

Larry L Bowman, Jr.

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EDUCATION

Yale University

PhD Candidate, Department of Ecology and Evolutionary Biology, **2014 - present**

PhD Advisor: Dr. David Post

Dissertation Committee: Drs. David Vasseur, Gisella Caccone, and Matthew Walsh

Master of Science in Ecology and Evolutionary Biology, **2016**

East Tennessee State University

Master of Science in Biology, Department of Biological Sciences, **2014**

Thesis: *Inter-and Intra-Population Variability across the Transcriptome of Lake Baikal's Endemic Copepod with Ramifications for Adapting to Climate Change*

Advisor: Dr. Lev Yampolsky

Thesis Committee: Drs. Thomas C. Jones, III, and Thomas Laughlin

Dartmouth College

Artium Baccalaureus, Biology: Ecology and Evolution, English: 20C American Literature, **2011**

Williams College

Williams-Mystic Maritime Studies Program, Maritime Studies and Marine Ecology, **2009**

RESEARCH AND TEACHING INTERESTS

Marine/aquatic ecology, community ecology, ecosystem and population dynamics, population genetics, biological oceanography and limnology, phylogenetics, K-12 outreach, K-12 curriculum development, predator-prey relationships, marine/aquatic invertebrates

AWARDS AND HONORS

American Society for Biochemistry and Molecular Biology Travel Funding: NSF-supported travel funding for special symposia on Transforming Undergraduate Education in the Molecular Life Sciences, **2017,**

McDougal Graduate Teaching Fellow Program Coordinator Yale Center for Teaching and Learning (Yale): selected position within McDougal Graduate Teaching Fellows—supervise and assign programming for team of 24 graduate student teaching fellows running graduate and post-doc teaching development seminars and workshops, **2017-2018, \$4,800**

Digital Education Innovation Grant (Yale Center for Teaching and Learning): selective grant funding awarded to support the creation of new and innovative educational opportunities for the Yale community using digital and/or online platforms, Proposal title: Bloomtime: an integrated educational app to optimize assessment length and design, **2017, \$500**

Rosenkranz Grant for Pedagogical Enhancement (Co-PI with Prof. Stephen C. Stearns and 8 others) (Yale Center for Teaching and Learning): selective grant for faculty to experiment with new teaching models and technologies or design and develop new digital course interventions, Proposal Title: *Training 21st Century Educators to Explain Science to the World*, **2017, \$6,642**

Theodore Roosevelt Memorial Grant (American Museum of Natural History): selective grant funding for early career researchers proposing to conduct research in any phase of wildlife conservation or related fields of North American fauna - terrestrial and freshwater (rivers, lakes, streams), extant or fossil, Proposal title: *The Genomic Signature of Seasonal Predation on Life History Traits* (*Daphnia ambigua*), **2017, \$2,000**

Phi Kappa Phi Love of Learning Award (The Honor Society of Phi Kappa Phi): selectively awarded to help fund doctoral dissertations for active Phi Kappa Phi members, Proposal title: *The Global Phylogeny of Epischura*, **2017, \$500**

McDougal Graduate Teaching Fellow Yale Center for Teaching and Learning (Yale): competitive fellowship awarded to PhD students that focuses on effective and innovative teaching, developing teaching resources, and providing individual consultations for graduate student instructors at Yale, **2016-2017, \$4,800**

Society for the Study of Evolution (SSE) Outreach Promoting the Understanding of Evolutionary Biology Grant (Co-PI with Daniel MacGuigan) (Yale): competitive grant awarded to “support local and regional educational outreach activities that lead to ongoing outreach collaboration” for Yale’s, Evolution Outreach Group collaboration with the Peabody Museum of Natural History, **2016, \$900**

Department of Ecology and Evolutionary Biology Chair’s Fund for Research Grant (Yale): competitive grant awarded to enable early graduate students to collect preliminary data leading to the PhD, **2016, \$750**

Yale Scientific Teaching Fellow (Yale): competitively fellowship “to improve undergraduate science education by training a new generation of scientific teachers to bring the spirit and rigor of research into the undergraduate classroom,” **2016**

TALMA International Teaching Fellowship, Charles and Lynn Schusterman Foundation and State of Israel Ministry of Education (Yale): highly competitive international teaching fellowship open to Teach For America and Taglit Alumni focused on international education equity, **2016**

The Yale Institute for Biospheric Studies (YIBS) Doctoral Fellowship (Yale): **2015-2016**

Department of Ecology and Evolutionary Biology Graduate Student Symposium *Best Poster* (Yale): *Dispersal limits invasion success in aquatic systems*, **2015**

The Yale Institute for Biospheric Studies (YIBS) Doctoral Pilot Grant (Yale): *Characterizing Intraspecific Variation in Freshwater Foodwebs*, **2015, \$2,700**

