

COASTAL STUDIES CENTER

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FROM THE DIRECTOR

ANNE HENSHAW

During the last year the CSC saw continued growth and development thanks to the time and energy of dedicated faculty, students and staff. Hands-on, discovery-based learning and fieldwork remain the focal point of our teaching and research activities. While the summer fellowships, faculty research support and the scholar-in-residence represent our core programs, we continue to expand our user base from around the college and the community through the trail system, seminars, field labs and retreats. Coastal Studies research and creative projects continue to expand beyond the bounds of the property in new directions all along the coast of Maine including Merrymeeting Bay, Quahog Bay, Mount Desert Island and points in between. On campus, Coastal Studies helped contribute to campus intellectual life and community through co-sponsoring several lectures and symposia throughout the academic year. While the CSC is increasingly becoming integrated into the Bowdoin experience, we have not yet reached our full potential as a research entity or as an intellectual center. Faculty working groups that formed over the summer identified several key areas of growth for faculty development, research and teaching through the creation of an Institute of Coastal Studies. The Institute will form an important nexus for integrating research and teaching, institutional collaboration, and intellectual community at Bowdoin. I am optimistic that these efforts will set Bowdoin apart from other small liberal arts colleges and will represent an exciting and unique opportunity to fulfill the aspirations of our talented faculty and students.

RESEARCH AND TEACHING

Throughout the academic year over 250 students representing fifteen different courses from Biology, Anthropology, Geology, Economics, Visual Arts and Environmental Studies utilized the exceptional resources at the CSC. During the summer, our research fellowship program hosted seventeen students working on a wide array of projects up and down the coast of Maine. At the CSC, we had students working on a number of ongoing projects in biology, geology and anthropology. Rusack Fellow **Alexis Rae ('04)** spent her summer traversing the CSC trails documenting avian biodiversity. Thanks to the work of Alexis we have a bird list to compliment our new interpretive trail guide. On the marine side, Doherty Fellow **Lynne Davies ('04)**, under the co-direction of Biology Professor **Amy Johnson** and marine biologist **Olaf Ellers**, continued experiments in the CSC marine lab monitoring sea urchin growth in relation to a variety of parameters including spine length and roe quality. Biology Professor **Lindsay Whitlow** supervised two students, Hughes Fellow **Jon Harris ('05)** and Doherty Fellow **Sarah Fick ('04)** as part of his on going research looking at the effects of green crab (*Carcinus maenas*), an invasive species in Maine, on intertidal communities. Jon examined the effects of *Littorina littorea* (perewinkles) on algal and green crab populations in the rocky intertidal in and around the Coastal Studies Center. Sarah spent her summer sampling mudflat communities spanning the entire Gulf of Maine from Wells to Kent Island looking at geographic variation in green crab abundance and soft shell clam (*Mya arenaria*) phenotypes.



Prof. Lindsay Whitlow supervising clam dissection in marine lab June, 2003

RESEARCH AND TEACHING

Working in collaboration with Sarah and Jon was Rusack Fellow **Amy Hodges ('05)**. Amy's research focused on the archaeology of soft shell clams recovered at the Brewer Cove shell midden, an excavation directed by CSC director, **Anne Henshaw**. Amy compared the size of modern soft shell clams with those in the archaeological record to understand whether human selection factors and/or environmental change had effected the overall size distribution through time. NSF fellow **Carly Knight ('05)** gained valuable lab and fieldwork experience over the summer serving as a research assistant on the Baffin Island Placename project also directed by Anne Henshaw. Carly worked half the summer gaining Geographic Information Systems skills in the lab and then spend several weeks on Baffin Island documenting Inuit placenames and related environmental knowledge.

Nearby Merrymeeting Bay served as an important coastal research training ground for a number of students. In a project recently funded by the Henry Luce Foundation, Biology/ES Professor **John Lichter**, Geology Professor **Peter Lea** and History/ES Professor **Matt Kingle** supervised a number of students examining the ecology and environmental history of Merrymeeting Bay (MMB), a globally rare freshwater tidal ecosystem located just upstream from the town of Bath. Doherty Fellow **Chrissy Souther ('05)** together with lab instructors **Jaret Reblin** and **Heather Caron** measured a

