1st Submission
4/13/2010

Anne Arundel Community College
Chesapeake Watershed Cooperative Ecosystems Studies Unit

CW CESU Point of Contact for AACC

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Anne Arundel Community College & AACC's Environmental Center

Anne Arundel Community College (AACC) is a public, comprehensive, community-engaged institution of higher education. Founded in 1961 and fully accredited by the Middle States Commission on Higher Education since 1968, it is one of the oldest and largest of the sixteen community colleges serving the state of Maryland. Anne Arundel Community College offers transfer and career associate degree programs; certificate programs; credit courses; and continuing education, workforce development, and lifelong learning opportunities. Enrollment continues to grow at AACC with over 54,000 credit and non-credit students served in 2009.

Founded in 1980, AACC's Environmental Center supports the college's mission of education and lifelong learning by providing professional development opportunities for students, faculty, staff, and citizen volunteers. The center also serves the community through advice and lectures on environmental topics. The Environmental Center also conducts applied research projects designed to address environmental needs of local importance. These applied research project areas include:

- Wetlands restoration and enhancement;
- Water quality issues of monitoring and bioassays;
- Environmental problem solving such as shoreline stabilization, invasive weed control, effluent treatment and propagation of SAV;
- Habitat creation;
- Aquaculture;
- Mitigation;
- Regulatory compliance.

The projects of AACC's Environmental Center have been funded by a variety of federal agencies, state government, and regional businesses and industries. The implementation of projects has been made possible by including undergraduates in practical research and development. As an experienced and effective grant recipient, fiscal agent and administrative entity, AACC possesses the ability to administer, monitor and report performance outcomes to ensure achievement of the objectives of its sponsored projects.

Since Maryland has been described as America in miniature because of its great diversity of natural resources, the type of environmental challenges confronting the people, government agencies, industries and civic organizations in Maryland are very similar to those confronting other areas of the country. Thus, through collaborative work with many sponsors, AACC's Environmental Center has worked to develop solutions to a variety of contemporary environmental problems throughout the north and southeastern United States.

Anne Arundel Community College Vision & Mission Statement

Anne Arundel Community College is a premier learning community whose students and graduates are among the best-prepared citizens and workers of the world. With learning as its central mission, Anne Arundel Community College responds to the needs of a diverse community by offering high quality, affordable, and accessible learning opportunities and is accountable to its stakeholders.

Consistent with the institutional mission and vision, AACC expects students to gain and demonstrate appropriate proficiency in core competencies which encompass general education and essential life skills. The college is committed to offering experiences that allow students to acquire, develop and demonstrate growth in these competencies. The attainment of these competencies provides the foundation for lifelong learning. College-Wide Core Competencies are: Communication; Technology Fluency; Information Literacy; Personal Wellness; Self Management; Scientific Reasoning; Quantitative Reasoning; Social and Civic Responsibility; Global Perspective; Innovation; and Critical Thinking.

What expertise can AACC contribute to the CW CESU consortium? How can AACC contribute to the CW CESU Mission and Vision?

Anne Arundel Community College is well positioned with the programs of its Environmental Center to contribute to the Chesapeake Watershed Cooperative Ecosystem Studies Unit's mission. The college and its Environmental Center embrace the philosophy and mission of the CW CESU for fostering stewardship of the watershed through collaborative research, technical assistance and education to advance integrated ecosystem management. Our research efforts document this commitment. We have partnered with numerous other universities and government research agencies to conduct over 135 funded projects through grants, donations, cooperative agreements and special contracts. [Please see *Attachment 1: List of Cooperative Research Partners & Funders.*]

Environmental Center faculty has published widely and has worked on interdisciplinary environmental projects in 12 other states. [Please see *Attachment 2: AACC Environmental Center: Selected Publications Since 1985.]* We have worked with numerous non-profit groups and civic organizations and have utilized over 5,000 community volunteers and students in various environmental restoration projects.

Four projects are illustrative of our approach and expertise. First, for more than twenty years, the college has partnered with the Providence Center, a work-to-learn facility for developmentally disabled adults to produce wetland plants in their greenhouse facilities. AACC students collect the plant propagation materials and process these materials to make them ready for planting. The clients of the Providence Center learn greenhouse skills and earn a stipend by planting and growing the wetland plants we need to conduct large-scale environmental restorations. These plants have been used to create extensive tidal wetlands for shoreline protection, tidal wetlands to stabilize newly created dredge spoil islands, wetlands to protect the integrity of Native American burial grounds, non-tidal wetlands for industrial effluent treatment, rain gardens on educational properties and wetlands for storm-water management. Partners in these projects include government agencies, businesses, citizen volunteers, school groups, non-profit groups, and college students from five states. These projects have all met their environmental objectives, provided excellent training to a wide variety of professionals and many were made possible because of the low costs that can be achieved through careful collaboration.

In a second series of projects, the college has devised for the first time a methodology to harvest, process, store, and test seeds of the four dominant species of mesohaline underwater plants in order to develop seed mixes for the restoration of these underwater habitats. In the course of this work, the information has been shared internationally and is being used by scientists in 5 states to develop similar protocols for ecotypes native to their environments. Excess seeds have been used to support educational programs with other universities, secondary schools and with non-profit and government agencies.

As a third example, the college has worked with a local high school to assist that school in becoming the Signature School for Environmental Literacy. We proposed an intellectual framework that would allow each department at the school to infuse Environmental Literacy into its curricula, and the entire school to conduct a complete environmental audit that will allow them to identify and implement better environmental stewardship practices for all aspects of school life. This proposal was accepted by the school and has been approved by both the county and state boards of education. There has been a consensus throughout the process that this framework will be applicable to other schools including elementary and middle schools and may contribute to the adoption of an Environmental Literacy component at the state level.

As a final example, AACC is responding to current and emerging needs for environmental technicians. Environmental technology is "a career field that applies the principles of mathematics, science, engineering, communications, and economics to ensure human health and safety, and to manage and protect natural resources. This career field involves the management, conservation, and protection of the natural environment and resources through regulatory compliance while promoting sustainability."[1] Typically technicians complete a two-year associate degree in an applied technology program. The college is leading the Chesapeake Area Consortium for Higher Education (CACHE) Institute for Environmental Careers, a consortium of community colleges (Chesapeake College, College of Southern Maryland and Wor-Wic Community College) that surround the Chesapeake Bay, in an effort to meet this region's need

[1] Defining Environmental Technology. Advanced Technology Environmental and Energy Center. National Science Foundation. 2008.

for environmental jobs. CACHE has just received a $1 million grant from the United States Department of Labor to establish programming and train workers in the following pathways: Restoration of Natural Resources; Environmental Monitoring; Environmental Planning; Environmental Management; Environmental Technology; and Environmental Energy Technology.

Who are the individuals in your program that you anticipate will be active in CW CESU projects?

The following AACC faculty members [Please see *Attachment 3: AACC Environmental Center: Curriculum Vitas*] are anticipated to be active in CW CESU projects:

- Stephen Ailstock, Ph.D.
- Paul J. Bushmann, Ph.D.
- Sally G. Hornor, Ph.D.
- Susan R. Lamont, Ph.D.
- Jessamy Judith Rango, Ph.D.
- Benjamin Weibell, Ph.D.

