

PEYTON THOMAS

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University of Colorado at Boulder
Institute of Arctic and Alpine Research
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EDUCATION

UNC-Wilmington

PhD, Biology and Marine Biology

2022

Dissertation: “*The Effects of Elevated Temperatures and Hypoxia on Anatomy and Physiology of Several Marine Fish Species*”

Baylor University

BS, Environmental Science, minor in Biochemistry

2017

RESEARCH EXPERIENCE

Academic scientific research

Assistant Professor, University of Colorado-Boulder, Boulder, CO

2026

Department of Environmental Studies/ Institute of Arctic and Alpine Research

Postdoctoral Research, Anticosti Fonds du Recherche

Present

Advisor: Dr. David Deslauriers

Can watershed biodiversity and geodiversity be used to explain salmonids' ecophysiology and life history?

- Collaborate with Anticosti Island community members and scientists to connect changes to the island's biodiversity with drivers of environmental change
- Characterize the biodiversity of salmonid-bearing and non-bearing streams on Anticosti Island using environmental DNA (eDNA)
- Characterize the geodiversity of watersheds on Anticosti Island using water trace elements and remote sensing data
- Track the migratory history of fishes on Anticosti Island using fish otolith trace element and stable isotope markers

Postdoctoral Research, University of Colorado-Boulder, Boulder, CO

2022-Present

Advisors: Dr. Cassandra Brooks, Dr. Keith Musselman

Influences of future climate scenarios on growth and distribution projections for Alaskan and Canadian Arctic freshwater fishes

- Characterizing thermal growth regimes of several Arctic fishes
- Disseminating scientific research and traditional knowledge of Indigenous Yukon river communities
- Characterizing growth trajectories of Arctic fishes under both historical and future climate scenarios
- Interdisciplinary collaboration with scientists spanning climate, hydrology, biological, and social sciences
- Interdisciplinary collaboration with regional non-profit organizations (Yukon River Intertribal Watershed Council and Yukon River Drainage and Fisheries Association)

- Collaboration and use of local Indigenous knowledge to inform model inputs, outputs, and sharing of information

Graduate Research, UNC-Wilmington, Wilmington, NC **2017-2022**

Advisor: Dr. Stephen Kinsey

Muscle Development Under Elevated Temperatures in Several Elasmobranch Species

- Characterized changes in muscle development in juveniles of 3 elasmobranch species reared under their respective IPCC end-of-century projected temperature regimes
- Evaluated markers of cellular stress in *Hemiscyllium ocellatum* using immunoblotting techniques

Differential Hypoxia Tolerance and Protein Degradation in two *Fundulidae* species

- Conducted experimental hypoxia and assessment of hypoxia tolerance in *Fundulus heteroclitus* and *Fundulus majalis* using intermittent flow respirometry and loss of equilibrium techniques
- Evaluated expression of markers related to oxidative stress and protein degradation using immunoblotting techniques

Undergraduate Research, Baylor University, Waco, TX **2015-2017**

Advisor: Dr. Susan Bratton, EVS

- Collected fish in multiple locations along the coast of Texas using hook and line fishing
- Analyzed fish specimens for species identification, body morphometrics and condition, and parasites
- Examined stomach contents for microplastics using a filtration protocol and light microscopy
- Compiled biological data on fish specimen to correlate stomach contents to thread sources

Non-academic research

Ocean Spirits Sea Turtle Intern, Bathway, Grenada **2017**

Fisheries Intern, United States Forest Service, Tiller, OR **2016**

ACADEMIC TEACHING AND MENTORING

CU-Boulder, Boulder, CO	Present
• Clare Gallagher, Ph.D. candidate: Dissertation committee member	Present
• Hayley Kwasniewski, Ph.D. candidate: Data analysis and writing	Present
• Hope Robinson, Undergraduate student: science communication	2024
• Rawinorn Dulyakasem, Ph.D.: Writing and presentation	2023
UNC-Wilmington, Wilmington, NC	2017-2022
Teaching Assistant, Department of Biology and Marine Biology	
Cell Biology	2017-2018
Marine Biology	2018-2019
Human Anatomy and Physiology II	2019-2021
Biochemistry	2020-2022
<i>Completed (students advised at UNCW)</i>	

