

# COASTAL STUDIES CENTER

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## FROM THE DIRECTOR ANNE HENSHAW

With the new Coastal Studies Center (CSC) pier under construction and capital campaign efforts to endow the Institute for Coastal Studies (ICS) in full swing, our program is experiencing a kind of growth not seen since the CSC opened in 1998. The new pier will not just create water access but represents a new suite of programming opportunities that will extend our academic reach well beyond the bounds of the property. The new Institute for Coastal Studies will endow the very programs –summer research fellowships, visiting scholars, symposia, faculty research funds, and K-12 outreach — that have made Coastal Studies draw a growing number of faculty, staff and students from around the college every year. This past year we had a multitude of faculty and students engaged in on-going coastal and marine research in Biology, Environmental Studies, Geology, Economics, Visual Arts and Anthropology including fourteen summer student fellows working all along the Maine coast. In addition, Coastal Studies co-sponsored several events and a symposia that attracted marine biologists from across New England. Our scholar-in-residence program together with a new Doherty Marine Biology Scholar infused the Center with a range of academic experiences for students from the arts to the sciences. Outreach efforts also continue to grow with the Coastal Science Institute for middle school teachers and through a place-based education program being carried out in collaboration with the Island Institute. Such programs make a real difference not only for our surrounding communities but in the professional lives of our faculty and in the trajectory of our students who gain experiences not typically afforded to many undergraduates.

## RESEARCH AND TEACHING

This year the CSC hosted a wide array of teaching and research opportunities for students. In the fall, CSC resident scholar and architect **Carol Wilson** taught a course entitled “Investigating the Maine Landscape,” where students used the CSC as a place to explore the interdisciplinary aspects of building design. As part of a final project students developed an installation entitled ‘Snap to Grid’ that highlighted the tidal aspects of the coastline through a grid of mooring balls anchored along the northeast tip of the property. In the spring, students in **Wiebke Theodore**’s class “Architecture and Sustainability” had the opportunity to create designs for a new outdoor space at the Coastal Studies Center through



CSC scholar-in-residence Carol Wilson with her students from “Investigating the Maine Landscape” course

a gift recently given in honor of **William Boothby** (‘43). The design proposals ranged from a climbing tower to a semi-subterranean performance space. The CSC advisory committee will be reviewing these proposals in the fall for building consideration. The CSC also provides hands-on field and lab experiences for several other Bowdoin classes during the academic year including the Biology of Marine Organisms, Marine Larval Ecology, Coastal Marine Life, and Introduction to Geology.

## RESEARCH AND TEACHING



2006 Coastal Studies Summer Fellows at the CSC farmhouse

The summer research season was active as well with fourteen students conducting a variety of projects at the CSC and other coastal locations all along the Maine Coast and as far as Washington State. The marine lab was buzzing with activity with six student fellows conducting both field and lab experiments.

**Becca Selden '06** (Beckman Fellow) continued her two year research project with Professor **Amy Johnson** (Biology) and Research Associate **Olaf Ellers** (Biology) on sea urchin metabolism and growth. **Bobbi Robinson '08** (Doherty Fellow), **Ian Haight '08** (Howard Hughes Fellow) and **Orissa Moulton** (Wheaton College) together with Professor **Marney Pratt** (Biology) focused their work on the feeding strategies and growth patterns of two species of sea stars (*Asterias rubens* and *Asterias forbesi*) in relation to various parameters including

temperature, competition and cannibalism. **Nick Alcorn '08** (Doherty Fellow) and **Eric Robinson '07** (Howard Hughes Fellow) working with Doherty Scholar **Jon Allen** (Biology) conducted research on the predation of benthic and plankton invertebrates at nearby sampling sites in Harpswell Sound as well as looking at the relationship between egg size, parental investment and larval development of green sea urchins

(*Strongylocentrotus droebachiensis*). Long term environmental research continued in Merrymeeting Bay this summer. **Mark Burton '07** (Rusack Fellow) studied food web structure and its implications for fish reproduction under the direction of Professor **John Lichter** (ES/Biology). **Lucy Van Hook '06** (Coastal Studies fellow) together with Lab Instructor **Jared Reblin** (Biology) continued their three-year project investigating the size, demography and nesting success of snapping turtles (*Chelydra serentina*) in Merrymeeting Bay. Under the guidance of Professor **Anna Hepler** (Visual Arts), **Alex Bettigole '08** (Rusack Fellow) spent his fellowship rekindling the art of natural history drawing and printmaking focusing on the flora and fauna at the CSC and surrounding areas. **Toby Crawford '07** (Rusack Fellow) worked with Professor **Jill Pearlman** (Environmental Studies) to examine the architectural history of the Cribstone Bridge connecting Orr's and Bailey Island. On the west coast, **Tom Buehrens '07** (Doherty Fellow) worked in conjunction with scientists from Washington Trout, a non-profit conservation science organization, to conduct a Salmonoid habitat survey along the beaches of Puget Sound on Widbey Island in Washington State. **Brendan Torrance '07** (Rusack Fellow) worked with Professor **Dharni Vasudevan** (ES/Chemistry) on probing the connections between wastewater contamination and marine mammal health. The project was carried out in collaboration with the **University of New England** Marine Science and Education Center. **Natasha Horvath '07** (Doherty Fellow) spent her summer researching the distribution of orcokinin in stomatogastric nervous system of red lobster (*Homarus americanus*) with a team of students working in the lab of Professor **Patsy Dickinson** (Neuroscience/Biology).



