

Our Changing Coast: CC Alums Help Students Explore Threats of Coastal Development to Marine Environments

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Demographic changes and economic growth in future years are likely to exacerbate the stress placed on coastal communities as development continues to threaten the quality and ecological functions of coastal environments. These environments serve as important spawning sites, nurseries, and feeding grounds for estuarine-dependent fish, including many commercially and recreationally important species, and also provide critical habitat for migratory shorebirds. Among the anthropogenic factors threatening the health and continuity of coastal habitats are population growth, increased population density, development sprawl, and elevated nutrient loading. Sea level rise and coastal storms are significant natural factors altering coastal landscapes. The conflict between coastal development and conservation calls for a balancing of private development interests with public rights to preservation. The destruction of coastal ecosystems has led to a growing need for land-use regulations that attempt to reconcile the benefits of development with those of land conservation.

The Nature Conservancy and the Sea Grant Programs of Connecticut, MIT, and Rhode Island joined the Goodwin-Niering Center as sponsors of a recent conference, *Our Changing Coast: Private Rights and Public Trust*. Three Connecticut College alumnae, Virginia Lee '70, assistant director, Rhode Island Sea Grant Program, Margaret "Peg" Van Patton '87 and '91, communications director, Connecticut Sea Grant Program, and Hatsy Moore '95 served on the planning committee. Two seniors in the Center's Certificate Program, Jared Fertman '03 and Lindsey Kravitz '03

provided student input in the planning process.

At the conference, college students and faculty, concerned citizens, environmental lawyers and activists, government officials, and individuals from NGOs came together to discuss a myriad of coastal issues. In their papers, several Certificate students indicated that the conference illustrated the complexities of coastal management, providing possible solutions including legal regulations, ecological research and enlightened public policy. Marcie Berry '05 was intrigued by Stephen Kellert, Yale professor of social ecology, who spoke on "the philosophical and social issues surrounding our coastal environment" agreeing with him that "the environment cannot simply be conserved for economic reasons; we must also look at how the environment is relevant to our lives." Wetlands are important to people spiritually, emotionally, and intellectually.

The keynote address by James Titus, Global Programs Division, U.S. Environmental Protection Agency, provoked discussion on rolling easements, shoreline planning, and other responses to sea level rise. Titus argued that society must decide whether to pursue a policy of coastal reinforcement or one of strategic retreat. Defending our coast against rising seas with armoring devices such as seawalls and jetties often leads to an engineered shoreline with little or no natural beaches. In contrast, Titus described a coastal retreat that involves the use of rolling easements as a way to allow wetlands to migrate inland without otherwise restricting the use of coastal property.

Human population growth leads to increased levels of nitrogen and other nutrient loading threatening the productivity of our coastal habitats, while heavy metal contamination remains one of the main threats to the health of rivers and marshes. Johan Varekamp, Wesleyan professor of geology, earth and environmental sciences, described the metal contamination legacy of historic industries found along the major rivers that discharge into the Sound. "The hat makers were unaware of how much they were polluting the area with their chemicals," remarked Betsy Ginn '05 "and now the waters are suffering." Nowadays there is increasing emphasis on protection of habitat and ecosystem processes in marine and estuarine systems. What will habitat protection yield for fisheries? How does a habitat protection policy compare in efficacy to conventional management approaches to limiting fish mortality? Eric Schultz, University of Connecticut professor of evolutionary biology, reviewed these and other questions. Observed Keiko Nishimoto '05, "half of all known fish extinctions have been caused by habitat degradation." At the same time, populations of many of the world's shorebird species are declining, some at rapid rates. Brian Harrington, a biologist at the Manomet Center for Conservation Sciences, spoke about strategic coastal bird migration sites. As human population grows, and settlement patterns change, many of the essential coastal sites are threatened with loss of key habitats. "How better to illustrate the oneness of our global environment than through a life form dependent on the ecosystems of many continents," reflected Lauren Richter '05.

Should coastal areas be protected through regulation or by the purchase of land? John

Echeverria, Georgetown Environmental Law and Policy Institute, addressed this important issue. Regulation may be a meaningful supplement to land acquisitions, but from Echeverria's perspective effective regulatory controls are being threatened in the long run by the overuse of the acquisition tool. Since social values and natural resource conditions change overtime, he questioned whether the current generation should commit future generations to protecting a particular parcel of land. Sarah Lumnah '05 echoed Echeverria's concern that "public acquisition is permanent...(and) permanence is not always a positive thing."

Continued development in coastal communities leads to a changing population. On this point, Robert Johnston, associate director, Connecticut Sea Grant Program, spoke about changing preferences for environmental amenities in the coastal zone. Although current land policies often assume that people's tastes and preference for amenities remain constant over time, Johnston indicated that newer and more established residents are likely to have substantially different preferences for development and preservation. As a consequence, development in coastal areas may shift community preference towards those of its recent residents – a shift that is likely to have implications for public policy.

"Am I trespassing when I walk along the beach in front of your house?" asked Emily Weidner '05. According to Virginia Lee '70, it depends on the state, and she took a small group of conferees on a field trip to Westerly, Rhode Island to explore aspects of public access, beach dynamics, and the management of coastal wetlands. The group walked at low tide along a typical East Coast barrier beach, with the ocean on one side and tidal wetlands and a saltwater pond on the other. Lee explained how the beaches erode then the tide sweeps over, creating tidal marshes and rebuilding dunes. Lee's presentation Public Access to the Public Trust was greatly enhanced by illustrations from the field trip and stunning images of the coast. "Coastal management is all about balance" wrote Betsy Ginn '05, "we (as a society) must think about our actions now in order to preserve the coasts for the future."