easson, C.G. ... & Agarwal, V. (2023). Limited Metabolomic Overlap between Commensal Bacteria and Marine Sponge Holobionts Revealed by Large Scale Culturing and Mass Spectrometry-Based Metabolomics: An Undergraduate Laboratory Pedagogical Effort at Georgia Tech. *Marine Drugs*, 21(1), 53.
- Monti, M., Giorgi, A., **Easson, C. G.**, Gochfeld, D. J., & Olson, J. B. (2021). Transmission studies and the composition of prokaryotic communities associated with healthy and diseased *Aplysina cauliformis* sponges suggest that *Aplysina* Red Band Syndrome is a prokaryotic polymicrobial disease. *FEMS microbiology ecology*, 97(12), fiab164.
- Olson, J. B., **Easson, C. G.**, & Gochfeld, D. J. (2021). Temporal changes in the sponge holobiont during the course of infection with *Aplysina* Red Band Syndrome. *Coral Reefs*, 40(4), 1211-1226.
- Freeman, C. J., **Easson, C. G.**, Fiore, C. L., & Thacker, R. W. (2021). Sponge–Microbe Interactions on Coral Reefs: Multiple Evolutionary Solutions to a Complex Environment. *Frontiers in Marine Science*, 917.
- Olson, J. B., **Easson, C. G.**, & Gochfeld, D. J. (2021). Temporal changes in the sponge holobiont during the course of infection with *Aplysina* Red Band Syndrome. *Coral Reefs*, 1-16.
- \*Storo, R.C, **Easson, C.G.** Shivji, M., Lopez, J.V. (2021) Microbiome Analyses Demonstrate Specific Communities Within Five Shark Species. *Frontiers in Microbiology: Aquatic Microbiology*
- Cook, A., Bernard, A.M., Boswell, K.M., Bracken-Grisson, H., D’Elia, M., Derada, S., **Easson, C.G.**, English, D., Eytan, R.I., Frank, T., et. al., (2020) A Multidisciplinary Approach to Investigate Deep-Pelagic Ecosystem Dynamics in the Gulf of Mexico following Deepwater Horizon. *Frontiers in Marine Science 7: Deep-Sea Environments and Ecology*

- Easson, C. G.**, Boswell, K. M., Tucker, N., Warren, J. D., & Lopez, J. V. (2020). Combined eDNA and Acoustic Analysis Reflects Diel Vertical Migration of Mixed Consortia in the Gulf of Mexico. *Frontiers in Marine Science*.
- \*Nascimento, J. R., **Easson, C. G.**, Jurelevicius, D. D. A., Lopez, J. V., Bidone, E. D., & Sabadini-Santos, E. (2020). Microbial community shift under exposure of dredged sediments from a eutrophic bay. *Environmental Monitoring and Assessment*, 192(8), 1-16.
- Easson, C. G.**, Chaves-Fonnegra, A., Thacker, R. W., & Lopez, J. V. (2020). Host population genetics and biogeography structure the microbiome of the sponge *Cliona delitrix*. *Ecology and Evolution*, 10(4), 2007-2020.
- Freeman, C. J., **Easson, C. G.**, Matterson, K. O., Thacker, R. W., Baker, D. M., & Paul, V. J. (2020). Microbial symbionts and ecological divergence of Caribbean sponges: A new perspective on an ancient association. *The ISME Journal*, 1-13.
- \*Freed, L.L., **Easson, C.**, Baker, L.J., Fenolio, D., Sutton, T.T., Khan, Y., Blackwelder, P., Hendry, T.A. and Lopez, J.V., (2019). Characterization of the microbiome and bioluminescent symbionts across life stages of Ceratioid Anglerfishes of the Gulf of Mexico. *FEMS microbiology ecology* 95:10. doi: 10.1093/femsec/fiz146
- Baker, L.J., \*Freed, L.L., **Easson, C.G.**, Lopez, J.V., Fenolio, D., Sutton, T.T., Nyholm, S.V. and Hendry, T.A., (2019). Diverse deep-sea anglerfishes share a genetically reduced luminous symbiont that is acquired from the environment. *eLife*, 8.
- Smith, R.P., **Easson, C.**, Lyle, S.M., Kapoor, R., \*Donnelly, C.P., Davidson, E.J., Parikh, E., Lopez, J.V. and Tartar, J.L., (2019). Gut microbiome diversity is associated with sleep physiology in humans. *PloS one*, 14(10), p.e0222394..
- Johnston, M.W., R.J. Milligan, **C.G. Easson**, S. de Rada, D. English, B. Penta, T.T. Sutton (2019) An Empirically-validated Method for Characterizing Pelagic Habitats in the Gulf of Mexico Using Ocean Model Data. *Limnology and Oceanography Methods*. doi:10.1002/lom3.10319
- Easson, C.G.** and J.V. Lopez (2019) Depth-dependent environmental drivers of microbial plankton community structure. *Frontiers in Microbiology*, 9: 3175
- Milligan, R.J., A.M. Bernard, K.M. Boswell, H.D. Bracken-Grissom, M.A. D'Elia, S. deRada, **C.G. Easson**, D. English, R.I. Eytan, K.A. Finnegan, C. Hu, C. Lembke, J.V. Lopez, B.Penta, T.Richards, I.C. Romero, M. Shivji, L. Timm, J.D. Warren, M. Weber, R.J.D. Wells, T.T. Sutton. (2018) The Application of Novel Research Technologies by the Deep Pelagic Nekton Dynamics of the Gulf of