Attachment 1:
List of Cooperative Research Partners & Funders

Anne Arundel Community College Environmental Center

List of Cooperative Research Partners

ACOE, Engineer Research and Development Center Vicksburg MS

Maryland Department of Natural Resources

ACOE, Jacksonville NC District

University of Maryland College Park

University of Maryland Center for environmental Science Horn Point Laboratory,

University of Maryland Center for environmental Science Appalachian Laboratory

Virginia Institute of Marine Science

National Oceanic and Atmospheric Administration

US Naval Academy

Florida Marine Fisheries

Cornell University

Freshwater Institute, Shepherdstown, WV

USDA-National Plant Materials Center

University of Maryland, Wye Research and Education Center

West Virginia University

East Carolina University

North Carolina Biotechnology Center

Florida Atlantic University

Mississippi –Alabama Sea Grant Consortium

Anne Arundel Community College Environmental Center
Project Funders

AA Co. Office of Planning and Zoning
ACOE, Engineer Research and Development Center Vicksburg MS
Alliance for the Chesapeake Bay
Annapolis Environmental Commission
Anne Arundel County
Battelle Memorial Institute
Brookes Baker, Inc.
Chesapeake Bay Foundation
Chesapeake Bay Research and Monitoring Division, MD Department of Natural Resources
Chesapeake Bay Trust
Chesapeake Division, Naval Facilities Engineering Command, Dept of Navy
Coastal Resources Div. MD DNR
Columbia Gas System Service Corp.
Columbia LNG Corp.
Cove Point Natural Heritage Trust & Williams Company then Cove Point LNG Limited Partnership
Cove Point Natural Heritage Trust
Dept. of Public Works, AA County
Dewberry and Davis. Annapolis
District of Columbia, Dept of Consumer and Regulatory Affairs
MD Department of Natural Resources - Forest, Park and Wildlife Service
Dr. Paul Evans
Engineering Field Activity-Chesapeake, NAVFAC Washington
EPA - Johns Hopkins Applied Physics Lab
Freshwater Institute, Shepherdstown, WV
Gibson Island Corporation
Horn Point Laboratory, University of Maryland
International Paper
Lenwood Hall, Wye Research & Education Center
MAR, Inc. and NUSC, New London, Conn
Maryland Correctional Enterprises
Maryland Port Administration
MD DNR
MD DNR Tidewater Administration
MD State Highway Admin and Biohabitats
National Science Foundation
Nevamar Corporation, Odenton, MD
NOAA
Regional Planning Council, Baltimore
Reliable Contracting Co., Inc. Millersville
Rummel, Kleper & Kahn
Severn River Association
Magothy River Communities
South River Federation
Severn River communities
Tudor Farms Investment Corp., Dorchester Co., MD
University of Maryland Center for Environmental and Estuarine Studies - Chesapeake Biological Laboratory
US Dept. of Labor
US Fish and Wildlife Service
US Fish and Wildlife Service-Patuxent Wildlife Research Center
US Navy Naval Facilities Engineering Command Washington
USDA-NRCS-National Plant Materials Center
Washington Suburban Sanitary Commission
Waterfowl Festival Inc., Easton, MD
William H. Meyers, Jr. Plimhimmon Farm

Individual Philanthropic Donations to Environmental Center:

The August (Gus) Berlitz and Marjorie Berlitz Charitable Trust - $500,000 – laboratory

William K. Blanchet – 800 shares of Technology stock

Attachment 2:

AACC Environmental Center

Selected Publications Since 1985

Selected Environmental Center Publications since 1985

Title	Date	Author	Publication
The in vitro Propagation of Seaside Goldenrod *Solidago sempervirens*	1985	Ailstock, M. S.	Proceedings 12th Annual Conference on the Creation and Restoration of Wetlands. 1985, pp. 28-36.
Clonal Propagation of *Potamogeton pectinatus* in Axenic Culture	1986	Ailstock, M. S.	Proceedings of the 13th Annual Conference on Wetlands Restoration and Creation FL May 15-16, 1986
SAV Life Cycles	1986	Ailstock, M. S.	for MD DNR
A Review of Beach Prisms: Their Application for Wetlands Creation under Moderate to High Energy Conditions	1987	Ailstock, M. S.	Proceedings of the 14th Annual Conference on Wetlands Restoration and Creation FL May 14-15, 1987
Bioassay for Phytotoxicity of Toxicants to Sago Pondweed	1988	Fleming, W.J., Ailstock, M.S., and Momot, J.J.	Understanding the Estuary: Advances in Chesapeake Bay Research> Proceedings of a Conference. 29-31 March 1988. Baltimore, MD. Chesapeake Research Consortium Publication 129. CBP/TRS 24/88
Shoreline stabilization on Navy property	1989	Berc, Jeri and S. Ailstock	Journal of Soil and Water Conservation 44(6):560-561
Environmental Impacts, Treatment Methodologies and Management Criteria for Establishment of a Statewide Policy for the Control of the Marsh Plant *Phragmites* Year One	1989	Ailstock, T.W. Suman, and D. H. Williams	Maryland Department of Natural Resources, Tidewater Administration
Environmental Impacts, Treatment Methodologies and Management Criteria for Establishment of a Statewide Policy for the Control of the Marsh Plant *Phragmites* Year Two	1990	Ailstock, T.W. Suman, and D. H. Williams	Maryland Department of Natural Resources, Tidewater Administration
The Characterization of Axenic Culture Systems Suitable for Plant Propagation and Experimental Studies of the Submersed Aquatic Angiosperm *Potamogeton pectinatus* (sago pondweed)	1991	Ailstock, M. S., W. James Fleming, and Todd J. Cooke	Estuaries Vol. 14 (1): 57-64
Response of Sago Pondweed, a Submerged Aquatic Macrophyte, to Herbicides in Three Laboratory Culture Systems	1991	Fleming, W.J., Ailstock, M.S., Momot, J.J. and C. M. Norman	Plants for Toxicity Assessment: Second Volume, ASTM STP 1115

Title	Date	Author	Publication
Management Strategies for Urban Stormwater Improvement - District of Columbia Oxon Run, 13th -22nd Street	1991	Ailstock and Hornor	Water Quality Research Grant No. 89-90 SRB Oxon 02/CBP #X-003734-02-Oxon Run Stormwater Management Demonstration project
Environmental impacts, treatment methodologies and management criteria for establishment of a statewide policy for the control of the marsh plant *Phragmites* Final Report	1991	Ailstock, T.W. Suman, and D. H. Williams	Maryland Department of Natural Resources, Tidewater Administration
Abstract - Alternatives to Aerial Herbicide Application for Control of *Phragmites australis* in Nontidal Wetlands	1992	Ailstock	Proceedings of the Forth-sixth Annual Meeting of the Northeastern Weed Science Society Supplement. 1992. Boston, Massachusetts.
Regulation, Methods and Management Strategies for the Control of *Phragmites australis* in Maryland Nontidal Wetlands	1992	Ailstock	Proceedings of the Forth-sixth Annual Meeting of the Northeastern Weed Science Society Supplement. 1992. Boston, Massachusetts.
Relative Toxicities of Herbicides to Sago Pondweed	1994	Fleming, W.J., Ailstock, M.S., and Momot, J.J.	Research Information Bulletin, National Biological Survey Number 62.
Social control of male sexual maturation in the swordtail characin, *Corynopoma riisei*	1994	Bushmann, Paul J. and J.R. Burns	Journal of Fish Biology 44:263-272
Greenbury Point: The Interplay of History and Ecology	1995	Feldman, Gregory and M. Stephen Ailstock	Maryland Historical Magazine, Vol.90, No.2, Summer 1995
Net photosynthesis and respiration of sago pondweed (*Potamogeton pectinatus*) exposed to herbicides	1995	Fleming, W.J., Ailstock, M.S., and Momot, J.J.	Environmental Toxicology and Risk Assessment: Third Volume ASTM STP1218
Resuspension of Sediments by Watercraft Operated in shallow Water Habitats of Anne Arundel County, Maryland	1995	Ailstock, Hornor, Norman, Davids	Chesapeake Bay Trust

Title	Date	Author	Publication
Influence of salinity on the toxicity of atrazine to Chesapeake Bay fish, invertebrates, and aquatic macrophytes.	1995	Hall, L.W., R.D. Anderson, A.C. Ziegenfuss, D.T. Tierney, and S. Ailstock.	Abstracts of 16th Annual meeting of the Society of Environmental Toxicology and Chemistry, Vancouver, BC, Canada. pp. 133-134.
Chronic Toxicity of Atrazine to Sago Pondweed at a Range of Salinities: Implications for Criteria Development and Ecological Risk	1997	Hall, L.W. Jr., R. D. Anderson, M. S. Ailstock	Arch. Environ. Contam. Toxicol. 33, 261-267 (1997)
Correlation of measures of ambient toxicity and fish community diversity in Chesapeake Bay, USA, tributaries - urbanizing watersheds	1997	Hartwell, S.I., Dawson, C., Durell, EQ., Alden, R.W., Adolphson, P.C., Wright, D.A., Coelho, G.M., Magee, J.A., Ailstock, S., and Norman, M.	Environmental Toxicity and Chemistry, Vol. 16 (12):2556-2567
Standard Operating Procedures For Conducting Sub-chronic Aquatic Toxicity Tests With Sago Pondweed *Potamogeton pectinatus*: A Submersed Aquatic Angiosperm	1998	Hall, L. W. Jr., M. S. Ailstock and R. D. Anderson	EPA 903-R-98-022 CBP/TRS 215/98 Oct. 1998
The Influence of Salinity on the Chronic Toxicity of Atrazine to Sago Pondweed: Filling a Data Need for Development of an Estuarine Chronic Condition	1998	L. W. Hall, Jr., Ailstock and R.D. Anderson.	EPA Chesapeake Bay Program CBP/TRS 98/213
Concurrent Signals and Behavioral Plasticity in Blue Crab (*Callinectes sapidus* Rathbun) Courtship	1999	Bushmann, Paul J.	Biol. Bull. 197:63-71
Adaptive Strategies of Common Reed *Phragmites australis*	2000	Ailstock, M. S.	Proceedings: The Role of *Phragmites* in the Mid-Atlantic Region April 17, 2000. Chesapeake Bay National Estuarine Research Reserve in Maryland, MDNR.