variety of parameters in the bay including salinity, dissolved oxygen, temperature, pH, turbidity, organic carbon and nitrogen to gather baseline water profile data for the bay. NSF/Wildflower Society Fellow **Julie Grinvalsky ('04)**, conducted surveys on reproductive and population biology of Parker's pipewort (*Eriocaulon parkerii*) in Merrymeeting Bay and its tributaries as well as continued long term monitoring research on wildrice (*Zizania aquatica*) plant community dynamics. Rusack Fellow **Chris Proctor ('05)** worked on reconstructing the sedimentary history of MMB at six different coring sites around the bay. **Ian Kyle ('06)** and Doherty Fellow **Kurt Martin ('04)** helped gather data using the Acoustic Doppler Current Profiler to collect data on MMB hydrology including flow dynamics and mixing. Kurt also began work on a project investigating sources of stream water flow in the Coastal Studies Center watershed area under the mentorship of Peter Lea. The other Kurt, Rusack Fellow **Kurt Jendreck ('04)** spent his summer collecting and analyzing CTD and side scan sonar data from Quahog Bay as a part of a larger research project being directed by Geology Professor **Ed Laine** examining the bedrock controls on submarine groundwater discharge and their relationship to water quality in eastern Casco Bay.

The CSC also hosted a range of summer fellows in the social science, humanities and arts. Rusack Fellow **Grace Cho ('05)** conducted a historical and photographic survey of Maine's coastline under the direction of Professor Matt Kingle and CSC visiting scholar **Connie Chiang**. Matt Kingle also supervised Rusack Fellow **Jeremy Katzen ('04)** in a study examining the historical roots of Maine's salmon farming debate which involved both library research as well as field visits to some of the salmon farms located adjacent Mount Desert Island. Under the guidance of Professor **Michael Kolster**, visual artist and Rusack Fellow **Aliza Marks ('04)** traveled up and down the Maine Coast with her camera to explore the meaning of Maine's coastal landscapes through interviews and journal entries. Anthropology major, **Rebekah Metzler ('04)**, a native of Maine, researched the culture history of Acadia National Park and examined some of the contemporary challenges faced by national park systems in the US and abroad. Rebekah worked with Anthropology Professor **Pamela Ballinger** during the course of her project.



Amy Hodges ('05) and Josh Hershorn screening at Brewer Cove midden.

The CSC was host to a number of visiting researchers and courses. **Dr. Jim Slavicek** (US Forest Service) together with entomologist **Dr. Joe Elkinton** (University of Massachusetts), **Brian LeDuc** (Umass graduate student), **John Podgwaite** (US Forest Service) and **Richard Bradbury** (Maine Dept of Agriculture) continued experiments testing the development of a baculovirus as a potential biological control agent for the Browntail moth. This is a two-year long project primarily focused on the apple trees located on the CSC property. **Dr. David W. Chipman**, a geochemist formerly of Columbia University's Lamont-Doherty Earth Observatory conducted filtration experiments in the CSC marine lab. The CSC also welcomed back **Dr. David Peart**, Biology Professor from Dartmouth College, who returned with his *Biological Diversity* class in late June and early July to run field labs at the CSC and adjacent coastal areas.



2003 summer fellows at poster presentation in Morrell Lounge, Smith Union in September, 2003.

CSC SCHOLAR-IN-RESIDENCE



Connie Chiang, scholar-in-residence
2002-2003

The CSC hosted environmental historian **Connie Chiang** as the scholar-in-residence for the 2002-2003 academic year. During the fall semester, Connie taught "Surf, Sand, and Sea: The American Coastline in Historical Perspective," (History/Environmental Studies 279), a course which examined the historical development of the American coastline, focusing on the Pacific Coast, with a comparative concentration on New England. She and her students explored environmental changes on the coast, the coast as a zone for social and cultural activities, and Americans' shifting perceptions of and attitudes toward their shorelines.

As part of her residency, Connie also brought a comparative perspective to her own research by examining the historical development of fisheries and tourism in Boothbay Harbor and Monterey Bay. At the end of the year, Connie's dissertation research received two prestigious prizes: the 2003 W. Turrentine Jackson Award from the American Historical Association-Pacific Coast Branch and the 2003 Phi Alpha Theta/Westerners International Prize for the best dissertation in Western United States history completed in 2002. Congratulations Connie! During the 2003-2004 academic year, The Coastal Studies Center will be hosting Bowdoin graduate and marine biologist Dr. Marney Pratt ('97) as the scholar-in residence in 2003-2004.

PUBLICATIONS, PRESENTATIONS AND EXHIBITS

Articles:

Henshaw, A. 2003. Polynyas and ice edge habitats in cultural context: archaeological perspectives from southeast Baffin Island. *Arctic* 56 (1): 1-13.

Johnson, A.S., Ellers, O., Lemire, J., Minor, M., Leddy, H. 2002. Sutural loosening and skeletal flexibility during growth: determination of drop-like shapes in sea urchins. *Proc. R. Soc. Lond. B*, 269: 215-220.