Mexico (DEEPEND) *Consortium Marine Technology Society Journal*, Volume 52, Number 6, pp. 81–86.

\*Widmer, C., J. \*Skutas, **C. Easson**, J. Lopez, C. Torneck, M. Flax (2018) Culture-independent Characterization of the Microbiome of Healthy Pulp. *The Journal of Endodontics*, 4:7:1132-1139.

Moitinho-Silva, L., S. Nielson, A. Amir, A. Gonzalez, **C. Easson**, et al., (2017) The sponge microbiome project. *Giga Science*, 6:10:1-7.

Freeman, C. J., E.W. Stoner, **C.G. Easson**, K.O. Matterson, & D.M. Baker (2017). Variation in  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values suggests a coupling of host and symbiont metabolism in the *Symbiodinium-Cassiopea* mutualism. *Marine Ecology Progress Series*, 571:245-251.

Thomas, T., L. Moitinho-Silva, M. Lurgi, **C.G. Easson** et al., (2016) Diversity, structure and convergent evolution of the global sponge microbiome. *Nature Communications*. 7:11870

Freeman C.J. and **C.G. Easson** (2016) Sponge distribution and the presence of photosymbionts in Moorea, French Polynesia. *PeerJ* (e1816)

Freeman, C.J., E.W. Stoner, **C.G. Easson**, K.O. Matterson, and D.M. Baker (2016) Symbiont Carbon and Nitrogen metabolism in the *Cassiopea-Symbiodinium*, *Marine Ecology Progress Series* 544:281-286.

**Easson, C.G.**, \*K.O. Matterson, S.K. Archer, C.J. Freeman and R.W. Thacker (2015) Variation in species diversity and functional traits of sponge communities near human populations in Bocas del Toro, Panama. *PeerJ* (e1385).

Freeman, C.J., **C.G. Easson**, and D.M. Baker (2015) Niche structure of marine sponges from temperate hard-bottom habitats within Gray's Reef National Marine Sanctuary. *Journal of Marine Biological Association of the UK*, doi:10.1017/S0025315415000363.

Freeman, C.J., D.M. Baker, **C.G. Easson**, and R.W. Thacker (2015) Shifts in sponge-microbe mutualisms across an experimental irradiance gradient. *Marine Ecology Progress Series*, 526:41-53.

**Easson, C.G.**, R.W. Thacker (2014) Phylogenetic signal in the community structure of host-specific microbiomes of tropical marine sponges. *Frontiers in Microbiology*, 5:1-11.

**Easson, C.G.**, M. Slattery, D.M. Baker, and D.J. Gochfeld (2014) Complex ecological associations: competition and facilitation in a sponge–algal interaction. *Marine Ecology Progress Series*, 507:153-167.

