

MARNEY C. PRATT

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PROFESSIONAL PREPARATION

Bowdoin College, Brunswick, ME. August 2003 – present.

Post Doctoral Researcher and Instructor

Duke University, Durham, NC. September 1997 – December 2003.

Ph.D. in Biology

Teaching Certificate in College Biology, Duke University, Durham, NC. April 2003.

Bowdoin College, Brunswick, ME. September 1993-December 1996.

A.B. in Biology, *Summa Cum Laude* with Honors in Biology

PROFESSIONAL POSITIONS

•Visiting Assistant Professor, Biology Department, Bowdoin College:

Investigations in Biology, Spring 2005 & 2006:

A laboratory-centered course that involves students in all aspects of biological investigations, from asking questions and developing hypotheses to analyzing and presenting data.

Coastal Marine Life, Spring 2005 & 2006, Fall 2005:

A course to expose non-majors to the marine environment and the scientific process.

Marine Physiological Ecology, Fall 2004:

An upper-level research based course investigating how marine animals and plants deal with stress physiologically.

Intertidal Ecology, Spring 2004:

An upper-level research and discussion based course concentrating on the ecology of local marine intertidal habitats. Visit the website created by students in the course:

http://academic.bowdoin.edu/csc/intertidal_habitats/index.shtml

•Visiting Instructor, Biology Department, Guilford College:

General Zoology, Summer 2003:

Summer course for the Continuing Education Program at Guilford College. Met twice a week for 10 weeks and included lectures and laboratories.

•Teaching Assistant, Duke University:

Introductory Biology, Spring 2001; Biodiversity, Fall 2000; Biomechanics, Spring 1998;

Physiology, Fall 1997.

•Teaching Assistant, Friday Harbor Laboratories, University of Washington:

Marine Invertebrate Zoology, Summer 2000:

Intensive five-week course: assisted students in lab and on field trips, gave a lecture, and assisted in writing and grading exams. A set of web pages was developed as a part of a class project and can

be viewed at the following link: <http://depts.washington.edu/fhl/zoo432/indexframes.htm>

•Teaching Assistant, Bowdoin College:

Introductory Biology, Spring 1997

PUBLICATIONS

- Fleet, C.M., Rosser, M.F., Zufall, R., **Pratt, M.C.**, Feldman, T.S., Lemons, P.P. (in Press). Analysis of hiring practices in biology departments of post-secondary educational institutions. *BioScience*
- [Pratt, M.C. \(2005\)](#). Consequences of coloniality: the influence of colony form and size on feeding success in the bryozoan *Membranipora membranacea*. *Mar. Ecol. Prog. Ser.* 303:153-165
- [Pratt, M.C. \(2004\)](#). The effect of zooid spacing on bryozoan feeding success: is competition or facilitation more important? *Biol. Bull.* 27:17-27
- [Pratt, M.C. and Johnson, A.S. \(2002\)](#). Strength, drag, and dislodgement of two competing intertidal algae from two wave exposures and four seasons. *J. Exp. Mar. Biol. Ecol.* 272:71-101

SUBMITTED PUBLICATIONS OR IN PREPARATION

- ***Pratt, M.C.** and Grason, E.W. Invasive species as a new food source: does a native nudibranch prefer eating an invasive bryozoan? In preparation for *Biological Invasions*.
- *Chan, B., Levin, I. and **Pratt, M.C.** Size dependent respiration response to hypoxia in the juvenile sea star *Asterias forbesi*. In preparation for *Marine Biology*.
- Pratt, M.C.** Using physiological ecology to understand the success of an invasive species of bryozoan in the Gulf of Maine. In preparation for *Biological Invasions*.
- Pratt, M.C.** The effect of water velocity on feeding success and abundance in bryozoans. In preparation for *J. Exp. Mar. Biol. Ecol.*
- *indicates undergraduate student coauthorship.

RESEARCH EXPERIENCE

EFFECT OF TEMPERATURE ON THE PHYSIOLOGICAL ECOLOGY OF TWO CLOSELY RELATED SEA STARS

- Post doctoral research, Bowdoin College, August 2005 – present.

There are two common species of sea stars on the east coast of North America: *Asterias rubens* (=vulgaris) has a more northern limit, while *Asterias forbesi* has a more southern limit. Both species are found from central Maine to Cape Hatteras. Historical records indicate that *A. rubens* was more abundant along the Maine coast, but more recently *A. forbesi* seems to be the more dominant species. I am measuring each species response to temperature to determine if increasing environmental temperatures may be contributing to the northern expansion of *A. forbesi*.

MEMBRANIPORA MEMBRANACEA AS AN INVASIVE SPECIES IN THE GULF OF MAINE

- Post doctoral research, Bowdoin College, August 2003 – present.

