

Nguyen Tien Anh Quach

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EDUCATION

Master of Science in Biology – Concentration: Organismal Biology and Ecology

- Towson University, Towson, Maryland
- Thesis title: *Assessing Effects of Climate Change and Urbanization on a Trout Stream: A Long-term Data Analysis* - Thesis Advisor: Dr. Susan E. Gresens
- Biology Graduate Student Association – *Ecology Liaison & Academic Chair*
- Cumulative GPA: 3.96/4.00
- Expected graduation: May 2023

Bachelor of Science in Environmental Science – May 2020 – *Summa Cum Laude*

- Troy University, Troy, Alabama
- Program Advisor: Dr. Kewei Yu
- Cumulative GPA: 3.87/4.00; Institutional GPA: 3.92/4.00

University of Skövde

- Exchange Student in Sweden; Sp18

HONORS/AWARDS

Graduate

Towson University Graduate Student Association

- Research Grant – 2021
- Travel Grant – 2021; 2022
- Professional Development Grant – 2022

Fisher College of Science & Mathematics Travel Grant – 2022

Teaching Assistantship (Towson University – tuition & stipend) – 2020-present

Undergraduate

Chancellor's List (Troy University - GPA 4.0) – Sp20; Fa19; Sp/Fa18; Fa17

Provost's List (Troy University – GPA 3.6) – Sp19; Sp17; Fa16

Chancellor's Scholarship (Troy University – full tuition) – 2016-2020

PUBLICATIONS

Peer-reviewed

Quach, N. T. A., Moore, J., Brittingham, K. B., Genito, D., Gresens, S. E., *In preparation.* A Comparison of Benthic Macroinvertebrate Communities and Water Quality in Red Run Watershed Over Two Decades of Urban Development and Salt Application. Word count: 11,914.

Miller, J. M., Patel, M. K., **Quach, N. T. A.**, Guillaumet, A., *In preparation*. Autoecological and Environmental Factors Influencing Mussel Survival During Extraordinary Drought Periods: A Dewatering Experiment.

Non-peer reviewed

Miller, J. M., Patel, M. K., **Quach, N. T. A.**, Guillaumet, A., 2021. Survivability of Mussels, Targeting Federally Listed Species, Over a 13-week Period During the Drawdown of Gantt Reservoir. A Report to Power South Energy Cooperative and U.S. Fish and Wildlife Service as part of the Gantt Reservoir Drawdown Project Agreement (USFWS Project No. 2016-F-0576).

PRESENTATIONS

Quach, N. T. A., Moore, J., Gresens, S. E., 2022. Consequences of Freshwater Salinization for Benthic Macroinvertebrate Communities and Water Chemistry. Presented at the 28th Annual Maryland Water Monitoring Council Conference, December 15th. Linthicum, MD.

Quach, N. T. A., Gresens, S. E., 2022. A Comparison of Benthic Communities and Water Quality in Red Run Watershed Over Two Decades of Urban Development. Presented at the Baltimore Ecosystem Study 24th Annual Meeting, October 13th – 14th. Baltimore, MD.

Quach, N. T. A., Gresens, S. E., 2022. Can a Maryland Piedmont Trout Stream Be Protected from Rapid Urban Development? The Long-Term View. Presented virtually at the 2022 Joint Aquatic Sciences Meeting, May 14th – 20th. Grand Rapids, MI.

Miller, J. M., **Quach, N. T. A.**, Patel, M. K., Guillaumet, A., 2021. Survivability of Mussels over the 13-Week Drawdown of Gantt Reservoir, Andalusia, AL and Factors Influencing Survival. Presented at the 2021 Alabama Water Resource Conference, September 8th – 10th. Perdido Beach, AL.

Miller, J. M., Patel, M. K., **Quach, N.T.A.**, Guillaumet, A., 2021. Autoecological and Environmental Factors Influencing Mussel Survival Over a 13-Week Period During the Drawdown of Gantt Reservoir, AL. Presented at the 2021 Ecological Society of America Annual Meeting, August 2nd – 6th. Virtual Meeting.

Quach, N. T. A., Miller, J. M., Guillaumet, A., Patel, M. K., 2020. Tracking Movement of a Federally Threatened Species of Mussel During the Drawdown of Gantt Reservoir. To be presented at the 81st Annual Meeting of Association of Southeastern Biologists, March 25th – 28th. Jacksonville, FL. *Cancelled due to COVID-19*.