Title	Date	Author	Publication
Adaptive Strategies of Common Reed *Phragmites australis* - Abstract	2000	Ailstock, M. S.	Proceedings: The Role of *Phragmites* in the Mid-Atlantic Region April 17, 2000. Chesapeake Bay National Estuarine Research Reserve in Maryland, MDNR.
Control of Invasive Species on DoD Installations	2000	Ailstock, M. S.	'Taking Invasive Action', Wildlife Habitat Council 12th Annual Symposium Wildlife: Focusing on the Basics, Baltimore, MD
Chapter VI Beyond Light: Physical, Geological and Chemical Habitat Requirements	2000	Evamaria Koch, J. Court Stevenson, and Ailstock	In: Chesapeake Bay Submerged Aquatic Vegetation Water Quality and Habitat-Based Requirements and Restoration Synthesis Targets: A Second Technical Synthesis
Nuisance Invasive Species: Control Strategies at DoD Facilities	2001	Ailstock, M. S.	handout
Common Reed *Phragmites australis*: Control and Effects Upon Biodiversity in Freshwater Nontidal Wetlands	2001	Ailstock, M. Stephen; C. M. Norman and Paul J. Bushmann	Restoration Ecology Vol. 9 (1):49-59
Abundance and Population Structure of Fishes in Cove Point Marsh 1999-2001	2001	Bushmann, Paul J.	Report - Cove Point Natural Heritage Trust
Resuspension of Sediments by Watercraft Operated in shallow Water Habitats of Anne Arundel County, Maryland	2002	Ailstock, Hornor, Norman, Davids	2002 Journal of Coastal Research SI 37:18-32.
Summary of Common Questions Concerning *Phragmites* Control	2002	Ailstock, M. S.	
Helicopter Application of Herbicides to Restore Wetland Biodiversity in Highly Sensitive Areas- Abstract	2004	Ailstock, M. S. and Patsy Kerr	First National Conference on Ecosystem Restoration – Sustainable Ecosystem Restoration Through Integration of Science, Planning and Policy. Orlando, FL Dec. 6-10, 2004.

Title	Date	Author	Publication
Restoration Potential of *Ruppia maritima* and *Potamogeton perfoliatus* by Seed in the Mid-Chesapeake Bay	2004	Ailstock, Steve and Deborah Shafer	ERDC/TN EL-04-02
Helicopter Application of Herbicides to Restore Wetland Biodiversity on DOD Installations in the Chesapeake Bay Watershed-Abstract	2006	Ailstock, M. S. and Patsy Kerr	
Year 1: A comparison of reproductive success in seed yields from natural and cultured populations for the success in large-scale restoration and Year 2: A comparison of reproductive success in seed yields from natural and cultured populations of P. perfoliatus and R. maritima for applications in large-scale restoration in Eastern Bay	2006	Ailstock, M. S. and Judy Wink	Final Report to National Oceanic and Atmospheric Administration Grant NA03NMF4570472
Applications and Limitations of Micropropagation for the Production of Underwater Grasses	2006	Ailstock, Steve and Deborah Shafer	ERDC/TN SAV-06-1
Protocol for Large-Scale Collection, Processing, and Storage of Seeds of Two Mesohaline Submerged Aquatic Plant Species	2006	Ailstock, Steve and Deborah Shafer	ERDC/TN SAV-06-3
Antibacterial compounds in estuarine submersed aquatic plants	2006	Bushmann, P. J. and Ailstock, M. S.	Journal of Experimental Marine Biology and Ecology 331:41-50
A Multi-year Survey of Horseshoe Crab (*Limulus polyphemus*) Spawning at Cove Point, Maryland	2008	Bushmann, Paul J.	Report - Cove Point Natural Heritage Trust
The effects of planting depth, sediment grain size, and nutrients on *Ruppia maritima* and *Potamogeton perfoliatus* seedling emergence and growth	2010 in press	Ailstock, Steve and Deborah Shafer	Restoration Ecology SI
Protocols for use of *Potamogeton perfoliatus* and *Ruppia maritima* seeds and fruits in large-scale restoration	2010 in press	Ailstock, Steve and Deborah Shafer	Restoration Ecology SI
The role of currents and waves in the dispersal of submersed angiosperm seeds and seedlings in Chesapeake Bay.	2010 in press	Koch, E., Ailstock, M. S., Booth, D. M. and Shafer, D	Restoration Ecology SI

Attachment 3:
AACC Environmental Center: Curriculum Vitas

M. Stephen Ailstock

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EDUCATION

Ph.D., University of Maryland, College Park
M.S., Louisiana State University
B.S., Salisbury State College

PROFESSIONAL EXPERIENCE

Chairman, Biology Department	1993-PRESENT
Full Professor AACC	1995-PRESENT
Director AACC Environmental Center	1989 -PRESENT
Science Research Associate	
Conservation Fund	1998-PRESENT
Faculty Research Associate	
University of Maryland College Park	1997-PRESENT
Environmental Consultant	1981-PRESENT
Faculty AACC	1978-PRESENT

Current Appointment
Instruction 50 Administrative 25 Research 25

SPECIAL RECOGNITION

Coastal America 2003 Partnership Award
Letter of recognition from Pres. George Bush 2003 Poplar Island Environmental Restoration Team
National Institute for Staff and Organizational Development Faculty Award 2003
Maryland Association for Higher Education Outstanding Educator Award 1999
Faculty Recognition Award Consortium for Community College Development 1998
Environmental Awareness Award Anne Arundel Trade Council 1998
Renew America - National Awards for Environmental Excellence 1998, 1997, 1996, 1995
Governor's Award of Excellence - 1988
Qualified Expert Witness: County, State, Federal Government 1990-

RESEARCH AND SCHOLARLY ACTIVITIES:

Selected Publications: 2000 - Present

The effects of planting depth, sediment grain size, and nutrients on *Ruppia maritima* and *Potamogeton perfoliatus* seedling emergence and growth. Ailstock, M. S., Shafer, D. and Magoun, D. 2010 in press. Restoration Ecology Special Issue.

Protocols for use of *Potamogeton perfoliatus* and *Ruppia maritima* seeds and fruits in large-scale restoration. Ailstock, M. S., Shafer, D. and Magoun, D. 2010 in press. Restoration Ecology Special Issue.

The role of currents and waves in the dispersal of submersed angiosperm seeds and seedlings in Chesapeake Bay. Koch, E., Ailstock, M. S., Booth, D. M. and Shafer, D. 2010 in press. Restoration Ecology Special Issue.

Protocol for Large-Scale Collection, Processing, and Storage of Seeds of Two Mesohaline Submerged Aquatic Plant Species. M. Stephen Ailstock and Deborah Shafer. ERDC/TN SAV-06-3 August 2006.

Antibacterial Compounds in Estuarine Submersed Aquatic Plants. Paul J. Bushmann and M. Stephen Ailstock. 2006. *Journal of Experimental Marine Biology and Ecology.*

M. Stephen Ailstock

Applications and Limitations of Micropropagation for the Production of Underwater Grasses. With Deborah Shafer. ERDC/TN SAV-06-1. January 2006.

Helicopter Application of Herbicides to Restore Wetland Biodiversity in Highly Sensitive Areas – Abstract. With Patsy Kerr. First National Conference on Ecosystem Restoration – Sustainable Ecosystem Restoration Through Integration of Science, Planning and Policy. Orlando, Florida. December 6-10, 2004.

Restoration Potential of *Ruppia maritima* and *Potamogeton pectinatus* by Seed in the Mid-Chesapeake Bay. With Deborah Shafer. ERDC/TN EL-04-02 July 2004.

Resuspension of Sediments by Watercraft Operated in Shallow Water Habitats of Anne Arundel County, Maryland. With Sally G. Hornor, C. Michael Norman and Eileen M. Davids. 2002 Journal of Coastal Research SI 37:18-32.

Common reed *Phragmites australis*: its control and effects upon biodiversity in wetland ecosystems. With C. M. Norman and P. J. Bushmann. 2001. Restoration Ecology 9(1): 49-59.

Biology and Adaptive Strategies of Common Reed (*Phragmites australis*). *Phragmites* in Virginia: A management Symposium sponsored by Virginia Department of Conservation and Recreation and Chesapeake Bay Commission. Library of Virginia, Richmond, Virginia. December 14, 2000.

Correlation of measures of ambient toxicity and fish community diversity in a Chesapeake Bay tributary, Maryland, USA: a biological, chemical, and geological assessment. 2000. With S. Ian Hartwell, Ray W. Alden, David A. Wright, and Randy Kerhin. Environmental Toxicity and Chemistry Vol.19 (7): 1735-1763.

Beyond Light: Physical, Geological and Chemical Habitat Requirements. 2000. With Evamaria Koch and J. Court Stevenson. In: Chesapeake Bay Submerged Aquatic Vegetation Water Quality and Habitat-Based Requirements and Restoration Targets: A Second Technical Synthesis. Available online at: http://www.chesapeakebay.net/content/publications/cbp_13051_13065.pdf

Adaptive Strategies of Common Reed *Phragmites australis*. Proceedings: The Role of *Phragmites* in the Mid-Atlantic Region April 17, 2000. Chesapeake Bay National Estuarine Research Reserve in Maryland, Maryland Department of Natural Resources.

