

BRETT J. K. OSTBY

Senior Biologist, Co-owner
Daguna Consulting, LLC
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EDUCATION

Virginia Tech, Blacksburg, VA

Master of Science in Fisheries and Wildlife Sciences

Graduated May 2005

Thesis: Characterization of Suitable Freshwater Mussel Habitat in the Clinch River, Virginia and Tennessee

Luther College, Decorah, IA

Bachelor of Arts in Biology, Minor in History

Graduated May 2001, *cum laude*

Senior Thesis: Freshwater Mussels of the Streams of Northeastern Iowa

CERTIFICATION

- U. S. Fish & Wildlife Service (USFWS) Region 3 & 4 Threatened & Endangered Species Recovery Permit #TE59798B-0
- USFWS (Virginia Field Office)/Virginia Department of Game & Inland Fisheries (VDGIF) approved mussel surveyor for Virginia
- VDGIF Threatened & Endangered Species Permit #053330/Scientific Collection Permit #050560
- Tennessee Wildlife Resources Agency (TWRA) Scientific Permit #1619
- Minnesota Department of Natural Resources (MNDNR) Threatened & Endangered Species Permit (Special Permit) # 20835
- MNDNR Approved mussel surveyor for state of Minnesota
- Wisconsin Department of Natural Resources (WIDNR) Endangered & Threatened Species Permit #1015
- PADI Open Water Diver #0109359153

ENDANGERED SPECIES CONSULTING AND BUSINESS EXPERIENCE

Senior Biologist and Co-owner

Daguna Consulting, LLC, Bristol, VA

January 2012 to present

- Quantifying change in occupancy rate of the purplebean mussel in Copper Creek
- Quantifying occupancy, detection, and meta-population dynamics of federally endangered James spiny mussel (*Pleurobema collina*) in cooperation with James Madison University
- Mark-recapture study of federally endangered James spiny mussel (*Pleurobema collina*) for the Virginia Department of Game and Inland Fisheries (VDGIF)
- Conservation Plan for the State-listed Freshwater Mussels of the Upper Tennessee River Basin in Virginia

- Development and execution of biological and water quality monitoring plans to fulfill requirements of federally issued Biological Opinions
- Monitoring and parametrizing survival of translocated mussels using Passive Integrated Transponder (PIT) tags in the Clinch River
- Quantitative and semi-quantitative monitoring of mussel populations in the Clinch River
- *In situ* monitoring of hatchery-propagated juvenile mussels in the Clinch River
- Endangered species detection surveys and relocations in the mid-Atlantic region, Minnesota, Wisconsin, and Tennessee

Independent Consultant on Endangered Species Management

August 2005 to December 2011

- Conducted endangered mollusk species surveys projects for private and public clients
- Assisted with consultation between clients and regulators

RESEARCH EXPERIENCE

Research Specialist II

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

April 2005 to 2015

- Investigator in a multidisciplinary U. S. Geological Survey (USGS) study documenting water quality, habitat and biological patterns in the Clinch River
- Endangered mollusk population monitoring in the Clinch River in cooperation with U. S. Fish and Wildlife Service (USFWS)
- Occupancy study of the federally endangered purple bean mussel (*Villosa perpurpurea*) in Beech Creek, TN for USFWS
- Search for federally endangered purple bean mussel (*Villosa perpurpurea*) in streams of the Upper Tennessee River Basin for USFWS
- Endangered mussel surveys and stream habitat assessment in the Rivanna River Watershed for The Nature Conservancy (TNC)
- Survey of Freshwater Mussel Assemblages in the Little River for VDGIF
- Survey of Freshwater Mussel Assemblages in the North Fork Holston River for USFWS
- Risk assessment analysis for mussel assemblages and potential restoration sites in the Upper Tennessee River System for the Tennessee Valley Authority (TVA)
- Completed preliminary analysis toward the design of a new bio-monitoring tool, the Mollusk Assemblage Index
- Developed aquaculture systems to expose mussels to low dissolved oxygen treatments and conducted preliminary experiments to determine effects of low dissolved oxygen on mussels
- Developed and conducted freshwater mussel habitat studies in the Duck River, French Broad River, Nolichucky River, and Clinch River for TVA
- Surveys of mussel fauna for the Virginia Department of Transportation (VDOT), USFWS, VDGIF Duke Energy, and the National Park Service
- Assessed impacts to habitat associated with a gas pipeline construction in southwest Virginia for VDGIF and USFWS
- Assisted graduate students and other biologists at the Freshwater Mollusk Conservation Center with mussel and fish surveys, propagation and restoration of endangered mussel species, and various student and faculty research projects
- Authored or co-authored 70+ technical reports