Student "Snap to Grid" installation at the CSC



Mary Kate Wheeler 'smodel of CSC tree tower

The faculty resources committee also awarded five Rusack Coastal Studies research grants to faculty working on a variety of projects including coastal development issues in the Adriatic (**Pam Ballinger**, Anthropology), benthic versus planktonic predation of marine invertebrates (**Jon Allen**, Biology), Bathymetric mapping of Harpswell Sound (**Ed Laine**, Geology), temperature effects on sea stars along the coast of Maine (**Marney Pratt**, Biology), and reconstructing the environmental history of Merrymeeting Bay (**John Lichter**, Biology) and **Sherri Cooper** (2006-2007 CSC scholar-in-residence). The CSC also hosted psychology Professor **Diane Lee** (California State University, Long Beach) who conducted a year-long study on the seasonal influences on neurogenesis in food storing birds including the black-capped chickadee. During her stay, Dr. Lee supervised **Katie Mitterling '06** on an Honors project in collaboration with **Seth Ramus** (Neuroscience).

**VISITING SCHOLARS**



Carol Wilson resident scholar (Fall)

The CSC welcomed a host of visiting scholars during the 2005-2006 academic year. In the fall, architect **Carol Wilson** was our scholar-in-residence. The students enrolled in her “Investigating the Maine Landscape” course learned to appreciate the CSC on many disciplinary fronts including its botany, geology, archaeological sites and aesthetics in order to appreciate the basic underpinnings of building design. Guest lecturers in the class included naturalist, Neil Jorgenson and environmental artist June LaCombe. Ms. Wilson also gave a public lecture entitled “Revolution/ Evolution: architecture, culture and Maine” to a packed audience in Beam classroom in November. In the spring, the CSC and the Department of Theatre and Dance had the privilege of hosting actor, playwright and director **J. Ed. Araiza** who taught two courses:



J.Ed. Araiza resident scholar (Spring)

Training, Acting and the Body and Collaborative Creation and the Ensemble. The culmination of these classes was a student-generated public performance in Pickard Theatre held May 4-6 entitled “The Water Project.” The CSC marine lab together with the Biology Department welcomed Doherty Marine Biology Scholar, **Jon Allen** for a two year post doctoral position of intensive research. Dr. Allen recently finished his Ph.D. from the University of North Carolina at Chapel Hill and conducts research on the evolutionary ecology of marine invertebrates. As part of his position, Dr. Allen also taught an upper level course on “Marine Larval Ecology” and supervised two students Eric Robinson ('07) and Nick Alorn ('08) as part of the Coastal Studies summer research fellowship program.

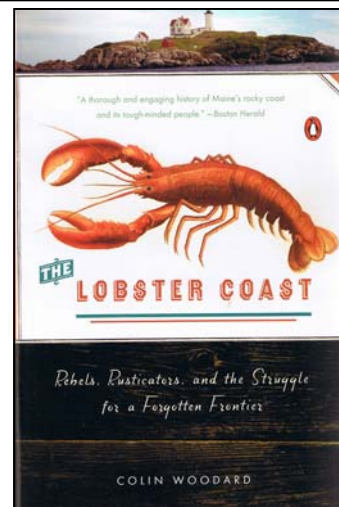
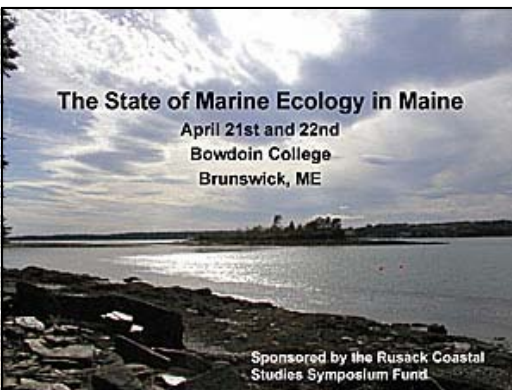