Representative Grants 2000- Present
Total revenue from grants and gifts exceeds two million dollars

2009-2010
Source: Maryland Correctional Enterprises
Purpose: Provide advice and training to MCE members and inmates sufficient to develop a wetland nursery production facility to produce aquatic plants. Second year

Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Refining Site Selection and Monitoring Criteria for Underwater Grass Restoration in the Mid- Chesapeake Bay

2008-2009
Source: U.S. Department of the Navy
Purpose: Assist in management and control of coarse perennial grasses along watersheds on various military bases

Source: Maryland Correctional Enterprises
Purpose: Provide advice and training to MCE members and inmates sufficient to develop a wetland nursery production facility to produce aquatic plants

Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: An Evaluation of the Light, Salinity, Nutrient and Temperature habitat Criteria for Plant Establishment by Propagules in the Restoration of the Mesohaline SAV *Ruppia maritima* and Potamogeton *perfoliatus*

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2007-2008
Source: U.S. Department of the Navy
Purpose: Assist in the planning and treatment of stands of Phragmites, Loosestrife and other aggressive invasive plant species on various military DoD installations

Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Identification of Factors Affecting Seedling Establishment by *Ruppia maritima* and *Potamogeton perfoliatus* in Mesohaline Habitats of the Chesapeake Bay

Source: Horn Point Laboratory, University of Maryland, Cambridge, MD
Purpose: Effects of Current on the Distribution of Seeds of *Ruppia maritima*, *Potamogeton perfoliatus* and *Stuckenia pectinata*

2006-2007
Source: Maryland Department of Natural Resources
Purpose: Development and Testing of SAV Restoration Procedures

Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Collection, Storage and Germination Requirements of *Stuckenia pectinatus* Seeds Used for restoration of Underwater Grasses in the Mid-Chesapeake Bay

2005-2006
Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Renewal of Development of a Protocol for Large-Scale Restoration of *Ruppia maritima* (Widgeon Grass) and *Potamogeton perfoliatus* (Redhead grass) by Seed

Source: Marjorie and August Berlitz Charitable Trust - $500,000
Purpose: Construction and equipping of a new microbiology lab at AACC

2004-2005
Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Development of a Protocol for Large-Scale Restoration of *Ruppia maritima* (Widgeon Grass) and *Potamogeton perfoliatus* (Redhead grass) by Seed

2003-2004
Source: US Army Engineer Research and Development Center, Vicksburg, MS
Purpose: Research and development efforts to protect and restore underwater wetlands with *Ruppia maritima* and *Potamogeton perfoliatus* seed collections for creating underwater wetlands at Poplar Island

Source: Department of the Navy, Engineering Field Activity Chesapeake
Purpose: Control of invasive plants in ponds on Department of Defense land

2002-2003
Source: State of Maryland, Maryland Port Administration
Purpose: Creation of underwater wetlands for the Poplar Island Restoration Project through the expansion of Anne Arundel Community College laboratory culture facilities.

Source: Department of the Navy, Engineering Field Activity Chesapeake
Purpose: Renewal to develop management guidelines, and provide demonstration control of Common reed and invasive species on Department of Defense land within the States of Maryland and Virginia.

2001-2002
Source: National Oceanic and Atmospheric Administration
Purpose: To develop curriculum for advanced scuba class that meets requirements for NOAA Science Diver certification.

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Source: National Oceanic and Atmospheric Administration
Purpose: To examine the colonization of newly established seagrass beds in a sub-estuary of the Chesapeake Bay

Source: The Williams Company and Cove Point Natural Heritage Trust
Purpose: *Phragmites* control plan recommendations for Cove Point Marsh

2000-2001
Source: Maryland Department of Natural Resources
Purpose: To conduct ambient water and sediment bioassays using *P. pectinatus* and *V. americana*

Source: Conservation Fund
Purpose: Wetlands restoration planning in southern Arkansas

Source: Potomac Crossing Consultants
Purpose: Wetlands creation and restoration - Woodrow Wilson Bridge mitigation project

SALLY G. HORNOR
Biology Department and Environmental Center
Anne Arundel Community College, 101 College Parkway, Arnold MD 21012
Phone: 410 777-2842; sghornor@aacc.edu

Education:

B.A. Goucher College, Baltimore, MD. Liberal Arts/Biology.
M.S. University of Connecticut, Storrs, CT. Microbiology.
Ph.D. University of Connecticut, Storrs, CT. Ecology.

Professional Employment:

1977-79 Post-Doctoral Research Fellow, SUNY College of Environmental Science & Forestry, Syracuse,NY.
1979-85 Assistant Professor of Microbiology, Virginia Polytechnic Inst. & State University, Blacksburg, VA.
1986-present: Professor of Biology , Anne Arundel Community College, Arnold, MD.

Professional Memberships:

American Estuarine Society, American Society of Microbiology, Sigma Xi. , Maryland Water Monitoring Council

Selected Publications:

Matson, E. A., S. G. Hornor, and J. D. Buck. 1978. Pollution indicators and other microorganisms in river sediment. J. Water Poll. Contr. Fed. 50:13-19.

Matson, E. A., S. G. Hornor, and J. D. Buck. 1979. Effect of upgrading a municipal wastewater effluent on pollution indicator and other microorganisms in river sediment. Environ. Sci. Tech. 13:460-465.

Mitchell, M. J., S. G. Hornor, and B. I. Abrams. 1980. Decomposition of sewage sludge in drying beds and the potential role of the earthworm, Eisenia foetida. J. Environ. Qual. 9:373-378.

Mitchell, M. J., S. G. Hornor, and B. I. Abrams. 1980. Utilization of microcosms in studying decomposition processes in sewage sludge. In J. P.Geisy, Jr. (Ed.), *Microcosms in Ecological Research*, DOE Symp. Ser. 52, pp. 458-472.

Hornor, S. G. and M. J. Mitchell. 1981. Effect of the earthworm, Eisenia foetida (Oligochaeta), on fluxes of volatile carbon and sulfur compounds in sewage. Soil Biol. Biochem. 13:367-372.

Hornor, S. G. and S. O. Yoon. Effect of dissimilatory sulfate reduction on speciation of zinc in freshwater sediments. 6th Internat. Symp. Environ. Biogeochem., October 1983, Santa Fe,NM.

Hornor, S. G. 1984. Microbial leaching of zinc concentrate in fresh-water microcosms: Comparison between aerobic and oxygen-limited conditions. Geomicrobiol. J. 4:359-371.

Hornor, S. G. 1984. Toxicity of zinc concentrate to stream bacteria. In D. Liu and B. J. Dutka (Eds.), *Toxicity Screening Procedures Using Bacterial Systems*. Marcel Dekker, Inc., pp. 415-431.

Hornor, S. G. and S. O. Yoon. 1985. Effect of dissimilatory sulfate reduction on speciation of zinc in freshwater sediments. In D. E. Caldwell, J. A. Brierley & C. L. Brierley (Eds.), *Planetary Ecology*. Van Nostrand Reinhold Co., NY., pp. 230-238.

Pittenger, C. A., A. L. Buikema, Jr., S. G. Hornor, and R. W. Young. 1985. Variation in tissue burdens of polycyclic aromatic hydrocarbons in indigenous and relocated oysters. Environ. Tox. Chem. 4:379-387.

Hornor, S. G. and B. A. Hilt. 1985. Distribution of zinc-tolerant bacteria in stream sediments. Hydrobiologia 128:155-160.

Colwell, F. S., S. G. Hornor & D. S. Cherry. 1989. Evidence of structural and functional adaptation in epilithon exposed to zinc. Hydrobiologia 171:79-90.

Ailstock, M. S., S. G. Hornor, C. M. Norman and E. M. Davids. 2002. Resuspension of Sediments by Water Craft Operated in Shallow Water Habitats in Anne Arundel County. J. Coastal Research 37:18-32.

Higgins, J., C. Hohn, S. Hornor, M. Frana, M. Denver & R. Joerger. 2007. Genotyping of *Escherichia coli* in environmental and animal samples. J. Microbiol. Methods 70(2):227-235.

SALLY G. HORNOR

Carey, R.B., R. V. Ducey, C. Winter, M. Kelty, S. Hornor, & B Macphail. In press. Community Science for Marine Resource Management: Building a Best practices Toolkit for Sustainable Fisheries Research. Proc. Amer. Academy Underwater Sciences 27th Symposium.

Reports and Multimedia Projects:

Ailstock, M. S., S. G. Hornor and L. Lindenmeyer. 1993. Video entitled "Techniques and Applications of Water Quality Monitoring", 110 minutes. Anne Arundel Community College Production.