Graduate Research Assistant

Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA
May 2002 to April 2005

- Developed and completed mussel habitat ecology study in the Clinch River
- Participated in mussel surveys in the Tennessee River, James River, and Dan River drainages
- Conducted proximate physiological analysis for study of carbohydrate diets for an aquaculture species
- Assisted graduate students and other biologists at the Freshwater Mollusk Conservation Center with mussel and fish surveys, propagation and restoration of endangered mussel species, and various student and faculty research projects

Minnesota Department of Natural Resources Intern

Statewide Mussel Survey Program, St. Paul, MN
June to August 2000

- Internship with the Minnesota DNR state mussel survey
- Assisted with mussel surveys in a variety of habitats from the navigation channel of the Mississippi River to small streams draining prairies and wilderness areas

Survey of Mussel Populations in Northeastern Iowa

Luther College, Decorah, IA
June to October 1999

- Planned, conducted, and analyzed results of a survey for mussel populations in major tributaries of the Mississippi River in northeastern Iowa

RELEVANT OUTREACH EXPERIENCE AND COMMUNITY SERVICE

Zumbro Watershed Partnership

February 2013 to present

- Elected to the board as a citizen representative in March 2013; re-elected March 2016
- May 2013 to present served as chairman; directing board meetings and overseeing staff and non-profit's operations
- Public outreach/education
- Cooperation with local Soil and Water Districts and County Governments toward one-watershed, one-plan initiatives
- Grant-writing, grant oversight, fundraising

Rochester Earth Fest and Expo

Rochester, MN

February 2014 to present

- Member of informal group composed of community leaders that organize and run Rochester's Earth Fest and Expo in 2015, 2016, 2017 (<http://www.earthfestrochestermn.org/>)

Iowa Mussel Blitz

Anamosa and LeClair, IA

August 2015

- Volunteer SCUBA diver
- Aided with mussel identification and data collection

Public Service Announcement

January 2013

- Prepared flyer for Olmsted County Parks at request of park supervisor
- **Ostby, B. J. K.** 2013. What are those shells on the lakeshore? Informational flyer/poster prepared for Chester Woods County Park. 1pp.

Outreach Committee Chair, Virginia Tech Chapter of the American Fisheries Society

Virginia Tech, Blacksburg, VA

September 2002 to August 2005

- Organized and led educational activities for the 4H Biodiversity Day Program
- Developed educational activities teaching key lessons in aquatic ecology, one of which was disseminated in a publication of the Virginia Foundation for Agriculture in the Classroom

Certified in Project Wet Program

Virginia Tech, Blacksburg, VA

July 2004

- Attended workshop focused on environmental education for K-12

Endangered Species Education and Research Outreach

- Worked with peers to set up and staff freshwater mussel outreach booths at the Virginia Tech Farm and Family Showcase (September 2002, 2003) and Virginia Tech Earth Day Fair (April 2004)
- Presentation to the Zumbro Valley Audubon Society on freshwater mussel research and restoration program at Virginia Tech (September 2004)
- Developed and participated in an outreach program with students from Richlands High School (VA) which included a habitat study, field trip to a mussel bed in the Clinch River, and a mussel restoration project in the Clinch River

TEACHING EXPERIENCE

Adjunct Faculty Instructor of Biology

Rochester Community and Technical College, Rochester, MN

September 2012 to May 2014

- Instructed lab sections of Environmental Biology (BIOL 1100) and General Biology (BIOL 1220)
- Evaluated student performance with in-class assessments
- Prepared and presented mini-lectures to provide context for lab activities
- Designed laboratory exercises

Technician and Graduate Student Training and Mentoring

Virginia Tech, Blacksburg, VA

- Trained undergraduate technicians and graduate students on field methodology and species identification
- Introduced undergraduate technicians to concepts in population estimation, statistics, and endangered species management to provide context for their work
- Mentored technicians applying for graduate school
- Assisted graduate students help statistical analysis, writing and conceptual development of research projects

Guest Lecturer for Minnesota DNR Master Naturalist Program

Oxbow County Park, Byron, MN

July 2016

- Developed and instructed program on the ecology and management of the Zumbro River

