

PAMELA S.D. MACRAE

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EDUCATION:

Ph.D. Oceanography and Coastal Sciences (minors: Biology & Statistics), Louisiana State University, 2006
Dissertation: A Community Approach to Identifying Essential Fish Habitat of Spotted seatrout, *Cynoscion nebulosus*, in Barataria Bay, Louisiana.

M.S. Zoology (minor: Aquatic Ecology), University of Toronto, 1999
Thesis: A Comparative Approach to Quantify the Influence of Introduced Piscivores and Habitat Complexity on the Structure of Littoral Zone Fish Assemblages.

B.S. Biology (Honors Program), Saint Mary's University, 1997
Thesis: Structure of Fish Assemblages Inhabiting Bermudian Seagrass Beds.

ACADEMIC & PROFESSIONAL EXPERIENCE:

Dean of the School of Biodiversity Conservation, *Unity College*, 2016 - Present

Associate Professor of Sustainable Fisheries Management, *Biodiversity, Unity College*, 2015 to Present

Assistant Professor of Sustainable Fisheries Management, *Biodiversity, Unity College*, 2013 – 2015

Program Coordinator: Environmental Science Technology, *Tallahassee Community College*, 2012 – 2013

Assistant Professor of Biology, *Tallahassee Community College*, 2011 – 2013

Postdoctoral Research Associate, *Department of Biological Science, Florida State University*, 2010 – 2011

Adjunct Professor of Biology and Earth Science, *Tallahassee Community College*, 2009 – 2011

Senior Environmental Scientist, *Post, Buckley, Schuh and Jernigan Engineering Inc.*, 2006 - 2010

Fisheries Biologist, *Ontario Ministry of Natural Resources*, 2000 – 2001

Watershed Monitoring Technician, *Toronto and Region Conservation Authority*, 1999

Laboratory Instructor, *Department of Zoology, University of Toronto*, 1997 - 1999

Teaching Assistant, *Department of Biology, Saint Mary's University*, 1996 - 1997

TEACHING EXPERIENCE:

Unity College (2013-Present)

BI1114 & BI1114L Diversity of Life and Lab

BI2004 Population and Community Ecology and Lab

BI2064 Honors Population and Community Ecology and Lab

BI2111 Marine Fisheries Theme

BI2111 Coastal Fisheries of Maine Theme

BI3013 Marine Fisheries

ES3183 Limnology and Lab

BI3323 Conservation Biology and Lab

BI3233 Ichthyology and Lab

BI4702 Biodiversity Capstone

Florida State University (2010)

PCB3043L General Ecology Lab

Tallahassee Community College (2009-2013)

BC2011 & BSC2011L Biology for Majors II Lecture and Laboratory

BSC1050 Environmental Science

EVR1026C Chemistry and Biology of Natural Waters

OCS1000 Introduction to Oceanography

University of Toronto (1997-1999)

ENV234Y Environmental Biology Lab

BIO105Y Introduction to Biology Lab

Saint Mary's University (1996-1997)

BIOL1201L Molecular and Cell Biology Lab

BIOL1202L Organismal and Ecological Biology Lab

BIOL3303 and BIOL3303L Plant Form and Function Lab

ADMINISTRATION AND COLLEGIAL SERVICE:

Institutional Program Review Committee, Unity College (2016 – Present)

In support of the College's mission, the Institutional Program Review Committee facilitates an annual, systematic self-assessment of institutional effectiveness for instructional, student services, administrative and operational areas. The Committee will provide feedback, and recommendations related to the program review process and contributes to "Closing of the Loop" between academic program reviews and administrative program reviews.

Academic Regulations Committee, Unity College (Committee member 2014-Present, Chair 2015-16)

ARC reviews proposed changes to credit-bearing courses and curricula for their conformity with existing academic regulations and conventions, proposes and reviews proposals for changes to academic policies and regulations, and reviews student petitions for curricular waivers and substitutions, grade appeals and suspension appeals. The chair is responsible for leading the ARC in curricular policies and procedures, setting meeting agendas, meeting curricular deadlines, working with academic leaders of campus to resolve curricular issues or concerns, submitting meeting minutes and presenting curricular proposals to the faculty for a vote and delivering faculty workshops concerning curriculum.