S. G. Hornor and J. A. Loukides, 2005. Video entitled " Techniques and Safety in the General Microbiology Laboratory", 24 minutes. Anne Arundel Community College Production.

Published Abstracts:

Hornor,S. G., 2002. Bacterial Water Quality Monitoring Sponsored by the Severn and Magothy River Associations. Maryland Water Quality Monitoring Council Annual Conference, Linthicum, MD.

Hornor, S.G. and Peter Bergstrom, Magothy River Association Restoration Projects. Restore America's Estuaries National Conf. on Coastal and Estuarine Habitat Restoration, Baltimore, MD., April 2003.

O'Mara, K. and S. G. Hornor, 2003. Will Crassostrea virginica thrive in the Magothy River? A study of oyster gardens in a mesohaline Chesapeake Bay tributary.
Maryland Water Quality Monitoring Council Annual Conference, Linthicum, MD.

Hornor, S.G. and J. A. Higgins, 2004. Monitoring for Enterococci and Enteropathogenic *E. coli* at Bathing Beaches of a Chesapeake Bay Subestuary, the Severn River, Maryland Water Quality Monitoring Council Annual Conference, Linthicum, MD.

Bergstrom, P. and S. G. Hornor. 2006. A tale of two creeks: Using paired comparisons to look for effects of the Mill Creek sewage spill, Magothy River. Maryland Water Quality Monitoring Council Annual Conference, Linthicum, MD.

Hornor, S.G. 2008. Microbial Water Quality Monitoring: a tool to assess protection and restoration of aquatic resources. Maryland Water Quality Monitoring Council Annual Conference, Linthicum, MD

Community Activities:

Magothy River Association, Arnold, MD, Board Member 1990-present;
Vice President 2006 - present

Severn River Association, Annapolis MD, Board Member 1988-present

Magothy River Land Trust, Arnold MD, Board Member 1993-present

Severn River Commission, Vice Chair, Board Member, 1999-present

Mago Vista Area Civic Association, Board Member, 1990-present

Honors and Awards:

Environmental Hero Award, National Oceanographic & Atmospheric Adm., 2002

Sierra Club Award of Appreciation for Outstanding Achievement, Anne Arundel Group, 2003

Jan Hollmann Environmental Education Award, 2003

Susan R. Lamont

Address: 323 Larch Place, Stevensville, MD 21666
phone: (410)604-3505 E-mail: srlamont@aacc.edu

Education:

Miami University, Oxford, Ohio: Ph.D. Botany, Aug 1999

Research was conducted in three rural villages in the Peruvian Amazon and included an analysis of agricultural methods, the impact of various factors on agriculture and the resulting impacts to land cover. Research techniques included interviews with farmers, ecological surveys of agricultural fields and the use of remote sensing and GIS technologies to analyze land cover change.

Wake Forest University, Winston-Salem, NC: B.S. Biology, May 1989

Professional Employment:

Adjunct faculty member, Anne Arundel Community College, Arnold, MD:

Ecology and Field Biology	Fall semesters 2008 - present
General Botany	Spring 2007 - present
Biology laboratory	Fall 2008; Spring 2010
Biology lecture	Fall, 2004; Fall, 2005
Environmental Science	Fall, 2003 - present

Adjunct faculty member, West Chester University, PA:

Humans and the Environment	Spring, 2001 Fall, 2000 Spring, 1999
Botanical Medicine	Fall, 2000

Instructor, Miami University, Ohio:

Field Botany	Fall, 1997 Fall, 1995

Teaching Assistant, Miami University, Ohio:

Biological Concepts	Fall, 1998
Tropical Ecosystems, Central America	May 19-June 3, 1998
Rain Forest Workshop, Peru	March 16-23, 1996
Environmental Science	Fall, 1996 Spring, 1996 Spring, 1995

Ecologist, Wetlands Program

U.S. Environmental Protection Agency, Philadelphia Aug, 1992 - Aug, 1994

Enforced federal wetlands regulations, including the review and issuance of permits to disturb wetlands and enforcement of corrective action in cases of violations. Provided technical assistance on Wetlands Identification Plan for Philipsburg, PA, which included mapping and delineation of all wetland areas within city limits. Provided technical support on Environmental Impact Statements for highway projects, minimizing destruction of wetland areas and ensuring proper mitigation procedures.

Susan R. Lamont

Grant Officer, Nonpoint Source Program
U.S. Environmental Protection Agency, Philadelphia Dec, 1991 - Aug, 1992
Supervised grants submitted under EPA's nonpoint source program. Participated in funding decisions, reviewed progress reports and conducted site visits to determine success of funded projects.

Public Affairs Specialist, Hazardous/Solid Waste Program
U.S. Environmental Protection Agency, Philadelphia Nov, 1990 - Dec, 1991
Arranged interviews with project officers, managers and other EPA employees, wrote press releases for significant events occurring in each program, and responded to media inquiries. Organized and facilitated public meetings to explain government and industry involvement at hazardous and solid waste sites and receive input from interested citizens.

Agroforestry Extension Agent, Philippines
U.S. Peace Corps July, 1989 - July, 1990
Lived and worked with rural farmers, teaching soil and water conservation techniques and proper use of pesticides and fertilizers.

Grants, Scholarships, & Fellowships:
Chesapeake Bay Trust: *Raingarden Construction for Stormwater Management at AACC* - $25,000
U.S. EPA: *Involvement of AACC in the MD Department of natural Resources Stream Waders Program* - $13,000
Chesapeake Bay Foundation: *Integrating GIS into the Classroom: Exploring Relationships Between Water Quality and Land Cover*, $5,000
American Business Women's Association, Ruth H. Bufton Scholarship - $10,000
Garden Club of Ohio Scholarship - $7,500
National Council of Garden Clubs Scholarship - $3,500
Academic Challenge Grants, Botany Department, Miami Univ. - $3,450
Graduate Summer Scholarship, Miami Univ. - $1,000
Dissertation Fellowship - Botany Department, Miami Univ. - $10,000

Publications
Lamont, S.R., W.H. Eshbaugh and A.M. Greenberg. 1999. Species composition, diversity, and use of homegardens among three Amazonian villages. *Economic Botany* 53(3): 312-326.

Curriculum Vitae
JESSAMY JUDITH RANGO

205 Lakeview Ave. **Phone: (410) 798 - 0023**
Edgewater, MD 21037 Email: jjrango@aacc.edu

Education

NIH Postdoctoral Excellence in Research and Teaching Fellow, University of Arizona, Tucson, Arizona, 2002-2004; Faculty Mentor: T. Markow, Teaching Mentor: B. Fiero (Pima Community College)
Ph.D. in Biology, Arizona State University, Tempe, Arizona, 2002; Advisors: B. Fagan and S. Faeth
M.S. in Entomology, Cornell University, Ithaca, New York, 1997; Advisor: B. Peckarsky
B.A. (with Distinction and Honors) in Biology, Goucher College, Towson, Maryland, 1993; Advisor: W. Johnson

Employment

Associate Professor, Department of Biology, Anne Arundel Community College, Fall 2009 - present
Assistant Professor, Department of Biology, Anne Arundel Community College, Spring 2005 - present
Adjunct Professor, Department of Biology, Pima Community College, Spring 2004
Graduate Research Assistant, Integrated Research Challenges in Environmental Biology (IRCEB): biological stoichiometry project, Arizona State University, Fall 2001
Graduate Research Assistant, Central Arizona-Phoenix Long-Term Ecological Research project, Arizona State University, 1998-2001
Graduate Teaching Assistant, Department of Biology, Arizona State University, Introductory Ecology Laboratory (BIO 321, majors), Spring 1998
Graduate Teaching Assistant, Department of Biology, Arizona State University, The Living World (BIO 100, non-majors), Fall 1997
Graduate Teaching Assistant, Department of Entomology, Cornell University, Stream Ecology (ENTOM 456, majors), Spring 1997
Graduate Teaching Assistant, Department of Entomology, Cornell University, Introduction to Insect Biology (ENTOM 212, non-majors and majors), Fall 1994, 1995 and 1996

Fellowships, Awards and Honors

P.E.O. Scholar Award, International Chapter P.E.O. Sisterhood, 2001-2002
Herman E. DeMund Scholarship, Arizona State University, 2001-2002
Integrative Graduate Education and Research Training (IGERT) Associate, Central Arizona-Phoenix Long-Term Ecological Research Program, Arizona State University, 2000-2001
University Graduate Scholar Award, Arizona State University, 1997-2000
Graduate Academic Scholarship, Arizona State University, 1997-2000
Outstanding Graduate Teaching Assistant, Cornell University, 1997
Cornell University Sage Graduate Fellowship, 1993-1994
Phi Beta Kappa (elected 1993)
Barry M. Goldwater Scholarship, 1991-1993

Curriculum Vitae
JESSAMY JUDITH RANGO

Professional Service

Course Coordinator, Fundamentals of Biology (BIO 101), Department of Biology, Anne Arundel Community College (AACC), Spring 2005 – present. My duties involve disseminating important instructional information among 17 full- and part-time professors that teach BIO 101, choosing the lecture textbook, editing the lab manual, mentoring new professors (including 1 full-time faculty member and 5 adjunct faculty members), and resolving disputes between students and faculty.

