Carrie J. Blakeslee

US Geological Survey
Northern Appalachian Research Laboratory
176 Straight Run Road
Wellsboro, PA 16901
Day Phone: (570) 724-3322 ext. 237 Evening Phone: (607) 425-6365
Email: cblakeslee@usgs.gov

EMPLOYMENT

Research Ecologist, USGS Northern Appalachian Research Laboratory, Wellsboro, PA: May 2012-Present

- Facilitate in laboratory and field research related to freshwater invertebrates and fish

Coordinator of Point Reyes National Seashore Harbor Seal Photograph Analysis, Reston, VA: February 2012-November 2012

- Coordinate a high priority animal behavior project to determine the usefulness of photographs to assess harbor seal behavior
- Report findings to the Secretary of the Interior to aid in policy decision

Biological Science Technician, USGS Northern Appalachian Research Laboratory, Wellsboro, PA: November 2011-May 2012

- Facilitate in laboratory and field research related to freshwater invertebrates and fish

Student Service Contractor, USGS Northern Appalachian Research Laboratory, Wellsboro, PA: July 2009-July 2011

- Facilitate in laboratory and field research related to freshwater invertebrates and fish

Substitute Teacher for Northern Tioga School District, Elkland, PA: January 2009-Present

- Substitute taught a wide range of grades and subjects for R.B. Walter Elementary School, Williamson Jr./Sr. High School, and Cowanesque Valley High School

Adjunct Professor of Saint Joseph's University, Philadelphia, PA: August 2008-December 2008

- Instructor for two sections of *The Environment*, an Environmental Science course for undergraduate non-science majors
- Responsible for course content, lectures, and evaluation of student learning

Animal Care Coordinator of Saint Joseph's University's Biodiversity Laboratory, Philadelphia, PA: August 2006-December 2008

- Responsible for the care and maintenance of exotic and endangered species of fish, amphibians, and reptiles

Graduate Teaching Assistant at Saint Joseph's University, Philadelphia, PA: August 2006-May 2008

- Assisted in laboratory courses for Animal Behavior, Invertebrate Zoology, Ecology, and Cellular Biology

EDUCATION

Graduate Education
Master of Science in Biology, Saint Joseph's University, Philadelphia, PA (2008). Thesis title: *Factors Influencing Shoal Mate Choice in Fish*. QPA 4.0

Undergraduate *Education*
Bachelor of Science in Biology with a marine option and Bachelor of Science in Education, Millersville University, Millersville, PA (2006). Thesis title: *Conditional discrimination learning, memory and the importance of experimental design with Octopus bimaculoides*. QPA 3.93. Departmental Honors. PA Teaching Certified for Secondary Education in Biology, Environmental Education, Earth and Space Science, and Middle School Science.

PEER-REVIEWED PUBLICATIONS

Blakeslee, C.J., Galbraith, H.S., White, B.S., and Robertson, L. 2013. The effects of salinity exposure on multiple life stages of a common freshwater mussel, Elliptio complanata. *In* Preparation.

Galbraith, H.S., **Blakeslee, C.J.** and Lellis, W.A. 2013. Behavioral and physiological response of freshwater mussels to dewatering and potential mechanism of decline for a federally endangered species. *In* Preparation.

Lellis, W.A**., Blakeslee, C.J.**, and Johnson, C.J. 2013. The effects of seasonal temperature and photoperiod manipulation on reproduction, burrowing behaviors, and grouping behaviors of the Eastern elliptio (*Elliptio complanata*). *In* Preparation.

Lellis, W.A., **Blakeslee, C.J.,** Allen, L.K., Molnia, B.F., Price, S.D., Bristol, S., and Stewart, B. 2012. Assessment of photographs from wildlife monitoring cameras in Drakes Estero, Point Reyes National Seashore, California: U.S. Geological Survey Open-File Report 2012-1249, 24 p., available only at http://pubs.usgs.gov/of/2012/1249/.

Galbraith, H.S., **Blakeslee, C.J.**, and Lellis, W.A. 2011. Recent thermal history influences thermal tolerance in freshwater mussel species (Bivalvia: Unionoida). Freshwater Science 31(1): 83-92.

Reynolds, M., **Blakeslee, C.**, Paciorek, T., and McRobert, S.P. 2011. The effects of population density on survival and metamorphosis in American toad (*Bufo americanus*) tadpoles. *Russian Journal of Herpetology* 18(3): 241-246.

Blakeslee, C.J. and S.P. McRobert. 2009. Shoaling behavior in fish. In: *Handbook of Social Interactions in the 21st Century*. Editors: Heatherton, A.T. and V.A. Walcott. Nova Publishers, Inc. 397 pp.

