

# COASTAL STUDIES CENTER

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## FROM THE DIRECTOR ANNE HENSHAW

The coast is often defined as an “edge”— an ecotone where the terrestrial and the marine environment create a vibrant, yet fragile ecosystem. Coastal Studies at Bowdoin also represents an edge, where disciplines converge offering a rich arena for teaching and learning. This is becoming especially true as we face a world of increasing environmental change; where coastal peoples and environments are some of the most vulnerable. Whether its extreme storms like hurricane *Katrina* impacting coastal cities and communities, or the challenges in building sustainable fisheries in the Gulf of Maine or the effects of a warming Arctic on small and large scale northern societies, Coastal Studies affords the opportunity for Bowdoin faculty and students to engage in complex problems through many disciplinary lenses. Such engagement defined many of the Coastal Studies projects undertaken during the 2004-2005 academic year. From training Maine middle school teachers in the growing science of invasive species, to exploring the causes and consequences of eutrophication in Merymeeting Bay or understanding issues surrounding coastal development in the Adriatic, our faculty and students continue to engage in a broad range of inquiries that bring increasing depth to our undergraduate mission.

## RESEARCH AND TEACHING

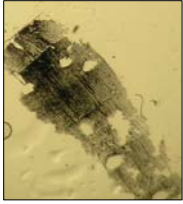
The Coastal Studies Center hosted a variety of student and faculty led research and teaching activities during the 2004-2005 academic year. During the fall semester, Biology Professor **Amy Johnson** and lab instructor **David Guay** kept students engaged in the Marine Lab for a variety of field and laboratory exercises as part of their course entitled the *Biology of Marine Organisms*. Lab Instructor **Joanne Urquhart** also led Geology 101 students through an orienteering field course on site while CSC Director **Anne Henshaw** continued work on the CSC shell midden with her students in the *Environmental Archaeology* class. In the spring, Professor of Theatre and Dance **Davis Robinson** led his students through a performance of “The Tempest” on a beautiful May afternoon.



Theatre and Dance students perform “The Tempest” at the CSC in May 2005 (Photo: Davis Robinson)

Beginning in June, the summer research field season was well underway with a host of Rusack and Doherty student fellows conducting work up and down the Maine coast. At the CSC marine lab **Beckman Scholar Rebecca Seldon ('06)** together with her advisor Amy Johnson studied the impact of flow on the metabolism of green sea urchins *Strongylocentrotus droebachiensis*. **Doherty Fellow Kiersa Benson ('06)**, Biology Professor **Lindsay Whitlow** and **Jon Grabowski**, Research Scientist with the Gulf of Maine Research Institute, explored the quality of eel grass habitat along Maine's intertidal and its effect on local crab and soft-shell clam populations.

## RESEARCH AND TEACHING



A charcoal fragment of White Pine identified from CSC midden

Merrymeeting Bay (MMB) continued to be a “hot spot” for coastal research this summer as well. Led by Biology and ES Professor **John Lichter** and Geology Professor **Peter Lea**, six students engaged in a variety of projects ranging from snapping turtle surveys to the geomorphology of bedforms. **Doherty Fellow Lucy Van Hook** ('06), a veteran researcher from the previous summer continued her work tracking the movement patterns of snapping turtles (*Chelydra serpentina*) during the tidal cycle in Merrymeeting Bay. **Doherty Fellow Mark Burton** ('07) examined the distribution and spawning location of the anadromous fish in the Bay. **Doherty Fellow Meghan Detering** ('07) tracked the hydrology of the bay in a project entitled “A Tale of Two Rivers: Dynamics of Androscoggin and Kennebec River Convergence in Merrymeeting Bay.” **Rusack Fellow Owen McKenna** ('07) studied MMB bedload flux and bedform dynamics and **Rusack Fellow Mary Kate Wheeler** ('07) investigated the ecology of rare plant species and sub aquatic vegetation in Merrymeeting Bay. **Doherty Fellow Kate Loomis** tackled the complex question of deciphering the impacts of human and climatic influences on the recent sedimentary record of MMB and surrounding areas. John Lichter and Peter Lea also teamed up with **Chemistry and ES Professor Dharni Vasudevan** in research to determine the environmental geochemistry of coastal sediments in the MMB watershed.\*