EPC Subcommittee (Arts & Sciences), Anne Arundel Community College, Fall 2009 – present. My duties involve reviewing all proposals to make changes to the course catalog, course prerequisites, and the additions of new courses and programs.

Diversity Committee, Anne Arundel Community College, Fall 2008 – Spring 2009. My duties involved developing a calendar of diversity events for the academic year.

Co-chair of the Problem Solving and Critical Thinking Core Competency, Anne Arundel Community College, Fall 2007 – present. My duties involve developing tools to help faculty assess how well AACC graduates are able to solve problems and think critically.

Teaching and Learning Committee (TLC) member, Anne Arundel Community College (AACC), Fall 2006 – present. As part of the TLC committee I help distribute teaching information among the faculty at AACC and judge applications for Designs for Learning Grants submitted by faculty.

The Faculty Organization (TFO) senator, Anne Arundel Community College, Fall 2007 – present. As a TFO senator I represent the interests of the Department of Biology faculty.

Academic Forum representative, Anne Arundel Community College, Fall 2006 – Spring 2007. As an academic representative, I represented the interests of the Department of Biology faculty.

General Education Articulation Committee member, University of Maryland system, Spring 2006 – present. I represented the interests of Anne Arundel Community College (AACC) at meetings involving two-year and four-year schools in the state of Maryland. My job was to help facilitate the transfer of AACC students majoring in biology to four year undergraduate schools in the state of Maryland.

Reviewer for: American Midland Naturalist, Ecography and Northeastern Naturalist.

Co-organizer of a mentoring workshop entitled "Scientist as mentor: Encouraging diversity in the intellectual community," 7 April 2003, University of Arizona, Tucson, Arizona. The purpose of the workshop was to learn what it meant to be a good mentor in science and to learn how as mentors we can encourage students from underrepresented groups to enter into science. Duties consisted of inviting five panelists, organizing workshop, and moderating panel discussion.

Graduate student representative on the Graduate Programs Committee, Department of Biology, Arizona State University, 2000-2001

Coordinator of Graduate Student Resource Center and Web Page, Department of Biology, Arizona State University, 1999-2001

Co-President of Jugatae (Entomological Club of Cornell University), 1996

Curriculum Vitae

JESSAMY JUDITH RANGO

Grants

National Science Foundation Doctoral Dissertation Improvement Grant, 2001-2002 ($5000)
Center for Insect Science Graduate Student Research Support Award, University of Arizona, Spring 2001 ($1900)
Travel Grant to XXI International Congress of Entomology, Entomological Society of America, Summer 2000 ($1800)
National Sigma Xi, The Scientific Research Society, Grants-in-Aid of Research, Spring 1999 ($500), Spring 2000 ($800)
Kieckhefer Adirondack Fellowship, Summer 1996 ($1500)

Summary of remaining grants received:
10 from various sources at Arizona State University totaling $4600
6 from various sources at Cornell University totaling $2200

Presentations

J.J. Rango. Avoiding Death by PowerPoint: Using Multimedia to Engage Students in the Classroom. Presented at the 2008 Association of Faculties for Advancement of Community College Teaching Annual Meeting, Westminster, Maryland.

J.J. Rango. Global Warming. Presented in 2007 to the Mayo Kiwanis Club (in Edgewater, MD).

J.J. Rango. Priority effects and the assembly of arthropod communities on creosote bush. Presented at the 2002 Ecological Society of America Annual Meeting, Tucson, Arizona.

J.J. Rango. The influence of priority effects on the assembly and structure of creosote bush (*Larrea tridentata*) arthropod communities. Presented at the 2001 Entomological Society of America Annual Meeting, San Diego, California.

J.J. Rango. Patch isolation and priority effects and the structure of arthropod communities inhabiting creosote bush (*Larrea tridentata*) in central Arizona. Presented at the 2000 International Congress of Entomology Meeting, Foz do Iguassu, Brazil.

J.J. Rango. Patch isolation and priority effects and the structure of arthropod communities inhabiting creosote bush (*Larrea tridentata*) in central Arizona. Presented at the 2000 Ecological Society of America Annual Meeting, Snowbird, Utah.

N. McIntyre, **J.J. Rango** (presenting author), S. Faeth, and W. Fagan. Ground arthropod community structure in a heterogeneous urban environment. Presented at the 2000 LTER All Scientists Meeting, Snowbird, Utah.

J.J. Rango (presenting author) and B.L. Peckarsky. Ecological patterns exhibited by the aquatic insect communities of the pitcher plant, *Sarracenia purpurea* L. Presented at the 1996 North American Benthological Society Annual Meeting, Kalispell, Montana.

Curriculum Vitae

JESSAMY JUDITH RANGO

Publications: peer-reviewed journal articles

Rango, J.J. 2005. Arthropod communities on creosote bush (*Larrea tridentata*) in desert patches of varying degrees of urbanization. Biodiversity and Conservation 14:2185-2206.

Fagan, W.F., M.D. Moran, **J.J. Rango**, and L.E. Hurd. 2002. Community effects of praying mantids: a meta-analysis of the influences of species identity and experimental design. Ecological Entomology 27:385-395.

McIntyre, N.E., **J.J. Rango**, W.F. Fagan, and S.H. Faeth. 2001. Ground arthropod community structure in a heterogeneous urban environment. Landscape and Urban Planning 52:257-274.

Rango, J.J. 1999. Summer phenology of aquatic insect communities inhabiting the leaves of the northern pitcher plant, *Sarracenia purpurea* L. Northeastern Naturalist 6(1):19-30.

Rango, J.J. 1999. Resource dependent larviposition behavior of a pitcher plant flesh fly, *Fletcherimyia fletcheri* (Aldrich) (Diptera: Sarcophagidae). Journal of the New York Entomological Society, 107(1):82-86.

Publications: book chapters

McIntyre, N.E., and **J.J. Rango**. 2009. Arthropods in urban ecosystems: community patterns as functions of anthropogenic land use. In: *The Comparative Ecology of Cities and Towns* (M.J. McDonnell, ed.). Cambridge University Press, New York, New York. Pages 233-242.

Publications: educational material

Ailstock, M.S., R.D. Ailstock, C.A. Hack, J.J. Rango, and C.B. Veil. 2009. Fundamentals of Biology: Laboratory Manual. 13th edition. Academx Publishing Services.

Ailstock, M.S., R.D. Ailstock, C.A. Hack, J.J. Rango, and C.B. Veil. 2006. Fundamentals of Biology: a laboratory manual. Twelfth Edition. Pearson Custom Publishing, Boston, MA.

Benjamin Weibell, Ph.D.

238 DRGN Biology Department
Anne Arundel Community College
101 College Pkwy
Arnold, MD 21012

Email: bjweibell@aacc.edu
Phone: 410-777-2845

Professional Mission Statement

I will establish high-quality classroom instruction integrated with an innovative research program.

Education

- **Ph.D.** The University of Alabama (Biology/Aquatic Ecology) May 2007
  NSF IGERT fellow (see page 7 for program description)
- B.S. Brigham Young University (Zoology) Aug. 2000

Professional Positions

- Associate Professor of Biology- **2009-Present**
  Anne Arundel Community College (AACC)-
  Teaching: Biology, Environmental Science and Zoology
  Research: Anne Arundel Community College Environmental Center
- Assistant Professor of Biology- **2005-2009**
  Anne Arundel Community College (AACC)-
  Teaching: Biology, Environmental Science and Zoology
  Research: Anne Arundel Community College Environmental Center

Research Interests

Secondary Production, Disturbance Ecology, Large River Ecosystems, Aquatic Invertebrates/Vertebrates, Community Ecology, Population Ecology, Aquatic/Terrestrial Interactions, Hydrology

Research Awards and Grants

- **NSF IGERT** fellowship (3 years, **$95,000**)
- Research Assistantship (2 semesters, $18,000)
- Graduate Council Fellowship (Summer, $4,000)
- Enhancement Fellowship 2002 (Summer, $3,500)
- Enhancement Fellowship 2003 (Summer, $3,500)
- Audobon Society Grant for Sipsey River invertebrate survey ($1,000)
- University of Alabama Graduate School ($300)
- Graduate Student Research and Travel Award ($200)
- University of Alabama Biology Department ($100)

Benjamin Weibell, Ph.D.