Membranipora membranacea, an encrusting bryozoan, first appeared in the Gulf of Maine in 1987 and has since become a dominant epiphyte on native algae such as kelps. I am currently investigating the consequences of the *Membranipora* introduction on the local community. I mentored an undergraduate honors student, Emily Grason, on a project looking at what native predators will eat *Membranipora* and comparing predator preference for *Membranipora* versus native species of bryozoans. I am also comparing the feeding performance, growth, respiration rate, and competitive ability of *Membranipora* to other resident bryozoans.

FLOW, FEEDING, AND FORM: CONSEQUENCES OF COLONIALITY IN BRYOZOANS

- Ph.D. dissertation research with Dr. S. Vogel, Duke University, Fall 1998 – Fall 2003.

I spent several summers (1999-2002) collecting data at the Friday Harbor Laboratories investigating how water velocity affects feeding success, growth, and survival in erect and encrusting marine bryozoans. Results suggest that an encrusting species (*Membranipora membranacea*) seems to be able to capture more food, grow faster, and survive longer than other species. One reason why

Membranipora has such a high ingestion rate seems to be due to the dense arrangement of zooids and highly efficient coordinated filtering techniques.

RISK OF DISLODGE MENT IN TWO INTERTIDAL SEAWEEDS

- Senior honors thesis with Dr. A.S. Johnson, Bowdoin College, January 1996 – May 1997.
This study investigated the seasonal and site-specific effects on the material properties of two co-dominant low intertidal red algae. We examined the ratio between breaking force and drag for two species of co-dominant, red algae, *Chondrus crispus* and *Mastocarpus stellatus*, in four seasons at two wave exposures. Despite differences in material properties and drag forces, these two species had a similar size-specific risk of dislodgment.

DISTRIBUTION AND ABUNDANCE OF INTERTIDAL ALGAE

- Self-designed project with E.A. Archie, Kent Island, Bowdoin Scientific Station, NB Canada, Summer 1995.
Mapped distributions and relative abundances of the dominant algae in the intertidal zone surrounding Kent Island. Also compiled a list of all intertidal organisms found around the island.

FELLOWSHIPS AND GRANTS

Funds to buy equipment and cover costs of postdoctoral research:

- Faculty Research Grant. Bowdoin College. August 2004 – June 2005. (\$2000)
- Rusack Coastal Studies Project Initiative Fund. Bowdoin College. August 2004 – June 2005. (\$4200)
- Coastal Studies Center Scholar-in-Residence Fund. Bowdoin College. August 2003 – July 2004. (\$2000)

Funds to buy equipment and cover costs of Ph.D. dissertation research:

- Doctoral Dissertation Improvement Grant. National Science Foundation. June 2002 – May 2003. (\$7500)
- Biology Dissertation Improvement Grant. Duke University. Spring 2001. (\$7000)
- Wainwright Fellowship. Friday Harbor Laboratories. Summer 2001, 2002. (\$5000 each)
- Project AWARE Foundation Grant. PADI. Summer 2001. (\$1000)
- Zoology Grant-in-Aid of Research. Duke University. Summer 2000. (\$1000)
- Grant-in-Aid of Research. Sigma Xi. Summer 2000, 1999. (\$700 each)

Fellowships to cover stipend and/or tuition during dissertation research:

- American Fellowship. American Association of University Women. July 2002 – June 2003. (\$20,000)
- Graduate Research Fellowship. National Science Foundation. Three years. (\$80,000)
- Friday Harbor Laboratories Scholarship. University of Washington. Summer 1998. (\$1200)

INVITED ORAL PRESENTATIONS

- University of Maine, Orono, ME. April 2005
- Bigelow Laboratory for Ocean Sciences, West Boothbay Harbor, ME. October 2004
- Darling Marine Center, University of Maine, Walpole, ME. July 2004
- Bowdoin College, Brunswick, ME. May 2004
- University of Southern Maine, Portland, ME. April 2004
- University of New Hampshire, Durham, NH. October 2003
- American Association of University Women, Chapel Hill Chapter, Chapel Hill, NC. April 2003
- American Association of University Women, Wilmington Chapter, Wilmington, NC. March 2003
- University of Washington, Friday Harbor Laboratories, Friday Harbor, WA. July 2002, August 2001