Coastal Studies Summer Fellows presenting the results of the research at a poster session in Smith Union (photo: Drew Fulton)



Becca Seldon ('06) outside the marine lab

**Doherty Fellow Dan McGrath** ('06) spent his summer in more northern latitudes researching the optical properties of sea ice in Barrow, Alaska using spectral albedo and transmission measurements. Dan also spent time in Hanover, New Hampshire at the U.S. Army Cold Regions Research and Engineering Laboratory analyzing his data which he will be including as part of his honor's thesis with Peter Lea in the Geology Department next year. **Rusack Fellow Ben Martens** ('06), working under the wing of ES Director DeWitt John, participated in the Bay Management Task

Force as part of his research on the challenges and opportunities of implementing environmental policy along the coast of Maine. **Rusack Fellow Carrie Atkins** ('06) together with Anne Henshaw conducted a comparative analysis of the macrobotanical remains from the CSC shell midden and other Maine coastal sites around the state. Carrie also worked with Anthropology Professor **Leslie Shaw** on Haskell Island in Harpswell as part of her research project\* examining prehistoric settlements and resource use in northern Casco Bay.

The CSC also welcomed back alumnus **Megan Lim** ('02) who worked as a research consultant with Coastal Studies Visiting Scholar **Anne Hayden** and Sociology Professor **Joe Bandy** to investigate the relationship between environmental NGOs and Maine fisheries organizations in the Gulf of Maine.\* Meanwhile Anthropology Professor **Pamela Ballinger** headed to the Adriatic coast and spent the month of June investigating coastal development issues in Postsocialist Croatia.\* Geology Professor **Ed Laine** together with Saint Joseph's Professor **Greg Teegarden** and Research Scientist **Colin Roesler** of Bigelow Laboratory were awarded an NSF grant to deploy a Gulf of Maine Oceanographic Bouy (GoMOOS) next spring off the Coastal Studies Center in Harpswell Sound. The bouy will monitor a variety of parameters important to understanding Harmful Algae Blooms (HAB) that occur in Maine near shore waters. Lumbos Hole, located just northeast of the CSC, is known to be an indicator site for HABs. In addition to the science of HABs, **Maya Jaafar** ('07), research assistant for Economics Professor **Ta Herrera**, helped document the response of the shellfish industry to HAB events in the Gulf of Maine. The 2005 summer experienced a particularly large bloom so their research was timely!



Professors Peter Lea and John Lichter together with Jared Reblin and Heather Caron collecting samples as part of the Merrymeeting Bay Project (Photo by Dorte Köster)

\*Research supported by the *Rusack Coastal Studies Project Initiative Fund*

## CSC VISITING SCHOLAR

The Coastal Studies Center together with the Environmental Studies Program welcomed **Anne Hayden** last year as our visiting scholar. As a policy analyst, Anne focuses on marine-resource management - with a special research concentration in Maine's lobster fishery. Hayden is working to develop a model of locally controlled marine-resources that would borrow from other successful management strategies for other scarce common-property resources such as groundwater and timber. Anne's research comes at a time when both the state and federal government are considering local mechanisms to help address the complexities of regulating marine resources. In the fall, Hayden brought Congressman **Tom Allen** (D-Maine) to campus for an ocean policy discussion with a group that included six Bowdoin faculty members and nearly a dozen other experts from around the state – including **Ted Ames**, the lobsterman who recently won the MacArthur "Genius" Award. In the spring, Anne taught the Environmental Studies capstone course "Troubled waters: fishing in the Gulf of Maine" where she led students in several community-service projects, including research and data collection for the Gulf of Maine Research Institute and Maine Department of Marine Resources. The class also attended the "Fisherman's Forum," an event held every year in Rockland, Maine that brings together a wide array of people and organizations connected to the Maine fishing industry. Next year the CSC will welcome two scholars, architect **Carol Wilson** and performing artist **J. Ed. Araiza** who will each spend a semester teaching and conducting independent work at the Center.