Dissertation

Committee- **Art Benke (Chair), Amelia Ward, G. Milton Ward, D. Albrey Arrington, Manuel Molles**

Effects of a Variable Hydrograph on Wood-Dwelling Invertebrate Production and Assemblage Dynamics in Medium-sized Rivers

Submerged wood in rivers supports a highly productive invertebrate community because many aquatic invertebrates require flowing water and stable substrates (i.e., wood) to complete their lifecycle. In some rivers (e.g. Coastal Plain rivers) wood is the main stable substrate, but often dries when exposed by variable water flow. This disturbance invokes a biotic response (i.e. invertebrates seek refuge, evacuate or die), and then when water returns the community recovers. I examined the effects of natural water level variation on wood-dwelling invertebrates in the Sipsey River, a Coastal Plain river in west central Alabama. Habitat distribution, invertebrate evacuation, variations in drift and colonization patterns, and monthly depth-specific secondary production were measured. The wood-dwelling invertebrate community demonstrated little resistance, but high resilience, to desiccation events. Resilience, facilitated by drift and colonization, appeared to be a function of the abundance of habitat and high turnover rates, but frequent disturbance lowered community biomass and secondary production.

Non-Dissertation Research Experience

- U.S. Fish and Wildlife Yampa River – Invasive Smallmouth Bass (Utah 2004)
  (Fish collection, otolith removal and aging)
- St. Johns River Detrital Processing in Urbanized Streams (Florida 2003-2004)
  (Invertebrate and fungal roles in leaf decomposition)
- Sipsey River Invertebrate Survey (Alabama 2000-2002)
  (Collection and identification of aquatic invertebrates)
- Dugout Ranch (Utah 2000)
  (Bioassessment of aquatic macroinvertebrates)
- U.S. Fish and Wildlife Yampa River Project (Utah 2000)
  (Removal of invasive fishes)
- Provo River Reclamation Project (Utah 1998-2000)
  (Bioassessment of aquatic macroinvertebrates, community composition)
- Canyonlands Benthos Project (Utah 1995)
  (Bioassessment of aquatic meiofauna and macroinvertebrates)

Professional Societies

- North American Benthological Society
- Ecological Society of America

Language

- Cantonese (written Chinese)

Benjamin Weibell, Ph.D.

Publications in Review

Weibell, B.J. and A.C. Benke. (In Prep). Invertebrate responses to snag desiccation in a Coastal Plain river: evacuation and resistance. (Submitted to **Journal of the North American Benthological Society**)

Weibell, B.J. and D.K. Shiozawa. (In Prep). Semi-quantitative assessment of macroinvertebrate recovery following channel reconstruction: effective point sampling. (Submitted to **Journal of the North American Benthological Society**)

Publications in Prep

Weibell, B.J. and A.C. Benke. (In Prep). Habitat quantification for wood-dwelling invertebrates in a Coastal Plain river. (To be submitted to **River Research and Applications,** 2008)

Weibell, B.J. and A.C. Benke. (In Prep). Hydrologic cropping of snag-dwelling invertebrate biomass: effects on secondary production. (To be submitted to **Ecology**, 2008)

Weibell, B.J. and A.C. Benke. (In Prep). Drift and colonization: mechanisms of resilience in expanding and contracting habitats. (To be submitted to **Freshwater Biology**, Jan. 2009)

Weibell, B.J. and A.C. Benke. (In Prep). Snag-dwelling invertebrates of the Rio Grande: recovery following a long-term desiccation disturbance. (To be submitted to **Western North American Naturalist**, August 2008)

Research Reports

Modde, T., M. Fuller, and **B. Weibell**. 2006. Investigations of the impacts on the fishes of Yampa Canyon. Final report to the national Park Service: Interagency Agreement #F1400B0013.

Weibell, B.J. 2004. Yampa River smallmouth bass otolith aging and growth: comparisons to hydrology. Report to the US Fish and Wildlife Service, Vernal, UT.

Weibell, B.J. and A.C. Benke. 2002. A survey of the aquatic invertebrates of the Sipsey River: a unique Coastal Plain river in west Alabama. Research report to: The Walter F. Coxe Research Fund Birmingham Audubon Society.

Shiozawa, D. K., **B. J. Weibell** and E. McLaughlan. 2002. The investigation of the macrobenthos of the Provo River between Jordanelle and Deer Creek Reservoirs. Report to the Utah Reclamation Mitigation and Conservation Commission.

D.K. Shiozawa and **B.J. Weibell**. 2000. The investigation of the macrobenthos of the Provo River between Jordanelle and Deer Creek Reservoirs: Report to the Utah Reclamation, Mitigation and Conservation Commission.

Benjamin Weibell, Ph.D.

Invited Scientific Presentations at National & International Meetings

Weibell, B.J. and A.C. Benke. 2005. Correlation of invertebrate drift density and colonization density on submerged wood during rising and falling water levels: efficiency of colonization. (Paper at the national meeting for the North American Benthological Society 2005, New Orleans, Louisiana)

Contributed Scientific Presentations at National & International Meetings

Weibell, B.J. and A.C. Benke. 2008. Secondary production of Brachycentrus numerosus using ladder sampler colonization data. (Paper at the national meeting for the North American Benthological Society 2009, Grand Rapids, Michigan)

Weibell, B.J. and A.C. Benke. 2008. Hydrologic controls on wood-dwelling invertebrate production and assemblage dynamics in a Coastal Plain river. (Paper at the national meeting for the North American Benthological Society 2008, Salt Lake City, Utah)

Weibell, B.J. and A.C. Benke. 2007. Snag-dwelling invertebrates of the Rio Grande: Recovery after a long-term desiccation disturbance. (Paper at the national meeting for the North American Benthological Society 2007, Columbia, South Carolina)

Kennedy, T.B., S.A. Pugh, J. Culp, **B.J. Weibell**, L.M. Tronstad and A.C. Benke. 2006. Ecological dynamics of food web components of the Sipsey river- floodplain ecosystem. Alabama Fisheries Association, Perdido Beach, Alabama. (presentation)

Weibell, B.J. and A.C. Benke. 2006. Hydrologic regulation of biomass and secondary production distribution for wood–dwelling invertebrates in a Coastal Plain river: a vertical dimension. (Paper at the national meeting for the North American Benthological Society 2006, Anchorage, Alaska)

Weibell, B.J. and A.C. Benke. 2004. Insects in peril: Insect evacuation of snags to escape desiccation. (Paper at the international meeting for the North American Benthological Society 2004, Vancouver, Canada)

Weibell, B.J. and A.C. Benke. 2003. Quantification of habitat for snag-dwelling invertebrates: Incorporation into a dynamic model. (Paper at the national meeting for the North American Benthological Society 2003, Athens, Georgia)

Weibell, B.J., N.K. Weibell and D.K. Shiozawa. 2001. The separation of benthic macroinvertebrate assemblages using multivariate canonical discriminant analysis: The utility of qualitative data. (Paper at the national meeting for the North American Benthological Society 2001, Lacrosse, Wisconsin)

N.K. Weibell, **B.J. Weibell**, and D.K. Shiozawa. 2001. The detection of underlying patterns in benthic macroinvertebrate composition with different data types, using cluster analysis. (Paper at the national meeting for the North American Benthological Society 2001)

Benjamin Weibell, Ph.D.

Other Contributed Scientific Presentations

Weibell, B.J. and A.C. Benke. 2003. Impacts of flow regime on invertebrate community function. (IGERT Workshop, Selvietta, New Mexico LTER station)

Weibell, B.J. 2003. New Mexico inter-institution Exchange: a comparison of two rivers. (IGERT Workshop, Selvietta, New Mexico LTER station)

Weibell, B.J. and A.C. Benke. 2002. Macroinvertebrate resilience to desiccation: the effects of disturbance on the secondary production of snag communities. (IGERT Workshop, Univ. of Alabama)

Weibell, B.J., N.K. Weibell and D.K. Shiozawa. 2000. Point sampling method for macrobenthos-A comparative analysis between channelized and unchannelized streams: Characterization of taxa habitat dispersion within mountain streams. (Poster)

Center for Freshwater Studies IGERT Program

The NSF funded Interdisciplinary Graduate Education and Research Training (IGERT) program at the University of Alabama and the University of New Mexico includes a special core of four interdisciplinary distance learning courses: Climate Dynamics, Freshwater Ecosystems, Geomicrobiology, and Professional Ethics. Annual workshops were held with students and faculty from the two participating universities in Alabama, New Mexico and Florida, where we received training about local ecology and restoration activities. I participated in a unique 2-week course in tidal creek restoration involving graduate, undergraduate and local (Andros Island) high school students that was held in the Bahamas. As part of the program I completed an inter-institutional exchange project (research in New Mexico, Fall 2003) and completed an externship with the US Fish and Wildlife Service in Vernal, UT (Summer 2004). The program also included weekly seminars addressing current research in ecology, geology, hydrology, climatology and interdisciplinary studies.