Doherty Marine Biology Scholar John Allen with summer fellow Eric Robinson ('07)

**SYMPOSIA AND PUBLIC LECTURES**

This year Coastal Studies hosted several lectures and symposia. In October, the CSC, together with the Sociology and Anthropology Department and the Environmental Studies program welcomed **Margaret Cromarty**, a Cree poet from the James Bay region of Northern Quebec who spoke with students in the “Arctic Peoples of North America” class and gave a reading in the ES Commons. Together with the Gender and Women Studies program, Environmental artist, **June LaCombe**, gave an evening lecture entitled “Participation and Place: Insights from Environmental Arts” in Beam Classroom as part of her visit with students at the Coastal Studies Center. Historian and journalist **Colin Woodard** came to campus in March for an evening lecture entitled “The lobster coast: a cultural history of coastal Maine.” As part of his visit, Mr. Woodard also spoke with an enthusiastic group of ES students enrolled in ES 391 “Trouble Waters: Fishing in the Gulf of Maine.” With support of the Rusack Symposium Fund, the Biology Department hosted a two-day symposium

entitled the “**State of Marine Ecology in Maine.**” The symposium was open to the public and featured talks from a distinguished group of 17 invited speakers from 10 institutions including the University of New Hampshire, Bigelow Laboratory, College of the Atlantic, Maine Maritime Academy, Bates College, Northeastern, the University of Maine Darling Marine Lab, the University of New England and the Gulf of Maine Research Institute. The speakers, including organizers **Jon Allen, Amy Johnson, Marney Pratt** and **Olaf Ellers** highlighted current biological research in the field of marine ecology in the state of Maine. In addition to papers delivered in Druckenmiller Hall on campus, the two day event also welcomed researchers to the Coastal Studies Center for a research tour of the marine lab and for seminar presentations in the farmhouse.



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## COMMUNITY SERVICE AND OUTREACH

The CSC began its year with our annual Coastal Clean up events as part of Bowdoin's Common Good Day and the Maine Coastweek program held every September. Many thanks to CSC caretaker **Mark Murray**, and Bowdoin students **Sarah Scott** ('07), **Nik Mitsopoulos** ('08), **Hunain Khaleeli** ('08), **Michael Bamani** ('08), **Richard Ong** ('08), and **Nick Turner** ('07) in their clean up efforts. In November, the **CSC marine lab** held its first **open house** for the Harpswell community. The event was well attended with many curious on-lookers, both young and old, who got to meet marine lab research faculty and students and learn about their on-going projects. Bayview Road residents were welcomed to the CSC for the **fourth annual neighbors picnic barbeque** in July. Although the rain kept us indoors, it was a great opportunity for neighbors to hear about various Bowdoin coastal research projects taking place around Maine. Many thanks to the Communications office for co-sponsoring the event and CSC coordinator **Rosie Armstrong** for helping to organize the evening. The CSC also welcome **Liz McGhee** ('89), Director of **Spindleworks**, a non profit art center for adults with disabilities located in Brunswick. Spindlework artists made three field trips out to the Center where they set up in the Terrestrial Lab to paint, draw and record various aspects of the landscape.

In June, Coastal Studies welcomed ten middle school teachers from across Maine offering a week-long intensive course focused on the theme of invasive species. The program which built on the success of the inaugural teacher training institute in 2005, emphasized hands-on learning by offering a variety of field and lab exercises to help integrate coastal science themes into their classrooms. The participating schools included Brunswick Junior High, Woolwich Central School, Winslow Junior High, Somerset Valley Middle School, and James Doughty Middle School. Highlights of the Institute included field trips to the Coastal Studies Center and marine lab, Giant Stairs, and Biddeford Pool, as well as guest lectures from **Elizabeth Stephenson** of the Maine Coastal Program and teacher **Renee Foreman** of Bonny Eagle Middle School, a participant in last summer's Institute. With co-lead instructors **Marney Pratt** and **David Guay**, teachers learned how to collect, and analyze data on the species, sex, size and distribution of invasive crab species, have debates around the policy and economic issues surrounding invasive species, and presented ideas of how they planned to translate what they learned into the classroom. The program hopes to create an on-line learning community of teachers using the Blackboard software as a resource tool to share and exchange ideas. The Coastal Science Institute was funded through generous grants from **Geoff Rusack '78** and **Alison Wrigley Rusack**, the **Libra Foundation**, the **Kenduskeag Foundation**, and the **Margaret E. Burnham Charitable Trust**. With renewed fund raising efforts underway with the help of **Marianne Jordan** (Corporate and Foundation Relations), we hope to offer the program again next summer. CSC Director, **Anne Henshaw** participated in a collaborative outreach program with the **Island Institute** and the **University of Maine**,