Blakeslee, C.J., McRobert, S.P., Brown, A.C., and Clotfelter, E.D. 2009. The effect of body coloration and group size on social partner preferences in female fighting fish (*Betta splendens*). *Behavioural Processes* 80:157-161.

Blakeslee, C.J., Ruhl, N., Currie, W., and S.P. McRobert. 2009. Shoaling preferences of two common killifish (*Fundulus heteroclitus* and *F. diaphanous*) in the laboratory and the field: a new analysis of heterospecific shoaling. *Behavioural Processes* 81(1): 119-125.

Hvorecny, L.M., Grudowski, J.L., **Blakeslee, C.J**., Simmons, T.L., Roy, P.R., Brooks, J.A., Hanner, R.M., Beigel, M.E., Karson, M.A., Nichols, R.H., Holm, J.B., & J.G. Boal. 2007. Octopuses (*Octopus bimaculoides*) and cuttlefishes (*Sepia pharaonis*, *S. officinalis*) can conditionally discriminate. *Animal Cognition* 10(4): 449-459.

Cummins, S.F., Nichols, A.E., **Warso, C.J.**, Nagle, G.T. 2005. *Aplysia* seductin is a water-borne protein pheromone that acts in concert with attractin to stimulate mate attraction. *Peptides* 26 (3): 351-359.

PROFESSIONAL EXPERIENCE

Research Ecologist (May 2012-Present), Biological Science Technician (Nov. 2011-May 2012), and Student Service Contractor (July 2009-July 2011), Northern Appalachian Research Laboratory
Supervisors: Dr. William Lellis & Dr. Heather Galbraith

- Responsible for the routine feeding and housing tank care of various species of common and endangered freshwater mussels (including *Elliptio complanata*, *Strophitus undulatus*, *Alasmidonta varicosa*, and *Alasmidonta heterodon*) and fish (including *Etheostoma olmstedi*, *Anguilla rostrata*, and *Salvelinus fontinalis*)
- Facilitate in spawning of brook trout, *S. fontinalis*
- Responsible for year-round field surveys for fish and freshwater mussels
    - Involved in related monitoring and operation of field gear including flow, dissolved oxygen, and temperature meters, and GPS units
    - SCUBA and First Aid/CPR certified

    - Experience seining and electrofishing, freshwater mussel genetic tissue collection and preservation, and non-lethal sex-determination of freshwater mussels
- Involved in all levels of experimental design and implementation of the following key research projects:
    - Developing a framework to assess multiple stressors relating to hydraulic fracturing (salinity, turbidity, etc.) in *E. complanata*, *A. rostrata*, and *S. fontinalis*—(July 2012-Present)
    - Development of habitat suitability curves for several aquatic species inhabiting the Delaware River for WaterSMART initiative through intensive literature review and laboratory experiments (July 2012-Present)
    - Habitat suitability and environmental flow requirements (including depth, velocity, temperature, and oxygen) for the federally endangered dwarf wedgemussel, surrogate freshwater mussel species, and host fish species: Laboratory metrics for use in hydrodynamic modeling and decision support system development (July 2009-Present)
    - Multi-scale assessment of community metrics in the Delaware River: a combined modelling and field approach to determine freshwater mussel sampling effort (June 2011-Present)
    - Critical thermal maximum of several species of freshwater mussels (March 2010-November 2011)
    - Heat shock protein analysis in freshwater mussels –(May 2010-Present)
    - Effects of temperature, photoperiod, serotonin, and sex ratio on *E. complanata* reproduction (July 2009-Present)
    - Effects of temperature on growth and survivorship in American glass eels (February 2011-Present)
    - Importance of the American eel, *A. rostrata*, in *E. complanata* reproduction – June 2010-Present
    - Effects of temperature and photoperiod on the behaviour and spawning activity of *E. complanata* (March 2009-Present)
    - Use of ArcGIS to model movement of *E. complanata* (March 2009-Present)
- Data collection, entry, and analysis on described research studies using Microsoft Office, ArcGIS 9.3, R, SAS, and SPSS
- Responsible for writing reports, manuscripts, permits and presentations related to laboratory and field research
- Educational outreach:
    - Facilitate laboratory tours for public and school groups
    - Provide educational programs and resources in relation to ongoing USGS research and priority wildlife
    - Participate in environmental workshops for local school districts

Coordinator of Point Reyes National Seashore Harbor Seal Photograph Analysis (February 2012-November 2012), USGS Headquarters
Supervisor: Dr. William Lellis

