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Conservation Management Institute, Department of Fish and Wildlife Conservation
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PROFESSIONAL EXPERIENCE & EDUCATION

Research Associate September 2013–present

Conservation Management Institute (CMI), Virginia Tech, Blacksburg, VA

Daguna Consulting, LLC 2015–present

Graduate Research Assistant, August 2010–August 2013

Department of Fish and Wildlife Conservation, Virginia Tech, Blacksburg, VA

Laboratory Specialist and Field Technician, May 2007–July 2010

Freshwater Mollusk Conservation Center (FMCC), Blacksburg, VA

Virginia Tech, Department of Fish and Wildlife Conservation, Blacksburg, VA

PhD Candidate, Fish and Wildlife Conservation, Virginia Tech (2020–current)

Master of Science, Fisheries and Wildlife Science, September 2013

Advisors: Jess Jones, Eric Hallerman, and Marcella Kelly

Master's Thesis: *An evaluation of population restoration and monitoring techniques for freshwater mussels in the upper Clinch River, Virginia, and refinement of culture methods for laboratory-propagated juveniles*

Bachelor of Science, Fisheries Science; Minor: Biology, August 2008

CERTIFICATIONS & SKILLS

- American Fisheries Society, Associate Fisheries Professional Certification, 2013
- Virginia Department of Wildlife Resources and USFWS Approved Surveyor for Atlantic Slope and Tennessee River drainage freshwater mussels in Virginia
- SCUBA (PADI), CPR/First Aid/AED, Virginia boating license
- Statistical software packages R, Program MARK, SAS, WinBUGS, G*Power3, CAPTURE, DISTANCE, PRESENCE, EstimateS
- Genetics software packages Geneious Prime, GeneMarker, MEGA, STRUCTURE
- Geographic information systems software ArcGIS 10.5 (ERSI)

RECENT PROJECTS

GRANT SPONSORED RESEARCH & CONTRACTS

- 2022–2024 Brook Floater Rapid Assessment Monitoring within the Potomac River Basin, Virginia
- 2021–2023 Semi-quantitative Mussel Survey of the Upper North Fork Holston River, Virginia
- 2021–2023 Semi-quantitative Mussel Survey of the Little River, Virginia
- 2021–2023 USFWS, Evaluating the Taxonomic Validity of Rough Rabbitsfoot (*Theliderma cylindrica strigillata*) as a Subspecies and Reexamining Phylogenetic Relationships Within the Genus *Theliderma*.
- 2020–ongoing Virginia Department of Transportation (VDOT), on-call contract to conduct freshwater mussel bridge surveys.
- 2020–2022 Virginia Department of Wildlife Resources (VDWR), State Wildlife Grant, Inland Oil Spill, Section 6. Assessing population status, demographics, and detectability of Yellow Lance (*Elliptio lanceolata*) in the Rappahannock Basin, Virginia.
- 2020–2021 US Geological Survey (USGS), Fort A.P. Hill Environmental and Natural Resources Division. Freshwater mussel surveys on Fort A.P. Hill to assess habitat suitability and species distributions.
- 2018–2023 USFWS, Essential monitoring in the Clinch and Powell Rivers needed to assess the status and distribution of federally-listed freshwater mussel populations and evaluate long-term success of restoration efforts across the Upper Tennessee River Basin.
- 2019 Lhoist North America. Survey for freshwater mussels in Big Stony Creek, Giles County, Virginia.
- 2019 Department of Forest Resources and Environmental Conservation, Meadowood Recreation Area - Bureau of Land Management. Assessing aquatic communities at Meadowood Recreation Area, Lorton, Virginia.

- 2019–2020 Naval Facilities Engineering Command (NAVFAC), Marine Corps Base Quantico. Work Option 3: Freshwater mussel distribution assessment on Marine Corps Base Quantico.
- 2019–2020 Marstel-Day, LLC. Rare, Threatened, and endangered species survey non-game aquatic species at Naval Air Station Patuxent River and Webster Field Annex, Maryland.
- 2018–2019 Virginia Department of Game and Inland Fisheries, State Wildlife Grant. Brook floater (*Alasmidonta varicosa*) rapid assessment monitoring within historically occupied Virginia watersheds.
- 2018–2020 Virginia Department of Military Affairs (VDMA), Maneuver Training Center – Fort Pickett. Freshwater mussel distribution and abundance in the Nottoway River and tributaries on MTC-Fort Pickett.
- 2016–2017 US Department of Defense (DOD), Legacy Resource Management Program. An integrated status assessment of freshwater mussels on DOD installations and adaptive strategies for management and conservation under new and emerging threats.
- 2016–2017 TRC Environmental Corporation. Biological surveys for Fries Hydroelectric Project in the Upper New River, Grayson County, Virginia.
- 2018 An evaluation of genetic variability among *Utterbackiana implicata* populations to inform captive propagation conservation efforts in Virginia.
- 2018 Propagation and culture of native freshwater fishes: *Etheostoma caeruleum*, *E. rufilineatum*, and *Chrosomus oreas*.