Visitors at the Marine Lab open house held in November



Mary Vargo '06 and BCCSI teachers from James Doughty Middle School in Bangor at Giant Stairs, Bailey Island

**Machias** as a co-principal investigator in a three year \$1.2 million dollar **National Science Foundation grant** entitled CREST "Community, Rural, Education, Stewardship and Technology" where students and teachers from island and remote coastal communities will develop place-based curriculum that integrates various technologies including GIS, web design and ethnographic film making. Two summer institutes brought eleven Maine schools together at the University of Maine, Darling Marine Lab for week long trainings in the various technological skills and research strategies they will employ to carry out place-based projects in their own schools.



Painter from Spindleworks enjoys the view from the CSC Terrestrial Lab

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Mike Kolster (Visual Arts)

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## PUBLICATIONS, HONORS, AND EXHIBITS

### Faculty Publications

**Allen, J.D.**, C. Zakas and R.D. Podolsky. 2006. Effects of egg size reduction and larval feeding on juvenile quality for a species with facultative-feeding development. *Journal of Experimental Marine Biology and Ecology*. 331(2): 186-197.

**Ballinger, P.** 2006. Lines in the Water, Peoples on the Map: Maritime Museums and the Representation of Cultural Boundaries in the Upper Adriatic. *Nardona umjetnost* 43(1): 15-39.

**Ballinger, P.** 2006. Watery Spaces, Globalizing Places: Ownership and Access in Postsocialist Croatia. In *European Responses to Globalization: Resistance, Adaptation and Alternatives*. Janet Laible and Henri Barkey, eds. Pp. 153-177. Amsterdam: Elsevier Press.

**Henshaw, A.** 2006. Pausing along the Journey: Learning Landscapes, Environmental Change, and Toponymy amongst the Sikusilarmiut. *Arctic Anthropology* 43(1): 52-66.

**Herrera, G.E.**, 2006. The benefits of spatial regulation in a multispecies fishery. *Marine Resource Economics* 21(1):249-261.

**Herrera, G.E.** and P. Hoagland, 2006. Commercial whaling, tourism, and boycotts: An economic perspective. *Marine Policy* 30(3):261-269. Holland, D. and G.E.

**Herrera**, 2006. Flexible catch balancing in multispecies ITQ fisheries. *Canadian Journal of Fisheries and Aquatic Science* 63:1669-1685.

Köster, D., J. **Lichter**, P. D. **Lea**, and A. Nurse. Historical eutrophication in a river- estuary complex in mid-coast Maine. *Ecological Applications*, in press.

**Lichter, J.**, H. **Caron**, T. S. Pasakarnis, S. Rodgers, T. S. Squiers, Jr., and C. S. Todd. 2006. The ecological collapse and partial recovery of a freshwater tidal ecosystem in mid-coast Maine. *Northeastern Naturalist* 13:153-178.

**Pratt, M.C.** and Grason, E.W. (in Press) Invasive species as a new food source: does a native nudibranch prefer eating an invasive bryozoan? *Biological Invasions*.

### Student honors

Lucy **Van Hook** (06). Snapping turtle population ecology, movement, and home range in Merry-meeting Bay. Biology Department.

Becca **Selden** (06) "Growth and Metabolism of the Green Sea Urchin, *Strongylocentrotus droebachiensis*: Flow environments and predation pressure" Biology Department.

Kiersa **Benson** (06) "Growth and behavioral response of hard shell clam *Mercenaria mercenaria* in response to crab predation cues" Biology Department.

Kate **Mitterling** (06) "Differences in Hippocampus and Septum Volumes in Storing and Non-Storing Birds Across Seasons" Neuroscience Department.

Dan **McGrath** (06) "An analysis of melt pond formation, distribution and evolution in Barrow, Alaska using spectral albedo and transmission measurements" Geology Department.

## COASTAL STUDIES CENTER PIER PROJECT

The construction of the new pier is underway! After five years of planning, permitting and fundraising, Bowdoin broke ground on the first major capital project initiated since its opening in 1998. The pier will provide greater water access for faculty and student research as well as much improved access for the marine lab maintenance crew through the addition of a new pumphouse and intake/outflow lines. The project is due to be completed by the end of 2006. The project would not have been possible without the financial support of **Geoff Rusack** ('78) and **Alison Wrigley Rusack**, and the **National Science Foundation**. Many thanks also go to Bowdoin's Facility Department staff including **Greg Hogan**, (project manager) **Don Borkowski**, **Don Brown**, and CSC caretaker for **Mark Murray**, for overseeing all the details of the project and making it happen.



Mark Murray noting progress at pier construction site in August