Honors Program Director, Unity College (2015 – Present)

Primarily responsible for overseeing co-curricular components of program and supporting the management of the technical and academic requirements of the Honors Program such as planning Honors seminars, record keeping of Honors projects and independent studies, and assistance with early pre-registration. Shared responsibility for vision, development and review of the program, mentoring students, and recruitment through admissions events.

Strategic Academic Leadership Team, Unity College (2015 – Present)

SALT is appointed by the Chief Academic Officer. Responsibilities include: ensuring a coordinated effort to steward the curricular elements of the strategic plan priorities, serving an advisory function on matters of academic and institutional importance to the CAO, promoting an institutional culture that demands integrity and excellence in all matters and forms of academic activities, develop and coordinate internal and external strategic initiatives and issues, utilizing data analysis for purposes of data-driven decision-making, and review operational budgets from a strategic standpoint and make recommendations to the CAO.

College Policy and Planning Committee, Unity College (2015 – 2016)

CPPC reviews all new college policies and proposed policy changes and makes recommendations to the CAO about the implementation efficiency, effectiveness, and completeness of proposed policies.

Faculty Nomination Committee, Unity College (2015- 2016)

Appointed by the faculty Moderator, the FNC solicits nominees and facilitates elections for standing and ad-hoc college committees that have been approved by senior staff and the President.

Marine Biology Program Review Committee, Unity College (2014 – 2015)

Responsible for reviewing exiting Marine Biology curriculum, facilitating an external review of the curriculum, report writing and presentation and implementation of proposed curricular changes to the program.

Faculty Salary Benchmarking Task Force, Unity College (2014 – 2015)

FSBT is responsible for comparing the salaries of faculty at Unity College to those at benchmark institutions to set goals for faculty salary enhancement priorities. The report is completed in coordination with the President and submitted to the faculty.

Environmental Chemistry Faculty Search Committee, Unity College (2013 – 2014)

Responsible for reviewing applications, engaging in phone and face-to-face interviews, scheduling and facilitating campus tour, teaching demonstration and faculty interactions, post interview social events and making hiring recommendations to administration.

Wakulla Environment Institute – Environmental Science and Technology Coordinator, Tallahassee Community College (2012 – 2013)

As Coordinator of the Environmental Science and Technology Program I worked closely with the Provost, Dean of Curriculum and Dean of Science and Mathematics to create a new online program in Environmental Science Technology including a Certificate and an Associate Degree. I was responsible for leading the design of the curriculum, creating all administrative syllabi and program and course level learning outcomes, co-writing the SASC Application for the new program, forming an Advisory Board and hiring adjuncts.

Biology Faculty Hiring Committee, Tallahassee Community College (2012)

Responsible for reviewing applications, engaging face-to-face interviews, scheduling and facilitating campus tour and teaching demonstration and making hiring recommendations to administration.

MENTOR EXPERIENCE:

2017 Thesis Committee - Madison Crane – White Mountain National Forest Bird Survey

2016 Summer Intern Sponsorship:

- Angelo Conti – Sebasticook Regional Land Trust

- Karen Guerrero – New England Aquarium

- Justin Dickenson – NJ Oyster Fishery

- Madison Crane - White Mountain National Forest

2016 Thesis Committee - Brian Eaton – Stickleback Morphology

2015/16 Research Assistants: Joe Asta-Fererro & Megan Carroll - Population Genetics