Guest Lecturer for Department of Biology Seminar

Luther College, Decorah, IA

November 2014

- Presented lecture on multidisciplinary U. S. Geological Survey (USGS) study of water quality, habitat and biological patterns in the Clinch River

Guest Lecturer in Fisheries Management (FIW 4714)

Virginia Tech, Blacksburg, VA

- Introduced students to theoretical and statistical considerations for sampling rare fauna by using a mini-lecture and freshwater mussel sampling case study

Guest Lecture in Biology of Freshwater Mussels (FIW 5984)

Virginia Tech, Blacksburg, VA

September 2005

- Presented lecture, assigned readings and led discussion on freshwater mussel habitat ecology for graduate students and faculty

Guest Lecturer for Department of Biology Seminar

Luther College, Decorah, IA

September 2004

- Presented lecture on mussel ecology and management to undergraduates

Teaching Assistance for General Biology Laboratory

Luther College, Decorah, IA

August 1998 to May 2001

- Helped plan and prepare laboratory lessons
- One-on-one tutoring and instruction
- Evaluated student performance

Environmental Education Instructor

Quarry Hill Nature Center, Rochester, MN

July to August 1999; June to August 2000

- Assisted with Junior Naturalist Program
- Planned and led extended trips for secondary students that focused on river ecosystems and endangered species

PUBLICATIONS AND TECHNICAL REPORTS

Peer Reviewed Publications:

Ostby, B. J. K., J.L. Krstolic, and G.C. Johnson. 2014. Reach-scale comparison of habitat and mollusk assemblages for select sites in the Clinch River. *Journal of the American Water Resources Association* 50(4): 859-877.

Johnson G.C., J.L. Krstolic, and **B. J. K. Ostby**. 2014. Influences of water and sediment quality and hydrologic processes on mussels in the Clinch River. *Journal of the American Water Resources Association* 50(4): 878-897.

Jones J., S. Ahlstedt, **B. J. K. Ostby**, B. Beaty, M. Pinder, N. Eckert, R. Butler, D. Hubbs, C. Walker, S. Hanlon, J. Schmerfeld, and R. Neves. 2014. Clinch River Freshwater Mussels Upstream of Norris Reservoir, Tennessee and Virginia: A Quantitative Assessment from 2004 to 2009. *Journal of the American Water Resources Association* 50(4): 820-836

Zipper, C. E, B. Beaty, G.C. Johnson, J.W. Jones, J.L. Krstolic, **B. J. K. Ostby**, W.J. Wolfe, and P. Donovan. 2014. Freshwater mussel population status and habitat quality in the Clinch River, Virginia and Tennessee, USA: A featured collection. *Journal of the American Water Resources Association* 50 (4): 807-819.

Duncan, M., S. DuRant, **B. J. K. Ostby**, J. H. Roberts, and J. D. Willson. 2011. A multi-taxa survey of biota and biotic integrity in Passage Creek (Potomac drainage), Virginia. *The Northeastern Naturalist* 18:357-369.

Jones, J. W., R. J. Neves, S. A. Ahlstedt, D. Hubbs, M. Johnson, H. Dan, and **B. J. K. Ostby**. 2010. Life history and demographics of the endangered birdwing pearl mussel (*Lemiox rimosus*) (Bivalvia: Unionidae). *The American Midland Naturalist* 163(2):335-350.

Liberty, A. J., **B. J. Ostby**, and R. J. Neves. 2007. Determining a suitable substrate size and sampling frequency for rearing juvenile rainbow mussels *Villosa iris* (Bivalvia: Unionidae). *North American Journal of Aquaculture* 69: 44-52.

Eckblad, J., **B. Ostby** and K. Tenneson. 2002. The unionid mussels of the Upper Iowa and Turkey River watersheds. *Journal of the Iowa Academy of Science* 109(3/4): 43-49.

Selected Technical Reports:

Ostby, B. J. K. 2017. Mussel Relocation at Pier 7 of the Ford Parkway Bridge in Ramsey County, MN. Contract PW2017-09 for Ramsey County Public Works, Arden Hills, MN. 26 pp.

Ostby, B. J. K. 2016. Using Mark-Recapture Techniques to Estimate Population Parameters and Detection Probability for the Federally Endangered James Spiny mussel. Reporting Under Virginia Contract No. 2014-14665 (2015 Renewal). 83 pp.

