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Vol. 1 of 2

Volume 1: Environmental Impact Statement

Final Environmental Impact Statement for the General Management Plan



Cape Cod
National Seashore
Massachusetts



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Final Environmental Impact Statement
for the
General Management Plan
Volume 1: Environmental Impact Statement

CAPE COD
National Seashore
Barnstable County, Massachusetts

February 1998

This *Final Environmental Impact Statement* describes alternatives for management actions at Cape Cod National Seashore, the environment that would be affected by those actions, and the environmental consequences of implementing alternative actions. Three alternatives are presented, including the proposed general management plan. **Alternative 1** is a continuation of current management, often referred to as the "no-action" alternative. Under this alternative the Park Service would continue to manage the national seashore to protect natural and cultural resources, while allowing for appropriate public use related to those resources. Essentially no new development for public use would be undertaken. **Alternative 2**, the proposed plan, would guide the overall management of Cape Cod National Seashore for the next 10 to 15 years. The emphasis of the plan is on the management of natural and cultural resources; public use and interpretation; coordination with nonfederal landowners within the national seashore; administrative, maintenance, and operational concerns; and working with local residents, town and county officials, and interested agencies and persons to resolve problems of mutual concern. The plan is programmatic in that it gives guidance and criteria for day-to-day decision making and for producing more specific future action and development plans. It would seek to maintain an appropriate balance between resource protection and public use. However, more opportunities would be provided for the public to experience the resources of the national seashore (for example, by expanding the trail system). Existing public use facilities and attractions, such as the Salt Pond visitor center, would be improved. No major new development, however, is proposed, and the built environment or impacts from development would be reduced where possible. Under alternative 2 there would be more emphasis on preserving the "timeless" character of Cape Cod in terms of natural and dynamic landscapes, historic architecture and cultural landscapes, and customary activities. The National Park Service would work in partnership with local communities and officials to more effectively further educational and interpretive opportunities and resource stewardship on the Outer Cape and to more successfully address mutual problems and concerns, such as water quality, coastal processes, and traffic congestion — concerns that transcend political boundaries. **Alternative 3** builds on the approach of alternative 2, proposing that national seashore managers play a more formal role in directing efforts to protect and manage resources on the Cape through more structured partnerships. Included are other reasonable actions that could be implemented but that are significantly different from those presented in either alternative 1 or 2, and they are often more costly. The Park Service would initiate and enter into more formal agreements with state and local agencies to improve collaboration and consistency in day-to-day resource management. These actions are specific to selected management topics only, not to each subject area.

The *Draft Environmental Impact Statement* was available for public review from August 19, 1996, to December 31, 1996; comments and responses on that document are reprinted in volume 2. The *Final Environmental Impact Statement* has been revised to reflect substantive comments and concerns received during the comment period, and the text has been refined and clarified where necessary. This final document will be on public review for 30 days; if no major comments are received during this period, a record of decision, indicating which alternative has been selected as the approved plan, will be signed. Comments should be addressed to

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SUMMARY

Cape Cod is a peninsula in the shape of a bold bent arm extending some 60 miles into the Atlantic Ocean and forming the easternmost part of Massachusetts. Cape Cod National Seashore, which lies mostly along the eastern portion of the Cape's outer arm, is about 100 miles southeast of Boston and about 275 miles northeast of New York City. Within the seashore are segments of the towns of Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown. The original authorized boundary included approximately 43,570 acres of uplands, wetlands, and tidal lands.

PURPOSE AND NEED

The general management plan for Cape Cod National Seashore has two primary purposes.

- First, it outlines how natural and cultural resources, public use, nonfederal lands, and national seashore operations would be managed over the next 10 to 15 years.
- Second, and more important, it provides the framework for the National Park Service to help in developing solutions to a wide range of challenges that are confronting local residents and towns, as well as the national seashore.

The current *Master Plan* for Cape Cod National Seashore was completed in 1970; while that plan continues to be used as a general guide for operations, it is no longer adequate to address the policy and operational issues now facing the national seashore. A general management plan is needed to establish management priorities, to focus funding efforts, and to support the implementation of a series of innovative plans that have been developed to address specific management issues not discussed in the *Master Plan*.

This *Final Environmental Impact Statement* has been prepared and organized to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended, which

requires the evaluation of potential impacts resulting from federal actions or lands involving federal jurisdiction. The *Draft Environmental Impact Statement* was distributed in conjunction with a companion document — the *Draft General Management Plan* — which focused almost exclusively on the National Park Service's proposed general management plan (alternative 2 in this environmental impact statement). A final *General Management Plan* will be distributed once a record of decision has been signed for the *Final Environmental Impact Statement*.

This *Final Environmental Impact Statement* is a programmatic statement. The proposed action and alternatives each consist of a basic management framework for future decision making; site-specific details and recommendations are generally not included. Consequently, the statement presents an overview of potential impacts relating to the proposed program for each alternative. In the future, implementation of specific actions included in the approved final general management plan would require the preparation of more detailed environmental assessments. These documents would be tiered to this programmatic impact statement.

OVERVIEW OF ALTERNATIVES

The *Final Environmental Impact Statement* describes three alternatives for management actions, the environment that would be affected by those alternatives, and the environmental consequences of implementing the alternative actions. The major topic areas covered in each alternative are natural and cultural resources, public use, nonfederal lands, and national seashore management and operations. Three preliminary management concepts and several public use strategies were considered but rejected.

The three alternatives that have been considered can be characterized as follows:

- *Alternative 1 is a continuation of current management, often referred to as the “no-action” or “minimum requirements” alternative. Under this alternative the Park Service would manage the national seashore to protect natural and cultural resources, while allowing appropriate public use related to those resources.*
- *Alternative 2, the proposed general management plan or the proposed action, would also seek to maintain a balance between resource protection and public use. However, more opportunities would be provided for the public to experience the resources of the national seashore. Collaborative stewardship of resources on the Cape within the national seashore and more broadly on the Outer Cape would be emphasized, including cooperative efforts with other governmental entities, organizations, local residents, and users to address resource management and use concerns.*
- *Alternative 3 would build on alternative 2 initiatives and also focus on the National Park Service taking a more active role in directing efforts to preserve natural and cultural resources within the national seashore.*

Even though a proposed action has been identified and analyzed in this document, several variables could change over the life of the approved plan relative to current conditions. Changing resource conditions, funding priorities, and facility needs could require the consideration of other actions, including those actions discussed in alternatives 1 and 3. If it became necessary to evaluate additional actions, appropriate review and documentation in accordance with the National Environmental Policy Act would be conducted as part of the evaluation process.

ALTERNATIVE 1

Alternative 1 is a continuation of current management practices, often referred to as the “no-action” alternative in terms of lower cost improvements and minimum protection and safety actions. Under this alternative the Park Service would manage the national seashore to protect natural and cultural resources, while allowing appropriate public use related to those resources. No comprehensive planning would be undertaken to guide management decisions. Under this alternative the Park Service would continue to manage the national seashore to protect natural and cultural resources, while allowing for appropriate public use related to those resources. Essentially no new development for public use would be undertaken. Actions described under alternative 1 represent, for the most part, the implementation of management decisions that have already been made. This alternative is a required alternative in terms of lower cost improvements and minimum protection and safety actions; it is referred to as a minimum requirements alternative.

Case-by-case solutions to natural and cultural resource management challenges would be made on a reactive basis as issues became critical or time was available. For example, this would include decisions regarding how to handle specific historic buildings or parking lots threatened by coastal erosion, or responses to municipal water use requests. Modest efforts would be made to monitor natural resource conditions and to protect the most significant historic resources. Information and interpretive services would continue, and public awareness of resource management issues would be promoted. The emphasis on public use activities and services would be to manage use conflicts and to add or improve minimal facilities. Dialogues on land use and development issues would continue with towns, private landowners, and state agencies. Administrative and maintenance facilities and staff housing would be evaluated to better suit NPS needs, and utility upgrades would be made to increase energy efficiency and other sustainable practices.

ALTERNATIVE 2

The intent of alternative 2 would be to achieve resource conservation by striking an appropriate balance between resource protection and public use similar to alternative 1. However, under alternative 2 there would be a greater emphasis on the collaborative stewardship of resources to help preserve the "timeless" character of Cape Cod in terms of the natural, dynamic landscapes; historic and rural landscapes and architecture; working landscapes; and longstanding customary activities and cultural heritage. New management actions are proposed, and more emphasis would be placed on working closely with local communities and officials to more effectively meet NPS management philosophy and management objectives, and to more successfully address the mutual problems and concerns of the national seashore and the local communities. The national seashore would take a more active role in promoting land stewardship ethics and practices.

The proposed plan would focus on the integrated management of natural and cultural resources; public use and interpretation; coordination with nonfederal landowners within the national seashore; administrative, maintenance, and operational concerns; and working with local residents, town and county officials, and interested agencies, organizations, and persons to resolve mutual problems. The plan is programmatic in that it gives guidance and criteria for day-to-day decision making and more specific future actions, studies, and plans. However, more opportunities would also be provided for the public to experience the seashore's resources; for example, by providing access to distinctive resource areas and expanding the trail system.

Existing public use facilities and site attractions, such as the Salt Pond visitor center and the Fort Hill/Penniman house area, would be improved. However, no major new development is proposed, and the built environment or impacts from development would be reduced where possible. National seashore managers would cooperate more closely with friends groups to further provide educational and interpretive opportunities throughout the Outer Cape. The

National Park Service would also work in partnership with local communities and officials to more effectively meet NPS management objectives and to more successfully address mutual problems and concerns, such as water quality, coastal processes, and traffic congestion — concerns that transcend political boundaries.

ALTERNATIVE 3

Alternative 3 would build on alternative 2 initiatives and also focus on the National Park Service taking a more formal directive role in protecting and managing resources through more structured partnerships. Additionally, some aspects of alternative 3 are more capital-intensive than alternative 2 solutions. Alternative 3 presents other reasonable actions that could be implemented but that are significantly different from those presented in either alternative 1 or 2; these actions would have different impacts on the environment, such as allowing natural coastal processes to continue without any human intervention. These actions are specific to selected management topics in the four major sections, not each individual subject area.

The National Park Service would take a more active role in directing intensive protection and management efforts to preserve natural and cultural resources. For instance, formal agreements would be sought with the state regarding insect control and the stocking of fish and game. There would be additional acquisition of private properties to protect the historical character of private development. The national seashore would invest in additional media displays at information centers and transit sites throughout the Cape, and it would establish cooperative visitor facilities to link the interpretation of national seashore resources with those of Morris Island / Monomoy National Wildlife Refuge and Stellwagen Bank National Marine Sanctuary. Concession services would be minimal, and commercial uses strictly managed. Finally, some national seashore administrative functions would be relocated outside the boundaries, and staff housing would be dispersed.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1

Because alternative 1 is essentially a continuation of present management practices, implementing this alternative would largely result in a continuation of existing resource conditions and trends. Impacts now occurring to national seashore resources and visitors would be expected to continue, as would NPS efforts to minimize any long-term adverse effects.

Impacts on Natural Resources

Relative to coastal processes, intervention activities to protect private property and national seashore facilities would result in beneficial impacts to man-made coastal development. However, the maintenance of seawalls, jetties, and revetments would require consistent labor and funding to accomplish. Beneficial impacts of allowing coastal processes to take place unimpeded would be limited to those coastal areas not currently influenced by humans.

Little to no improvement in air quality is anticipated because this alternative proposes few specific initiatives that would reduce pollutant emissions. Public activities in high use areas would continue to compact soils and increase erosion potential. Beneficial impacts would result from the development of management plans for kettle ponds, vernal pools, and coastal plain ponds through the formulation of strategies to minimize erosion in these areas.