2015 Summer Intern Sponsorship:

- Alexandra Prestera - New England Aquarium

- Maddison Crane - Unity College Bear Study

- Mikayla Peaslee -Unity College Bear Study

- William Stocker – Up East Foundation, Tardigrade Project
 - Chaz James - Internship Advisor - Up East Foundation, Tardigrade Project
 2014/15 Research Assistants: Brain Eaton and Richard Lee - Alewife Restoration
 2014 Summer Intern Sponsorship: Richard Lee – Internship Advisor – Trout Unlimited
 2014 Thesis Committee -Kaitlyn Nafziger – Bird Nesting Geomorphology, Unity College

PUBLICATIONS:

MacRae P.S.D., J.H. Cowan Jr., B Fry and M Russell. XXXX. Assessing Habitat Use, Prey Resources and Trophic Concordance of Spotted Seatrout, *Cynoscion nebulosus*, using Stable Isotopes. In Preparation for *Open Fish Science*.

MacRae P.S.D. and J. Travis. XXXX. The Influence of Anthropogenic Nitrogen Loading on the Ecological Stoichiometry of the Least killifish, *Heterandria formosa*, in Florida Lakes and Springs. In Preparation for *Functional Ecology*.

MacRae, P. 2015. Book Review: The importance of forage fish: are we paying attention yet? *Ecology*. 96(11): 3110-3111.

M. J. Aresco, J. Travis, and **P. S.D. MacRae**. 2015. Trophic ecology of turtles and prevalence of omnivory in a north Florida lake food web. *Copeia*. 103(2): 343-356.

MacRae P.S.D. and J. Travis. 2014. Long-term patterns in population density of the least killifish, *Heterandria formosa*, in Florida springs, ponds and tidal marshes. *Environmental Biology of Fishes*. 97: 1–12.

Schrader, M., J.J. Apodaca, **P.S.D. MacRae** and J. Travis. 2012. Population density does not influence male gonadal investment in the Least Killifish, *Heterandria formosa*. *Ecology and Evolution*. 2(12):2935-42. Doi: 10.1002/ece3.402.

MacRae, P.S.D. and J.H. Cowan, Jr. 2010. Habitat Preferences of Spotted Seatrout, *Cynoscion nebulosus*, in Coastal Louisiana: A Step Towards Informing Spatial Management in Estuarine Ecosystems. *Open Fish Science Journal*. 3: 154-163.

Boswell, K.M., M.P. Wilson, **P.S.D. MacRae**, C.A. Wilson and J.H. Cowan Jr. 2010. Seasonal Estimates of Fish Biomass and Length Distributions using Acoustics and Traditional Nets to Identify Estuarine Habitat Preferences in Barataria Bay, Louisiana. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science*. 2: 83-97.

MacRae, P.S.D. and D.A. Jackson. 2006. Characterizing North-temperate Lake Littoral Fish Assemblages: A Comparison Between Distance Sampling and Minnow Traps. *Canadian Journal of Fisheries and Aquatic Sciences*. 63:558-568.

MacRae, P.S.D. and D.A. Jackson. 2001. The Influence of Smallmouth Bass (*Micropterus dolomieu*) Predation and Habitat Complexity on the Structure of Littoral Zone Fish Assemblages. *Canadian Journal of Fisheries and Aquatic Sciences*. 58: 342-351.

PRESENTATIONS:

Brian Eaton*, Pamela MacRae, David Potter. An Investigation of Stickleback Phenotypic Anatomy in Fresh and Salt Water Ponds in Central Maine. 2016 *Northeast Fish and Wildlife Conference*, Annapolis, MD

Brian Eaton* and Pamela S.D. MacRae. A comparison of fish assemblage structure in lakes with and without alewife (*Alosa pseudoharengus*): Investigating the impact of reintroducing alewife on littoral fishes. 2015 *Northeast Fish and Wildlife Conference*, Newport, RI

Invited Speaker: A Community Approach to Identifying Essential Fish Habitat of Spotted seatrout, *Cynoscion nebulosus*, in Barataria Bay, Louisiana. Florida State University Marine and Coastal Lab July 2008, St. Teresa, FL