Jane M. Oppenheimer Fellowship (Yale), **2014-2015; 2015-2016; 2016-2017**

Yale University Doctoral Fellowship (Yale), **2014-2020**

Denise I. Pav Research Award (ETSU): competitive scholarship awarded for excellence in research in biological sciences, **2014, \$500**

School of Graduate Studies and Graduate Council Graduate Award for Service Projects that Enhance the Public Good Award (ETSU): competitive award that is designed to encourage and to recognize graduate student service projects at ETSU that enhance the public good, broadly defined as service to the community or university, **2014, \$250**

National Science Foundation Graduate K-12 Fellowship (ETSU): competitive fellowship program that places STEM graduate students in K-12 environments to teach original research and act as content specialists, **2012-2014, \$81,000**

Golden Key International Honour Society (ETSU): by invitation only to top performing US graduate students in all fields of study, **2013**

International Teacher Scientist Partnership (ITSP/AAAS): travel award for STEM fellows with compelling stories to share, **2013, \$1,000**

The Honor Society of Phi Kappa Phi (ETSU): by invitation only to students with integrity and high ethical standards who are in the top 10% of seniors and graduate students, **2012**

Southeastern Population Ecology and Evolutionary Genetics (SEPEEG): travel award and conference fees for early career members, **2012, \$150**

Academic Citation in Advanced Studies in Topical Ecology (Dartmouth): reserved only for students where a grade inadequately represents the quality of a student's work to indicate an appreciation of special efforts and achievements, Dr. Ryan Calsbeek, **2011**

Crowley Maritime Corporation Tuition Scholarship: merit-and need-based tuition assistance for the Williams-Mystic Maritime Studies Program 2009, **\$29,450**

Milham Grant Recipient, Dartmouth College, Tuition Grant, **2011, \$42,000**

Dartmouth College Fund Scholar, 2007-2011, \$43,000

Howard Hughes Medical Institute Intern (Dartmouth): competitive internship awarded to undergraduates to research areas related to the goals of HHMI, advisor: Dr. Mary Lou Guerinot, **2008-2009, \$1,500**

PUBLICATIONS

Peer-Reviewed († denotes undergraduate co-author)

Bowman, Jr., LL, KJ Culhane, ARJ Park, S Lin, and KT Kucera. 2017. Teaching Scholar Bootcamp: a professional development technique to enhance self-efficacy and confidence in graduate student instructors. *Proceedings of the National Teaching as Research Conference*. Cornell University: Ithaca.

Bowman, Jr., LL, ES Kondratieva†, P Wilburn, EA Silow, and LY Yampolsky. 2017. A capital breeder in a heterogenous environment: lipid reserves and RNA:DNA ratio in Lake Baikal's endemic *Epischura*. *Journal of Great Lakes Research*. 43(2), 280-288. doi:10.1016/j.jglr.2017.01.010.

Hampton, SE, AWE Galloway, [62 others, including **LL Bowman, Jr.,** and DM Post]. 2017. Ecology under lake ice. *Ecology Letters*. 20(1), 98-111. doi:10.1111/ele.12699.

Bowman, Jr., LL and AL Govett. 2015. Becoming the change: A critical evaluation of the changing face of life science, as reflected in the NGSS. *Science Educator*. 24(1):51-61.

Bowman, Jr., LL and AL Govett. 2014. Changes to the TN middle grades science curriculum according to NGSS. *Tennessee Educational Leadership Journal*. 41(2):26-31. *featured by National Science Education Leadership Association (NSELA) *Navigator Newsletter*, Feb 2014

In Prep/Review

Holdridge, EM and **LL Bowman, Jr.** Defining, measuring and interpreting trade-offs. Submitted to *Ecology Letters* July 2017.

Okamoto, K, **LL Bowman, Jr.,** SB Fey, CT Kremer, K Scranton, FW Simon, AL Subalusky, PE Turner, DA Vasseur, DJ Wiczynski, and DM Post. Distinguishing among eco-evolutionary interactions in a changing world. Intended for submission to *Ecology Letters*. (In Prep)

Bowman, Jr. LL, KH Woo, and LY Yampolsky. Differentiation of SNP allele frequencies and gene expression in an endemic copepod along a temperature gradient within Lake Baikal. Intended for submission to *Molecular Ecology*. (In prep)

Bowman, Jr. LL, MC Myron, and AL Govett. Science curriculum, development, and learning in the elementary grades, according to the NGSS. Intended for submission to *Journal of Science Teacher Education*. (In Prep)

Non-Refereed

Bowman, Jr., LL, Remsen SE, Aho KS, Niemiec RM, Mertens AN. 2011. Aggression differences between sexes in Northern Jacanas (*Jacana spinosa*). *Dartmouth Studies in Tropical Ecology*, 21: 23-25.

