

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

Present

Postdoctoral Research, Anticosti Fonds du Recherche

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**

Completed (students advised at UNCW)

- 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

Environmental DNA Independence Workshops

Collaborators: BIMS, Wild EcoHealth

NSF Arctic Research Opportunities: NSF 23-572 2025

Evolving role of aufeis in dynamics of Arctic river-network ecosystems

Collaborators: Roseanna Neupeaur, Michaela 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, Huvemeers, 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

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

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

- 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