**Easson, C.G.**, M. Slattery, H.G. Momm, J.B. Olson, R.W. Thacker, D.J. Gochfeld (2013) Exploring Individual-to Population-Level Impacts of Disease on Coral Reef Sponges: Using Spatial Analysis to Assess the Fate, Dynamics, and Transmission of *Aplysina* Red Band Syndrome (ARBS). *PLoS One*, 8:11(e79976)

Slattery, M., D.J. Gochfeld, **C.G. Easson**, L.R.K. O'Donahue (2013) Facilitation of coral reef biodiversity and health by cave sponge communities. *Marine Ecology Progress Series* 476:71-86

Gochfeld D.J., **C.G. Easson**, M. Slattery, R.W. Thacker, J.B. Olson (2012) Population dynamics of a sponge disease on Caribbean reefs. In: Stellar DL, Lobel LK (eds) Proceedings of the American Association of Underwater Sciences 31<sup>st</sup> Scientific Symposium, Monterey, CA. 125-128

Gochfeld, D.J., **C.G. Easson**, C.J. Freeman, R.W. Thacker, J.B. Olson. (2012) Disease and nutrient enrichment as potential stressors on the Caribbean sponge *Aplysina cauliformis* and its bacterial symbionts. *Marine Ecology Progress Series* 456:101-111.

Gaston G.R., **C.G. Easson**, G.E. Easson, J. Janaskie, & M.A. Ballas (2008) Seagrass loss in Belize: studies of turtlegrass (*Thalassia testudinum*) habitat using remote sensing and ground-truth data. *Gulf and Caribbean Research* 21:23-30.

\* student advised by C.G. Easson

## **PUBLICATIONS IN REVIEW**

**Easson, C.G.**, D.J. Gochfeld, M. Slattery (*in review*) Microbiome profiling of three soft coral populations relative to disease onset and progression. *Marine Biology*

## **PUBLISHED DATA SETS**

**Easson, C.G.** (2019) DEEPEND: 18S eDNA profiles to track diel vertical migration in the northern Gulf of Mexico, Oct 11 '19. Sequence Read Archive BioProject PRJNA577133; BioSample Accession: SAMN13019503 - SAMN13019652

**Easson, C.G.** (2019) Sponge and seawater associated microbial communities from the Caribbean Sea and western Atlantic Ocean. Sequence Read Archive BioProject: PRJNA544301; BioSample Accession: SAMN11832602 - SAMN11833237



**Easson, C.G.** and J.V. Lopez (2019) Microbiome and bacterioplankton rRNA gene sequence data collected from Gulf of Mexico seawater samples, cruise DP05 from May 2017. Deep-Pelagic Nekton Dynamics of the Gulf of Mexico (DEEPEND). Published in GRIIDC: DOI: 10.7266/n7-033n-s709. Sequence Read Archive: BioProject: PRJNA544332: BioSample Accession: SAMN11810468 - SAMN11810951.

Johnston MW, Milligan RJ, **Easson CG**, de Rada S, English D, Penta B, Sutton TT (2018) Habitat classification of the Gulf of Mexico (GOM) using the HYbrid Coordinate Ocean Model (HYCOM) and salinity/temperature profiles, cruises DP01-DP04, May 2015 to August 2016. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University – Corpus Christi. doi: 10.7266/N7QR4VK0

**Easson, C.G.** and J.V. Lopez (2018) Microbiome and bacterioplankton rRNA gene sequence data collected from Gulf of Mexico seawater samples, cruises DP03 and DP04 from April - August 2016. Deep-Pelagic Nekton Dynamics of the Gulf of Mexico (DEEPEND). Published in GRIIDC: DOI: 10.7266/N7833QCP. Sequence Read Archive: Accession: SAMN08327442-SAMN08327725

**Easson, C.G.** and J.V. Lopez (2017) Microbiome and bacterioplankton rRNA gene sequence data collected from Gulf of Mexico seawater samples, Cruises DP01 and DP02 from May 2015 - August 2015 . Deep-Pelagic Nekton Dynamics of the Gulf of Mexico (DEEPEND). DOI: 10.7266/N7P55KWX

**Easson, C.G.**, K.O. Matterson, S.K. Archer, C.J. Freeman and R.W. Thacker (2015) Variation in species diversity and functional traits of sponge communities near human populations in Bocas del Toro, Panama. *PeerJ*, 3, e1385. Accession number: KT943914

## **STUDENT MENTORSHIP IN RESEARCH AT MTSU**

### **Current students**

**Luis** (Spring 2019 – present) – undergraduate until Fall 2021 where he began the Master’s program. Received undergraduate research award (URECA) to investigate microbiome transmission mechanisms between sponges and their larvae. Presented work at undergraduate conference in 2020 and Benthic Ecology meeting in 2022. Masters project focuses on assessing sponge metagenomes for nutrient cycling pathways.

