Dave Matthews

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EDUCATION

HARVARD UNIVERSITY | Ph.D Student
Organismic and Evolutionary Biology | Cambridge, MA 2017-Present
Advisor: Dr. George Lauder

UNIVERSITY OF MASSACHUSETTS, AMHERST | BS in Biology, certificate in marine science
College of Natural Sciences | Amherst, MA 2011-2015
Summa cum laude • Commonwealth Honors College, greatest distinction • Biology departmental honors • GPA: 3.99/4.0

RESEARCH

EFFECT OF MEDIAN FINS ON LATERAL FORCES IN FISH SWIMMING | Graduate Researcher
June 2017 – Present | Harvard University | Dr. George Lauder
Using DPIV and force transducers to study the effect of paired median fins on the reduction of lateral forces during swimming in live fish and biomimetic robotic models.

PLASTICITY IN ZEBRAFISH BONE DEVELOPMENT | Research assistant
January 2016 – April 2016 | UMass Amherst | Dr. Craig Albertson and Dr. Maureen Lynch
Worked to develop a method of inducing a plastic osteoblast response in larval zebrafish.

EFFECT OF CRANIOFACIAL GENOTYPE ON THE RELATIONSHIP BETWEEN MORPHOLOGY AND SUCTION FEEDING PERFORMANCE | Undergraduate research assistant
2013 - 2015 | UMass Amherst | Dr. Craig Albertson
Used high speed video to quantify suction feeding performance in hybrid African cichlids, then genotype each individual at several craniofacial loci. We found that genotype at one sox9b SNP affects the relationship between morphology and suction feeding performance. Published in Evolution.

INTERSPECIFIC INTERACTIONS IN CHESAPEAKE BAY SALT MARSHES | NSF REU Research Assistant
June 2014 - Aug. 2014 | VIMS | Dr. Rom Lipcius
Correlated the shape of marsh edge to the stabilizing presence of mussels in the marsh substrate.

REPRODUCTIVE HISTOLOGY OF INVASIVE LIONFISH | Five College Marine Science Research Intern
June 2013 - Aug. 2013 | NOAA | Dr. James Morris
Found and characterized a reproductive abnormality in invasive Atlantic lionfish using histological sections. Manuscript in review.

HYDRODYNAMICS OF RAPID ROTATION IN MANTIS SHRIMP RAPTORIAL APPENDAGES | Undergraduate research assistant
2011 - 2013 | UMass Amherst | Dr. Sheila Patek
Used high speed videography and a custom MATLAB script to characterize the kinematics of mantis shrimp appendages during feeding strikes. Published in the Journal of Experimental Biology.

INVASIVE SPECIES MONITORING IN THE BOSTON HARBOR ISLANDS | Research assistant
June 2011 - Aug. 2011 | MIT | Sea Grant
Measured the species composition of intertidal zones on the Boston Harbor Islands, focusing on cohabitation of endemic species and invasive crabs.

WORK EXPERIENCE

AQUARIUM ROOM MANAGER
Patek Lab, UMass Amherst
2012-2013

SCUBA INSTRUCTOR
Komodo, Indonesia | Boston, MA
2016 - Present

HONORS & AWARDS

2018 | NSF GRFP
All semesters | Dean's List, UMass Amherst
2014 - 2015 | Junior Research Fellow, UMass Amherst
2014 | Theresa Biusu Maravelas Memorial Scholarship
2014 | Phi Betta Kappa
2013 | Comm. Honors College Research Assistant Fellowship
2011 | Eagle Scout, Boy Scouts of America

PUBLICATIONS

Matthews DG, Albertson RC. (2017). Effect of Craniofacial Genotype on the Relationship between Morphology and Feeding Performance in Cichlid Fishes. Evolution, 71(8), 2050-2061

McHenry MJ, Anderson PSL, Van Wassenbergh S, **Matthews DG**, Summers A, Patek SN. (2016). The hydrodynamics of rapid rotation in mantis shrimp raptorial appendages. Journal of Experimental Biology, 219(21), 3399-3411.

Matthews DG, Morris JA. Prevalence of ovotestis in two distant populations of invasive Atlantic lionfish, Pterois volitans and P. miles. In preparation.

POSTERS AND PRESENTATIONS

Matthews DG, Albertson RC. Effect of Craniofacial Genotype on the Relationship between Morphology and Feeding Performance in Cichlid Fishes. **Talk** presented at: SICB; January 4, 2018; San Francisco, CA.

Matthews DG, Conith MR, Albertson RC. Facial Morphology Predicts Feeding Performance in Two Trophically Diverse Cichlids. **Poster** presented at: UMass Undergraduate Life Science Research Symposium; April 14, 2015; Amherst, MA.

Matthews DG, Conith MR, Albertson RC. Facial Morphology Predicts Feeding Performance in Two Trophically Diverse Cichlids. **Talk** given at: Five College Coastal and Marine Science Research Symposium; Nov. 10, 2014; Amherst, MA.

Matthews DG, Gilliand S, Lipcius R. Facilitation of marsh pattern formation by Ribbed Mussels (Geukensia demissa). **Talk** given at: Virginia Institute of Marine Science REU Symposium; July 31, 2014; Gloucester Point, VA.

Matthews DG, Morris JA. The State of Ovotestis in Atlantic Lionfish. **Talk** given at: Five College Coastal and Marine Science Research Symposium; Nov. 11, 2013; Amherst, MA.

EDUCATIONAL SERVICE

TAUGHT LIONFISH DISSECTION
NOAA | NC — July 2013
July 2013 | Taught URM students from Baltimore about lionfish ecology and anatomy.

SERVED ON PANEL OF UPPERCLASSMEN
UMass | Amherst, MA — 2014-2015
Answered questions from younger students about the biology major and working in a research lab

ANSWERED ANONYMOUS QUESTIONS
UMass | Amherst, MA — 2015
Answered questions from freshmen that were submitted anonymously online.

EXTRACURRICULARS/ OTHER INTERESTS

2017 - Present | SICB Member
2016 - Present | SSI Scuba Instructor
2014 - Present | Level II Freediver
2014 - Present | CPR Certified
Nature photography | Sample at DaveTheScientist.com