- Mentored three undergraduates in immunoblotting and microscopy techniques (2018-2021)
- Tucker Reid, Honors Student, “Protein Degradation Under Moderate and Severe Hypoxia in *Fundulus majalis*” (2020-2021)
- Bryce Corbett, Masters Student, “Influence of Hypoxia on Oxidative Damage Expression in *Acropora spp.*” (2020-2021)
- Reanna Jeanes, Masters Student, “Influence of Hypoxia and Elevated Temperature on Oxidative Damage Expression in *Acropora spp.*” (2021-2022)

GRANTS/FELLOWSHIPS

Upcoming solicitations

David and Lucille Packard Foundation Fellowship	2025
FjallRaven Explorer Grant	2026
Allen Family Philanthropies Natural Climate Solutions	2026
NSF CAREER Grant	2026

Submitted solicitations

CU Boulder Research and Innovation Seed Grant	2025
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Environmental DNA Independence Workshops

Collaborators: BIMS, Wild EcoHealth

NSF Arctic Research Opportunities: NSF 23-572	2025
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Evolving role of aufeis in dynamics of Arctic river-network ecosystems

Collaborators: Roseanna Neupeaur, Michael Gooseff, Josh Koch, Wilderness Conservation Society

Completed solicitations and pending awards

MEFFLCP Research Contract	2025
National Park Service (NPS) Western Parks CESU	2024
Protect Our Winters Advocacy, Adventure, and Alliance Grant	2024
FRQ Anticosti Island Fellowship	2024-2025
CU Boulder Chancellor’s Postdoctoral Fellowship	2024
Black in Marine Science Tidal Wave Fellowship	2023
Protect Our Winters Advocacy, Adventure, and Alliance Grant	2022

ACADEMIC OUTREACH AND SERVICE

Organismal Responses to Climate: Analysis and Synthesis (ORCAS)	Present
Synthesis science working group examining climate change impacts through eco-physiology, evolutionary processes, and species interactions	
Integrative and Comparative Biology Book Review	2025
Book review for Shark: The Illustrated Biography by Daniel C. Abel and Sophie A. Maycock	
ICARP IV Summit Session Co-chair	2025
Institute of Arctic and Alpine Research (INSTAAR) Seminar Coordinator	Present
AGU Ocean Sciences Meeting Multicultural Program Mentor	2024
USGS Grant Proposal Review	2023
Proposal review for FY24 Alaska Climate Adaptation Science Center	
UNCW Dept of Biology and Marine Biology Science, Access, iNclusion, and Diversity (SAND) Committee	2020-2022
UNCW Marine Science Graduate Student Representative	2019
UNCW Biology Graduate Student Association Treasurer	2018

PUBLICATIONS AND WORKS IN PROGRESS

Journal Publications

Peters, CA, Thomas, PA, Rieper, K, Bratton, S. (2017) Foraging preferences influence microplastic ingestion by six marine fish species from the Texas Gulf Coast. *Marine Pollution Bulletin*, **124**(1), 82-88. <https://doi.org/10.1016/j.marpolbul.2017.06.080>

Thomas, PA, Peele, EE, Wheeler, CR, Yopak, KE, Rummer, JL, Mandelman, JW, Kinsey, ST. (2023). Effects of projected end-of-century temperature on the muscle development of neonate epaulette sharks, *Hemiscyllium ocellatum*. *Journal of Marine Biology*. 170, 71. <https://doi.org/10.1007/s00227-023-04218-z>

Thomas, PA, Peele, EE, Yopak, KE, Brown, C, Huveneers, C, Gervais, CR, & Kinsey, ST. (2023). Intraspecific variation in muscle growth of two distinct populations of Port Jackson sharks under projected end-of-century temperatures. *Journal of comparative biochemistry and physiology. Part A, Molecular & integrative physiology*. **283**, 111467. <https://doi.org/10.1016/j.cbpa.2023.111467>

Thomas, PA, Peele, EE, Yopak, KE, Priester, C, Sulikowski, JA, Kinsey, ST. (2024). Lectin binding to tissue structures in the pectoral fin of neonate little skates reared under ambient and projected-end-of-century temperature regimes. *Journal of Morphology*. **285**(5) <https://doi.org/10.1002/jmor.21698>

Thomas, PA and Kinsey, ST. (2024). Comparative effects of hypoxia on protein degradation processes in *Fundulus heteroclitus* and *Fundulus majalis*. *Black in Marine Science Issue. Journal of Integrative and Comparative Biology*. <https://doi.org/10.1093/icb/icae144>