Quach, N. T. A., Miller, J. M., Guillaumet, A., Patel, M. K., 2020. Tracking Movement of a Federally Threatened Species of Mussel During the Drawdown of Gantt Reservoir. Presented at Alabama Mollusk & Crayfish Working Group Meeting, January 15th – 16th. Cullman, AL.

Miller, J. M., Patel, M. K., **Quach, N. T. A.**, Guillaumet, A., 2020. Survivability of Mussels, Including a Federally Listed Species, at Gantt Reservoir During a 13-week Drawdown. Presented at Alabama Mollusk & Crayfish Working Group Meeting, January 15th – 16th. Cullman, AL.

Quach, N. T. A., Moore, A. T., Davis, E. C., Temple, T. N., Miller, J. M., 2019. Preliminary Investigations of Refuges as a Method to Capture Riverine Crayfish. Presented at the 80th Annual Meeting of Association of Southeastern Biologists, April 3rd – 6th. Memphis, TN.

RESEARCH EXPERIENCE

Graduate Student Researcher - Assessing effects of climate change and urbanization on a trout stream: A long-term data analysis (*April 2021 – present*) – Thesis Advisor: Dr. Susan E. Gresens

- Objective: Evaluate potential impacts of rapid urban development on benthic macroinvertebrate communities in Red Run watershed and of climate change on stream hydrology
- Conducted benthic field sampling with the Baltimore County Department of Environmental Protection and Sustainability
- Processed and identified benthic macroinvertebrates to genus level
- Collected benthic, climatological, land use, and water chemistry data
- Analyzed data by performing multivariate statistical analyses using RStudio and PC-ORD
- Preparing a manuscript for the first and second chapter of thesis
- To be presented at
 - 2023 Meeting of the Association of Mid-Atlantic Aquatic Biologists (*March 2023*)

Graduate Student Researcher - Non-thesis Research in Benthic Taxonomy (*January 2021 – May 2021*) – Supervisor: Mr. Dennis Genito

- Objective: Obtain skills needed to identify benthic macroinvertebrates found in streams of Baltimore County
- Processed historic samples collected from streams in Baltimore County, MD and identified benthic macroinvertebrates to the genus taxonomic level

Undergraduate Research Assistant - Survivability of Mussels, Targeting Federally Listed Species, During the Drawdown of Gantt Lake Reservoir (*September 2019 – May 2020*) - Troy University - Principal Investigator/Supervisor: Mr. Jonathan M. Miller

- Objective: Evaluate effect of lake drawdown on survivability of mussels, specifically the federally threatened *Fusconaia escambia*, over a 13-week drawdown period
- Identified freshwater mussel species present at Gantt Reservoir during the drawdown including federally listed, state listed, and common species
- Measured various environmental parameters weekly throughout the 13-week study
- Analyzed data and coauthored report and presentations
- News coverage: <https://today.troy.edu/faculty-staff/troy-researcher-and-students-studying-habitat-changes-on-federally-listed-species-of-mussel/>

Undergraduate Student Researcher - Using bird vocalization as a tool for identification and taxonomy (*January 2020 – May 2020*) – Principal Investigator: Dr. Alban Guillaumet

- Objective: Compare bird songs of two closely related species.
- Conducted literature research to identify the tools and modeling approaches to measure the difference between vocalizations produced by different bird individuals/populations/species

Undergraduate Student Researcher - NSF RAPID - Rapid response to drought in a biodiversity hotspot (*September 2018 – May 2020*) – Principal Investigator: Dr. Brian Helms

- **Objective:** Document how a ‘flash drought’ (a short-term exceptional drought) in the fall/winter of 2016 affected stream benthic macroinvertebrates of the Appalachian Plateau and the Piedmont of Alabama
- Processed macroinvertebrate samples collected from Appalachian Plateau and Piedmont streams
- Identified macroinvertebrates to family and performed data entry

Undergraduate Student Researcher - Preliminary investigations of refuges as a method to capture riverine crayfish (*September 2018 – May 2019*) – Principal Investigator: Mr. Jonathan M. Miller

- **Objective:** Propose and evaluate sampling techniques of collecting lotic species of crayfish and comparing data to collections with addition of baits in Southeast Alabama streams
- Constructed and modified refuge design for crayfish
- Collected/identified crayfish species of Southeast Alabama
- Data entry, data analysis, prepared presentation