Anne Hayden CSC scholar- in-residence

## PUBLICATIONS, HONORS THESES AND EXHIBITS

### Exhibits

**James Mullen** - 2005 *Reflections*, Ruschman Gallery, Indianapolis, IN.

### Publications

**Ballinger, Pam** (In press). La frantumazione dello spazio adriatico (The Breaking of the Adriatic Seascape). *Immaginare l'Adriatico*. Franco Angeli.

**Herrera, G.E** 2005. Stochastic bycatch, informational asymmetry, and discarding. *Journal of Environmental Economics and Management* 49(3):263-283.

**Jin, D. and G.E. Herrera**. 2005. A stochastic bioeconomic model with research. *Marine Resource Economics* 20(3)

**Henshaw, Anne** 2004. Indigenous Perspectives on Climate Change (consulting author). 2004. In Arctic Climate Impact Assessment. Chapter nine. Report published by the Arctic Council, the U.S. National Science Foundation and the National Oceanic and Atmospheric Administration.

**Pratt, Marney** (In press) Consequences for coloniality: the influence of colony form and size in feeding success in the Bryozoan *Membranipora membranacea*. *Mar. ecol. Prog. Serv.*

### Student Honors theses

**Deborah Schaeffer** ('05). *Restoring Access to Small Boats through Area Management: A Path to Sustainability in the Gulf of Maine Groundfishery*. Advisor Anne Hayden, CSC/Environmental Studies

**Molly Wright** ('05). *Growth and metabolism in the green sea urchin, Strongylocentrotus droebachiensis*. Advisor Amy Johnson, Biology.

**Christina Souther** ('05). *Temporal and spatial patterns in plankton, nutrients, and physical properties of water across the salinity gradient of the Kennebec estuary*. Advisor: John Lichter, Biology and Environmental Studies

**David Mortimer** ('05). *Seasonal Development of Oxygen Levels and Stability in Quahog Bay*. Advisor: Ed Laine, Geology.

**Peter Benjamin Stranges** ('05). *Boundary layer fluid dynamics effects on oxygen metabolism and growth rates in green sea urchins, Strongylocentrotus droebachiensis*. Advisor: Amy Johnson, Biology.

**Benjamin Ming Fei Chan** ('05). *Exploring tensile attributes of mutable collagenous tissue in Eucladaris tribuloides spines with respect to muscle and ligament properties*. Advisor: Amy Johnson, Biology.



Amy Hodges ('05) installation at the Coastal Studies Center for her advance sculpture class

## COMMUNITY SERVICE AND OUTREACH



Dave Guay, Lead instructor for the CSI teacher training

This summer, the CSC together with the Departments of Biology and Education, launched the *Coastal Science Institute (CSI) for Middle School Science Educators*. From June 26-July 1, 2005, the summer institute offered Maine teachers a professional development opportunity to improve coastal and marine “literacy” in the sciences. The program was open to all Maine in service middle school science teachers. Fifty teachers applied for ten openings. Four two person teacher teams participated in the program representing schools from across Maine including York Middle School, Fort Fairfield Middle School, Bonny Eagle Middle School, and Winthrop Middle School. By offering the institute to teachers, Bowdoin hopes to have an impact on a significant number of Maine students.

