

Restoration

Last Updated Monday, 23 October 2006

One aspect of ecological restoration occurring at Chesapeake Biological Laboratory (CBL) is the physical restoration of a seagrass-oyster reef ecosystem in 21 acres of degraded aquatic habitat at the mouth of the Patuxent River. The other aspect is occurring on computers in Dr. Dennis King's research group. While also involved in the restoration of Sandy Point, Dr. King's group generally uses decision-support tools based on environmental science and economics to assess and prioritize restoration projects for their clients, to compare approaches to environmental problems, or to determine the optimum use of limited budgets. Working as consultants to a variety of organizations and agencies, his group has undertaken such wide-ranging efforts as the assessment of nutrient-trading proposals for the Patuxent River watershed, the review of treatment options for invasive species, and the analysis of reclamation options for mined and forested lands.

Sandy Point Restoration Project

The Sandy Point

Integrated Ecosystem Restoration (SPIER) Initiative focuses on the restoration of finfish, shellfish, and submerged aquatic vegetation in a severely degraded aquatic habitat at the mouth of the Patuxent River adjacent to CBL's campus. It involves the use of field trials to compare the cost and effectiveness of different restoration techniques and equipment used for the restoration of oyster beds and seagrass (for example, stone breakwaters, reef balls, and fish havens). The area is being divided into different research plots to be used by CBL faculty and graduate students for research on artificial reef communities, submerged aquatic vegetation, and the settlement of benthic organisms on reef balls. The area and research also will serve public education with Maryland Sea Grant Extension Agent Jackie Takacs working with local environmental science classes and senior high school students to perform science research projects.

The Sandy Point Restoration Project, just offshore from the Chesapeake Biological Laboratory, will be used to evaluate different restoration techniques.

{mospagebreak title=Dredging Alternatives and Restoration Strategies &heading=Restoration}

Weighing Alternatives for Dredge Material

Working with the Maryland Port Administration, Dr. Dennis King's group has performed cost-benefit-environmental assessments of several proposals for the placement of dredge material from the Baltimore Harbor and Chesapeake Bay approach channels. Currently, the Port is collaborating with the Army Corps of Engineers to devise a new 20-year plan for dredge disposal to include innovative and environmentally acceptable placement. Towards this end, Dr. King's group is assisting the Bay Enhancement Working Group (BEWG), a scientific group, in evaluating 27 placement options for dredge material, based on their environmental impact. The BEWG's preferred options are the restoration of lost wetlands at the Black Water Wildlife Refuge on Maryland's Eastern Shore and of islands in the Bay. Dr. King's group is assessing the cost of each option, its technical and logistical feasibility, and its various environmental benefits, costs, and risks. The group also is examining the environmental services that will flow from the options, for instance, the types of wildlife that would find habitat in an upland versus a wetland scenario. Concurrent with these efforts, King's team works closely with community committees formed by the Army Corp of Engineers to review proposals involving the placement of Harbor material deemed contaminated by law. His staff has provided the Harbor Team with the social, economic, and environmental data necessary for their review process.

Aerial
views of Blackwater Wildlife Refuge show the dramatic submergal of wetlands from 1938 (top) to 1988 (bottom). Dr. Dennis King's group has weighed the costs and environmental benefits of restoring the wetlands with canal dredge.

A Restoration Strategy for 170 Counties

Working with the nonprofit Canaan Valley Institute in West Virginia, Dr. King's group is developing an ecosystem restoration strategy that covers the 170 county area, known as the Mid-Atlantic Highlands. With the goal of overcoming environmental problems caused by mining, acid mine drainage, and deforestation in this region, Dr. King's group is assessing a variety of restoration options from wetland restoration to forested buffers to mine reclamation. To determine impacts, they are performing an economic-environmental-landscape based study and prioritizing types of projects by regions. This information will help the Institute determine their restoration priorities and develop sound justifications for financial support.