CURRICULUM VITAE

Paul J. Bushmann

February 15, 2010

Anne Arundel Community College
101 College Parkway
Arnold, MD 21012
(410) 777-2270
e-mail: pjbushmann@aacc.edu

2519 Lyon Drive
Annapolis, MD 21403
(410) 295-6628

Educational Preparation

1989 - 1995 **Boston University,** Boston, Massachusetts
Boston University Marine Program, Woods Hole, Massachusetts
Ph.D., 1995

1986 - 1989 **The George Washington University,** Washington, D.C.
M.S., 1989

1985 - 1986 **University of Rhode Island,** Kingston, Rhode Island

1980 - 1984 **College of William and Mary,** Williamsburg, Virginia
Major: Biology
B.S. *cum laude* in biology, 1984

Educational Experience

2007 – **Anne Arundel Community College, Arnold, Maryland.** Tenured Professor
Courses: Environmental Science, Animal Diversity, Molecular Biology

2001 – 2006 **Anne Arundel Community College, Arnold, Maryland.** Associate Professor

1998 – 2001 **Anne Arundel Community College, Arnold, Maryland.** Assistant Professor

1991 - 1995 **Boston University Marine Program, Woods Hole Massachusetts.**
Teaching Assistant: Field Biology of Coral Reef Fishes, Experimental Biology
Administrative: Coordinator for the Woods Hole Marine Semester.

1989-1991 **Boston University, Boston, Massachusetts.** Teaching Assistant
Courses: Biochemistry, Introductory Biology

1986 - 1989 **The George Washington University, Washington, D.C.** Teaching Assistant
Courses: Microbiology, Introductory Biology, Ecology

1985 - 1986 **University of Rhode Island, Kingston, Rhode Island.** Teaching Assistant
Courses: Introductory Zoology

CURRICULUM VITAE

Paul J. Bushmann

Research Experience

1998 - present **Anne Arundel Community College**, Arnold, Maryland

Summary: 1) Impacts of ocean acidification on disease in lobsters. 2) The effects of plant antimicrobial compounds on health and disease in lobsters. 3) Impacts of sea level rise and erosion on horseshoe crab spawning in the Chesapeake. 4) Fish population dynamics in a protected freshwater marsh. 5) Control of invasive wetland plants. 6) Chemical communication in glandulocaudine fishes.

Current Collaborators: Michael Tlusty, Ph.D.
Director of Research, New England Aquarium
Brandon Harvey, Ph.D.
Senior Scientist
National Institute on Drug Abuse/National Institutes of Health

Previous Collaborators: M. Stephen Ailstock, Ph.D.
Anne Arundel Community College
John R. Burns, Ph.D.
The George Washington University
Stanley H. Weitzman, Ph.D.
Smithsonian Institution

2006-2007 **Mount Desert Island Biological Laboratories**, Salisbury Cove, Maine.

Summary: Control of shell disease through eelgrass and macroalgae consumption in the American lobster.

Collaborator: Dr. David Towle

1995 - 1998 **Smithsonian Environmental Research Center**, Edgewater, Maryland

Summary: 1) Chemical communication and reproductive success in blue crabs. 2) DNA methods examining sperm limitation in blue crabs.

Advisor: Anson H. Hines, Ph.D. Smithsonian Environmental Research Center

1991 - 1995 **Marine Biological Laboratories**, Woods Hole, Massachusetts

Summary: chemical ecology and behavior in lobsters. 1) chemical mate choice. 2) male and female urine signals in courtship. 3) novel gland complexes for chemical signal production.

Advisor: Jelle Atema, Ph.D. Boston University

1989 - 1991 **Boston University**, Boston, Massachusetts

Summary: Liver progesterone receptors and the evolution of viviparity in the shark *Squalus acanthius*.

Advisor: Ian Callard, Ph.D.

3/87 - 8/87 **District of Columbia Department of Fisheries**, Washington, D.C.

Duties: Field sampling and tracking of freshwater and anadromous fishes in the Potomac River.

Supervisor: Jim Cummins, M.S.

CURRICULUM VITAE

Paul J. Bushmann

1986 - 1989 **The George Washington University**, Washington, D.C.
Summary: Behavior and histology of social inhibition of male maturation in glandulocaudine fishes.
Advisor: John R. Burns, Ph.D.

1983 - 1984 **The College of William and Mary**, Williamsburg, Virginia
Summary: Female presence or odor as mediators of male aggression in the deermouse *Peromyscus maniculatus bairdii*.
Advisor: C. Richard Terman, Ph.D.

Grants and Awards

Pending **National Science Foundation**, Arlington, VA.
Proposal Title: LiT: A whole-organism model assessment of the influence of climate change on bacterial diseases in American lobster.
Collaborator: Michael Tlusty

2006-2007 **Mount Desert Island Biological Laboratory**, Salisbury Cove, ME.
New Investigator Award.
Research Title: Consumption of eelgrass *Zostera marina* by the American lobster *Homarus americanus*: implications for antibacterial compounds.

2005-2006 ***U.S. Army Engineer Research and Development Center, Vicksburg, MS***
Grant Title: Development of a Protocol for Large-Scale Restoration of *Ruppia maritima* (Wigeon Grass) and *Potamogeton perfoliatus* (Redhead Grass) by Seed
Collaborator: M. Stephen Ailstock

2005-2007 **Cove Point Natural Heritage Trust**
Grant Title: Survey of Horseshoe Crab (*Limulus polyphemus*) spawning at Cove Point, MD.

2003-2004 **Cove Point Natural Heritage Trust**
Grant Title: Status of Invasive Carp (*Cyprinus carpio*) in Cove Point Marsh.

2002-2004 **National Oceanic and Atmospheric Administration**
Grant Title: Faunal Colonization of Submersed Aquatic Plant Communities.

1999-2000 **Cove Point Natural Heritage Trust**
Grant Title: Abundance and Population Structure of Fishes in Cove Point Marsh.

1995-1996 **Smithsonian Postdoctoral Fellowship.**

1989-1990 **Presidential University Graduate Fellowship.**

CURRICULUM VITAE

Paul J. Bushmann

Publications

Bushmann, P.J. and M.S. Ailstock 2008. Vascular and macroalgal plant diets can alter *Vibrio* spp. bacterial densities on the carapace of the American lobster, *Homarus americanus*. *MDIBL Bulletin* 47:133-135.

Bushmann, P.J. and M.S. Ailstock. 2006. Antibacterial compounds in estuarine submersed aquatic plants. *Journal of Experimental Marine Biology and Ecology* 331(1):41-50.

Bushmann, P.J., J.R. Burns and S.H. Weitzman. 2002. Gill-derived glands in glandulocaudine fishes (Teleostei: Characidae: Glandulocaudinae). *Journal of Morphology.* 253: 187-195.

Bushmann, P. and J. Atema. 2000. Chemically-mediated mate attraction and evaluation in the lobster, *Homarus americanus*. *Journal of Chemical Ecology.* 26(4): 883-899.

Bushmann, P.J. 1999. Concurrent signals and behavioral plasticity in blue crab (*Callinectes sapidus* Rathbun) Courtship. *Biological Bulletin.* 197:63-71.

Bushmann, P., and J. Atema. 1997. Chemical courtship signals and shelter sharing in the lobster, *Homarus americanus*. *Canadian Journal of Fisheries and Aquatic Sciences* 54(3):647-654.

Bushmann, P., and J. Atema. 1996. Nephropore rosette glands in the lobster, *Homarus americanus*: A possible source of urine pheromones. *Journal of Crustacean Biology.* 16(2):320-330.

Bushmann, P., and J. R. Burns. 1994. Social control of sexual maturation in the swordtail characin, *Corynopoma riisei* (Gill). *Journal of Fish Biology.* 44:263-272.

Hines, A.H., P.R. Jivoff, P.J. Bushmann, J. van Monfrans, S.A. Reed, D.L. Wolcott and T.G. Wolcott. 2003. Evidence for sperm limitation in the blue crab, *Callinectes sapidus*. *Bull. Mar. Sci.* 72(2):287-310.

Ailstock, M.S., M. Norman and P.J. Bushmann. 2001. Common Reed *Phragmites australis*: control and effects upon biodiversity in freshwater nontidal wetlands. *Restoration Ecology* 9(1):49-59.

Reports

Bushmann, P.J. 2009. Horseshoe Crab (*Limulus polyphemus*) Spawning at Cove Point, Maryland: final report and evaluation of marsh restoration. Cove Point Scientific Advisory Committee Technical Report. 12 pp.

Bushmann, P.J. and G. Edmunds. 2006. A monitoring program to evaluate Cove Point as a spawning area for the horseshoe crab, *Limulus polyphemus*. Cove Point Scientific Advisory Committee Technical Report. 10 pp.

Bushmann, P.J. and M.S. Ailstock. 2004. Faunal colonization of submersed aquatic plant communities. NOAA Technical Report. 11 pp.