The protection of water resources and wetlands would be enhanced through cooperative planning efforts with local municipalities and other landowners. However, proposed cooperative programs are generally limited and reactive in nature. The overall long-term impact of the incremental restoration of Hatches Harbor would be beneficial in that estuarine nursery habitat would be restored and the diversity of native plant and animal species in the area would be increased.

Vegetation, fish and wildlife, and threatened or endangered species would continue to be protected at current levels within the national seashore. The current lack of systematic monitoring and scientific data about many resources would be perpetuated, resulting in an increased risk of resource degradation and loss. Resource managers would not have the information needed to make informed decisions, particularly with respect to actions taken by other agencies, such as stocking fish and game. Major management actions to protect species and communities of special concern would not take place. Therefore, a reduction in the total acreage of heathland communities, as well as adverse effects on other sensitive resources, could occur.

Impacts on Cultural Resources

Current beneficial and adverse effects to cultural resources would generally continue. Beneficial impacts would include ethnographic resources, cultural landscapes, the maintenance of identified historic and archeological resources, and museum collections within the constraints of current funding levels. However, in general, beneficial effects of resource protection would be available to only a limited number of resources. Lack of comprehensive surveys for cultural resources have left substantial resources unidentified and unprotected, and this scenario would continue under alternative 1. In addition, the preservation of the historic character of privately owned structures would continue to be left to the discretion of individual landowners, possibly with additional important resources being at risk. Overall, resource protection benefits would be relatively limited under this alternative because few new initiatives for resource inventories, protection, or collection storage would be proposed.

Impacts on Public Use and Experience

NPS managers would have relatively few new tools for addressing increasing demands and the effects of public uses at the national seashore. Beneficial impacts of current management would continue, such as emphasizing public

safety, experience, and interpretation. However, management would be generally reactive in nature, which would likely lead to increased potential for adverse impacts to resources and public use and safety. Services provided, such as interpretive programs, would likely be offered on a limited basis.

Traffic problems would be improved to the extent the Cape Cod Commission's *Long Range Transportation Plan* was collaboratively implemented. Adverse impacts to people in the national seashore from crowding, particularly in popular areas, would continue to occur, and facility repair or replacement would be necessary as a result of shoreline erosion and migration. Case-by-case review of redevelopment proposals for the Provincetown airport would strive to protect national seashore resources, particularly wetlands. Appreciable effects on public access to the Cape are not anticipated.

Impacts on the Socioeconomic Environment

The positive effects the national seashore currently has on the local economy from visitor expenditures for goods and services, indirect sales, NPS expenditures for salaries and operations, and seashore employee expenditures would continue. In addition, local and state tax revenues from tourism totaled an estimated \$19 million in 1995 — a benefit expected to continue under alternative 1.

The National Park Service would continue to pay for services and contribute payments in lieu of taxes at current rates, thereby boosting local revenues. The continued protection of national seashore lands in open space would provide a beneficial impact by reducing the service cost burden to municipalities from potential new residential development. Various aspects of national seashore operations contribute direct and indirect benefit to the towns, reducing some potential municipal costs.

Local property values have benefited by the presence of the seashore, and no adverse impacts on property values are anticipated with alternative 1. Existing concessioners would not be

adversely affected by this alternative, as no change in current management is proposed.

Impacts on Nonfederal Lands within the National Seashore

Cape Cod National Seashore would continue to receive modest benefits in land use planning from information exchange with other public and private land managers. Federal and local land use tools that are currently in place do not provide sufficient guidance or protection strategies, and adverse impacts on the character of the Cape would likely result over time. Efforts to develop formal cooperative efforts with other governmental agencies could enhance the protection of some natural and cultural resources.

Impacts on National Seashore Management and Operations

Existing initiatives for analyzing operational space requirements and improving sustainability of landscaping practices would provide beneficial impacts to the national seashore through increased efficiency of operations and reduced adverse effects on resources. Upgrading septic systems and placing utility lines underground would reduce impacts on sensitive resources while providing safe and cost-effective utility services. In addition, allowing individuals with a personal hardship to continue residential use of federal properties formerly under reservations of use and occupancy would have a positive impact on these individuals.

Staffing levels would not be increased, and capabilities of the seashore to provide needed services and to acquire and analyze necessary data would be adversely affected. Managers could continue to be pressured into making decisions in the absence of necessary resource and public use information. In addition, staff housing would continue to be dispersed throughout the seashore, and its maintenance and operation would remain costly.

ALTERNATIVE 2 (PROPOSED ACTION)

Impacts on Natural Resources

Implementing the proposed action would result in some long-term, beneficial impacts to air quality through improved monitoring and research, facility and vehicle conversions, and regional partnerships. The magnitude of these potential impacts is unknown. The majority of potential impacts to soil and vegetation resources would be short-term in nature as a result of construction-related disturbances and erosion. With mitigation, long-term impacts would be minimal.

Intervention in natural coastal processes would take place only to neutralize human-caused disturbance. Consequently, natural (undeveloped) areas could benefit by being allowed to function relatively free from human interference. Some areas would incur short-term adverse impacts from accelerated erosion; however, the long-term benefits of stabilizing coastal processes in these areas would far outweigh the short-term effects. Beneficial impacts would also be associated with relocating or redesigning portions of public use facilities that are obstacles to natural shoreline processes because they obstruct natural sand transport and dune rebuilding processes along the coastline.

Positive impacts from alternative 2 water resource management proposals would include additional research and data collection to allow for more collaborative problem solving by seashore managers and local towns; improved cooperation and coordination in managing Cape water resources; and long-term incremental restoration of up to 690 acres of estuarine wetlands.

Vegetation resources would benefit by eliminating viewpoints that require consistent maintenance of vegetation and interference with successional processes. Localized vegetation loss would occur as a result of developing parking areas, pulloffs, and picnic areas. Long-term adverse impacts to vegetation communities from these disturbances would be negligible. Implementing environmentally sound land-

scaping practices would minimize potential impacts on water quality and other resources.

Fish, wildlife, and threatened or endangered species/communities would benefit from a more active and intensive management role. National seashore managers would be more assertive in exploring options or making management decisions with state and local partners regarding sensitive resources. As an upland landowner, the National Park Service would have input into shellfishing aquaculture, and it would guide and manage finfish aquaculture, as appropriate. Efforts would be made to minimize potential adverse impacts to water quality and biota. Restoring the Herring River and Pamet River systems would have positive effects on estuarine habitat in these locations. Studies to assess the effects of stocking nonnative species would also have beneficial effects on seashore ecosystems.

Impacts on Cultural Resources

Key elements of alternative 2 that would have beneficial impacts on cultural resources include helping preserve cultural heritage and ethnographic resources, completing comprehensive resource inventories, develop and implement resource maintenance plans, improving the interpretation of cultural resources, and enlarging collection storage space. In addition, collaborative efforts with other local entities to enhance the protection of cultural resources would provide positive impacts to both public and private lands. The primary adverse effect would be the continued threat of resource loss due to shoreline migration.

Impacts on Public Use and Experience

Alternative 2 would substantially enhance public experiences at the national seashore, in large part through expanded cooperative efforts in a regional context. Interpretive and educational opportunities would be improved through cooperative partnerships with volunteers, universities, and friends groups. Improved interpretation could lead to a greater understanding of local history and culture, as well as enhanced resource

protection from increased public awareness of resource values. Implementing additional traffic management techniques and alternative travel options would reduce traffic congestion and potentially improve air quality. Improvements that would be considered at the Provincetown airport would be designed to protect national seashore resources and the public experience while not significantly affecting commercial air service to the Cape.

Public uses would be managed to be mutually compatible. Some potentially conflicting public uses, such as ORV driving and hunting, would continue to be restricted to specific areas or times to minimize the potential for conflicts with other resources or activities. Visitor information services would be combined or consolidated, and the overall experience would be improved.

Impacts on the Socioeconomic Environment

The existing economic benefits provided by the national seashore and described in alternative 1 would continue under alternative 2. Implementing alternative 2 would provide additional benefits, primarily through improved conditions for local residents and private property owners within the national seashore, expanded staff expenditures, and upgraded visitor services and facilities. The increased emphasis on cooperative planning under alternative 2 could translate into the need for additional staffing and some increased work for local communities.

With a few exceptions, local property values would not be adversely affected under alternative 2. Existing NPS concessioners could be adversely affected if the decision was made not to renew individual contracts, or if they did not successfully compete for a contract.

Impacts on Nonfederal Lands within the National Seashore

The cooperative and collaborative approach emphasized under this alternative would improve the current land use planning environment within the national seashore and on the Outer

Cape. Developing common land use databases would improve problem-solving procedures for seashore and community managers and help foster a partnership planning approach. Seeking additional NPS acquisition funding authority would improve the national seashore's capabilities for land protection (willing-seller only), but relationships with the public could be adversely affected if acquisition was perceived as a threat to property owners' rights.

Proposed land use tools to be developed jointly with other stakeholders would offer updated and clearer regulatory guidance to private property owners within the national seashore for protecting natural and cultural resources, as well as the character of the Outer Cape. Some property owners could find regulations adverse because they could restrict the desired use of their property, others could find them beneficial because they are concerned about the potential for excessive expansion and the loss of the original cottages that comprise the Cape Cod character of the Seashore District. Finally, improved property owners would be more involved in determining strategies to improve problem solving and to minimize conflicts between residents and visitors.

Impacts on National Seashore Management and Operations

Potential adverse impacts would include the need for additional staff and associated increases in operational funding to implement new programs and to cooperate more extensively with local communities. Programs and actions proposed in this alternative could be achieved if funding and staffing levels permitted. A lack of staff support in key areas could limit the ability of the national seashore to implement this plan. Positive impacts could result from the implementation of collaborative efforts and consultative processes.

Existing adverse impacts on natural resources would be reduced by emphasizing sustainable landscaping practices. Beneficial impacts on staff housing would occur from concentrating housing at fewer sites within the national

seashore, limiting NPS housing available for permanent employees, and assisting employees in finding housing in local communities.

Cost efficiencies for utilities would be improved through increased cooperation with local agencies and emphasizing sustainable practices. Beneficial impacts to a variety of services would also result from NPS representation on the Cape Cod Commission, which would improve Cape-wide cooperation and understanding of mutual problems.

ALTERNATIVE 3

The impacts of alternative 3 would be similar to those of alternative 2. However, for alternative 3 national seashore managers would take a more directive role in resource management, and more formal and more costly measures would be undertaken by the national seashore to ensure resource protection. Consequently, potential impacts presented below are in addition to, or in some cases modify, those previously presented under alternative 2. Unless indicated below, all impacts identified and discussed under alternative 2 are assumed to apply to alternative 3 as well.

Impacts on Natural Resources

Allowing natural shoreline processes to take place without any intervention would have both adverse and beneficial effects. Most existing coastline development would be eliminated or substantially relocated over time, including private, municipal, and national seashore facilities. However, a completely natural barrier beach system would result, a very rare resource on the East Coast.

Alternative 3 would also provide additional benefits to vegetation, fish and wildlife, and wetlands through more intensive management. For example, finfish aquaculture would not be allowed in national seashore waters, thereby eliminating possible impacts to water quality and marine life that could be associated with such operations.

Impacts on Cultural Resources

The expansion of NPS land acquisition authority would have potentially beneficial effects on historic structures and cultural landscapes by allowing the Park Service to take direct steps to protect threatened or deteriorating resources and to maintain the Cape's historical character. However, adverse impacts could result over time from acquisition, preservation, and maintenance costs for newly acquired structures and property.

Impacts on Public Use and Experience

Developing a coordinated information distribution system would improve consistency and availability of visitor information throughout the Cape. It would also encourage further inter-agency and interorganizational collaboration and participation in Capewide planning efforts. Improving public information services could result in increased efforts and operational costs to local agencies and organizations. Impacts on national seashore resources and Provincetown airport operations would be similar to those described for alternative 1.