- Detail on a high priority animal behaviour project in Reston, VA
- Coordinated various USGS employees to conduct a review on over 300,000 photographs from the National Park Service
- Used Site Sucker, iPhoto, and Easy Batch Photo software to create videos from photographs
- Created protocol and conducted analysis on videos to assess harbor seal stress behaviors
- Compiled and presented findings to the USGS director and Secretary of the Interior to aid in policy decision

Research Assistant, Biodiversity Laboratory (August 2006-December 2008), Saint Joseph's University
Supervisor: Dr. Scott McRobert

- Developed and maintained breeding programs for at-risk and endangered turtles (through the Turtle Survival Alliance), various poison dart frog species, and various fish species
- Involved in all levels of experimental design and implementation of the following key research projects:
    - The effects of density on tadpole development (August 2007-December 2011)
    - The effects of plants on shoaling behavior in *Danio rerio* and female *Betta splendens* (November 2007-May 2008 -master's thesis)

    - Heterospecific shoaling in mummichogs (*Fundulus heteroclitus*) and banded killifish (*Fundulus diaphanus*) - Field & Laboratory Experiments – February 2007-May 2008 (master's thesis)
    - The effect of body coloration and shoal size in female *Betta splendens* shoalmate choice (September 2006-May 2008 - master's thesis)
- Responsible for animal care, feeding, experimental set-up, laboratory work, data analysis (SPSS & SigmaPlot), manuscript writing, and grant writing
- Responsible for supervising graduate and undergraduate students working with animals in the biodiversity laboratory
- Gave tours of the laboratory to school groups and explained the importance of maintaining biodiversity

Graduate Teaching Assistant (August 2006-May 2008), Saint Joseph's University

- *Animal Behavior*, Spring Semesters 2007 & 2008 (supervisor: Dr. Scott McRobert)--Prepared laboratory supplies for the Biology Department's Animal Behavior course; Assisted students with independent research projects; Supervised animal care by students
- *Invertebrate Zoology*, Spring Semester 2008 (supervisor: Dr. Jonathan Fingerut)--Prepared laboratory supplies for invertebrate dissections and observations; Maintained saltwater aquarium; Fed and cared for marine invertebrates; Helped students (set-up, supplies, and ideas) with independent research projects
- *Ecology*, Fall Semesters 2006 & 2007 (supervisor: Dr. Scott McRobert)--Prepared laboratory supplies for the Biology Department's Ecology course; Set-up experimental equipment; Assisted students with independent research projects
- *Cell Biology*, Fall Semester 2007 (supervisor: Dr. James Watrous)--Prepared laboratory supplies for the Biology Department's Cell Biology laboratory; Assisted students in weekly experiments using basic cellular techniques; Assisted students with independent research projects

Research Assistant, Cephalopod Laboratory (September 2003-May 2006), Millersville University

Supervisor: Dr. Jean G. Boal

- Data analysis (Minitab & SigmaPlot) and preparation of undergraduate thesis. (August 2005-January 2006).
- Conditional discrimination and learning in *Octopus bimaculoides.* (Fall 2003-Summer 2005).
- Memory in *Octopus bimaculoides* - Spring 2003
- Continual assessment of experimental protocol and design
- Assisted in maintaining a 1,500-gallon salt water system, including installing necessary system components (UV sterilizers, protein skimmers, water chiller, water pump, filter bed) and obtaining daily system information (temperature, salinity, water chemistry).
- Responsible for animal care and feeding (cephalopods, various crabs and fish).

Summer Undergraduate Research Program Intern (June-August 2004), University of Texas Medical Branch, Galveston, TX

Supervisor: Dr. Gregg T. Nagle

- Performed behavioral bioassays with *Aplysia brasiliana* and participated in experimental planning.
- Dissected specimens to obtain reproductive organs of interest to research.
- Collected wild specimens from South Padre, Texas.
- Responsible for animal care and feeding (*Aplysia brasiliana* and *Aplysia californica*).
- Maintained specimen tanks, including water filters, protein skimmers, and water chemistry.

PRESENTATIONS, GRANTS & AWARDS

Presentations

2013 Chesapeake Bay Freshwater Mussel Workgroup Meeting, Annapolis, MD, January 16, 2013: Effects of salinity exposure on multiple life stages of *Elliptio complanata*, *Oral presentation.*

2012 Pennsylvania American Fishery Society Meeting, Bellefonte, PA, October 26, 2012: Assessing the link between American eel (*Anguilla rostrata*) and eastern elliptio (*Elliptio complanata*) populations in the Susquehanna River basin, *Oral presentation.*

2011 North American Benthological Society Annual Meeting, Providence, RI, May 25, 2011: Identifying species habitat constraints in response to a changing environment: Physiological tolerance and behavioral preferences of freshwater mussels, *Co-authored oral presentation*.

