

National Park Service  
Department of the Interior

Cape Cod National Seashore



## Research Opportunities in the Natural and Social Sciences at Cape Cod National Seashore



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THE NATIONAL PARK SERVICE CARES FOR SPECIAL PLACES SAVED BY THE AMERICAN PEOPLE SO THAT  
ALL CAN EXPERIENCE OUR HERITAGE.

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## *Message from the Park Superintendent*

Since its founding in 1916, the National Park Service has preserved a remarkable and diverse wealth of ecosystems across the country. From forest to desert, mountain to shore, these landscapes offer unparalleled opportunities for recreation, education and research in the physical and biological sciences. As open space and biodiversity continue to decline outside park boundaries, so do our protected park lands grow more precious with every passing day. In the years ahead, our national parks will serve as libraries, living laboratories, and classrooms of tremendous importance for their extraordinary biological and physical diversity and rare vitality.

As with so many of the parks in the National Park System, Cape Cod National Seashore faces increasing pressure from outside (and, due to the complex patterns of land use and ownership within the park, in some cases inside) our boundaries – declining air and water quality, introduction of non-native species, and the fragmentation of woodlands and waterfronts by new development all pose significant challenges to the health of Cape ecosystems. In order to preserve the health and diversity of our natural resources for future generations, we must make an investment, now, in scientific information and management of these treasures. Applying good science to resource management is our best hope for maintaining and restoring the rich natural and cultural heritage found on the outer Cape.

The diversity, complexity and sheer magnitude of wildlife, vegetation and natural processes occurring within the boundaries of Cape Cod National Seashore dictate a collaborative approach to research and resource monitoring at the park. The National Park Service simply cannot meet all of its research needs alone and thus we seek to expand our research partnerships with individuals, universities, public agencies and non-governmental organizations. Together, we can ensure a healthy, sustainable future for the unique natural and cultural resources of outer Cape Cod.

This research catalog contains descriptions of the most pressing scientific research needs within Cape Cod National Seashore, as well as information on application and permitting procedures for interested researchers. The list of projects outlined here is by no means exhaustive, and we strongly encourage interested researchers to develop other projects based on their own interests and expertise. Like the seashore itself, research at the park is diverse and ever changing; please contact us for the most up-to-date information in your area of interest.

Thank you,

Maria Burks, Superintendent  
Cape Cod National Seashore

May 7, 2002

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# Cape Cod National Seashore

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“The sea-shore is a sort of neutral ground, a most advantageous point from which to contemplate this world....”

-- Henry David Thoreau, Cape Cod

Cape Cod – a slender spit of land curving some sixty miles out into the Atlantic Ocean – is an extraordinary resource, a place not only to enjoy the beauties of land, sea and sky or to marvel at the power of a storm-driven ocean, but also to re-energize the spirit. Its striking beaches, ponds, marshes, dunes and forests are matched only by the richness of its human history; as the people of Cape Cod are organically linked to the rhythms of land and sea, so are the people of America linked to the people of Cape Cod. Recognizing the national significance of the outer Cape’s natural and cultural landscapes, Congress established Cape Cod National Seashore (CACO) as a unit of the national park system in 1961. Its purpose, then and now, is to provide opportunities for people to experience the outer Cape’s incredible natural beauty and unique culture while at the same time protecting its natural and cultural resources for generations to come.

CACO preserves approximately 44,600 acres of uplands, wetlands and tidal areas on outer Cape Cod and contains an exceptional array of coastal communities, including pine-oak forests, heathlands, grasslands, dunes, kettle ponds, cedar swamps, vernal pools, salt marshes, barrier spits and inter-tidal mudflats. These habitats support at least 800 plant and over 500 animal species, including migratory and resident birds, terrestrial and marine mammals, amphibians, reptiles, salt- and freshwater fish, shellfish and other invertebrates. Numerous state, federal and globally rare plant and animal species also exist within the seashore; for many of these threatened and endangered species, CACO represents some of their finest remaining habitat and offers an excellent opportunity for their preservation in the North Atlantic region. As the longest expanse of uninterrupted sandy shoreline on the East Coast, the great Outer Beach further provides outstanding examples of dynamic geomorphic processes. Natural change on the Cape is pervasive and dramatic, especially along the ocean shore. Within the national seashore, the action of wind, waves, tides and rain remains largely unaffected by development, making it unusually easy to observe their effect on the land.

The Cape’s prominent position in the Atlantic has long made it a key landmark for human habitation, and archaeological sites testify to over 9,000 years of occupation. By the 600s, the Wampanoag tribes used or inhabited all of the lands now contained within the national seashore and in 1620, the Pilgrims made their first landfall on the shores of the outer Cape. With European settlement, Cape Codders took to the sea, creating a dynamic whaling and fishing industry, as well as a long and famous tradition of shellfishing. The many lighthouses and Coast Guard stations that dot Cape shores reflect this heritage; the beauty and sense of solitude that they have come to represent continues to inspire artists and writers in what is now a centuries-old Cape Cod arts tradition.

## **Inventory & Monitoring Program**

Cape Cod National Seashore's Inventory & Monitoring (I&M) Program was created in 1998 with the understanding that scientifically sound management decisions are crucial to the continued health and diversity of our parks' natural resources, and that identification and ongoing observation of these resources are the foundation of informed, effective management. Natural resource inventories allow managers to account for the presence and distribution of plants, animals and nonliving resources such as water, landforms and climate in the parks, and "vital signs" monitoring enables early detection of potential threats to ecosystem health. As an I&M prototype park, Cape Cod National Seashore serves as a lead in the testing and interpretation of monitoring protocols for Atlantic and Gulf coastal ecosystems and the Northeast Coastal and Barrier Vital Signs Monitoring Network. Inventories of CACO's freshwater fish, small mammal, shorebird, amphibian and reptile communities are underway; water quality, air quality, piping plover (*Charadrius melodus*), and upland forest vegetation monitoring has been initiated, and monitoring protocols are being developed for geomorphic shoreline change, hydrology, invertebrate and plant populations, and other ecological parameters.

## **Atlantic Learning Center**

A sister program to the I&M initiative, the nationwide National Park Service (NPS) Learning Center network aims not only to improve scientific knowledge of park resources, but also to create networks for sharing this information and to educate the American public about the health of our National Park system. By 2005, the NPS intends to create a system of 32 learning centers in a variety of ecosystems across the country; the Atlantic Learning Center at Cape Cod National Seashore was competitively selected as one of the initial five learning center locations. In support of the NPS vision of parks as living laboratories, libraries of knowledge and learning centers for students of all ages, the Atlantic Learning Center (ALC) will house field station lab space for visiting researchers and an adjoining classroom facility on the campus of the Highlands Center at Cape Cod National Seashore. Both ALC buildings are being designed and renovated in partnership with the Federal Energy Management Program, with a focus on environmental sustainability; renovation is expected to be complete in 2003.

## **Research Application Procedures**

A research permit is required for any scientific activity within the park that may disturb resources or visitors, as well as any research involving field work or specimen collection. In order to obtain a permit, interested researchers need to complete a written application and submit it to Cape Cod National Seashore with a research study proposal. It is recommended that interested researchers contact the park prior to developing their proposal (even if it closely resembles one of the projects outlined in this catalog), as specific research needs often change. Applications and more specific information on NPS research procedures and requirements can be found online at <http://science.nature.nps.gov/research>. Inquiries and requests for paper applications should be directed to: Chief of Natural Resources, Cape Cod National Seashore, 99 Marconi Site Road, Wellfleet, MA 02667, phone (508) 349-3785.