Thomas, PA, Blaskey, D, Cheng, Y, Carey, MP, Swanson, H, Herman-Mercer N., Brooks, C, Newman, AR, Musselman, K. (2025). Warming Alaskan rivers affect critical first-year growth in Northern food fishes. *Scientific Reports*. <https://doi.org/10.1038/s41598-025-14711-8>

Thomas, PA. The importance of incorporating traditional knowledge systems into ecological modeling frameworks. **In Prep, Integrative and Comparative Biology (invited paper)**

Book Chapters

Kinsey, ST, Thomas, PA, Neurohr, JM. The Influence of Growth and Body Size on Crustacean Muscle Structure, Metabolism, and Response to the Environment. In: A.S.M. Saleuddin, ed, *Physiology of selected invertebrate groups: A series of reviews*, Vol. 1:

Crustacea. (2022). R.D. Roer, ed. Apple Academic Press.
<https://doi.org/10.1201/9781003405016>

Simonitis, LE, Andrew, M, Brewer-Tinsley, T, Jones, A, Thomas, PA, Van Eyck, S, Webber-Schultz A. *Fields of Elasmobranch Anatomy and Physiology*. (2022). In: *Minorities in Shark Sciences Diverse Voices in Shark Research*. J. Graham, C. Caceres, D. Santos de Azevedo Menna, ed. CRC Press. <https://doi.org/10.1201/9781003260370>

PRESENTATIONS

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- Can watershed biodiversity and geodiversity determine the habitat suitability of salmonids?
Conference: American Fisheries Society- Atlantic International Chapter **2025**
- The Arctic Rivers Project: A co-produced assessment of the climate sensitivity of Alaskan & Yukon rivers and fish to support resilient communities **2025**
Conference: Arctic Science Summit Week/ICARP IV Summit
- The Arctic Rivers Project: A co-produced assessment of the climate sensitivity of Alaskan & Yukon rivers and fish to support resilient communities **2024**
Conference: National Tribal and Indigenous Climate Conference
- Looking to the past to inform the future: bioenergetics modeling of Yukon River fishes
Conference: World Fisheries Congress **2024**
- Looking to the past to inform the future: bioenergetics modeling of Yukon River fishes
Conference: AGU Ocean Sciences Meeting **2024**
- Hindcasted bioenergetics modeling of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) and Dolly Varden (*Salvelinus malma*) within the Kenai River system to inform future climate projections
Conference: American Fisheries Society- Alaska Chapter **2023**
- Effects of Elevated Temperature on Muscle Development in Juvenile *Hemiscyllium ocellatum*
Conference: Society of Integrative and Comparative Biology **2020**
- Effects of Elevated Temperature on Muscle Development in Juvenile *Hemiscyllium ocellatum*
Conference: UNCW Global Marine Summit **2019**
- Effects of Air Exposure on Markers of Oxidative Damage in an Invasive Tunicate (*Styela plicata*) and a Native Shellfish (*Crassostrea virginica*)
Conference: Society of Integrative and Comparative Biology **2019**
- Effects of Air Exposure on Markers of Oxidative Damage in an Invasive Tunicate (*Styela plicata*) and a Native Shellfish (*Crassostrea virginica*)
Conference: International Invasive Sea Squirt Conference **2018**
- Microplastic and anthropogenic fiber ingestion by marine pinfish (*Lagodon rhomboides*) collected from inshore marine sites adjoining Freeport and Galveston
Conference: Texas Undergraduate Research Day at the Capitol **2017**
- Microplastic Ingestion by Marine Pinfish (*Lagodon rhomboides*)
Conference: Texas Academy of Science Annual Conference **2016**
- Microplastic Ingestion by Marine Pinfish (*Lagodon rhomboides*)
Conference: Gulf Coast Research Symposium **2016**

INVITED LECTURES

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- Looking to the Past to Inform the Future: Integrating different knowledges to address ecological concerns **2024**