Bowman, Jr., LL and Mertens AN. 2011. Extinction and colonization in tank bromeliads as a microecosystem. 2011. *Dartmouth Studies in Tropical Ecology*, 21: 44-48.

Aho KS, Fitzgerald KL, **Bowman, Jr., LL**, Clare-Salzler ZJ, Engler ID. 2011. Conspecific and heterospecific aggression in acacia-ants. *Dartmouth Studies in Tropical Ecology*, 21: 5-8.

Mertens AN, Niemiec RM, Remsen SE, Wang FM, **Bowman, Jr., LL**. 2011. Aggregation behavior in Costa Rican dragonflies with proximity to water. *Dartmouth Studies in Tropical Ecology*, 21: 30-33.

Niemiec RM, Remsen SE, Mertens AN, **Bowman, Jr., LL**. 2011. Water quality and artificial selection in a tropical high elevation trout aquaculture system. *Dartmouth Studies in Tropical Ecology*, 21: 76-79.

Mertens AN, Battistoni MF, **Bowman, Jr., LL**, Aho KS. 2011. Aggregation, dominance hierarchy, and mate choice in golden orb-weaving spiders (*Nephila clavipes*). *Dartmouth Studies in Tropical Ecology*, 21: 95-98.

Chaudhary RN, Friese JA, **Bowman, Jr., LL**, Beck EC, Clare-Salzler ZJ. 2011. An experimental test of the effects of algal cover on aggressive interactions of dusky damselfish. *Dartmouth Studies in Tropical Ecology*, 21: 108-11.

Clare-Salzler ZJ and **Bowman, Jr., LL**. 2011. Coral bleaching by algal allelopathy. *Dartmouth Studies in Tropical Ecology*, 21: 118-121.

PRESENTATIONS

(*denotes invited presentation)

- **Teaching as Research National Conference, Teaching Scholar Bootcamp: a professional development technique to increase self-efficacy and confidence in graduate student instructors, 2017**
- **E&EB 115, Conservation Biology (Guest Lecture)*, Managing Outside the Reserve, 2016**
- **Yale Department of Ecology and Evolutionary Biology Doctoral Retreat***, Diversity and Inclusion discussion and roundtable workshop, **2016**
- **Yale Department of Ecology and Evolutionary Biology Graduate Student Symposium, Species and latitude effects in life history traits, 2016**
- **Yale Department of Ecology and Evolutionary Biology Doctoral Retreat, RNA:DNA ratio reflects reproductive status but not current feeding conditions in Lake Baikal endemic *Epischura baikalensis* (Copepoda: Calanoida), 2015**

- **Williams-Mystic 38th Annual Alumni Reunion Symposium***, *Dispersal limits invasion success in aquatic systems*, **2015**
- **Ecological Society of America 100th Annual Conference**, *Inter-and Intra-Population Variability across the Transcriptome of Lake Baikal's Endemic Copepod with Ramifications for Adapting to Climate Change*, **2015**
- **Yale Department of Ecology and Evolutionary Biology Graduate Student Symposium**, *Dispersal limits invasion success in aquatic systems*, **2015**
- **Society of Molecular Biology and Evolution Conference**, *Inter-and Intra-Population Variability across the Transcriptome of Lake Baikal's Endemic Copepod with Ramifications for Adapting to Climate Change*, **2014**
- **Society for the Study of Evolution**, *Inter-and Intra-Population Variability across the Transcriptome of Lake Baikal's Endemic Copepod with Ramifications for Adapting to Climate Change*, **2014**
- **Southeastern Ecology and Evolution Conference**, *Genetic Differentiation and Differential Gene Expression in Lake Baikal's Endemic Copepod, Epischura baikalensis*, **2014**
- **Innovation Academy, Kingsport, TN***, Professional Development Presenter: Using NGSS Guidemaps, **2014**
- **Northeast Tennessee STEM Innovation Hub Advisory Council Meeting***, NGSS-TNSS Correlation Guidemaps, **2014**
- **Symposium on Effective Implementation of CCSS and NGSS***, Breakout session leader: *NGSS correlations to TN State Science Standards*, **2013**
- **Tennessee Science Teachers Association Professional Development Conference**, *Science First!: Adapting Painlessly to NGSS*, **2013**
- **International Teacher Scientist Partnership/AAAS Conference**, *Why Partnerships? Learn about Different Partnership Models and Their Benefits*, **2013**
- **Dartmouth College Field Methods in Ecology Summer Symposium**, *Estimating Population Growth in *Linaria vulgaris*, an Invasive Plant Species*, **2010**
- **Williams-Mystic Marine Ecology Symposium**, *Extrinsic Factors Effecting Vegetation Cover in Pannes on Barn Island Marsh*, **2009**
- **18th Annual Karen E. Wetterhahn Science Symposium**, *Identification of an Extracytoplasmic Function Sigma Factor involved in the Bradyrhizobium japonicum/Soybean Symbiosis*, **2009**