McCurdy, D.G., Boates, J.S., and M.R. Forbes. 2001. An empirical model of the timing of reproduction for female amphipods infected by trematodes. *Journal of Parasitology* 87: 24-30.

McCurdy, D.G. 2002. Asexual reproduction in *Pygospio elegans* Claparede (Annelida, Polychaeta) in relation to parasitism by *Lepocreadium setiferoides* (Miller and Northup) (Platyhelminthes, Trematoda). *Biological Bulletin* 201: 45-51.

Teegarden, G.J., Cambell, R.G. and E.G. Durbin. 2001. Zooplankton feeding behavior and particle selection in natural assemblages containingtoxis *Alexandrium* spp. *Marine Ecology Progress Series* 218: 213-226.

Exhibits:

Mullen, James. 2003 – *Quadrants*, UMF Art Gallery, University of Maine at Farmington

Kolster, Michael and James Mullen. 2003. *COASTAL*, Center for Maine Contemporary Art, Rockport, ME

Student honors projects:

Nissa Lohrmann (Biology), Seasonal acclimation of antioxidants in two co-occurring red algae with differing cold tolerances.

Edward Sweeney (Geology): Glaciomarine sediments beneath eastern Casco Bay, Mid-coast Maine.

Laura Windecker (Biology): Mechanisms of size-specific growth in the sea urchin, *Strongylocentrotus droebachiensis*

Megan Lim (Geology): Freshwater Salinity Anomalies in Harpswell Sound and Quahog bay.



CSC Terrestrial lab
February, 2003

COMMUNITY SERVICE AND PUBLIC OUTREACH

The CSC was involved with several projects over the year to increase our level of community service and public outreach. On September 29, fifteen Bowdoin faculty, staff and students participated in the State of Maine's **coastal clean-up** efforts as part of **Common Good Day**. The CSC clean-up teams recorded the type and amount of the debris collected. These data are quantified by the state and help pinpoint the sources of marine debris and develop solutions for preventing debris such



WHOI visitors along with David Guay and Amy Johnson at the Coastal Studies Center in August, 2003

as nets from entangling marine mammals. Thanks to all our volunteers: Carrie Atkins ('06), Meg Boyle ('05), Conor Carpenter ('05), Connie Chiang, Emily Cochrane ('05), Ben Cope-Kasten ('06), Nicole Davis ('03), Schuyler Dudley ('06), Carolyn Johnson ('05), Rose Kent ('06), Matt Klinge, Jess Koski ('05), Alex Morouse, Megan Morouse, Charlie Moyer ('05) and Mark Murray. In December the CSC hosted its **second annual holiday gathering** for Bayview Road homeowners and other neighbors. The event featured **Todd Richardson**, principal of Richardson and Associates, who spoke about the new trail and his involvement in its design and implementation. In August, a group from the **Woodhole Oceanographic Institution (WHOI)** including Drs. John Farrington, Kate Madin, Larry Madin, Sonya Dyhrman, Eric Webb visited Bowdoin and the Coastal Studies Center to discuss a teacher training program in marine science we hope to pilot in the summer of 2005. This would be an exciting joint venture that would draw on the resources of both our institutions to create an outstanding resource for K12 educators in the New England region.

CONTRIBUTIONS TO CAMPUS INTELLECTUAL LIFE

During the month of October, 2002, the Coastal Studies Center helped co-sponsor a lecture series entitled, **From Shipwrecks to Shellmounds: The Archaeology of Coastlines** which brought five major speakers to campus to explore the theme of coastlines past and present as part of the State of Maine's Archaeology Month. Whether they represented rich and diverse ecosystems on which human groups could depend for their livelihood, or ports for trade and exchange, humans have recognized the advantages of living along the world's coastlines for over 50,000 years. Speakers explored these and related issues by discussing research in a variety of coastal settings around the world from historic shipwrecks along the Atlantic coast to the unique human cultures of Polynesia. The opening keynote speaker featured during Bowdoin's Common Hour lecture was **Dr. Patrick Kirch** of the University of California, Berkeley. His lecture "The Role of Humans in Shaping Island Ecosystems" discussed the special place the archaeology of islands in the Pacific play in understanding larger issues related to global change. **Dr. Warren Reiss** of the University of Maine's School of Marine Sciences and the Darling Marine Center in Walpole, Maine spoke on his extensive exploration of shipwrecks along the Atlantic coast and his work on improving the ways in which shipwrecks are investigated and recorded. **Dr. Susan Langley**, a noted underwater archaeologist who works for the State of Maryland, highlighted the challenges of underwater archaeology along the barrier islands of the eastern seaboard and presented some of the newer approaches to site exploration and preservation. **Dr. Andrew Smith**, a professor at the University of Cape Town talked about his research in South Africa on the complex adaptive strategies used by a variety of ethnic groups in this region. **Dr. Daniel Sandweiss** from the University of Maine, Orono discussed his excavations of some of the earliest evidence of fishing and shellfish exploitation in South America which has changed our understanding of when and how the Pacific coast was first settled.