Location: CU-Boulder Environmental Studies Colloquium	
Bioenergetics modeling of Arctic fishes	2024
Location: CU-Boulder INSTAAR/NSIDC Social	
The Arctic Rivers Project: Integrating human dimensions into fish ecological modeling	2024
Location: CU-Boulder INSTAAR Seminar	
The Arctic Rivers Project: Co-produced science to support Indigenous communities	2024
Location: Universidad de Los Lagos	
The Arctic Rivers Project: Fish bioenergetics modeling	2023
Location: Hydro Symposium, CU-Boulder	
Climate change impacts on marine fishes	2022
Location: CU-Boulder INSTAAR Seminar	
Dynamic Biosphere	2022
Location: Footprints Running Camp, Silverton, CO	
Invasive Tunicate Research Lecture	
Location: Ashley High School, Wilmington, NC	2018
NON-ACADEMIC OUTREACH AND SERVICE	
Puelo Patagonia/Patagonia, Inc. Andean Deer Tracking Project	2025
Mongabay: Warming Alaskan Rivers Interview	2025
Yukon News: Warming Alaskan Rivers Interview	2025
CBC Yukon: Warming Alaskan Rivers Interview	2025
CU News: Warming Alaskan Rivers Interview	2025
Where the Climate Things Are Podcast Interview	2025
The Fisheries Podcast Interview	2024
Climate Athlete Academy Podcast Interview	2023
NNormal Climate Advocacy Panel, Chamonix, FR	2023
Panel about using trail running as a form of climate advocacy and how trail runners can get activated in both community science and climate solutions	
NNormal Trail Running Sustainability and Ocean Plastics, Chamonix, FR	2023
Speaking engagement about running shoe sustainability and the connectivity between our shoes and reducing ocean plastics	
Patagonia Trail Running Sustainability Panel, Chamonix, FR	2023
Panel about using trail running as a form of climate advocacy and how trail runners can get activated in both community science and climate solutions	
Patagonia Marine Ecosystem Health Panel, Boulder, CO	2023
Panel about blue carbon, global fisheries sustainability, climate change impacts on marine fishes, and community involvement in ecosystem restoration	
Protect Our Winters Climate Advocacy Narrative, Reno, NV	2023
Protect Our Winters Leadership Summit narrative about the Equitable Action Run Towards Health as a form of climate advocacy for healthy alternative energies that prioritize community health	
Interview with a Conservationist, virtual	2023
Interview with a Montana State University undergraduate student Oscar Maldonado about personal journey in the conservation world	
Equitable Action Run Towards Health (EARTH), Gloster, MS	2023

EARTH is a running event created to use trail running as a way to bring people to lesser-known trail systems in forests that are currently sources of extraction and pollution to surrounding communities. The event was a result of a Protect Our Winters Alliance Grant (\$10,000) to raise awareness of the wood pellet biomass industry and health hazards to low-income Black communities and surrounding forests. Collaboration involved Dogwood Alliance, Southern Echo, Greater, Greener, Gloster, and local activists.

Footprints Running Camp Mentor , Silverton, CO	2021/2022
Mentor for people with solutions to tackle different aspects of the climate crisis	
<ul style="list-style-type: none"> • Grace Williams, Environmental storytelling (2021) • Miles Anderson, Maine campaign for multispecies aquaculture (2022) 	
Sea GEMS Instructor , Wilmington, NC	2021
Ladies Who Launch , GLOW Academy	2020
Sunrise Movement Coordinator , Wilmington, NC	2020-2021
Women in Science (WiS) Exhibitor , Fort Fisher Aquarium	2019
MarineQuest Camp Instructor , Wilmington, NC	2018
Ocean Spirits Biology Camp , Bathway, Grenada	2017

MEMBERSHIPS

American Society for Limnology and Oceanography (ASLO), 2024-Present
American Association for the Advancement of Science (AAAS), 2019-Present
American Fisheries Society (AFS), 2022-Present
Association for Polar Early Career Scientists (APECS), 2024-Present
Black Women in Ecology, Evolution, and Marine Science (BWEEMS), 2020-Present
Black in Marine Science (BIMS), 2021-Present
Minorities in Shark Sciences (MISS), 2020-Present
Society for Integrative and Comparative Biology (SICB), 2019-Present
500 Women Scientists, 2023-Present

POPULAR MEDIA

Footprints on Katmai	2024
Colorado Arts and Sciences	2024
Breath of Gloster	2023
No Lost Shoes	2023
Trail Runner Magazine- Adventures on Land and Sea	2022
Trail Runner Magazine	2022

PROFESSIONAL SERVICE OUTSIDE OF ACADEMIA

Trail Running Ambassador
January 2021- present
 Patagonia, www.patagonia.com
Trail Alliance/Science Alliance Member
July 2020- present
 Protect Our Winters (POW), www.protectourwinters.org
Board Member
August 2023-present
 Footprints Running Camp, www.footprintsrunning.org