Impacts on the Socioeconomic Environment

Local tax bases could be adversely affected by discontinuing commercial use permits for private businesses. More stringent regulation of private property owners and commercial licensees (who operate activities that originate and end outside seashore boundaries) would also occur. This would potentially result in adverse impacts to tour operators, as well as seashore staff due to increased workloads.

Impacts on Nonfederal Lands within the National Seashore

Converting the NPS use guidelines into regulations would not be popular with some owners or towns due to the guidelines' perceived inadequacies and the fact that they are out of date. Some could find regulations adverse because they could restrict the desired use of their

property, others could find them beneficial because they would help preserve the Cape Cod character of development in the Seashore District.

Beneficial impacts to kettle ponds would occur from improved interagency collaboration and more consistent management. Consequently, adverse effects to these resources would be further reduced. Discussion and implementation of potential land exchanges between the Park Service and other agencies would also assist in consolidating pond ownership and improving management efficiency.

Impacts on National Seashore Management and Operations

There would be no substantial difference in staffing requirements for alternative 3 relative to alternative 2. Beneficial impacts to seashore facilities and operations would occur from the greatest reduction in the built environment and the least amount of landscaping of the three alternatives.

Options for meeting administrative and maintenance facility space needs by leasing space in local towns and utilizing structures when use-and-occupancy reservations end would improve administrative efficiencies and reduce the built environment.

Further dispersal of staff housing would fragment wildlife habitat and potentially isolate employees from the park and local community. Giving seasonal employees preference for housing would benefit that group.

CONTENTS

Purpose of and Need for the Plan

Introduction	3	Interrelationships with Other Plans and Projects	15
Purpose and Need	3	State Plans	15
The Context for the Plan	4	Regional and Local Plans	16
Cape Cod: A Landscape Like No Other	4	NPS Plans	18
Change on the Outer Cape	6	Issues and Concerns	21
The Legislative Mandate for the National Seashore	7	Natural Resources	21
Legal Requirements for Former Commonwealth and Town Lands	10	Cultural Resources	23
Concurrent Jurisdiction and Regulatory Authority	11	Public Use	25
Management Philosophy	12	Nonfederal Lands within the National Seashore	28
Management Objectives	13	National Seashore Management and Operations	30
Primary Interpretive Themes	13		

Alternatives, Including the Proposed Action

Overview of Alternatives	35	Private Residential Properties	52
Alternative 1 — Continue Current Management	45	Private Commercial Properties	53
Natural Resources	45	Municipal and State Lands	53
Air Resources	45	National Seashore Management and Operations	53
Coastal Processes	45	Cooperative Planning and Management	53
Water Resources	45	Administrative and Maintenance Facilities and Operations	54
Vegetation and Wildlife	47	Staff Housing	55
Cultural Resources	47	Utilities	55
Cultural Heritage and Ethnographic Resources	47	Services Exchanged with Local Communities	56
Cultural Landscapes	48	Reservations of Use and Occupancy	56
Historic Architecture	48	Management Zones	57
Archeological Resources (Including Submerged Resources)	49	Alternative 2 — Proposed Action	65
Museum Collection	49	Natural Resources	65
Public Use	50	Air Resources	65
Information and Orientation	50	Coastal Processes	66
Access and Transportation	50	Water Resources	68
Interpretation and Education	50	Vegetation and Wildlife	71
Activities, Facilities, and Services	51	Cultural Resources	74
Concessions and Commercial Services	52	Cultural Heritage and Ethnographic Resources	74
Vista Management	52	Cultural Landscapes	75
Nonfederal Lands within the National Seashore	52	Historic Architecture	77
Land Use Planning and Protection	52		

Archeological Resources (Including Submerged Resources) 80	Water Resources 116
Museum Collection 82	Vegetation and Wildlife 117
Public Use 83	Cultural Resources 117
Information and Orientation 83	Cultural Heritage and Ethnographic Resources 117
Access and Transportation 85	Cultural Landscapes 117
Interpretation and Education 87	Historic Architecture 117
Activities, Facilities, and Services 89	Archeological Resources (Including Submerged Resources) 118
Concessions and Commercial Services 94	Museum Collection 118
Vista Management 95	Public Use 118
Nonfederal Lands within the National Seashore 96	Information and Orientation 118
Land Use Planning and Protection 96	Access and Transportation 119
Private Residential Properties 98	Interpretation and Education 119
Private Commercial Properties 100	Activities, Facilities, and Services 119
Municipal and State Lands 100	Concessions and Commercial Services 119
National Seashore Management and Operations 101	Nonfederal Lands within the National Seashore 120
Cooperative Planning and Management 101	Private Residential Properties 120
Administrative and Maintenance Facilities and Operations 104	Private Commercial Properties 120
Staff Housing 105	Municipal and State Lands 120
Utilities 107	National Seashore Management and Operations 120
Services Exchanged with Local Communities 109	Administrative and Maintenance Facilities 120
Reservations of Use and Occupancy 110	Staff Housing 121
Management Zones 111	Services Exchanged with Local Communities 121
Alternative 3 116	Alternatives and Strategies Considered but Rejected 122
Natural Resources 116	
Coastal Processes 116	

Affected Environment

Natural Resources 125	Vegetation 142
Climate 125	Cultural Landscapes 146
Air Resources 125	Plant Species That Are Endangered, Threatened, or of Special Concern 146
Geology and Coastal Processes 128	Nonnative Plant Species 146
Barrier Beaches 129	Fire Management 151
Soils 131	Fish and Wildlife 151
Prime and Unique Farmlands 131	Hunting, Fishing, and Shellfishing 152
Water Resources (Including Wetlands and Floodplains) 133	Nonnative Species 152
Marine Resources 133	Rare, Threatened, or Endangered Animal Species 152
Freshwater Resources 137	Mosquito Control Activities 153
Floodplains 142	

Cultural Resources 157	Socioeconomic Environment 173
Cultural Heritage and Ethnographic Resources 157	Barnstable County 173
Cultural Landscapes 157	Population Trends 173
Historic Architecture 157	The Cape Cod Economy 173
Archeological Resources (Including Submerged Resources) 159	Housing 174
Land-Based Resources 159	The Outer Cape 174
Submerged Resources 159	Land Area and Population Density 174
Museum Collection 160	Population Concentrations and Trends 174
	The Outer Cape Economy 175
	Housing 175
Public Use 162	Nonfederal Lands within the National Seashore 177
Information and Orientation 162	Land Use / Protection 177
Interpretation and Education 162	Private Residential Properties 179
Access and Transportation 162	Private Commercial Properties 181
Access to Cape Cod 162	Municipal and State Lands 182
Access within the National Seashore 164	
Activities, Facilities, and Services 165	National Seashore Management and Operations 184
Annual Visitation 165	Administrative and Maintenance Facilities and Operations 184
Patterns of Use 166	Staff Housing 184
Public Use Values 167	Utilities 185
Use Regulations 167	Services Exchanged with Local Communities 186
Public Use Priorities 169	Reservations of Use and Occupancy 187
Public Facilities and Services 169	
Concessions and Commercial Services 171	
Vista Management 171	

Environmental Consequences

Overview of Impacts 191	Historic Architecture 209
Alternative 1 201	Archeological Resources (Including Submerged Resources) 210
Impacts on Natural Resources 201	Museum Collection 210
Air Resources 201	Impacts on Public Use and Experience 211
Coastal Processes 201	Information and Orientation 211
Soils 202	Access and Transportation 211
Prime and Unique Farmlands 202	Interpretive and Educational Opportunities 212
Water Resources (Including Wetlands and Floodplains) 203	Public Uses 213
Vegetation 205	Impacts on the Socioeconomic Environment 214
Fish and Wildlife 206	Regional and Local Economy 214
Threatened or Endangered Species / Communities 208	Private Property Owners and Local Residents 217
Impacts on Cultural Resources 208	Property Values 218
Cultural Heritage and Ethnographic Resources 208	Municipal Costs and Services 218
Cultural Landscapes 209	NPS Concession Operations 219

Impacts on Nonfederal Lands within the National Seashore	220	Regional and Local Economy	244
Land Use / Protection	220	Private Property Owners and Local Residents	245
Private Residential Properties	220	Property Values	247
Private Commercial Properties	221	Municipal Costs and Services	247
Municipal and State Lands	222	NPS Concessioner Operations	248
Impacts on National Seashore Management and Operations	222	Impacts on Nonfederal Lands within the National Seashore	248
Staffing	222	Land Use / Protection	248
Administrative and Maintenance Facilities and Operations	223	Private Residential Properties	249
Staff Housing	223	Private Commercial Properties	250
Utilities	224	Municipal and State Lands	251
Services Exchanged with Local Communities	224	Impacts on National Seashore Management and Operations	251
Reservations of Use and Occupancy	225	Staffing	251
Cumulative Impacts	225	Administrative and Maintenance Facilities and Operations	252
Natural Resources	226	Staff Housing	252
Cultural Resources	227	Utilities	253
Public Use and Experience	227	Services Exchanged with Local Communities	254
Nonfederal Lands	227	Reservations of Use and Occupancy	254
Alternative 2 — Proposed Action	228	Cumulative Impacts	255
Impacts on Natural Resources	228	Natural Resources	255
Air Resources	228	Cultural Resources	256
Coastal Processes	228	Public Use and Experience	256
Soils	229	Nonfederal Lands	257
Prime and Unique Farmlands	230	Unavoidable Adverse Impacts	257
Water Resources (Including Wetlands and Floodplains)	230	Relationship Between Short-term Uses and Maintenance and Enhancement of Long-term Productivity	258
Vegetation	232	Irreversible and Irretrievable Commitments of Resources	258
Fish and Wildlife	235	Alternative 3	260
Threatened or Endangered Species / Communities	237	Impacts on Natural Resources	260
Impacts on Cultural Resources	237	Coastal Processes	260
Cultural Heritage and Ethnographic Resources	237	Water Resources (Including Wetlands and Floodplains)	260
Cultural Landscapes	238	Vegetation	260
Historic Architecture	238	Fish and Wildlife	261
Archeological Resources (Including Submerged Resources)	239	Impacts on Cultural Resources	261
Museum Collection	240	Cultural Heritage and Ethnographic Resources	261
Impacts on Public Use and Experience	240	Cultural Landscapes	261
Information and Orientation	240	Historic Architecture	262
Access and Transportation	240	Archeological Resources (Including Submerged Resources)	262
Interpretive and Educational Opportunities	242	Museum Collection	263
Public Uses	243	Impacts on Public Use and Experience	263
Impacts on the Socioeconomic Environment	244		

Information and Orientation	263	Private Commercial Properties	266
Access and Transportation	263	Municipal and State Lands	266
Interpretive and Educational Opportunities	264	Impacts on National Seashore Management and Operations	267
Public Uses	264	Staffing	267
Impacts on the Socioeconomic Environment	264	Administrative and Maintenance Facilities and Operations	267
Regional and Local Economy	264	Staff Housing	267
Private Property Owners and Local Residents	265	Services Exchanged with Local Communities	268
NPS Concessioners	265	Cumulative Impacts	268
Municipal Costs and Services	266	Natural Resources	268
Impacts on Nonfederal Lands within the National Seashore	266	Public Use and Experience	268
Private Residential Properties	266		

Consultation and Coordination

General Management Planning Process for Cape Cod National Seashore	271	Summary of Comments from Public Meetings	277
Compliance with Federal and State Laws and Regulations	274	General Comments	278
Natural Resources	274	Natural Resource Management	282
Cultural Resources	275	Cultural Resource Management	285
Other Federal Acts	276	Public Use	286
Comments and Responses on the Draft Environmental Impact Statement	277	Nonfederal Lands	291
		Management and Operations	293
		Management Zoning	295
		Agencies, Organizations, and Individuals Commenting on the Draft GMP or EIS	295