Photo taken at CSC by Priscilla Chan ('03)

The CSC had the privilege of helping co-sponsor a series of other speakers during the academic year including; **Dr. Philip Bogden**, CEO of GoMOOS (Gulf of Maine Ocean Observing System), **Dr. Jim Slavicek**, Project

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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 2002-2003 CSC Advisory Committee for all their help and input during the year:

DeWitt John (Environmental Studies)
 Susan Kaplan (Arctic Studies)
 Mike Kolster (Visual Arts)
 John Lichter (Biology)
 Ed Laine (Geology)
 Peter Lea (Geology)
 Sarah McMahon (History)
 Amy Johnson (Biology)

A special farewell to Rick Leary for all his dedication and hard work in the marine lab.

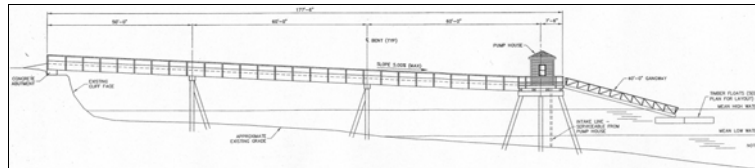
Photographs by Anne Henshaw

CONTRIBUTIONS TO INTELLECTUAL LIFE

Leader/Research Biologist USDA Forest Service, and **Dr. Thomas A. Ebert** Professor Emeritus Department of Biology, San Diego State University and Professor of Zoology, Oregon State University. Resident scholar, **Dr. Connie Chiang**, presented her public lecture "Fish Tales and Tourist Traps: The Changing Coastlines of California and Maine" in front of an enthusiastic crowd in Beam classroom on April 29. The CSC also co-sponsored a stimulating three-day symposium organized by Professor **Patricia Saunders** with support from the Ford Foundation entitled "Borders, Boundaries, and the Global in Caribbean Studies." Student exhibits featured the work of **Rachel Tannebring ('03)** in Bowdoin's new Outdoor Leadership Center. Artistic projects abound in Coastal Studies and the CSC is pleased to exhibit the creative work of photography students in Professor **Michael Kolster's** Visual Arts 180 class in the back seminar room of the farmhouse. This exhibit features original student black and white photographs that highlight the unique visual elements of the CSC interpretive trail. Come see the images on display next time you visit the farmhouse!

PLANNING FOR THE FUTURE

Planning during the 2002-2003 year took place on several fronts. On the property, faculty and staff together with marine engineer, Barney Baker and landscape architect Terry DeWan began planning for the installation of a dock just north of the existing marine lab. The dock represents an important piece of building our research capacity by connecting us with the surrounding waters of Casco Bay and the Gulf of Maine.



Preliminary schematic design of proposed CSC dock, Baker Design Consultants.

We hope it will provide a platform for Bowdoin faculty, students and visiting scientists to conduct research related to a Gulf of Maine Ocean Observatory System (GoMOOS) buoy which is being proposed for deployment adjacent the CSC. The dock will also provide improved access for maintaining the marine lab and its infrastructure. Other improvements to the marine lab including a much needed filtration system and an expansion of dry space to accommodate more visiting scientists and student researchers are also being proposed.

Thinking beyond the bounds of the CSC property, several faculty working groups formed over the summer to imagine how an "Institute of Coastal Studies" (ICS) could create new research and teaching opportunities for Bowdoin faculty and students. Five proposals were presented in August to the CSC advisory committee; the results of these are being formulated into a case statement that outline exciting new programmatic opportunities that forge stronger connections between research/creative work and teaching across the disciplines. The creation of a research semester, more fieldwork opportunities, institutional collaboration and visiting fellowships in addition to a host of capital improvement projects at the CSC will all form important components for fostering intellectual community and integrated learning through the ICS. Thanks to everyone who contributed to these planning efforts.



Peter Lea describing CSC watershed project to Alison and Geoff Rusack ('77) in May, 2003 (Craig McEwen and Amy Johnson in background)