CONTRIBUTED ORAL AND POSTER PRESENTATIONS

- Benthic Ecology Meetings, Quebec City, Canada. March 2006
- Society for Integrative and Comparative Biology, Annual Meeting, Orlando, FL. January 2006
- Ecological Society of America, Annual Meeting, Montreal, Canada. August 2005
- 32nd Maine Biological and Biomedical Sciences Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME. April 2005
- Society for Integrative and Comparative Biology, Annual Meeting, San Diego, CA. January 2005
- Society for Integrative and Comparative Biology, Annual Meeting, New Orleans, LA. January 2004
- Ecological Society of America, Annual Meeting, Savannah, GA. August 2003
- Society for Integrative and Comparative Biology, Annual Meeting, Toronto, Canada. January 2003
- Society for Integrative and Comparative Biology, Annual Meeting, Anaheim, CA. January 2002
- International Bryozoology Association, Tri-annual Meeting, Dublin, Ireland. July 2001
- UNC-Duke Biology Graduate Student Symposium, Chapel Hill, NC. April 2001
- Society for Integrative and Comparative Biology, Annual Meeting, Chicago, IL. January 2001
- Benthic Ecology Meetings, Wilmington, NC. March 2000
- Society for Integrative and Comparative Biology, Annual Meeting, Atlanta, GA. January 2000
- Benthic Ecology Meetings, Portland, ME. March 1997
- Society for Integrative and Comparative Biology, Annual Meeting, Albuquerque, NM. December 1996

PROFESSIONAL ASSOCIATIONS

- Ecological Society of America, Spring 2003-present.
- Association of Women in Science, Spring 2000-present.
- International Bryozoology Association, Summer 1999-present.
- Society of Integrative and Comparative Biology, Fall 1996-present.

HONORS OR OTHER AWARDS

- Sumner Increase Kimball Prize. Bowdoin College, 1997.
Book prize awarded to the member of the senior class who has shown the most ability and originality in the field of the Natural Sciences.
- Copeland-Gross Biology Prize. Bowdoin College, 1997.
Book prize awarded by the Biology Department to the graduating senior who best exemplifies the idea of a liberal arts education.
- *Phi Beta Kappa*. Bowdoin College, 1997.
- James Malcom Moulton Prize in Biology. Bowdoin College, 1996.
Award for outstanding junior majoring in biology.
- CRC Press Freshman Chemistry Award. Bowdoin College, 1994.
Award for outstanding first year student in chemistry.

LEADERSHIP AND COMMITTEES

- Planning Committee for Teacher Training Program, Bowdoin College, Summer 2004-present.
The Coastal Studies Center sponsors a weeklong summer training session for middle school science teachers. I lead the effort to develop the curriculum for the pilot program for Summer 2005, which focused on the issue of invasive species and provided science teachers with general background knowledge, information on local cases in the Gulf of Maine, activities they can use in the classroom, and experience doing research on invasive species in the field.
(<http://academic.bowdoin.edu/csc/bccsi/index.shtml>)

- Certificate in Teaching College Biology Committee, Duke University, Fall 2001-Summer 2003.
The Certificate in Teaching College Biology aims to enhance the overall professional development of future biologists by preparing graduate students to teach biological sciences. I helped further program development, award the certificate to participants who satisfactorily completed the requirements, assess program effectiveness, and organize program functions.
(<http://www.biology.duke.edu/teachcert/>)
- WiSE Panning Committee, Duke University, Spring 2002-Summer 2003.
Women in Science and Engineering (WiSE) sponsors events through which women faculty members, administrators, post-doctoral associates, and graduate students can come together to share experiences.
- UNC-Duke Biology Graduate Student Symposium, University of North Carolina Chapel Hill, April 28, 2001.
Served as the Duke contact and helped coordinate the symposium. The symposium increased awareness of graduate student research and promote the exchange of ideas between Duke and UNC.
- Zoology Graduate Student Steering Committee, Duke University, Summer 1999-Spring 2000.
The Graduate Student Steering Committee serves as the graduate student voice to the department and administration and also organizes activities for graduate students. The biggest challenges that we faced dealt with graduate student concerns over the merger of the Zoology and Botany departments.
- BLIMP Coordinator, Duke University, Fall 1998-Spring 1999.
Organized the weekly meetings of the Biomechanical Laboratory of Integrative Morphology & Physiology (BLIMP). BLIMP is a forum where students and faculty from Duke University and University of North Carolina at Chapel Hill meet to give oral presentations and exchange ideas about current research in the field of comparative biomechanics.
- Coastal Studies Committee, Bowdoin College, Fall 1995-Spring 1997.
Served as the student representative on Bowdoin College's Coastal Studies Center committee.

OTHER ACADEMIC AND OUTREACH SERVICE

- Member of the Maine Invasive Species Working group, Portland, ME August 2005 – present
- Volunteer Visiting Scientist at Camp Kieve science camp for girls, Nobleboro, ME, August 2004
- Grant reviewer for the Northeast Consortium, Durham, NH, April – May 2004
- Scientific Advisor to the Maine Sea Grant Intertidal Monitoring Program, Spring 2004 – present
- Volunteer for the K-12 Educational Outreach Program at the Friday Harbor Marine Labs, Summer 2002
- Reviewer for *American Naturalist*, *Canadian Journal of Zoology*, *Journal of Experimental Biology*, and *Invertebrate Biology*