Appendixes / Selected Bibliography / Planning Team / Index

Appendixes		H: Cape Cod National Seashore Advisory Commission Report on the General Management Planning Process	348
A: Legislation and the Transfer of Former State and Town Lands	303	I: Highlights of the Proposed Plan	356
B: Cape Cod National Seashore Zoning Standards	315	Glossary	359
C: Interpretive Themes for Cape Cod National Seashore	317	Selected Bibliography	362
D: Management Zoning and Carrying Capacity Monitoring	319	Planning Team, Contributors, and Consultants	369
E: Cultural Resource Consultation Requirements	330	Index	371
F: Compliance Correspondence	334		
G: Phasing and Estimated Costs	338		

MAPS

Region	5
Landownership	59
Land Use	61
Existing Management Zones	63
Proposed Management Zones	113
Barrier Beaches and Coastal Dunes	130
Water Resources / Floodplain	143
Vegetation	147
Rare Plant Habitat	150
Rare Wildlife Habitat	156
Cultural Resources	161

TABLES

1: Summary of Major Alternative Actions	35
2: Current Management Zones	57
3: Proposed Management Zones	115
4: Major Emitting Facilities (>100 tons/year), Rhode Island Air Pollution Control District	126
5: Major Emitting Facilities (>100 tons/year), Southeast Massachusetts Air Pollution Control District	127
6: General Soil Types, Cape Cod National Seashore	132
7: Vegetation Cover Types within Cape Cod National Seashore	145
8: State-Listed Plant Species That Are Endangered, Threatened, or of Special Concern at Cape Cod National Seashore	149
9: Federally Protected Animal Species at Cape Cod National Seashore	154
10: State-Listed Animal Species That Are Threatened, Endangered, or of Special Concern at Cape Cod National Seashore	155
11: Visitor Activities at Cape Cod National Seashore	167
12: Upland Town Acreages Within Cape Cod National Seashore	177
13: Reservations of Use and Occupancy by Town	188
14: Summary of Impacts	191
15: Sales, Tax, and Employment Benefits, Cape Cod National Seashore	216

Appendixes:

D-1: Qualitative Characteristics for Management Zones Cape Cod National Seashore	329
G-1: Cost Estimates — Alternative 1	340
G-2: Cost Estimates — Alternative 2 (Proposed Action)	341
G-3: Cost Estimates — Alternative 3	343
G-4: Existing Operations and Maintenance Costs — Alternative 1	345
G-5: Operations and Maintenance Costs — Alternative 2	346
G-6: Projected Operations and Maintenance Costs — Alternative 3	347

PURPOSE OF AND NEED FOR THE PLAN

A VISION

Cape Cod is a special place that reflects the power of nature and the resilience of the human spirit — a place to enjoy the beauties of land, sea, and sky, to marvel at the power of a storm-driven ocean, and to reenergize the human spirit. Cape Cod National Seashore was set aside to help preserve the special qualities that give this slender peninsula in the Atlantic Ocean its unique place in the American psyche.

To meet its charge to conserve this special place, the National Park Service will seek to forge a collaborative future for the stewardship of Cape Cod. If we — governmental agencies, organizations, residents, and visitors — work together, we can preserve the Outer Cape's sensitive natural resources, honor its rich cultural heritage, and meet human needs in sustainable, or environmentally conscious, ways. When we have all achieved what we set out to do, sound stewardship practices will be routine, awareness of environmental sensitivities will be heightened, resources will be protected from threats, the visiting public will have the best possible experience in the national seashore, and the lives of Cape Cod residents will be enriched. The conservation of this unique place will be appropriately balanced with the activities of the people who care about it. The reward of a successful partnership will be the ability to enjoy a treasured heritage and to pass it on to future generations.

INTRODUCTION

Cape Cod is a peninsula in the shape of a bold bent arm extending 70 miles into the Atlantic Ocean and forming the easternmost part of Massachusetts. Cape Cod National Seashore, which lies mostly along the eastern portion of the Cape's outer arm, is about 100 miles south-east of Boston and about 275 miles northeast of New York City. Within the seashore are segments of the towns of Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown. The original authorized boundary included approximately 43,570 acres of uplands, wetlands, and tidal lands.

PURPOSE AND NEED

While activities and pressures at the national seashore are increasing, all federal funding is being scrutinized by Congress. Public land managers must closely examine the feasibility and cost-effectiveness of each action, and they must look for innovative ways to protect resources and to provide quality visitor services.

The general management plan for Cape Cod National Seashore has two primary purposes.

- First, it outlines how natural and cultural resources, public use, nonfederal lands, and national seashore operations would be managed over the next 15 years.
- Second, and more important, it provides the framework for the National Park Service to help in developing solutions to a wide range of challenges that are confronting local residents and towns, as well as the national seashore.

The *Master Plan* for Cape Cod National Seashore was completed in 1970; while that plan has continued to be used as a general guide for operations, it is no longer adequate to address the policy and operational issues now facing the national seashore. A general management plan is

needed to establish current management priorities, to focus funding efforts, and to support the implementation of a series of innovative plans that have been developed to address specific management issues not discussed in the *Master Plan*.

Since the release of the 1970 *Master Plan*, a number of changes have been evident on Cape Cod. The area's population has grown at the fastest rate of any county in Massachusetts, nearly doubling in size and creating pressure on open space and regional infrastructure (e.g., groundwater and transportation). The last two decades have also seen a considerable increase in year-round residents. Within the national seashore visitation has basically reached a plateau; however, the pattern of visitor use has shifted slightly, with somewhat fewer visitors during the peak summer season and more during the spring and fall shoulder seasons.

These changes have put new pressures on Cape Cod National Seashore, requiring the Park Service to reevaluate how its management goals and practices relate to those of the Outer Cape communities and the Cape Cod Commission (the regional planning commission). At this time the commission and local communities are involved in comprehensive regional and local planning activities that offer unusual opportunities for interaction and coordination.

Since 1970, the National Park Service has also changed, with the evolution of new attitudes and management practices. There is a recognition of the importance of cultural landscapes, an emphasis on sustainable practices and ecosystem management, and a willingness to develop public/private partnerships — all of which affect the management of Cape Cod National Seashore.

The *Final Environmental Impact Statement* has been prepared and organized to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended, which requires the evaluation of potential impacts

resulting from federal actions or lands involving federal jurisdiction. The *Draft Environmental Impact Statement* was accompanied by a *Draft General Management Plan*, which focused on the proposed action (alternative 2 in this document). A final *General Management Plan* will be distributed once a record of decision has been signed.

This *Final Environmental Impact Statement* is divided into five primary sections.

1. The "Purpose of and Need for the Plan" describes why the general management plan is being done, the context for the plan, relationships to other planning projects, and issues and concerns addressed by the alternatives.
2. The "Alternatives, Including the Proposed Action," describes the three alternatives that were considered, as well as those alternatives or actions considered but not analyzed in detail.
3. The "Affected Environment" describes those elements of the natural, cultural, and socioeconomic environment potentially affected by implementing the proposed action or alternatives.
4. The "Environmental Consequences" section describes potential impacts from implementing the proposed action or alternatives. This section is organized by alternative, starting with a discussion of impacts on various resources potentially resulting from the implementation of each alternative. Cumulative impacts, or additive effects of other sources of impact, are presented in a separate section at the end of the impact discussion for each alternative.
5. "Consultation and Coordination" describes public involvement and agency coordination during the planning process. Comments on the *Draft General Management Plan* and the *Draft Environmental Impact Statement* are printed in volume 2.

This environmental impact statement is a programmatic statement. The proposed action and alternatives each consist of a basic management framework for future decision making; site-specific details and recommendations are generally not included. Consequently, an overview is presented of potential impacts relating to the proposed program for each alternative. In the future, the implementation of specific actions included in the approved final general management plan would require the preparation of more detailed environmental assessments. These documents would be tiered to this programmatic impact statement.

THE CONTEXT FOR THE PLAN

CAPE COD: A LANDSCAPE LIKE NO OTHER

The Great Beach is . . . probably the best place of all our coast to go to. . . I do not know where there is another beach in the Atlantic States, attached to the mainland, so long, and at the same time so completely uninterrupted.

— Henry David Thoreau

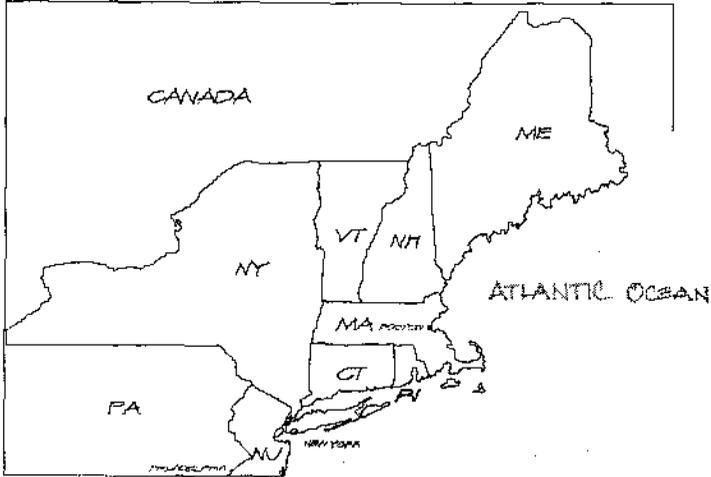
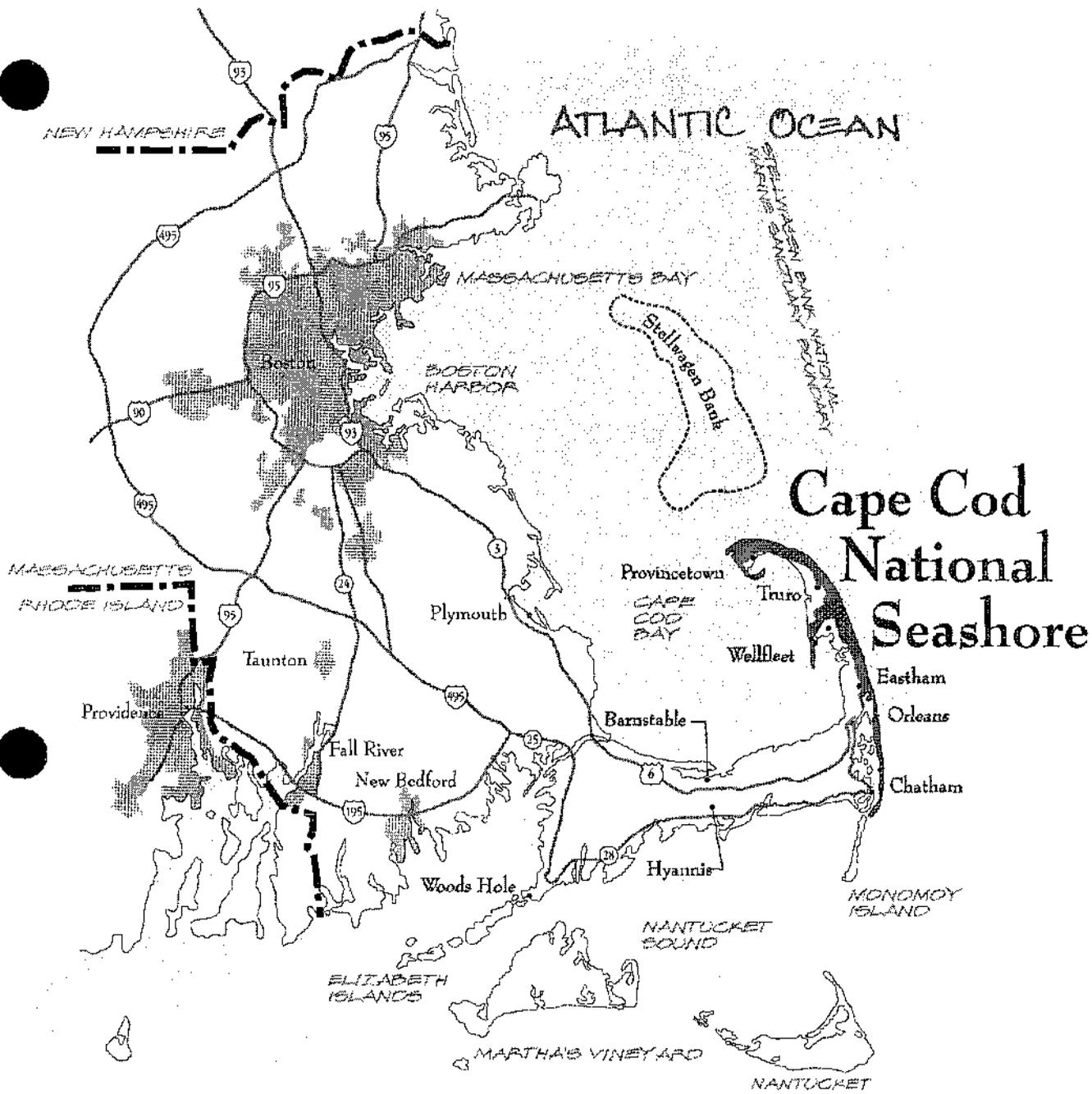
Cape Cod — a slender spit of land curving some 60 miles out into the Atlantic Ocean — is an extraordinary resource, an area that is strikingly lovely and unusual in its combination and diversity of resources. Its unsurpassed beaches, ponds, marshes, bays, pine barrens, inlets, and dunes combine with historic landscapes and thriving communities to create an intricate mosaic. Cape Cod National Seashore was authorized in 1961 to preserve a portion of this fascinating, ever changing landscape.