**Ori** (Fall 2022 – present) – undergraduate student. URECA award recipient to study picoplankton diets in marine sponges using microbiome analysis.

**Brooks** (Spring 2023 – present) – undergraduate student. URECA award recipient studying population genetics of freshwater sponges in Tennessee using microsatellite analysis.

**Skylar** (Spring 2023 – present) – undergraduate student. URECA award recipient investigating genetic diversity of freshwater sponges in Tennessee using genetic barcoding.

### **Former students**

**Jeremy** (Fall 2019 – June 2022) – **Master's student**. Project focuses on the utility of the next-generation sequencing technique 2b-RAD in identifying zoanthid coral species compared to traditional genetic and morphological metrics.

**Davar** (January 2022 – present) – undergraduate student. Exploring filter-feeding in marine sponges using next-generation sequencing of microbiomes

**Nikki** (Summer 2022-present) – undergraduate student. Exploring genetic diversity of freshwater sponges using the next-generation sequencing technique, 2b-RAD

**Dalton** (Summer 2022 – present) – undergraduate student. Continued exploration of freshwater sponge diversity in Middle Tennessee using genetic and morphological metrics

**Micah** (Fall 2019 – July 2022) – undergraduate student. Along with Damon, explored diversity and distribution of freshwater sponges in middle Tennessee. Currently working to archive morphological data for all recorded species in Tennessee.

**Tony** (Summer 2021 – Spring 2022) – undergraduate student. Cataloging macrofaunal diversity within marine sponges using next-generation metabarcoding sequencing.

**Jacqueline** (Summer 2021 – Spring 2022) – undergraduate honors student. Exploring aquatic diversity in the Stones River Watershed using environmental DNA and next-generation metabarcoding sequencing techniques.

**Sundus** (January 2022 – May 2022) – undergraduate student. Investigating sponge symbioses in common Caribbean sponge species.

**Hannah** (Fall 2019 – Spring 2021) – undergraduate student. worked on a variety of projects from fall 2019 – spring 2021 including microbiome analysis of Caribbean sponges. Received 2 biology scholarships during time in lab to help fund research.

**Dirhat** (Spring 2021) – undergraduate student. Developed science communication and outreach materials for Easson lab projects.

**Damon** (Fall 2019 – Spring 2021) – undergraduate student. Explored diversity (morphological and genetic) and distribution of freshwater sponges in middle Tennessee. Identified 10 species and conducted 2bRAD sequencing. Received biology department scholarships to conduct part of his research and presented at conference in 2020 and 2021.

**Honar** (Fall 2021 – Spring 2022) – undergraduate student. Processing marine sponge samples for microbiome analysis including DNA extractions and polymerase chain reaction.

### **INVITED PRESENTATIONS**

**Easson, C.G.** From micro to macro: Sponge symbioses in the context of coral reef ecosystems. Invited speaker for Middle Tennessee State seminar series. February 2020, Murfreesboro, TN

**Easson, C.G.** New insights into ancient associations between microbial symbionts and sponge hosts. Invited speaker for Middle Tennessee State seminar series, September 2018, Murfreesboro, TN

**Easson, C.G.** Exploring shifts in the human gut microbiome related to emotional stress. Invited by Lee Limbird for Fisk University Cool Science Café seminar series, June 2018, Nashville, TN

**Easson, C.G.** New insights into the ecological and evolutionary factors that structure the complex sponge microbiome. Invited speaker for Nova Southeastern University Seminar Series, April 2017, Dania Beach, FL

**Easson, C.G.** Insights into the ecology and evolution of sponge microbiomes. Invited speaker for the University of Alabama at Birmingham Seminar Series, April 2015, Birmingham, AL