Ostby, B. J. K. and B. B. Beaty. 2016. Conservation Plan for the State-listed Freshwater Mussels of the Upper Tennessee River Basin in Virginia. Contract Number 2014-14593 for Virginia Department of Game and Inland Fisheries, Richmond, VA. 210 pp.

Ostby, B. J. K. 2015. Stream Surveys for Protected Mollusks in Tributaries to the Black River, La Crosse and Trempealeau Counties, Wisconsin. Report for AECOM, Minneapolis, MN. 40 pp.

Ostby, B. J. K. and B. B. Beaty. 2014. Stream surveys of freshwater mussels along the proposed route of the Manville Water Project (Phase III) in Scott County, Virginia. Report for Crossroads Engineering, St. Paul, VA. 102 pp.

Ostby, B. J. K. and B. B. Beaty. 2014. Relocation of the Mussel Assemblage at Speer's Ferry Water Pipeline Crossing: Monitoring Efforts through October 2014. Report for Scott County PSA, Gate City, VA. 17 pp.

Ostby, B. J. K. and B. B. Beaty. 2012. Mussel Assemblage Monitoring and Juvenile Mussel Deployment Upstream and Downstream of the Upgraded Sewer Treatment Effluent in St. Paul,

Virginia. 2012 Progress Report prepared for the town of St. Paul, Virginia and Mattern and Craig, Inc., Roanoke, VA. 18 pp.

Ostby, B. J. K. and P. L. Angermeier. 2012. Survey of the Freshwater Mollusk Assemblages in the Little River, Virginia. Contract Number: 2010-12421. Virginia Department of Game and Inland Fisheries. Richmond, VA.

Ostby, B. J. K., P. L. Angermeier, and R. J. Neves. 2010. Freshwater Mussel Survey in the Upper North Fork Holston River, Virginia. Report for U. S. Fish and Wildlife Service, Abingdon, Virginia.

Ostby, B. J. K. and R. J. Neves. 2009. Dissolved Oxygen Requirements for Freshwater Mussels Phase 1: Development of Test Systems and Experimental Protocols. U. S. Fish and Wildlife Service, Alabama Ecological Services Field Office, AL.

Mattson, K. M., **B. J. K. Ostby**, P. L. Angermeier. 2009. Cost Effective Mussel Restoration and Conservation in TVA Streams and Tailwaters: Contract Supplement. Tennessee Valley Authority, Chattanooga, TN.

Ostby, B. J. K. and P. L. Angermeier. 2009. Reconnaissance Surveys for Native Mussel Habitat, James Spiny mussel (*Pleurobema collina*), and Other Protected Mussels in the Upper James River, Botetourt County, Virginia. U. S. Fish and Wildlife Service, Gloucester, VA.

Ostby, B. J. K. 2009. Survey for Freshwater Mussels in Small Streams on the Quantico Marine Base. ECS Mid-Atlantic, LLC. Fredericksburg, VA

Jones J. J., S. Ahlstedt, **B. Ostby**, B. Beaty, M. Pinder, N. Eckert, R. Butler, D. Hubbs, C. Walker, J. Schmerfeld, and R. Neves. 2009. Status and Trends of Freshwater Mussel Populations in the Clinch and Powell Rivers, Tennessee and Virginia. A summary report for the Clinch-Powell Clean Rivers Initiative, Spring Meeting, May 27-28, 2009, Abingdon, VA.

Ostby, B. J. K. and R. J. Neves. 2008. Annual Report 2008: A Qualitative Survey for Mussels in Lower Indian Creek: Follow-up Monitoring of the Route 460 Bridge Replacement Project. Virginia Department of Transportation. Richmond, VA.

Ostby, B. J. K. and R. J. Neves. 2007. An Evaluation of Substratum and Flow Preferences for Rare Freshwater Mussels in the Upper Tennessee River Drainage. Tennessee Valley Authority, Chattanooga, TN.

Ostby, B. J. K., M. A. Petty, and R. J. Neves. 2006. Plot Establishment for Monitoring *Alasmidonta varicosa* in the National Capital Region Network, Nation Park Service. Conservation Management Institute, Blacksburg, VA.

Ostby, B. J. K. and R. J. Neves. 2006. Assessment of a Sedimentation Event on Mussel Habitat in Indian Creek, Tazewell County, Virginia. U. S. Fish and Wildlife Service, Gloucester, VA.