Cape Cod is the largest glacial peninsula in the world, and the Great Beach, on the Atlantic side of the Cape, is the longest expanse of uninterrupted sandy shoreline on the East Coast. 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 remain largely unaffected by development, making it unusually easy to observe their effect on the land.

NORTH



NO SCALE



Region

Cape Cod National Seashore, Massachusetts

United States Department of the Interior • National Park Service
DEC • February 1998 • 509 • 20.030a

ON MICROFILM

The Cape's prominent position in the Atlantic has long made it a key landmark for human habitation, and archeological sites testify to over 9,000 years of occupation. These centuries of continuous human settlement have resulted in the development of occupations, folkways, and pastimes that have given us some of the nation's most compelling stories. By the 1600s the Wampanoag Indians used or inhabited all the lands now contained within the national seashore. In 1620 Cape Cod was the first landfall for the Pilgrims and the site of the creation of the Mayflower Compact.

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, along with lifesaving and Coast Guard stations, that dot the Cape also reflect this heritage. Settlers developed a style of dwelling with a steep roof to shed the rain and snow and low to the ground to withstand buffeting winds; this style came to be known as the Cape Cod house, recognized throughout the United States.

Cape Cod has also been the site of significant technological achievements. The first transatlantic cable was laid between Cape Cod and France in 1866. In 1903 Guglielmo Marconi was instrumental in successfully sending and receiving the first exchange of transatlantic wireless messages between President Theodore Roosevelt and King Edward VII. More recently the Cape has played a role in the research and development of long-range radar.

Cape Cod's beauty, sense of solitude, and other aesthetic values have created a place for people to come for inspiration and renewal for over 100 years. These attributes have also inspired generations of artists and writers. Edward Hopper, Mark Rothko, Jackson Pollock, Henry David Thoreau, John Dos Passos, and Mary McCarthy are only a few who have created a rich tradition of contributions to the arts. Cape Cod continues to be recognized for its special charm and unique ambience. The fact that this area is so close to densely populated areas makes its special character more and more precious.

CHANGE ON THE OUTER CAPE

Cape Cod has seen significant change since the national seashore was authorized in 1961. The year-round population has grown dramatically, and many visitors now come not just from the Northeast, but from all over the country and the world.

Cape Cod National Seashore is fragile and ever changing. Its long narrow shape exposes it to the terrific forces of wind, water, and weather on its ocean side. Development on the Cape will continue, and the social and economic pressures will continue. These pressures and others can threaten the Outer Cape's most appealing qualities if they are not carefully managed. Some of the issues are urgent and need to be addressed soon to avoid the permanent loss of some resources.

The continuing attraction of the Cape to tourists and new residents has proved a mixed blessing, providing a valuable source of income but also bringing an increase in development and commercialism that threaten the very elements most residents and visitors seek. Traffic jams, crowded beaches, growing demands on water sources, and the fragmentation of woodlands and waterfronts by new development are all challenges that need to be addressed. A growing population and increasing development are multiplying demands for water, ultimately affecting the aquifer beneath the peninsula that feeds the Cape's freshwater ponds and streams and provides the only potable water source for residents. This supply is at risk of being polluted and possibly depleted in localized areas. Kettle ponds and wetlands are threatened by demands for greater access, as well as development and manipulation. Plant, marine, and wildlife communities have been disrupted by the introduction of nonnative species, increased hunting and fishing, and ditching and spraying to control mosquitoes. Natural coastal processes are sometimes impeded by erosion control structures, which can become safety hazards.

Some cultural resources are also at risk. The existence of these resources was long taken for granted, but now that they are disappearing,

their intrinsic contribution to the Cape Cod character is being recognized.

Portions of six Outer Cape towns are encompassed in Cape Cod National Seashore. The relationship between the six towns and the national seashore has been complex and has changed over time. The results of consultations over the years have been mixed, and collaboration on matters of mutual concern has not always been timely or effective.

THE LEGISLATIVE MANDATE FOR THE NATIONAL SEASHORE

Cape Cod National Seashore is a special environment encompassing not only significant natural and cultural resources, but also vital communities with their political, economic, and social activities, and activities such as hunting and offroad vehicle use. Consequently, the creators of Cape Cod National Seashore took special care in writing the enabling legislation. The establishment of a national seashore was considered for a number of years, and legislation was initially filed in September 1959.

Legislative History

The bills that eventually became the basis for the legislation creating Cape Cod National Seashore

were introduced on September 3, 1959, in both houses of the 86th Congress. Massachusetts Senators Leverett Saltonstall and John F. Kennedy introduced S. 2636, and Massachusetts Representative Hastings Keith, whose district included Cape Cod, introduced H.R. 9050. Both bills were identical.

In introducing the bill to the Senate Kennedy stated:

Each of us has felt that a national park on Cape Cod was justified only on a strong showing that this was the most effective means of maintaining the historic way of life and scenic integrity on the Cape. . . . Cape Cod is more heavily settled, enjoys more compact town government, and has a greater degree of development than most previous park areas. . . . Particularly since there are residents whose roots on the Cape reach back far into the past, it seems important to adapt a bill in such a way as to meet the legitimate interests and sentiments of existing residents.

In introducing the bill to the House of Representatives, Congressman Keith said, "the towns affected by this proposal and the individuals who are interested in it will help us to preserve for the present and for posterity the particular charm, character, and historical significance of Cape Cod and its communities."

The proponents of the bill also articulated a special ambience or feeling on Cape Cod that they wanted to preserve, including the continuation

The Purposes of Cape Cod National Seashore



While the legislation authorizing Cape Cod National Seashore is fairly specific about topics such as the acquisition of land, the rights of property owners, and zoning bylaws, it does not offer a clear statement of the overall purpose for this unit of the national park system. After thoroughly studying the legislative history, including a careful review of the committee reports on this bill, the following purpose statement was developed as part of the current planning process:

The purposes of Cape Cod National Seashore are to

- ◆ preserve the nationally significant and special cultural and natural features, distinctive patterns of human activity, and ambience that characterize the Outer Cape, along with the associated scenic, cultural, historic, scientific, and recreational values
- ◆ provide opportunities for current and future generations to experience, enjoy, and understand these features and values

of favorite pursuits, such as beachcombing, clamming, fishing, access to areas of great scenic beauty, and maintaining the sense of remoteness and tranquillity that had been largely lost elsewhere along the eastern seaboard. These were some of the reasons Cape Cod was deemed to be nationally significant.

Senator Saltonstall's written statement at the Senate subcommittee hearings on June 21, 1960, included this text:

The most important and complicated problem before us is to preserve the scenic and historic features of Cape Cod without injuring or unduly restricting the towns and individual citizens directly concerned. In the work which went into preparation of the original bill, its sponsors painstakingly attempted to recognize the special characteristics of the lower cape and to serve as constructively as possible both the interests of conservation and town life and development.

Ben Thompson, chief of recreational planning for the National Park Service and the first witness from the Department of the Interior to appear before the subcommittee, testified at the June 21, 1960, hearing that the department understood that the legislation's intent included "the unique combination of values of the lower cape," and he stated that the bill "gives adequate protection for the continuation of town government and town way of life." Thompson assured the subcommittee that the Interior Department's plan to carry out the purposes of the legislation would be

to try to develop the proposed national seashore in such manner as to preserve the qualities that are there and to make the transition from the present commercial and tourist and summer economy to that of something close to a national park to supplement the community life on the cape.

The Cape Cod bill was reintroduced in the 87th Congress in 1961. On February 9 Massachusetts Senators Saltonstall and Benjamin Smith introduced S. 857 (the successor to S. 2636). Smith noted that "this is the first time that a national park is to be carved out of so populous an area" and testified that "provisions should also be made that will encourage cooperation between

the towns and the Park Service. After all, they are both going to have to live on the cape, and they will need each other."

Congressman Keith introduced H.R. 5786 in the House of Representatives on March 21, 1961; this version supported some boundary changes sought by the affected Cape towns.

In June 1961 the Senate Committee on Interior and Insular Affairs unanimously reported the bill to the Senate. The accompanying "Section-by-Section Analysis of the Bill" states,

INTRODUCTION

The purpose of this bill is to provide for the establishment of a Cape Cod National Seashore so that lower Cape Cod may be preserved in substantially its present condition for the benefit of all the people of the United States of present and future generations.

Lower Cape Cod cannot be considered solely as a geographical area with certain physical characteristics. The lower cape must also be viewed as a way of life — a culture — which though conditioned by its environment finds its essence in the people who have lived and are living there. This bill seeks to preserve the way of life which these people have established and maintained on the cape.

The report went on to explain how the bill would preserve way of life:

SECTION 4

This section of the bill together with section 5 may be considered as the heart of the bill for purposes of preservation of the way of life of lower Cape Cod as well as the geographic area to be included in the seashore. Their provisions represent an unprecedented innovation in legislation to accommodate the special circumstances of lower Cape Cod. They are designed to assure that this area will be preserved for the purposes set forth in the preamble of the bill in such a way as adequately to safeguard the private and municipal interests in the area.

Sections 4 and 5 would ensure as a minimum the right of all homeowners within the national seashore to continue to use and occupy their homes for up to 25 years. If a town adopts zoning that meets standards defined by the

secretary of the interior, then all homeowners have the right to continue to own and occupy their homes without interruption or interference so long as the zoning is kept in and enforced. Explanations are given to clarify appropriate land uses, improved properties, acquisition authorities, and zoning provisions.

On June 27, 1961, the Senate unanimously passed S. 857. On July 3 the House received a report on H.R. 5786 and debated the bill on July 10; the House approved its own bill and sent it to the Senate. On July 12 the Senate disagreed with the House version, and a conference committee compromise was reached on August 1. One day later the House and Senate agreed to the report.

The Legislation

The legislation that authorized Cape Cod National Seashore (Public Law 87-126) was signed into law by President John F. Kennedy on August 7, 1961 (see appendix A).