**Easson, C.G., R.W. Thacker.** Host-specific community structure of sponge microbiomes. Invited speaker for the Smithsonian Marine Station at Fort Pierce Seminar Series, January 2015, Fort Pierce, FL

**Easson, C.G.** Exploring population-level impacts of disease in coral reef sponges: using spatial analysis to assess the dynamics and transmission of *Aplysina* Red Band Syndrome (ARBS). Invited speaker for the Geosciences Colloquium at Middle Tennessee State University, September 2014, Murfreesboro, TN

## **PRESENTATIONS AT SCIENTIFIC MEETINGS**

**Easson, C.G., C.L. Fiore, R.W. Thacker, C.J. Freeman,** Assessing quantity and specificity in picoplankton diets of 10 common Caribbean sponges. Benthic Ecology Meeting, Miami, FL, April 2023

Bergman, L.A., C.L. Fiore, A. Apprill, A.M. Reigel, **C.G. Easson.** Dietary Selectivity in Picoplankton Capture by the Sponges *Niphates digitalis* and *Xestospongia muta*. Benthic Ecology Meeting, Miami, FL, April 2023

Zuniga-Acuna, C.L. Fiore, A.M. Reigel, C.J. Freeman, A. Apprill, R.W. Thacker, and **C.G. Easson.** Metagenomic profiling of nitrogen cycling potential in Caribbean sponges. Benthic Ecology Meeting, Miami, FL, April 2023

Zuniga-Acuna, L., C.L. Fiore, C.J. Freeman, R.W. Thacker, **C.G. Easson,** Investigating vertical transmission of microbial symbionts in marine sponges. Benthic Ecology Meeting, Portsmouth, NH, March 2022

- Smith, J.S. & **C.G. Easson**, Eagles and dragons, the same species? 2b-RAD sequencing of zoanthids (Genus Zoanthus) reveals intraspecific dissimilarity. Benthic Ecology Meeting, Portsmouth, NH, March 2022
- Freeman, C.J., **C.G. Easson**, C.L. Fiore, R.W. Thacker, Reevaluating contributions of autotrophic and heterotrophic metabolism to Caribbean sponges, Benthic Ecology Meeting, Portsmouth, NH, March 2022
- Akther, T., **C.G. Easson**, R. Collin, R.W. Thacker. Comparing Adult and Larval Microbiomes in the Tropical Sponges *Neopetrosia sigmafera* and *Xestospongeia bocatorensis*. Society for Integrative Comparative Biology annual meeting January-February 2021 (virtual)
- Lopez, J.V., **C.G. Easson**. Environmental drivers of bacterioplankton communities in the northern Gulf of Mexico. Deep-Sea Biology Symposium, September 2018, Monterey, CA
- Johnston, M., R. Milligan, **C.G. Easson**, S. deRada, D. English, B. Penta, T. Sutton. A tool for classification of mesoscale water mass structure for pelagic community analyses. Deep-Sea Biology Symposium, September 2018, Monterey, CA
- Easson, C.G.**, C. Gorbea, A. Lobato, K. Boswell, P. Maul, R. Sanchez-Arias, J.V. Lopez. Analysis of microbial communities reflects diel vertical migration in the Gulf of Mexico. Ocean Sciences Conference, February 2018, Portland, OR
- Johnston, M., R. Milligan, **C.G. Easson**, S. deRada, D. English, B. Penta, T. Sutton. A tool for classification of mesoscale water mass structure for pelagic community analyses. Gulf of Mexico Oil Spill and Ecosystem Science, February 2018, New Orleans, LA
- Easson, C.G.**, R.W. Thacker, X. Turon, P. Erwin, S. Lopez-Legentil. Temporal dynamics of sponge microbial communities. World Sponge Conference, June 2017, Galway, Ireland.
- Olson, J.B., D.J. Gochfeld, **C.G. Easson**. Infection with *Aplysina* Red Band Syndrome results in biochemical and bacterial community changes to the holobiont. World Sponge Conference, June 2017, Galway, Ireland.
- Matterson, K.O., **C.G. Easson**, C.J. Freeman, R.W. Thacker. Ecological interactions between photosymbionts and spongivores reveal complex interplay between bottom-up and top-down controls on Caribbean sponges. World Sponge Conference, June 2017, Galway, Ireland.

