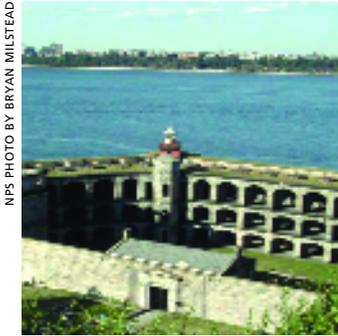


Monitoring on the North Atlantic Coast: An example of successful collaboration

by Bryan Milstead, Sara Stevens, and Betsie Blumberg



NPS PHOTO BY BRYAN MILSTEAD

Part of the Staten Island unit of Gateway National Recreation Area, Fort Wadsworth juxtaposes cultural and natural resources with one of the world's largest metropolitan areas—New York City. Resource monitoring provides an opportunity to study urban ecology, advance conservation, and raise the awareness of park resources and values.

IN THE NORTHEAST, THREE DISTINCT ENTITIES are working together to meet the goals of the Natural Resource Challenge to monitor vital signs in national parks: the Cape Cod National Seashore Prototype Program, the Northeast Coastal and Barrier Network, and the North Atlantic Cooperative Ecosystem Studies Unit (CESU). Vital signs are specific indicators of natural processes that can be monitored over time to reveal changes in ecosystem health, providing critical information for management decisions. In addition, network monitoring protocols are being adapted for use in national wildlife refuges along the Northeast Coast.

Cape Cod National Seashore, Massachusetts, is a prototype for Atlantic and Gulf Coast parks, funded since 1996 to develop a long-term ecological monitoring program in partnership with the USGS Biological Resources Division. Guiding its monitoring is a simple but effective framework that has been adopted by the network. The framework describes representative park ecosystems and creates a conceptual model for each. The models are used to understand ecosystem responses to natural and human-related disturbance and to identify candidate variables for vital signs monitoring.

nique) to derive elevation data for shoreline study. The USGS Coastal and Marine Geology Center joined the partnership in 1998, and has been developing applications for park use of these data. At the same time, Cape Cod was cooperating with the USGS Biological Resources Division to develop a shoreline change monitoring protocol.

Following the lead of Assateague and Cape Cod, the network has borrowed Assateague staff to work with network parks and with scientists from the USGS, U.S. Army Corps of Engineers, Virginia Institute of Marine Sciences, and Woods Hole Oceanographic Institute to develop a model of shoreline change and recommend procedures for long-term measurement. Beach geomorphology will be monitored twice a year by traditional mapping techniques and every other year with lidar technology.

Coastal parks play an important role in protecting wetlands along the Atlantic Coast. In collaboration with the USGS, Cape Cod has produced monitoring protocols for salt marshes. Dr. Charles Roman, who now heads the North Atlantic CESU, led the development of these protocols as a USGS scientist. The CESU and Cape Cod are now assisting the network with development of salt marsh monitoring protocols. Complementary protocols for monitoring nutrient enrichment of estuaries are being developed by the network in cooperation with the USGS and academic partners.

Some of Cape Cod's protocols are being implemented in U.S. Fish and Wildlife Service refuges along the coast. Outreach is an important part of the mission at Cape Cod and the network; achievements and insights are continually shared with parks, networks, and agencies through workshops, presentations, and the Web. This broad alliance of NPS groups is making great progress toward the realization of the goals of the Natural Resource Challenge. ■

“Assateague Island National Seashore has been cooperating with NASA in using ... an airborne laser technique to derive elevation data for shoreline study.”

The Northeast Coastal and Barrier Network comprises eight parks: Assateague Island, Cape Cod, and Fire Island National Seashores; Colonial National Historical Park; Gateway National Recreation Area; George Washington's Birthplace National Monument; and Sagamore Hill and Thomas Stone National Historic Sites. The network was funded in 2000 and its staff are colocated at the University of Rhode Island with the North Atlantic Cooperative Ecosystem Studies Unit, established in 1999.

The parks in this network occupy an ecosystem constantly experiencing landform changes due to natural factors such as storms, or due to human activity. As a result, monitoring shoreline change is critical. Since 1995, Assateague Island National Seashore has been cooperating with NASA in using lidar (an airborne laser tech-

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