- Section 1 of the act defines the seashore's boundary, including segments of the towns of Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown. The boundary was changed slightly on November 10, 1978 (PL 95-625).
- Section 2 outlines NPS land acquisition authorities.
- Section 3 provides for the establishment of the seashore once sufficient acreage was acquired; the seashore was formally established on June 1, 1966.
- Sections 4, 5, and 6 provide for the acquisition of property by condemnation as well as suspension of such authority where "improved property" complies with applicable federal standards for approval of local zoning bylaws and for other statutorily authorized reasons.
- Section 7 addresses the administration of the national seashore. Relative to the management

and the conservation of the seashore's resources and values, section 7 (b)(1) states,

In order that the seashore shall be permanently preserved in its present state, no development or plan for the convenience of visitors shall be undertaken therein which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing or with the preservation of such historic sites and structures as the Secretary [of the Interior] may designate: Provided, That the Secretary may provide for the public enjoyment and understanding of the unique natural, historic, and scientific features of Cape Cod within the seashore by establishing such trails, observation points, and exhibits and providing such services as he may deem desirable for such public enjoyment and understanding: Provided further, That the Secretary may develop for appropriate public uses such portions of the seashore as he deems especially adaptable for camping, swimming, boating, sailing, hunting, fishing, the appreciation of historic sites and structures and natural features of Cape Cod, and other activities of similar nature.

The National Park Service has interpreted the phrase "permanently preserved in its present state" as generally limiting property development to the level that existed at the time of the legislation's enactment, but not as restricting the restoration of cultural landscapes or natural conditions where disturbed, or precluding natural changes in the environment. Preservation would include a mixture of resources and activities that could change but must remain comparable in character and scale to that in existence in 1961.

An additional provision was added in response to concerns that visitors to the national seashore would violate the privacy and peace of local improved property owners. Section 7 (b)(2) specifies that

the Secretary shall provide public use areas in such places and manner as he determines will not diminish for its owners or occupants the value or enjoyment of any improved property located within the Seashore.

Section 7(c) authorizes the secretary of the interior to permit hunting, fishing, and shell-fishing within the national seashore and to prescribe regulations for such activities, subject to prior consultation with any governmental authority also having jurisdiction over such matters. This section further authorizes the secretary to enter into cooperative agreements regarding such activities, except all aspects of the propagation and taking of shellfish is to be left to the towns. Furthermore, the secretary may not interfere with navigation of waters within national seashore boundaries.

- Section 8 establishes the Cape Cod National Seashore Advisory Commission to provide a means of ongoing consultation and liaison with private, local, and community interests that were expected to remain within the seashore. The advisory commission is composed of 10 members: one member is appointed by each of the six towns, one by Barnstable County, two by the state, and one by the secretary of the interior. The life of the commission was originally for 10 years, but it has been extended three times.

The purpose of the commission is to provide advice about matters relating to the development of the national seashore, land acquisition, and the issuance of regulations specifying standards for zoning bylaws (section 8(f)). Furthermore, the secretary must consider the advice of the commission before the issuance of any permit for commercial or industrial use of property located within the national seashore or any decision regarding the establishment of a public use area for recreational activity (section 8(g)).

- Section 9 authorized the appropriation of funds to carry out the act and set a limit on the amount that could be spent for the acquisition of land and waters. The original amount (\$16 million) was subsequently increased to \$33.5 million in 1970 and to \$42,917,575 in 1983. All land acquisition funds have been spent.

LEGAL REQUIREMENTS FOR FORMER COMMONWEALTH AND TOWN LANDS

Several additional requirements have been placed on the national seashore through deed restrictions.

Former Commonwealth Lands

From 1620 until 1654 the Province Lands were included in various patents that permitted colonists to receive land with permission to fish, truck, and trade. In 1654 Thomas Prence purchased the Province Lands from Sampson, a Nauset representative of local natives. The lands were to be used by the colonists as common public lands for "fishing improvements." In 1692 the province of Massachusetts Bay absorbed the old Plymouth colony, including the Province Lands, which remained common land. Provincetown was incorporated June 14, 1727.

When the province of Massachusetts Bay became part of the commonwealth of Massachusetts, the commonwealth recognized that the Province Lands had been occupied by Provincetown's inhabitants for quite some time. But it also passed statutes in 1838 and 1854 reaffirming its right to ownership and extinguishing existing or future adverse possession claims. In 1893 the commonwealth gave up its ownership claims to land underneath the inhabited portion of Provincetown.

The lands of the Province Lands and Pilgrim Springs State Park in Provincetown and Truro were authorized to be conveyed to the United States by the commonwealth of Massachusetts in 1962 (see appendix A for a copy of the authority). The title to the Province Lands was conveyed April 2, 1963.

Section 3 of the authorization provides that a portion of lands are subject to a pre-existing lease for public airport and access purposes, and that additional lands may be made available by lease or otherwise for such purposes, subject to agreement by the secretary of the interior (or his designee) and the Provincetown Airport

Commission. Section 3 also provides that an area may be made available to Provincetown for dumping purposes. These uses are subject to binding arbitration, if needed, in case of disagreement.

Section 4 provides for continued state jurisdiction, taxation, and insect control. Also, regarding public use of the lands, this section provides:

(2) That the Secretary of the Interior may permit hunting and fishing, including shellfishing, on lands and waters under his jurisdiction within the Cape Cod National Seashore in such areas and under such regulations as he may prescribe during open seasons prescribed by applicable local, state and federal law; that said Secretary shall consult with officials of the Commonwealth and any political subdivision thereof who have jurisdiction of hunting and fishing, including shellfishing, prior to the issuance of any such regulations; that said Secretary is authorized to enter into cooperative arrangements with such officials regarding such hunting and fishing, including shellfishing, as he may deem desirable, except that he shall leave all aspects of the propagation and taking of shellfish to the towns referred to in Section One of Public Law 87-126; and that the fishing rights of the public shall be the same in the coastal waters within the Cape Cod National Seashore as prior to such conveyances.

The final clause specifies,

(4) That if at any time the United States of America fails to use the lands so conveyed for the purposes in said Public Law 87-126, the title to such lands shall revert to and revest in the Commonwealth.

Town of Eastham

Coast Guard Beach and Nauset Light Beach in Eastham were deeded by donation to the United States in 1963 and 1965, respectively; this was termed a cooperative gesture by the town of Eastham to help establish the national seashore. With the transfer of ownership, certain reservations were retained by the town; the intent of these reservations is summarized below:

- The town reserved to the taxpayers of Eastham and their families, the right to use the described beaches, parking areas, and adjacent waters without charge.
- It also provided that whenever Cape Cod National Seashore does not use these areas as stated in the deeds, the beaches and land are to revert to the inhabitants of the town of Eastham.

CONCURRENT JURISDICTION AND REGULATORY AUTHORITY

In 1984 the commonwealth of Massachusetts ceded concurrent jurisdiction over lands and buildings in Cape Cod National Seashore, subject to acceptance by the National Park Service. In 1985 the National Park Service accepted concurrent jurisdiction. The purpose of such jurisdiction is to provide for efficient administration of state and federal functions. As defined in the acceptance letter from the director of the National Park Service:

The term "concurrent legislative jurisdiction" is intended as vesting in the Commonwealth and the United States all the rights accorded a sovereign, with the broad qualifications that such authority is held concurrently over all matters, including but not limited to the enforcement of traffic or criminal laws over crimes and offenses committed within the ceded area, police powers and taxes.

Under title 16 of the *United States Code*, section 3, the National Park Service has the authority to establish and enforce rules and regulations necessary for the use and management of national park system areas. These regulations are codified in the *Code of Federal Regulations*, title 36.

Under the federal property clause of the U.S. Constitution, a federal agency may protect federal property from activities or uses occurring on or emanating from nonfederal lands where there is a connection between the activity or use and the harm or risk of harm to the federal property. Before adopting any regulations that

would be effective regardless of landownership on all lands and waters within the national seashore, the Park Service will provide public notice and opportunity for comment. In cases involving particularly controversial or complex issues, the Park Service may seek permission to convene a negotiated rule-making process in order to seek consensus on the text of the rule.

MANAGEMENT PHILOSOPHY

The management philosophy for Cape Cod National Seashore, which is highlighted in the box on the next page, will be the foundation for future management actions and decision making. It identifies the fundamental principles for management and is the result of a thorough examination of the seashore's legislation. It also reflects a growing understanding of what is required to manage this complex resource on a scientific basis and to be responsive to the concerns of neighbors, partners, and the American public. The philosophy also articulates the commitment of the National Park Service to the principles of sustainability and ecosystem management (see the glossary).

Because the health of the towns and the national seashore are intertwined, it is important to continue to maintain and improve relationships. The articulation of how this can be accomplished is one objective of a general management plan. The nature of the relationship between the national seashore and each of the six Outer Cape towns is different because of various factors such as landownership, the acreage of each town within the boundary, patterns of use, and deed restrictions or other legal requirements. The interests of the towns and the intensity of need to resolve issues vary, and it is important that national seashore managers pay particular attention to each town regarding the issues that its residents see as most important. The national seashore is committed to efforts to be mindful and respectful of the towns and their residents and to use the collective knowledge to improve national seashore operations. Some local residents feel a profound connection to the lands within the national seashore that have been long-

standing sources of spiritual as well as physical health; this has been expressed most strongly by Provincetown residents.

The lives of the residents and the resources of the Cape must be viewed as part of an inter-related system. Sound solutions to specific problems must fall within a comprehensive, yet flexible framework that makes it possible to address issues that arise. Decisions developed in an inclusive manner that would build partnerships, trust, and cooperation would enable Cape Cod National Seashore to be appropriately managed in the future. This initiative could build on the comprehensive planning undertaken in the 1990s by the county, towns, and the national seashore — a process that has opened a dialogue on issues and strategies among the various parties. A general management plan could contribute to this framework and provide a single management philosophy that would be the foundation for future seashore management.

The concerns, desires, and needs of year-round residents can often differ from those of more transient residents and visitors. National seashore managers would consult and collaborate, through a variety of participatory techniques, to address local community and individual concerns, and they would factor that understanding into decisions about matters that affect year-round residents. National seashore managers would emphasize consultation and collaboration as central to the successful management of the national seashore.

The work of the Cape Cod National Seashore Advisory Commission has been invaluable and central to whatever success national seashore managers have had in dealing with local constituencies. Additional information regarding the advisory commission's role is contained in the national seashore's legislative history, various commission charters, and the commission's handbook. While the national seashore continues to need the advisory commission for these purposes, various other means for collaboration, consultation, and sharing of the responsibility for reaching good decisions are also articulated in this plan.

The Management Philosophy for Cape Cod National Seashore



Cape Cod is a dynamic place where human and natural forces have interwoven to create a distinctive regional character. Cape Cod National Seashore was established to preserve vital elements of the Cape's character, including flora and fauna, physiographic conditions, historic sites and structures, cultural heritage, and other unique natural and cultural features. This character also includes a certain ambience that is subtler and harder to define, but that provides both a sense of peace and relative isolation. A distinctive pattern of human activity has both shaped, and been shaped by, this special place. Management of the seashore is a delicate balance in which the human needs of today and tomorrow must be addressed within the context of both preservation and tradition.

The legislative record of the national seashore's establishment makes it clear that the preservation of nationally significant resources and these special values was the paramount objective of Congress. However, it is equally clear that Congress envisioned a park unit that would be actively enjoyed by people. That task becomes particularly challenging when part of what is being preserved and made available to visitors is a relationship between humans and their surroundings that is still important to the daily existence of many Cape Codders.

Better science and access to information can continue to help to bring about a dramatic improvement in our understanding of public use and resource protection issues. On Cape Cod this new understanding must be applied in ways that are sensitive to the history and continuing daily lives and activities of the people here. It must also be applied in ways that help us keep the relationship between people and their environment healthy, so that natural, cultural, and economic systems do not become degraded over time.