Pamela S.D. MacRae and James H. Cowan Jr. Habitat Preferences of Spotted seatrout, *Cynoscion nebulosus*, in Barataria Bay, Louisiana. 2005 American Fisheries Society Annual Meeting, Anchorage, AK

Pamela S.D. MacRae and James H. Cowan Jr. Habitat Preferences of Spotted seatrout, *Cynoscion nebulosus*, in Barataria Bay, Louisiana: A Step Towards Identifying Essential Fish Habitat. 2005 *Gulf Estuarine Research Society Annual Meeting*, Pensacola, FL

Pamela S.D. MacRae and James H. Cowan Jr. A Community Approach to Identifying Essential Fish Habitat of Spotted seatrout, *Cynoscion nebulosus*, in Barataria Bay, Louisiana. 2005 *Louisiana Chapter of the American Fisheries Society*, Baton Rouge, LA

Pamela S.D. MacRae and James H. Cowan Jr. A Community Approach to Identifying Essential Fish Habitat in Barataria Bay, Louisiana. 2004 American Fisheries Society Annual Meeting, Madison, WI

Pamela S.D. MacRae and James H. Cowan Jr. Characterizing Fish Community Structure in Relation to Hydrographic Variables and Marsh Loss in Barataria Bay, Louisiana. 2003 *Estuarine Research Federation Biennial Meeting*, Seattle, WA

Pamela S.D. MacRae and James H. Cowan Jr. Characterizing Fish Community Structure and Habitat Utilization in Barataria Bay, Louisiana. 2003 *Louisiana Chapter of the American Fisheries Society*, Baton Rouge, LA

Pamela S.D. MacRae and D.A. Jackson. A Comparative Approach to Quantify the Influence of Predation and Habitat Complexity on the Structure of Littoral Fish Assemblages. 2001 *American Fisheries Society Annual Meeting*, Charlotte, NC

FUNDING:

D. Potter, P. MacRae and A. Phillippi. Up East Foundation Inc. Supplemental Proposal to Minnow Project: Do Freshwater Minnows at Allen Island Demonstrate Genetic or Behavioral Isolation from Mainland Populations? 2015. \$5500.

D. Potter and P. MacRae. Up East Foundation Inc. Cyprinid Project: Do Freshwater Minnows at Allen Island Demonstrate Genetic or Behavioral Isolation from Mainland Populations, 2015. \$14,999.

P. MacRae. Unity College Faculty Grants for Scholarship: The Influence of Anthropogenic Nitrogen Loading on the Ecological Stoichiometry of the Least killifish, *Heterandria formosa*, in Florida Lakes and Springs, 2014, \$1000.00.

P. MacRae. Unity College Undergraduate Research Mentor Award: A Comparison of Fish Assemblage Structure in Lakes with and without Alewife, *Alosa pseudoharengus*: Investigating the Impact of Reintroducing Alewife on Littoral Fishes, 2014, \$1000.00 and 3 Credit Course Release AY2014/15.

Philippi and P. MacRae. Up East Foundation Inc. Assessing the Habitat Use of Rockweed in the Rocky Intertidal Zone by Lobsters and Fish: Phase 1 – Methodology Development, 2014, \$14,751.00.

Tallahassee Community College - Science Advisory Board - Water Chemistry Testing Equipment Grant, 2012, \$3,000.

PBS&J. Summer Camp Annual Water Quality and Sediment Chemistry Monitoring Report. St. Joe Company, 2010, \$45,000.

PBS&J. Leon County Lakes Water Quality Sampling Frequency Data Analysis: Monthly versus Quarterly. Leon County Department of Public Works, 2007, \$20,000.

MacRae, P. Examining the trophic dynamics of spotted seatrout, *Cynoscion nebulosus*, in the northern Gulf of Mexico using stable isotopes. *Sigma Xi Doctoral Student Research Grant-in-Aid Award*. LSU Chapter of the Sigma Xi Scientific Research Society, 2004, \$500.