Working in conjunction with marine scholars from **Maine Sea Grant**, the **Gulf of Maine Research Institute**, the **University of Maine**, and **McGill University**, the CSI planning committee developed a

curriculum that focused on the growing science related to invasive species, a topic of increasing importance in Maine’s coastal ecosystems. The institute used existing Bowdoin resources, including the Coastal Studies Center and surrounding coastline to help integrate “hands-on” science curriculum in the classroom through a variety of laboratory and field techniques. The Institute’s programming was also designed to meet state and national standards and will be informed by recommendations of the U.S. Commission on Oceans Policy outlining U.S. ocean education. Participating teachers earned continuing education credit, and received room and board in Bowdoin campus housing and a modest stipend. The institute plans to offer its invasive species theme for another two years, after that time it will switch to another theme with relevance to coastal and marine ecosystems. The program was with one time seed money through the **Geoff Rusack** (‘78) and **Alison Wrigley Rusack** and the **Libra Foundation**; the College now seeks long term institutional support for the program through the new Institute for Coastal Studies. Special thanks goes to Bowdoin faculty and staff as well as the rest of our planning team for their help in implementing this first successful year of the CSI. They include; Lab Instructor **David Guay**, Biology Professor **Marney Pratt**, Head Biology Lab Instructor **Pam Bryer**, Education Professor **Charles Dorn** and ES Coordinator **Rosie Armstrong** and CSC Director **Anne Henshaw**. The planning group also included two Maine middle school teachers, **Sue Lamdin** and **Peter Hill** (as well as **Tracy Hart and Esperanza Stancioff** (Maine Sea Grant), **Sarah Kirn** (Gulf of Maine Research Institute), **Elizabeth Stephenson** (UMaine) and **David Delaney** (McGill University).



Jessica Aiona (07) working with Long Island elementary school as part of serve learning project for *Anthropology of Islands*

Other outreach initiatives continued as well, with the CSC annual participation in coastal cleanup through the Maine Coastal Program and Bowdoin’s Common Good Day. Special thanks to coastal cleanup participants **Mark Murray**, **Melanie Conroy**, **Fariba Shaffiey**, **David Scott**, **Carolyn Johnson**, **Laura Toma**, and **Mitch Davis**. The **Anthropology of Islands** class also continued its collaboration with the **Island Institute** “Lobstertales” program. Students in the class partnered with two schools located in Casco Bay to help build websites portraying their communities and the role lobstering plays in them. Students from **Long Island** and **Chebeague Island**

enjoyed two visits to Bowdoin while the anthropology students made three separate trips to the island schools to gather historical, ethnographic and geographic content generated by the K5 classes. Thanks to **Nancy Grant** (IT trainer) at Bowdoin for her help with the project—the Long and Chebeague websites can be found at URL: [www.lobstertales.org/index.jsp](http://www.lobstertales.org/index.jsp).



Rose Teng (‘07) CSI program assistant for the CSI and Jeffrey Wilford, York Middle School



Lobster boat moored off Long Island in Casco Bay, March 2005

**Bowdoin College**  
 Coastal Studies Center  
 6775 College Station  
 Brunswick, Maine  
 Phone: 207 833-8018  
 Web: [academic.bowdoin.edu/csc/](http://academic.bowdoin.edu/csc/)



*Special thanks to a very dedicated and hard working support staff:*  
 Marjorie Parker (coordinator)  
 Mark Murray (caretaker)  
 Mike Chipman, Ken Durgen, and Jason Goguen (marine lab technicians)

*And to the 2004-2005 CSC Advisory Committee for all their help and input during the year:*

DeWitt John (Environmental Studies)  
 Jim Mullen (Visual Arts)  
 Peter Lea (Geology)  
 Sarah McMahon (History)  
 Amy Johnson (Biology)  
 John Lichter (Biology)  
 Ed Laine (Geology)

*Photograph credits: Anne Henshaw unless otherwise noted*

## CONTRIBUTIONS TO INTELLECTUAL LIFE

With support from the Rusack Symposium Fund, History Professor **Allen Wells** and Romance Language Professor **Enrique Yepes** of the Latin American Studies Program held a full day conference entitled “Insularity and Integration: recent trends in Caribbean scholarship.” Bowdoin students gave presentations together with leading scholars in the field of Caribbean Studies including **J. Michael Dash**, Director of Africana Studies at New York University and **Orlando Patterson**, Professor of Sociology at Harvard University. In the spring, CSC visiting scholar Anne Hayden presented a public talk on “Fisheries: Linking Ecological and Social Systems”. **Edward Seidel**, the new curator at the **Marine Resources Aquarium** in Boothbay gave a talk about his research with the Monterey Bay Aquarium and his exhibit plans for the aquarium.