Freeman, C.J., **C.G. Easson**, K.O. Matterson, R.W. Thacker, D.M. Baker, V. Paul. Metabolic diversification across Caribbean sponges. World Sponge Conference, June 2017, Galway, Ireland.

Thacker, R.W., K.O. Matterson, **C.G. Easson**, C.J. Freeman. Genetic variability of sponge-cyanobacteria symbioses across the Caribbean. World Sponge Conference, June 2017, Galway, Ireland.

Gochfeld, D.J., S. Stockton, C. Vickers, **C.G. Easson**, M. Slattery. Geographic variability in antibacterial chemical defenses among branching morphotypes of Caribbean *Aplysina*. World Sponge Conference, June 2017, Galway, Ireland.

**Easson, C.G.** J.V. Lopez. Drivers of pelagic microbial community dynamics in the northern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, February 2017, New Orleans, LA.

Johnston, M.W., R.J. Milligan, **C.G. Easson**, S. de Rada, B. Penta, T.T. Sutton. Characterizing pelagic habitats in the Gulf of Mexico using model, empirical, and remotely-sensed data. Gulf of Mexico Oil Spill and Ecosystem Science Conference, February 2017, New Orleans, LA.

S. de Rada, B. Penta, T.T. Sutton, M.W. Johnston, R.J. Milligan, **C.G. Easson**, A.B. Cook, K. Boswell, C. Lemke, D. English, C. Hu. Relating pelagic habitat to ocean stratification. Gulf of Mexico Oil Spill and Ecosystem Science Conference, February 2017, New Orleans, LA.

**Easson, C.G.**, J.V. Lopez. Pelagic microbial community dynamics in the northern Gulf of Mexico. Ecological Society of America Conference, August 2016, Fort Lauderdale, FL.

**Easson C.G.**, A. Chavez-Fonnegra, and J.V. Lopez. Spatial and host genetic effects on the microbiome of the sponge *Cliona delitrix*. International Coral Reef Symposium, June 2016, Honolulu, HI.

Gochfeld, D.J., J.B. Olson, **C.G. Easson**. Biochemical and microbiome changes during the course of pathogenesis in the sponge disease *Aplysina* Red Band Syndrome. International Coral Reef Symposium, June 2016, Honolulu, HI.

Freeman, C.J., **C.G. Easson**, D.M. Baker, V. Paul. Sponge holobiont functioning: the role of microbial abundance, host sponge identity, and geography. International Coral Reef Symposium, June 2016, Honolulu, HI.

- Easson, C.G.**, J.V. Lopez. Microbial community dynamics in the northern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference, February 2016, Tampa, FL.
- Easson, C.G.**, A. Chaves-Fonnegra, R.W. Thacker, J.V. Lopez, Effects of host spatial and genetic variation on the microbiome of the sponge *Cliona delitrix*. American Society of Microbiologist, Florida Branch Meeting, October 2015, Cocoa Beach, FL
- Easson, C.G.**, R.W. Thacker. Host-specific community structuring of tropical sponge microbiomes. Society of Integrative and Comparative Biology, January 2015, West Palm Beach, FL
- Easson, C.G.**, R.W. Thacker. Host effects structure sponge-associated microbial communities. 2nd International Symposium on the Microbiology of Sponges, October 2014, Baltimore, MA
- Thacker, R.W., **C.G. Easson**. Interactions between host phylogeny and biogeography structure sponge-associated microbial communities. Evolution Meeting, May 2014, Raleigh, NC.
- Dewar, M.J., M.E. Zappe, **C.G. Easson**, R.W. Thacker. Diversity and transmission of symbiotic bacterial communities in Haplosclerid sponges of the Caribbean Sea. Evolution Meeting, May 2014, Raleigh, NC
- Easson, C.G.**, R.W. Thacker. Complex structuring of the sponge microbiome. Benthic Ecology Meeting, March 2014, Jacksonville, FL.
- Easson, C.G.**, D.J. Gochfeld, M. Slattery, H.G. Momm, J.B. Olson, R.W. Thacker. Inferring process from pattern: Determining a transmission mechanism for *Aplysina* Red Band Syndrome (ARBS) in natural sponge populations using spatial analysis. Benthic Ecology Meeting, March 2013, Savannah, GA.
- Olson J.B., Gochfeld D.J., **Easson C.G.**, Thacker R.W. Understanding *Aplysina* Red Band Syndrome, a disease of marine sponges. Southeastern Branch Meeting of the American Society of Microbiology, October 2012, Athens, GA
- Gochfeld, D.J., **C.G. Easson**, M. Slattery, R.W. Thacker and J.B. Olson. Population dynamics of a sponge disease on Caribbean reefs. American Academy of Underwater Sciences Diving for Science Symposium, September 2012, Monterey, CA