WORK EXPERIENCE

Field Technician Intern (*May 2019 – December 2019*) - Sanders Lead Company, Inc. - Supervisor: Mr. Chris Rutherford & Mr. Matt Brown

- Environmental Affairs Department:
 - Performed daily secondary containment inspection
 - Monitored greenhouse gas and Solid Waste Management Unit
 - Conducted percolation tests and evaluated soil types for septic tank placement
 - Sampled groundwater for heavy metal testing
 - Authorized to drive forklift and front-end loader
- Safety Department:
 - Conducted safety inspections, identified hazards, and recommended corrective actions according to OSHA regulations for general industry
 - Helped with inventory in the supply department
 - Familiar with numerous topics in OSHA regulations (Machinery and Machine Guarding, Walking-Working Surfaces, Electrical, etc.)

Volunteer Zoological Museum Technician (*September 2018 – May 2020*) - Faculty supervisor: Mr. Jonathan M. Miller

- Curation and data entry of samples including fish, crayfish, and mussels
- Organized lab and maintained specimens

TEACHING EXPERIENCE

Head Teaching Assistant – BIOL120L – Principles of Biology (*August 2021 – present*) - Towson University – Supervisor/Lab Coordinator: Mrs. Pamela Healey

- Organize and coordinate all TAs’ hours and work schedules
- Assist TAs in problem solving difficulties
- Develop lab plans that help guide TAs throughout the lab
- Coordinate and assist lab coordinator in lab setup and preparation

Teaching Assistant – BIOL120L – Principles of Biology (*August 2020 – present*) - Towson University – Supervisor/Lab Coordinator: Mrs. Pamela Healey

- Teach the assigned curriculum in two-hour classroom sessions
- Lead class discussion and answer students’ questions

- Evaluate and grade students' lab assignments, experiments, and reports
- Maintain records on students' progress and grades
- Attend weekly meeting and contribute ideas and feedback

SKILLS & ABILITIES

- R and RStudio
 - edX Verified Certificate for Data Wrangling and Visualization
 - Familiar with essential R packages: dplyr; ggplot2; tidyr; vegan; EGRET; etc.
 - Experienced with GitHub
 - Basic knowledge of HTML5 and CSS
- GIS
 - Watershed and land use modeling; Urban growth prediction
- PC-ORD v7.09
 - Multivariate statistical analyses
- Collection of
 - fish and crayfish using backpack shocker and D-nets
 - benthic macroinvertebrates using D-nets (MBSS protocol)
- Taxonomy of
 - freshwater fishes of southeast Alabama
 - freshwater benthic macroinvertebrate of Piedmont region, Maryland
- Stream health and habitat assessments using fish and benthic macroinvertebrate assemblages, IBI, and RBP (EPA)
- Experienced with soil and water quality field instruments (Hydrolab, pH meter, YSI, etc.)
- Proficient with Microsoft Word, Excel, Power Point, Outlook, and other Office programs

RELEVANT COURSEWORK

Graduate

Data Analysis and Interpretation for Biologist

Ecosystem Ecology

Community Analysis and Bioassessment

Data Visualization ([certificate](#))

Global Change

GIS Applications

Hydrogeology

Data Wrangling ([certificate](#))

Undergraduate

Environmental Assessment (Aquatic Biomonitoring)

Statistics (junior and senior level)

Environmental Pollution Control

Biostatistics

Survey of Environmental Science

Organismal Biology

Organic Chemistry

Limnology

PROFESSIONAL MEMBERSHIPS

Member of the Society for Freshwater Science (SFS) – 2021-present

Member of Beta Beta Beta - National Biology Honor Society Mu Epsilon Chapter – 2019-2020

Member of Association of Southeastern Biologists – 2019-2020

REFERENCES

Susan E. Gresens, Ph.D. – Professor Emerita – Towson University

- sgresens@towson.edu
- Telephone: 443-301-3840

Joel Moore, Ph.D. – Professor – Towson University

- moore@towson.edu
- Telephone: 410-704-4245

Dennis Genito, M.S. – Natural Resource Specialist – Baltimore County Department of Environmental Protection & Sustainability

- dgenito@baltimorecountymd.gov
- Telephone: 410-887-8567