TEACHING EXPERIENCE

Limnology: the study of inland waters, Yale, Associate in Teaching (Instructor of Record), **Fall 2017**
 Associate in Teaching Program: The AT program supports Yale College courses team-taught by GSAS doctoral students and faculty members. This program requires that doctoral students conceptualize or redesign, plan, and deliver an undergraduate course in partnership with a Yale faculty member.

Evolutionary Biology, Yale, Teaching Fellow, **Spring 2016**

Conservation Biology, Yale, Teaching Fellow, **Fall 2015**

Principles in Ecology and Evolution, Yale, Teaching Fellow, **Spring 2015**

Yale Scientific Teaching Fellow, **2016**

Advanced Teaching Workshops, Yale Center for Teaching and Learning:

Beyond Academics: The Role of the TF outside the classroom (2016F), *Teaching as Research; How we learn: the Scholarship of Teaching and Learning; Religion in the Classroom (2017S)*

Fundamentals of Teaching in STEM, Yale Center for Teaching and Learning, McDougal Graduate Teaching Fellow, **Fall 2016**

Curriculum Consultation, Yale Center for Teaching and Learning, Introductory Biology Series curriculum redesign and *teaching as research* project, **2016-2017**

CIRTL Center for the Integration of Research, Teaching, and Learning:

Associate (2016), Practitioner (2016), and Scholar (2017)

Certificate of College Teaching Preparation, Yale, **2017**

Coursework: Fundamentals of Teaching in the Sciences, Promoting Gender Equality in the Classroom, Webinar on Online Teaching and Learning, Preparing to Teach Graduate Students, Course Design, How to Create an Inclusive Classroom, Engaging Students in Section through Active Learning, Writing a Teaching Statement, Teaching Technical Journal Articles

North Side Elementary School of Science, Math, and Technology, NSF Graduate K-12 STEM fellow, teaching Pre-Kindergarten and Kindergarten students about my original research and STEM fields, **2012-2014**

Teach For America, summer training institute: Quitman County, MS, Secondary Math faculty, Greene County High School, Eutaw, AL, Secondary Math faculty, **2010-2011**

American University of Kuwait, Teaching Assistant for Chemistry and Biology departments, Laboratory coordinator for Intensive English Program, all levels, **2010**

PROFESSIONAL AFFILIATIONS

Member, American Society for Biochemistry and Molecular Biology, **2017-present**

Member, POD Network (Professional and Organizational Development), **2016-present**

Member, New York Academy of Sciences, **2015-present**

Member, Ecological Society of America, Theory Section, Aquatic Sci Section, **2015-present**

Member, Society for the Study of Evolution, **2014-present**

Member, Society for Molecular Biology and Evolution, **2014-present**

Member, Northeast Tennessee STEM Innovation Hub Advisory Council, **2014-2016**

Member, Tennessee Science Teachers Association, **2013-2016**

Member, Association for the Sciences of Limnology and Oceanography, **2012-present**

OUTREACH & SERVICE

Saybrook College Graduate Affiliate, Yale University undergraduate college affiliate

Yale Science Diplomats, Committee for K-12 Outreach

Evolution Outreach Group, Middle and high school activities to teach evolution concepts

Evolutions, Yale Peabody Museum of Natural History, K-12 Outreach

Dartmouth College Ambassador and Alumni Interviewer, **2014-present**

MENTORING

Yeonsoo Sara Lee JE'17, Yale College undergraduate thesis in E&EB

ADDITIONAL INFORMATION

Certifications

US Sailing, Motorboating and Sailing license (CT and VA), **2009**
SCUBA, Open water certification, **2010**

REFERENCES

- **David M. Post**, Yale University, Department of Ecology and Evolutionary Biology, New Haven, CT 06511, T: (203) 432-3005, E: david.post@yale.edu
- **Lev Y. Yampolsky**, East Tennessee State University, Department of Biological Sciences, Johnson City, TN 37614-1710, T: (423) 439-4359, E: yampolsk@etsu.edu
- **Ryan G. Calsbeek**, Dartmouth College, Department of Biological Sciences, Hanover, NH 03755, T: (603) 646-9917, E: ryan.calsbeek@dartmouth.edu
- **James T. Carlton**, Williams College, Williams-Mystic Maritime Studies Program, Mystic, CT 06355, T: (860) 572-5359, extension 3, E: jcarlton@williams.edu