Wilcox, C. and P. MacRae. Enhanced Fish and Wildlife Funding through the Ontario Living Legacy Trust, 2001, \$10,000.

PEER-REVIEW SERVICE:

Marine and Freshwater Research, Marine Ecology Progress Series, Transactions of the American Fisheries Society, Florida Fish and Wildlife Conservation Commission, Environmental Biology of Fishes, Journal of Fish Biology

ACADEMIC, COMMUNITY & VOLLUNTEER SERVICE:

Girl Scouts of Maine – Troup 1651 Leader, China, ME, 2015 – Present

Board Member: Friends of Lake Winnecook, Unity, ME 2014-Present

Invited Honors Thesis External Examiner, Swarthmore College, May 2015

Marine Fisheries Guest Lecturer, Messalonskee High School, Oakland, ME, 2014

Aquatic Ecology Field Trip, China Primary School, China, ME, 2014

Invited Panelist: Graduate Women in Science Program, *Florida State University*, May 2011

Volunteer Instructor/Planner/Panelist, SCIGirls Science and Engineering Summer Camp, National High Field Magnetic Laboratory, *Florida State University*, 2008 – 2012

Moderator, Int. Conference on Artificial Reefs and Artificial Habitats, Biloxi, MS, 2005

Volunteer Coordinator, Student Colloquium, American Fisheries Society Meeting, 2004

Moderator, American Fisheries Society Annual Meeting, LA Chapter, 2003 & 2005

Secretary, Baton Rouge Chapter of the Association for Women in Science, 2003 -2005

Volunteer Research Assistant, Amphidromous Goby Research Project, Hilo, HI, 2003

Student Co-Chairman, American Fisheries Society Annual Meeting, LA Chapter, 2003

Co-President, Louisiana State University Aquaculture and Fisheries Club, 2001-2002

Volunteer, World Wildlife Fund, 1998-1999

Volunteer Research Assistant, Bermuda Green Sea Turtle Conservation Project, Bermuda, 1996

PROFESSIONAL DEVELOPMENT:

The Teaching Professor Conference, Boston, MA (2014)
Annual International Conference on Teaching and Leadership Excellence, Austin, TX, (2012)
Distance Learning – Online Faculty Training Course (2012)
Teaching Online with Blackboard Course (2012)
Learning Centered Philosophy and Values Workshop (2012)
Active Learning and Engagement Workshop (2012)
Classroom Assessment Techniques Workshop (2012)
Meeting the Learning Needs of a Diverse Student Population Workshop (2012)
Working with Students with Disabilities Workshop (2012)
Dealing with Challenging Students Workshop (2011)
Learning Styles Workshop (2011)
Assessing Learning: Techniques and Challenges Workshop (2011)
Technology and Learning Workshop (2011)
Introduction to Blackboard 9 Workshop (2011)
Student Advising Workshop (2011)
Using the Syllabus to improve the Learning Environment Workshop (2011)

AWARDS AND FELLOWSHIPS:

Unity College Undergraduate Research Mentor Award, 2014
PBS&J Program for Recognition and Commendation Award, 2007 & 2008
Dr. Theodore Ford Memorial Endowed Scholarship for Research in Marine Fisheries, Louisiana State University, Department of Oceanography and Coastal Sciences, 2005
Best Student Oral Presentation, Louisiana Chapter - American Fisheries Society, 2005
Rockefeller State Wildlife Scholarship, Louisiana Student Financial Assistance, 2003-2005
Student Regional Research Award, Estuarine Research in the Southern Region of the United States, Estuarine Research Federation, Southern Association of Marine Laboratories, 2003
Graduate School Enhancement Award, Louisiana State University Graduate School, 2002-2005
Equal Opportunities Travel Award, American Fisheries Society, 1999
Edna Margaret Robertson Scholarship for Research in Fisheries and Wildlife Conservation in Ontario, University of Toronto, Department of Zoology, 1998