Petty, M., **B. Ostby**, R. J. Neves. 2005. Freshwater Mussel Survey of Copper Creek, Virginia, and Propagation of the Federally Endangered Purple Bean (*Villosa perpurpurea*). U. S. Fish and Wildlife Service, Abingdon, VA.

Kopeny, M., L. Green, P. Angermeier, T. Wynn, P. Diplas, J. Little, M. Aust, C. Burcher, **B. Ostby**, M. Henderson, R. Zeckoski, J. Jessick, K. Greer, V. Singleton, and S. Bowler. 2005. Summary report supporting development of building blocks to prescribe ecological flows for the Rivanna River Watershed. The Nature Conservancy, Charlottesville, VA.

PRESENTATIONS

Ostby, B., P. Angermeier, M. Pinder. 2013. Semi-quantitative surveys of the freshwater mollusk assemblages in the Little River, Virginia. Eighth Biennial Freshwater Mollusk Conservation Society Symposium, Guntersville, Alabama, March 10-14, 2013.

Watson, B., **B. Ostby**, C. Carey. 2013. Using mark-recapture sampling to assess populations of the endangered James Spiny mussel (*Pleurobema collina*). Eighth Biennial Freshwater Mollusk Conservation Society Symposium, Guntersville, Alabama, March 10-14, 2013.

Lane, T., J. Jones, **B. Ostby**. 2013. Long-term monitoring and demographic assessment of the freshwater mussel populations in the upper Clinch River, Tennessee. Eighth Biennial Freshwater Mollusk Conservation Society Symposium, Guntersville, Alabama, March 10-14, 2013.

Hanlon, S., **B. Ostby**, S. Fraley. 2013. Now you see them, now you don't: Applying occupancy modeling to monitor a rare and cryptic species. Eighth Biennial Freshwater Mollusk Conservation Society Symposium, Guntersville, Alabama, March 10-14, 2013.

Ostby, B. J. K., J. Krstolic, and G. Johnson. 2011. A Multidisciplinary investigation of natural and anthropogenic factors affecting Clinch River Mollusk Assemblages. Seventh Biennial Symposium of the Freshwater Mussel Conservation Society, Louisville, Kentucky, April 12, 2011.

Ostby, B. J. K. and J. W. Jones. 2010. Annual monitoring of mussel assemblages in the Tennessee reach of the Clinch River. Report presented at the Annual Tennessee Rare Mussel Meeting, Cookeville, TN, December 8, 2010.

Ostby, B. J. K. and R. J. Neves. 2009. Testing habitat suitability models with mussel translocations. Sixth Biennial Symposium of the Freshwater Mussel Conservation Society, Baltimore, MD, April 22, 2009

Ostby, B. J. K. and R. J. Neves. 2007. Use of microhabitat patches by freshwater mussels in two tributaries of the Tennessee River System and relevance for tailwater management. Fifth Biennial Symposium of the Freshwater Mussel Conservation Society, Little Rock, AR, March 13, 2007.

Ostby, B. J. K. 2007. Does electrofishing affect short-term survival and physiological conditions of mussels? Poster presented at the Fifth Biennial Symposium of the Freshwater Mussel Conservation Society, Little Rock, AR, March 13, 2007.

Ostby, B. J. K. 2006. Habitat considerations for mussel re-establishments and translocations. Invited presentation for Strategies for Recovery and Protection of Freshwater Mussels in the Cumberlandian Region, Cookeville, TN, February 7, 2006.

Ostby, B. J. K. and R. J. Neves 2005. Characterization of low flow microhabitat requirements for freshwater mussels. Report presented at Tennessee Endangered Mollusk Meeting, Knoxville, TN, December 13, 2005.

Ostby, B. J. K., 2005. Use of mesohabitat and microhabitat patches by freshwater mussels in the Clinch River, Virginia and Tennessee. Fourth Biennial Symposium of the Freshwater Mussel Conservation Society, St. Paul, MN, May 17, 2005.

Ostby, B. J. K. & R. J. Neves. 2004. Characterization of suitable fresh water mussel habitat in the Upper Clinch River, Virginia. Paper presented at the 82nd Annual Meeting of the Virginia Academy of Science. Richmond, VA.

Ostby, B. J. K., and J. Eckblad. 2000. Preliminary findings from a survey of unionid mussel populations of the streams of the Iowa driftless region. Poster paper presented at the 32nd annual meeting of Mississippi River Research Consortium, La Crosse, WI. April 13, 2000.