FRIDAY  
 DECEMBER 3, 2004  
 8:30AM - 10:30PM  
 MOULTON UNION

THE LATIN AMERICAN STUDIES PROGRAM AT BOWDOIN COLLEGE PRESENTS:

**INSULARITY AND INTEGRATION**  
 RECENT TRENDS IN CARIBBEAN SCHOLARSHIP  
 A SYMPOSIUM  
 MADE POSSIBLE BY  
 THE RUSACK COASTAL STUDIES FUND

OPENING LECTURE, DECEMBER 2, 7:00PM, LANCASTER LOUNGE  
 "THE HAITIAN REVOLUTION, BLACK INTERNATIONALISM AND THE NEW WORLD"  
 BY J. MICHAEL DASH, DIRECTOR OF AFRICANA STUDIES, NEW YORK UNIVERSITY

KEYNOTE ADDRESS, DECEMBER 3, 1:30PM, LANCASTER LOUNGE  
 "THE POST-COLONIAL CARIBBEAN: A CRITICAL APPRAISAL OF THE PAST HALF-CENTURY"  
 BY ORLANDO PATTERSON,  
 JOHN COWLES PROFESSOR OF SOCIOLOGY, HARVARD UNIVERSITY

PANELS:  
 CARIBBEAN SELF-REPRESENTATIONS • MAPPING TRANSNATIONAL ENCOUNTERS • HEALTH, DEVELOPMENT AND THE ENVIRONMENT • GENDER FRINGS • TRANSPLANTED CARIBBEAN COUNTRIES • PAST AND PRESENT STRUGGLES IN HISPANIA

CARIBBEAN POETRY SLAM, 4:45PM, LANCASTER LOUNGE  
 MUSICAL CONCERT BY SOLY CANTO, 7:30PM, KRISSE AUDITORIUM  
 FILM "THE AGROHOMIST" DIR. JONATHAN DENNE, 9:00PM, SMITH AUDITORIUM

FOR MORE INFORMATION VISIT: [HTTP://ACADEMIC.BOWDOIN.EDU/LATAMSERIES/](http://academic.bowdoin.edu/latamseries/)

## CREATING AN INSTITUTE FOR COASTAL STUDIES

The creation of an Institute for Coastal Studies is moving forward fast with increasing interest and enthusiasm. An award from the **National Science Foundation** in support of a new dock at the CSC started the year on an upswing. While permitting for the dock continues, we are confident that the dock promises to bring exciting programming opportunities for faculty and students to access the near shore waters of Harpswell Sound for study and environmental monitoring. Special thanks also goes to **Geoff Rusack ('78)** and **Alison Wrigley Rusack** for their support of this project. On other fronts, the Biology Department conducted a successful search for the first **Doherty Marine Biology Scholar**, Jon Allen. Allen received his PhD from the University of North Carolina at Chapel Hill in 2005 and during his two year post doc he will continue research on the evolution of life histories in marine invertebrate animals while building connections with surrounding research institutions. On the planning front, fifteen faculty representing a range of disciplines from the Humanities, Arts, Social Sciences and Natural Sciences, together with Dean of Faculty **Craig McEwen** and President **Barry Mills** gathered in



Looking south down “The Gurnet” adjacent Lumbos Hole, Harpswell Sound

May to discuss program priorities and the organizational structure for the new Institute. The all-day workshop, facilitated by Jonathan Reitman, went a long way toward helping shape the future Institute as a unique asset for both students and faculty at the College. While the specific program priorities are still being finalized, it is clear that we have the “critical mass” necessary to make the ICS a success. The announcement last spring of a new faculty position in “Oceanography” will certainly add to this critical mass and will help strengthen the ICS research and teaching in this important area of study.