Gochfeld, D.J., **C.G. Easson**, J. B. Olson and R.W. Thacker. Ecological implications of an infectious sponge disease on Caribbean reefs. 11<sup>th</sup> International Coral Reef Symposium, July 2012, Cairns, Australia

**Easson, C.G.**, D.M. Baker, D.J. Gochfeld, M. Slattery. Effects of macroalgal contact on carbon and nitrogen assimilation and transfer in sponge-macroalgal interactions. Benthic Ecology Meeting, March 2012, Norfolk, VA

Slattery, M., S. Lee, **C.G. Easson**, C. Williams, E. Hunkin and D.J. Gochfeld. Sponge diversity and acclimation in naturally-acidified marine caves. Ocean Sciences Meeting, February 2012, Salt Lake City, UT.

**Easson, C.G.**, D.J. Gochfeld, M. Slattery. Effects of Nutrient Enrichment on Competition between the algae *Microdictyon marinum* and the sponge *Aplysina cauliformis*. Society for Integrative Comparative Biology annual meeting, January 2012, Charleston, SC.

**Easson, C.G.**, H.G. Momm, D.J. Gochfeld, M. Slattery. Mapping impacts of disease on sponge communities using Geographic Information Systems (GIS). VII World Sponge Conference, September 2010, Girona, Spain.

Gochfeld, D.J., **C.G. Easson**, C. Freeman, R.W. Thacker and J.B. Olson. Impacts of nutrient enrichment and disease on the Caribbean sponge *Aplysina cauliformis* and its cyanobacterial symbionts. International Sponge Symposium, September 2010, Girona, Spain.

**Easson, C.G.**, D.J. Gochfeld, M. Slattery. Effects of nutrient enrichment on competition between the alga *Microdictyon marinum* and the sponge *Aplysina cauliformis*. Society of Environmental Toxicology and Chemistry, November 2009, New Orleans, LA.

**Easson, C.G.**, D.J. Gochfeld, J.B. Olson, R.W. Thacker. Organismal- and community-level impacts of stressors on Caribbean coral reef sponges. Society of Environmental Toxicology and Chemistry November 2008, Tampa, FL.

Slattery, M., K.L. Willett, D.J. Gochfeld, J. Weston, **C.G. Easson**, G. Easson, J. Janaskie, A. Boettcher, B. Ehmen and C.A. May. Impacts of Hurricane Katrina on seagrass beds in Grand Bay, Mississippi. Society of Environmental Toxicology and Chemistry, November 2008, Tampa, FL.

## **PROFESSIONAL SERVICE**

- Faculty mentor for Kurdish Professionals Student Association (2019-2021)
- Training and mentoring of 14 MTSU students (2 graduate and 12 undergraduate) in laboratory genetic techniques.
- Instructor for Smithsonian course in Taxonomy and Ecology of Caribbean Sponges, Bocas del Toro, Panama, July 2019
- Serve on 3 Master's degree committees at Nova Southeastern University
- Training and mentoring of graduate and undergraduate students in bioinformatics and multivariate statistics techniques at University of Alabama at Birmingham (2013-2015) and Nova Southeastern University (2015-present).
- Training and mentoring graduate and undergraduate students in laboratory molecular genetic techniques, including operating an Illumina MiSeq sequencer at Nova Southeastern University (2015-present; 9 graduate and 4 undergraduate)
- Trained students and faculty in free analysis workshops at NSU open to all.
- Instructor for the Bioinformatics Amplicon Analysis Course at the 2nd International Symposium on the Microbiology of Sponges. October 2014, Baltimore, MA
- Training and mentoring postdoctoral, graduate and undergraduate students in laboratory and field methods at University of Mississippi (2010-2013; 1 post-doc, 6 graduate, 8 undergraduate)
- Student representative on the University of Mississippi Diving Control Board, 2011-2013