Even though the national seashore was established with specific legal boundaries, the special resources that characterize the Outer Cape transcend those boundaries, as well as every other political boundary. The quality of life and the economic needs of nearby communities affect seashore resources, just as the management of resources within the national seashore has significant effects on the towns. For this reason a collaborative approach to stewardship among the six Outer Cape towns and all seashore partners is essential. Cape Cod National Seashore staff and managers assume that cooperation and teamwork begin, not end, at the seashore boundary.

MANAGEMENT OBJECTIVES

Management objectives have been developed to provide a framework so national seashore managers and planners can work toward fulfilling the seashore's purpose. The proposed plan presented in this document is consistent with the management philosophy and the following objectives, as well as with the national seashore's purpose.

- In concert with local, regional, and state agencies, manage the natural and cultural resources of the national seashore to sustain the distinctive character of the Outer Cape, a resource held in common among the six towns and the people of the United States, .
- Seek to understand, foster, and maintain native biological and physiographic diversity to sustain thriving, dynamic natural communities and systems. Within these standards protect water resources through a cooperative, balanced approach to water use management.
- Encourage a commitment to the stewardship of the buildings, places, activities, and artifacts of Cape Cod that best exemplify its traditional character, and conserve them to ensure their continuing contribution to the culture of Cape Cod, in collaboration with local communities.
- Allow natural processes to continue unimpeded in natural zones, including the action of wind and water, and neutralize the

effects of human intervention where it has adversely affected natural systems, with consideration for public safety.

- Provide opportunities for a diverse range of quality experiences that are based on the resources and values of Cape Cod, with consideration for sustainable practices and traditional uses, and that are consistent with the purposes of the national seashore.
- Stimulate, and then satisfy, a public desire to understand the natural and cultural resources and the history and sociology of Cape Cod through the primary interpretive themes identified for the national seashore.
- Respect and cooperate with the residents of the Outer Cape, with an emphasis on collaborative decision making and problem solving to address common Outer Cape issues and to promote a stewardship ethic for the national seashore.
- Consult with a broad variety of interested parties, or stakeholders, to generate effective public participation and better-informed decisions.

The Government Performance and Results Act of 1993 requires a slightly different focus for management objectives, aimed at greater measurability of actual results. The National Park Service, as well as other federal agencies, is moving from the current operational mode toward performance management using strategic planning to accomplish the NPS mission. The national seashore has made a first attempt at identifying the strategic work planning goals based on the identified NPS servicewide mission goals (see pages 19–20), which would be consistent with this general management plan. Servicewide implementation is due by March 2000.

PRIMARY INTERPRETIVE THEMES

The primary interpretive themes are those ideas and concepts about Cape Cod National Seashore

that ideally every visitor should understand. These themes provide the foundation for all interpretive programs for the seashore. The themes do not include everything that may be interpreted, but they do cover those ideas that are critical to understanding the seashore's significance. All interpretive programs (both media and personal services) should relate to one or more of the following themes, and each theme should be addressed in some part by the overall interpretive program. (The themes are described in more detail in appendix C.)

- *Cape Cod's natural systems and processes have produced distinctive landforms and habitats.*
- *The elements of natural change, primarily through the effects of the sea on the land, embrace and permeate all of the Cape's resources.*
- *The people of Cape Cod have intensively affected the land, and they continue to interact with the land and surrounding waters. Cape Cod is the continuing saga of human events etched onto the landscape.*
- *The waters around Cape Cod have profoundly affected and continue to affect human activities here.*
- *As both a haven and a subject, Cape Cod has drawn artists and authors for more than a century. In addition, its environment has encouraged the development of structures and tools that have come to be appreciated for their beauty as well as their utility.*
- *Cape Cod National Seashore is a place where people enjoy a variety of recreational, educational, and inspirational activities in various settings. It is a place for people to enjoy spectacular natural settings and to experience a sense of continuity linking past, present, and future.*

INTERRELATIONSHIPS WITH OTHER PLANS AND PROJECTS

Many park management and resource protection issues are closely related to the complex pattern of multiple ownerships and governmental jurisdictions within the boundaries of Cape Cod National Seashore, as well as to activities and land management outside the boundaries. It is the policy of the National Park Service to work cooperatively with other land interests and agencies to identify and implement regionally and locally coordinated resource management strategies.

Major planning efforts by state, regional, and local agencies and organizations could affect how the national seashore is managed, and consequently, alternatives in this document; these plans are briefly described below. In addition, major plans prepared by the national seashore that would provide detailed recommendations for future actions under the policy guidance of an approved general management plan are also described.

STATE PLANS

Massachusetts Coastal Zone Management Program — The *Massachusetts Coastal Zone Management Program and Final Environmental Impact Statement* (NOAA and Massachusetts Executive Office of Environmental Affairs 1978) oversees the wise allocation of coastal resources, from economic development and harbor revitalization to the protection of important ecological resources. The Coastal Zone Management Office has no direct regulatory role, but the agency conducts a review of all direct federal actions for consistency with the state plan. Coastal zone management policies are generally compatible with NPS management policies and guidelines.

Massachusetts Aquaculture Strategic Plan and White Paper — The 1995 *Strategic Plan* is a coordinated five-year action plan that forms a

framework to support both public and private aquaculture activity and to encourage the growth of this industry (Massachusetts Coastal Zone Management Office). The document explains the status of aquaculture in the state and provides an overview of inland and marine aquaculture. Aquaculture growth will be proposed both within and outside the national seashore. The plan is the centerpiece of the state's planning and management framework to encourage this industry.

Guidelines for Barrier Beach Management in Massachusetts — The 1994 guideline for managing barrier beaches, which was developed by the Massachusetts Barrier Beach Task Force, is to be used as a reference tool by beach managers. Its purpose is to provide an ecosystem-based management approach that fosters responsible use and the protection of barrier beaches.

Statewide Comprehensive Outdoor Recreation Plan — The 1988 *Massachusetts Statewide Comprehensive Outdoor Recreation Plan* identifies trail-based, water-based, and other natural resource-based activities as categories that should receive the highest priority in statewide recreation planning. The top five issues in the Cape and Islands region are as follows:

- (1) development and expansion of ocean access
- (2) development and expansion of water-based recreation
- (3) maintenance of existing recreation facilities
- (4) acquisition and protection of wildlife habitat
- (5) expansion of access for people with disabilities

Other priorities are the protection of cultural areas, the expansion of trail corridors, and access to inland waterways. Spending for conservation areas is preferred over spending for recreation areas. Recommendations associated with the alternatives considered in this *Final Environmental Impact Statement* would contribute to and advance many of the recreation priorities identified in the statewide plan.

Massachusetts Landscape Inventory — The 1982 *Massachusetts Landscape Inventory* analyzes scenic areas throughout the state and provides an outline for land acquisition and protection efforts by local, state, and federal agencies, as well as by private organizations. Scenic areas in this inventory include the Great Beach, the Province Lands, the Cape Cod Bay coastline, Nauset Marsh, Pleasant Bay, and Monomoy Island. The national seashore is actively managing and protecting many of these scenic resources, and the proposed management plan would strengthen this protection and advocate recognition and support for these values outside park boundaries.

Historic and Archaeological Resources of the Cape and Islands — The Massachusetts Historical Commission's planning study for this region was prepared in 1987. It provides an information base from which preservation decisions can be made by the state historic preservation officer and others. The study includes a topographic and a prehistoric overview, descriptions of settlement and social and economic development, and a summary of historical development. The final section includes management recommendations for prehistoric and historic resources and for protection of resources by various governmental entities.

REGIONAL AND LOCAL PLANS

Cape Cod Commission Regional Policy Plan — The legislative purpose of the Cape Cod Commission is to further the conservation and preservation of natural resources, to provide for sufficient capital facilities, and to preserve historical, cultural, and recreational values of Cape

Cod. The 1996 *Final Regional Policy Plan for Barnstable County*, which revised and updated the 1991 plan, is both a planning and a regulatory document that contains planning objectives to guide development and regulatory policies that the commission applies to proposed projects of regional impact.

Local Comprehensive Plans — The Cape Cod Commission Act requires each town to develop a local comprehensive plan to identify localized land use and resource issues and to develop policies and recommended actions to address those issues. The six towns within the national seashore are at various stages in completing these plans: the Truro plan was approved in 1994, and the Wellfleet plan in 1995; Eastham began planning in 1994, Chatham and Orleans in 1995, and Provincetown in 1996. The development of these local plans provides an ongoing opportunity for the Park Service to coordinate its management objectives and strategies with local programs.

A "2020" Vision, Long Range Transportation Plan for Cape Cod — The 1995 *Long Range Transportation Plan*, developed by the Cape Cod Commission, establishes Capewide transportation priorities in response to the Intermodal Surface Transportation Efficiency Act of 1991. The plan inventories roads, buses, airports, and ferries, and it describes their interrelationships. A transportation model was developed for the Cape to help evaluate future growth scenarios. In accordance with the federal act, the plan seeks to reduce reliance on single-occupant automobiles, create transportation alternatives, and promote nonmotorized transportation corridors, such as bikeways and pedestrian routes.

While Cape Cod National Seashore has limited ability to unilaterally affect transportation patterns and systems on the Cape, it has a substantial opportunity to be a cooperative partner in helping implement regional strategies.

The Outer Cape Capacity Study — This 1995 draft study, done by the Cape Cod Commission/Land Use Collaborative, has developed an analytical model to measure the ability of the Outer

Cape to grow and sustain itself, based on key local resources, including water supplies, road systems, town services, tax burden, and the protection of sensitive natural resources. The study addresses the following questions: (1) How much additional growth can be accommodated before the quality of natural or service systems is degraded? (2) What would be the demand on natural and municipal resources with full "buildout" under current zoning? and (3) What costs are associated with either restricting growth or supplementing limited resources?

The model predicts substantial impacts of regional growth, particularly increases in traffic and traffic-related problems. Cape Cod National Seashore's responsibility to protect natural resources and to provide public use opportunities could also be negatively affected by these growth trends. The proposed general management plan would support NPS efforts to address the impacts of growth and would contribute to local and regional efforts to comprehensively manage growth on the Outer Cape.

Final Report of the Lower Cape Water Management Task Force — The national seashore staff cooperated with the Cape Cod Commission and four of the Outer Cape towns in a Lower Cape Water Management Task Force, which worked to develop a comprehensive water management study focusing on regional freshwater quantity and quality issues. The final report addresses groundwater issues of regional concern and evaluates potential municipal well sites in Eastham, Wellfleet, Truro, and Provincetown (Cape Cod Commission 1997).

Designing the Future to Honor the Past: Design Guidelines for Cape Cod — The 1994 design guidelines, prepared by the Cape Cod Commission/Community Vision, Inc., are intended to ensure that future development is compatible with Cape Cod's distinctive character. Preserving and enhancing the built environment is one of the management objectives of Cape Cod National Seashore both within and outside its boundaries. The guidelines are a reference for local property owners, towns, and

the National Park Service concerning the design and management of the built environment.

Provincetown Municipal Airport 1991 Master Plan and continuing environmental impact assessment — The 1991 *Provincetown Municipal Airport Master Plan* is a three-volume document that describes desired long-term improvements for the airport, including an airport layout plan. It supersedes the 1972 *Master Plan*. The plan identifies possible facility improvements with consideration of financial, community, aviation safety, and environmental concerns. The summary identifies four key study objectives:

- (1) not altering the existing scale, character, and role of the airport
- (2) providing the facilities to ensure an adequate level of commuter airline service, including summer months
- (3) continuous coordination with the National Park Service as the underlying landowner, and full consideration of environmental issues
- (4) an estimate of the economic impact of the airport to verify benefits and justify costs

Several of the facility improvements can be implemented without further environmental impact assessment, according to federal, state, and regional requirements; some have been completed, are in progress, or may be completed in the future. Several potential facility improvements were significant enough to warrant the preparation of an environmental impact statement / environmental impact report. These improvements include the development of additional airplane parking aprons, runway safety areas, and runway extension alternatives. The draft document is now being prepared and is expected to be released to the public in 1997 or 1998.