2010 USGS Chesapeake Bay Science Workshop, Cumberland, MD, November 17-18, 2010: Assessing the importance of American eel (*Anguilla rostrata*) to freshwater mussel populations in the Susquehanna River, *Poster presentation*.

19th Annual Saint Joseph's University Sigma Xi Student Research Symposium, Saint Joseph's University, April 18, 2008: Shoaling preferences of two common killifish (*Fundulus heteroclitus* and *F. diaphanus*) in the laboratory and in the field: A new explanation for heterospecific shoaling?, *Poster presentation*.

44th Annual Meeting of the Animal Behavior Society, Burlington, VT, July 21-26, The influence of body coloration on shoaling decisions in female fighting fish (*Betta splendens*), *Poster presentation*.

18th Annual Saint Joseph's University Sigma Xi Student Research Symposium, Saint Joseph's University, April 25, 2007, The influence of body coloration on shoaling decisions in female fighting fish (*Betta splendens*), *Poster presentation.*

4th Annual Lehigh Valley Ecology and Evolution Symposium, Lehigh Valley College, April 14, 2007: The influence of body coloration on shoaling decisions in female fighting fish (*Betta splendens*), *Poster presentation*.

Millersville University School of Science and Mathematics Undergraduate Research Poster Display, April 16-19, 2005: Conditional discrimination learning and memory in *Octopus bimaculoides*, *Poster presentation*.

Commonwealth of Pennsylvania University Biologists (CPUB), May 16, 2006 Conditional discrimination learning and in *Octopus bimaculoides Poster presentation*; First-place award for best poster in Animal Behavior.

Departmental Honors Thesis Defense, November 18, 2005: Conditional discrimination learning, memory and the importance of experimental design with *Octopus bimaculoides*, *Oral thesis defense*.

University of Texas Medical Branch Summer Undergraduate Research Program, August 12, 2004: The seductive power of seductin: The behavioral characterization of seductin, a novel water-borne protein pheromone that acts in concert with attractin, *Poster presentation.*

Grants

2012 USGS Rex-Flex Funding, July 2012: Developing a framework to assess multiple stressors across the landscape: A case study using hydraulic fracturing and freshwater ecosystems. ($19,548 awarded for 2012 and $35,611 awarded for 2013)

Saint Joseph's University Biology Graduate Research Grant, Saint Joseph's University, May 6, 2008: Grant awarded for graduate research.

Sigma Xi Student Research Grant, Saint Joseph's University, January 25, 2008: Grant awarded for graduate research.

Saint Joseph's University Biology Graduate Research Grant, Saint Joseph's University, March 8, 2007: Grant awarded for graduate research.

Awards and Honors

Saint Joseph's University Graduate Award in Biology: Award for Outstanding Biology Graduate Student, May 16, 2009.

Associate Member of the Saint Joseph's University Chapter of Sigma Xi, Inducted during 18th Annual Saint Joseph's University Sigma Xi Student Research Symposium, April 25, 2007.

First-place award for best poster in Animal Behavior, Commonwealth of Pennsylvania University Biologists (CPUB), May 16, 2006.

Award for Student of Academic Distinction, 48th Annual Honors and Awards Convocation, Millersville University, May 7, 2006.

Award for Student of Academic Distinction, 47th Annual Honors and Awards Convocation, Millersville University, April 16, 2005.

Arthur and Claribel Gerhart Scholarship in Biology, 47th Annual Honors and Awards Convocation, Millersville University, April 16, 2005.

Association of Pennsylvania State College and University Faculties—Millersville University (APSCUF-MU) Scholarship, 47th Annual Honors and Awards Convocation, Millersville University, April 16, 2005.

Board of Governors for Math & Science in PA Scholarships (3 total): Awarded for sophomore, junior, and senior undergraduate academic years, 2003 – 2006.

COURSEWORK

Biology Courses

Concepts of Zoology
Principles of Ecology
Marine Biology
Concepts of Botany
Marine Invertebrate
Comparative Physiology of Marine Organisms
Conservation Biology
Cell Biology
Marine Ichthyology
Genetics
Invertebrate Zoology*
Evolution*
Animal Behavior*

Related Courses

Calculus I
Biometry
Physics I
Physics II
Oceanography
Biochemistry
Organic Chemistry
Research Techniques*

*** Graduate Level Courses**