PUBLICATIONS

- Carey, C.S., J. Richard, B. Ostby, and A. Phipps. 2020. Assessing a suspected freshwater mussel mass mortality event in the Clinch River, Tennessee. *Manuscript in Preparation*.
- Carey, C.S., J.W. Jones, R.S. Butler, M.J. Kelly, and E.M. Hallerman. 2019. A comparison of systematic quadrat and capture-mark-recapture sampling designs for assessing freshwater mussel populations. *Diversity* 11,127:1–28.
- Wilson, A.M., D.W. Brauning, C.S. Carey, and R.S. Mulvihill. 2017. Spatial models to account for variation in observer effort in bird atlases. *Ecology and Evolution* 7:6582–6594.
- Carey, C.S., J.W. Jones, R.S. Butler, and E.M. Hallerman. 2015. Restoring the endangered oyster mussel (*Epioblasma capsaeformis*) to the upper Clinch River, Virginia: an evaluation of population restoration techniques. *Restoration Ecology* 23:447–454.
- Carey, C.S., J.W. Jones, E.M. Hallerman, and R.S. Butler. 2013. Determining optimum temperature for growth and survival of laboratory-propagated juvenile freshwater mussels. *North American Journal of Aquaculture* 75:532–542.

TECHNICAL REPORTS

- Carey, C. 2022. Freshwater mussel surveys on Fort A.P. Hill to assess habitat suitability and species distributions. Preliminary Report to the Environmental and Natural Resources Division, Fort A.P. Hill, Virginia. 6 pp.
- Olivera-Hyde, M., C. Carey, and E. Hallerman. 2021. Survey of genetic variation in eastern lampmussel (*Lampsilis radiata*). Final Report to the Virginia Department of Wildlife Resources. 25 pp.
- Olivera-Hyde, M., C. Carey, and E. Hallerman. 2021. Survey of genetic variation in eastern pondmussel (*Ligumia nasuta*). Final Report to the Virginia Department of Wildlife Resources. 15 pp.
- Carey, C.S. 2021. Assessing Freshwater Mussel Assemblages and Distributions on Marine Corps Base Quantico. Final Report to MCB Quantico, January 2021. Virginia Tech, Department of Fish and Wildlife Conservation, Conservation Management Institute. 89 pp.
- Carey, C. 2020. Rare, threatened, and endangered species survey non-game aquatic species at Naval Air Station Patuxent River and Webster Field Annex, Maryland. Report to Marstel-Day, LLC and Naval Facilities Engineering Command. Conservation Management Institute, Department of Fish and Wildlife Conservation, Virginia Tech, Blacksburg. 67 pp.
- Carey, C., and V. Emrick. 2020. Assessing freshwater mussel assemblages and evaluating instream habitat on MTC-Fort Pickett. Final Report to MTC-Fort Pickett. Conservation Management Institute, Department of Fish and Wildlife Conservation, Virginia Tech, Blacksburg. 70 pp.

Carey, C., and M. St. Germain. 2018. An integrated status assessment of freshwater mussels on DoD installations and adaptive strategies for management and conservation under new and emerging threats: Parts I & II & Appendix D. Final Report to the Department of Defense Legacy Resource Management Program. 320 pp.

Carey, C., M. Olivera-Hyde, and E. Hallerman. 2018. An evaluation of genetic variability among Alewife floater (*Utterbackiana implicata*) populations to inform captive propagation conservation efforts in Virginia. Final Report to the Virginia Department of Game and Inland Fisheries. 23 pp.

RECOVERY GROUP PRESENTATIONS

- Upper Tennessee River Basin Mussel Recovery Group Meeting (bi-annually)
- Atlantic Slope Mussel Recovery Group Meeting (annually)
- Tennessee Endangered Mollusk Committee Meeting (annually)

TEACHING & OUTREACH

Co-Instructor, Population Dynamics and Estimation – FiW 4414

Virginia Tech, Blacksburg, Fall 2018

ORGANIZATIONS & PROFESSIONAL SERVICE

Member:

American Fisheries Society (2012–present)

Virginia Chapter of the American Fisheries Society (2012–present)

Virginia Tech Chapter of the American Fisheries Society (2007–present)

Freshwater Mollusk Conservation Society (2012–present)

Newsletter Editor for the Southern Division of the American Fisheries Society, 2019–present.