AWARDED RESEARCH CONTRACTS AND GRANTS

Ostby, B. J. K. and B. B. Beaty. 2015. Mussel Occupancy in Copper Creek. Contract 2016-15733. Virginia Department of Game and Inland Fisheries, Richmond, VA. \$24,000, plus \$8,000 cost-share by Daguna Consulting, LLC.

May, C. and **B. J. K. Ostby**. 2015. Quantifying Detection Probabilities and Source-Sink Dynamics for the Endangered James spinymussel (*Pleurobema collina*). Virginia Department of Game and Inland Fisheries, Richmond, VA. \$24,280, plus \$13,074 cost-share by James Madison University.

Ostby, B. J. K. and B. B. Beaty. 2013. Conservation Plan for State-listed Freshwater Mussels of the Upper Tennessee River system in Virginia. Virginia Department of Game and Inland Fisheries, Richmond, VA. \$25,000, plus \$12,500 cost-share by Daguna Consulting.

Ostby, B. J. K. and P. L. Angermeier. 2013. Evaluation of streams for population expansion of the federally listed endangered purple bean (*Villosa perpurpurea*). U. S. Fish and Wildlife Service, Gloucester, VA. \$31,000

Ostby, B. J. K., T. Dickenson and B. Watson. 2012. Using Mark-Recapture Techniques to Estimate Population Parameters, Quantify Detection Probability, and Determine Factors Affecting both for the Endangered James Spiny mussel. Virginia Department of Game and Inland Fisheries. Richmond, VA. \$30,000 annually; renewed in 2013, 2014, 2015, 2016, 2017.

Ostby, B. J. K. and P. L. Angermeier. 2012. Occupancy Surveys and Modeling for *Villosa perpurpurea* in Beech Creek. U. S. Fish and Wildlife Service, Gloucester, VA. \$25,000

Ostby, B. J. K. and P. L. Angermeier. 2012. Occupancy Surveys and Modeling for *Villosa perpurpurea* in Beech Creek. U. S. Fish and Wildlife Service, Gloucester, VA. \$18,000

Ostby, B. J. K. and P. L. Angermeier. 2011. Semi-quantitative Freshwater Mussel Surveys in the Wards Creek, Rocky Creek, Buck Mountain Creek and Swift Run Sub-watersheds of the Rivanna River. The Nature Conservancy, Charlottesville, VA. \$17,000

Krstolic, J. L. and **B. J. K. Ostby**. 2011. An Evaluation of Freshwater Mussel Contaminant Body Burden Following 18-month *in situ* Exposure Experiments in the Clinch River, Virginia and Tennessee. U. S. Fish and Wildlife Service, Gloucester, VA. \$33,000

Ostby, B. J. K. and P. L. Angermeier. 2010. Survey of the Freshwater Mollusk Assemblage in the Little River, Virginia. Virginia Department of Game and Inland Fisheries. Richmond, VA. \$30,000

Ostby, B. J. K., R. J. Neves, and P. L. Angermeier. 2010. Freshwater Mussel Survey in the North Fork Holston River. For U. S. Fish and Wildlife Service, Gloucester, VA. \$10,000

Ostby, B. J. K. and R. J. Neves. 2009. Dissolved Oxygen Requirements for Freshwater Mussels Phase 1: Development of Test Systems and Experimental Protocols. U. S. Fish and Wildlife Service, Alabama Ecological Services Field Office, AL. \$60,000

Ostby, B. J. K. and P. L. Angermeier. 2009. Biological Monitoring and Geomorphological Characterization for the USGS Eastern Region Initiative on the Clinch. USGS Virginia Water Science Center, Richmond, VA. \$69,000

Ostby, B. J. K. and P. L. Angermeier. 2008. Reconnaissance Surveys for Native Mussel Habitat, James Spiny mussel (*Pleurobema collina*), and Other Protected Mussels in the Upper James River, Botetourt County, Virginia. U. S. Fish and Wildlife Service, Gloucester, VA. \$10,000

Ostby, B. J. K., K. M. Mattson, P. L. Angermeier, R. J. Neves. Original grant in 2005. Renewed 2007. An Evaluation of Substratum and Flow Preferences for Rare Freshwater Mussels in the Upper Tennessee River Drainage (TVA Contract No: 00014204). For Tennessee Valley Authority, Chattanooga, TN. \$300,000

PROFESSIONAL AFFILIATIONS

Freshwater Mollusk Conservation Society, member 2002 to present

Zumbro Watershed Partnership, member 2013 to present