## **PROFESSIONAL AFFILIATIONS**

- Divers Alert Network
- American Academy of Underwater Sciences

## **PROFESSIONAL TRAINING**

- Arbor workflows hackathon October 2018. Designed and implemented online statistical analysis tools for the NSF funded Arbor group. Analysis tools and workflows are implemented at arborworkflows.com.
- Three R workshops at Ecological Society of America, August 2016. Workshops focused on multivariate statistical analysis using the R package, vegan, and data visualization using ggplot2
- Auburn University Bioinformatics Boot camp 2014. Instructors: Scott R. Santos, Les R. Goertzen, & Ken M. Halanych. Programming language: LINUX/UNIX
- Smithsonian course in Taxonomy and Ecology of Caribbean Sponges, Bocas del Toro, Panama, 2012. Instructors: Drs. Robert W. Thacker and Cristina Diaz.



- ESRI certified completion of 24 course hours of ArcGIS
- Certified AAUS Scientific Diver. Certification Depth 180ft
- Technical diver training for Aquarius Undersea Research habitat in 2011
- NAUI nitrox certification 2011

## **OTHER PROFESSIONAL EXPERIENCE**

- Proficient with scripting and programming in R, and implementation of complex workflows locally and online.
- Extensive experience with next-generation sequencing and associated bioinformatics processing using QIIME, MOTHUR, LINUX, and UNIX.
- Experienced laboratory manager
- Proficient at running and troubleshooting an Illumina MiSeq sequencing core
- Remote sensing skills using ERDAS Imagine and ENVI software programs.

## **PROFESSIONAL REFERENCES**

**Dennis Mullen** – Chair of Biology department at MTSU

Professor and Chair  
Biology Department  
2044A Science Building  
MTSU Box 60  
Middle Tennessee State University  
Murfreesboro, Tennessee  
615-898-2292  
dennis.mullen@mtsu.edu

**Robert W. Thacker** - postdoctoral mentor and current collaborator

Professor and Chair  
Department of Ecology and Evolution  
650 Life Sciences Building  
Stony Brook University  
Stony Brook, New York  
631-632-8590  
robert.thacker@stonybrook.edu

**Marc Slattery** - PhD advisor

Professor  
Department of BioMolecular Sciences Divisions of Environmental Toxicology and  
Pharmacognosy  
University of Mississippi P.O. Box 1848  
University MS 38677-1848  
662-915-1053  
slattery@olemiss.edu

**Tracey T. Sutton** - postdoctoral mentor

Associate Professor  
Halmos College of Natural Sciences and Oceanography  
Nova Southeastern University  
8000 North Ocean Drive  
Dania Beach, FL 33004  
954-262-3692  
tsutton1@nova.edu

**Deborah J. Gochfeld** - PhD advisor

Principal Scientist  
National Center for Natural Products Research  
University of Mississippi  
P.O. Box 1848  
University, MS 38677-1848

662-915-6769  
gochfeld@olemiss.edu

**Henrique Momm** – Graduate mentor and current collaborator  
Associate Professor & Director of the MTSU-Geospatial Research Center  
Department of Geosciences  
Middle Tennessee State University  
Davis Science Building, 225  
Murfreesboro TN 37132  
615-904-8372  
henrique.momm@mtsu.edu

**Ashley B. Morris** – Faculty mentor at MTSU  
Associate Professor  
Department of Biology  
Furman University  
Plyler 171  
Greenville, SC 29613  
864.294.2433  
ashley.morris@furman.edu

**Jose V. Lopez** - postdoctoral mentor  
Professor  
Halmos College of Natural Sciences and Oceanography  
Nova Southeastern University  
8000 North Ocean Drive  
Dania Beach, FL 33004  
954-262-3665  
joslo@nova.edu