Affordable Housing on the Lower Cape: Needs, Resources and Strategies — With thousands of summer tourists and year-round retirees, the Outer Cape area has a continual lack of adequate, affordable housing. This 1993 study by

the Lower Cape Cod Community Development Corporation explores the regional need for affordable housing and identifies existing resources and potential strategies to expand housing availability. With extensive seasonal staffing needs, Cape Cod National Seashore is both a major provider and beneficiary of affordable housing in the region. The availability of affordable housing also affects the national seashore's ability to attract qualified employees.

NPS PLANS

The following plans (with the exception of the 1970 *Master Plan*) are some of the key action plans for the future management of Cape Cod National Seashore. One purpose of an approved general management plan will be to provide the overall policy framework and guidance for these plans. Current plans that would not conform with recommendations in the approved general management plan would be revised.

Cape Cod National Seashore Master Plan — Most of the existing seashore infrastructure and facilities were built in the 1960s. The 1970 *Master Plan* proposed the following actions:

- a bayside interpretive center and beach facility in Wellfleet
- trail development on Great Island (completed)
- redesign and expansion of Herring Cove Beach
- enlarging of the Marconi Beach facility (completed)
- facility development to support access and use of historic sites such as the Penniman house, Fresh Brook Village, the Atwood-Higgins house, and Pamet cranberry bog (partially completed)
- Fort Hill historic scene restoration (in progress)
- day parking and trail development at the Pamet River

- day parking and trail development at Paradise Hollow in Wellfleet
- shuttle services to beach areas (partially established)

Once a general management plan for the national seashore has been approved, it will replace the 1970 *Master Plan*. However, pertinent recommendations that have been implemented from the former plan continue to be considered.

Resource Management Plan — The 1992 *Resource Management Plan* documents the national seashore's diverse natural and cultural resources, identifies threats to those resources, and prescribes management actions and programs. A total of 51 natural resource and 22 cultural resource action programs are described in the plan.

For natural resources, comprehensive inventory and monitoring programs are needed. Major natural resource management priorities are threatened and endangered species, water quality and quantity, fresh- and saltwater wetlands, exotic and pest plant and animal species, and monitoring of coastal processes. Major initiatives include piping plover protection, pond revegetation programs, restoration of Hatches Harbor, water quality monitoring at ponds and embayments, and air quality monitoring.

The *Fire Management Plan* (1994), which is based on the *Resource Management Plan*, describes maintenance practices for fire safety and wildfire prevention. The plan also outlines steps to manage fire as a natural part of the ecosystem.

For cultural resources, management priorities include identifying and documenting significant resources and stabilizing or properly preserving known sites and artifacts. Major initiatives include curatorial storage improvements, historic structure stabilization, archeological resource cataloging, and identification and management of cultural landscapes.

Land Protection Plan — The *Land Protection Plan* (1989) identifies NPS land interests required to meet the following major objectives:

- providing NPS access to undeveloped lands for resource management purposes
- protecting unimproved private land from development
- exchanging federal lands for more important town or private property
- acquiring private properties exempt from “improved property” status
- providing public access for recreational uses
- acquiring public or private land subject to uses incompatible with the purposes of the national seashore

The plan identifies non-NPS properties in the following four priority categories:

- (1) property needed for park development
- (2) large-lot subdividable private land
- (3) undeveloped private land
- (4) developed private land in sensitive areas

Suggested protection methods include cooperative agreements, zoning regulations, less-than-fee or easement interests, and acquisition of fee title.

Cultural Landscape Report for Fort Hill — The 1995 *Cultural Landscape Report for Fort Hill* provides guidance on the protection and long-term maintenance of the landscape at Fort Hill, as well as providing information for a site plan being prepared for the Fort Hill area in association with the general management plan. Of particular concern is the need to balance the protection of landscape features in the open, eastern portion of the site (field patterns, stone walls, trails, and ponds) with current maintenance, safety, and visitor needs.

An understanding of the site was gained from an analysis of the long-term administration of the site. Based on the information compiled in

documents on the site history and gleaned from the historical maps, plans, and aerial photographs, periods of significance and possible landscape treatment recommendations were identified and illustrative plans were developed.

Guiding Principles of Sustainable Design — The *Guiding Principles of Sustainable Design* (NPS 1993f) is intended to provide a basis for using sustainable practices in facility planning and design, emphasizing the importance of biodiversity, and encouraging responsible development decisions in parks and other conservation areas, particularly where related to ecotourism. This merger of sustainable development and ecotourism provides tremendous opportunities for affecting visitor perceptions of the natural and cultural world, and for developing conservation-oriented values.

The suggested principles to be used in the design and management of park and other visitor facilities emphasize environmental sensitivity in planning, design, construction, operation, and maintenance; the use of nontoxic materials, resource conservation, recycling; and the integration of visitors with natural and cultural settings.

Principles for sustainable design were developed for nine topics: interpretation, natural resources, cultural resources, site design, building design, energy development, water supply, waste prevention, and facility maintenance and operations. While the material is presented in separate sections, the interconnection of all systems and resources is recognized, and resulting development should reflect the blending of disciplines to demonstrate respect for local, regional, and global environments.

The Government Performance and Results Act Strategic Work Planning — The Government Performance and Results Act (GPRA) of 1993 seeks to make government both more effective and more efficient. The value of achieved results is the “return on investment” made in the National Park Service by Congress and the American public.

The implementation of GPRA is a continuing process. First, each park area develops mission goals, which describe the desired resource conditions, public enjoyment, and visitor experiences. By achieving these goals, the park's purpose will be fulfilled, its significance maintained, and its mandates met. Mission goals are comprehensive and for perpetuity; they are not quantifiable. In addition, each park sets long-term and annual performance goals; for Cape Cod National Seashore these would include the implementation of strategies and actions proposed in the general management plan. Each park was required to complete a six-year strategic plan, containing both servicewide and park mission goals, by September 30, 1997.

The draft mission goals for the national seashore include the following:

Goal Category 1: Preserve Park Resources

- **Mission Goal 1a:** Natural and cultural resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context.
- **Mission Goal 1b:** Cape Cod National Seashore contributes to knowledge about natural and cultural resources and associated values (including biodiversity); management decisions about resources and visitors are based on adequate scholarly and scientific information.
- **Mission Goal 1c:** The quality and scale of development is of an appropriate traditional character.
- **Mission Goal 1d:** Visitors and residents participate in customary activities.

Goal Category 2: Provide for the Public Enjoyment and Visitor Experience of Parks

- **Mission Goal 2a:** The public safely enjoys and is satisfied with the availability, accessi-

bility, diversity, and quality of park facilities, services, and appropriate recreational opportunities that are compatible with the resources, history, and sociology of Cape Cod.

- **Mission Goal 2b:** The public understands and appreciates the preservation of Cape Cod, and its natural and cultural resources, history, and sociology.

Goal Category 3: Ensure Organizational Effectiveness

- **Mission Goal 3a:** Cape Cod National Seashore uses best business practices and management techniques.
- **Mission Goal 3b:** Cape Cod National Seashore increases its managerial capabilities through initiatives and support from other agencies, organizations, and individuals.

Goal Category 4: Strengthen and Preserve Natural and Cultural Resources and Enhance Recreational Opportunities through Partnerships.

- **Mission Goal 4a:** Natural and cultural resources owned by others are conserved through partnership initiatives.
- **Mission Goal 4b:** Natural and cultural resources owned by the National Park Service are conserved through partnership programs.
- **Mission Goal 4c:** Assisted through federal funds and programs, the protection of recreational opportunities is achieved through formal mechanisms to ensure continued access for public recreational use.
- **Mission Goal 4d:** Through partnerships recreational and educational opportunities for the public are provided or enhanced.

ISSUES AND CONCERNS

The following issues and concerns have been identified during public meetings and by the staff at Cape Cod National Seashore.

NATURAL RESOURCES

AIR RESOURCES

Air quality at Cape Cod National Seashore is affected under certain conditions by pollutants from urban/industrial areas to the southwest and from Boston to the northwest. The national seashore is part of the Metropolitan Providence Interstate Air Quality Region to the southwest; this region does not meet EPA standards for ozone; because of prevailing winds, ozone concentrations at the seashore have been among the highest reported in any unit of the national park system. The Boston Metropolitan Air Quality Region, 100 kilometers northwest, does not meet EPA standards for ozone or carbon monoxide.

The major pollutants originating in the seashore are vehicle emissions, primarily during the peak summer months. The *Long Range Transportation Plan* developed by the Cape Cod Commission identifies the need to substantially reduce vehicle emissions.

Of the three air quality categories established for national park system areas, Cape Cod National Seashore is a class II area, which means the state may permit some new air pollution as long as neither national ambient air quality standards nor maximum allowable increases over baseline conditions are exceeded. Evidence suggests that reduced growth and increased mortality of some sensitive plant species are occurring in heavily polluted areas of the national park system, perhaps decreasing species diversity. While current information does not exist to confirm such damage at Cape Cod National Seashore, there is reason to monitor possible air quality concerns to protect the seashore's resources and values.

Precipitation chemistry has been monitored since 1981. Many of the kettle ponds and vernal pools are poorly buffered, increasing their sensitivity to acid precipitation and atmospheric deposition of heavy metals and nutrients.

No monitoring of visibility has taken place. Air quality related impacts on vegetation or other resources in the seashore need to be more fully assessed.

COASTAL PROCESSES

Cape Cod is composed almost entirely of material deposited by glaciers that retreated about 14,000–18,000 years ago. Wind and water reworked these sediments to create beaches, spits, marshes, pampets, cliffs, and dunes. Coastal processes such as tides, winds, storms, and longshore sediment transport continue to shape and reshape the area. Cape Cod's outer beach is renowned for its long, largely undeveloped expanses of sand.

In addition to their value as habitat, the natural landforms of the Cape protect landward areas from the force of storms and coastal flooding. Beaches and marshes dissipate storm waves over their gradual slopes. Dune systems prevent direct wave action against inland areas.

Natural coastal processes, however, are also responsible for damage to structures. NPS facilities have been lost, and time and money have been spent to protect, reconstruct, and relocate facilities. General NPS policy is to let shoreline processes take place unimpeded.

Extensive information on coastal processes within Cape Cod National Seashore is available; however, further research would be helpful in making decisions. Examples of shoreline processes include erosion, accretion, and changes to dunes, inlets, and bluffs.

WATER RESOURCES

Marine resources — open ocean, estuaries, and adjacent intertidal areas — are all influenced by the tidal cycle, ocean currents, and the influx of fresh surface and groundwater. Estuaries serve as nurseries for fish and shellfish, making them extremely valuable, and intertidal communities are some of the most biologically productive ecosystems in the world.

Freshwater resources — groundwater, streams, vernal pools, and kettle ponds — in turn support wetlands, fisheries, riparian areas, and other water-dependent features.

Development, recreation, and public use within Cape Cod National Seashore affect both water quality and quantity. There are growing signs that coastal water quality is deteriorating, as evidenced by debris washing up on beaches and by shellfish beds being closed to harvest because of high concentrations of coliform bacteria in surface waters.

Significant growth in the number of summer and permanent residents has increased groundwater use during the past 30 years. Groundwater extraction for municipal and other water supply purposes may adversely affect water-dependent resources, including wetlands. Groundwater quality is primarily threatened by contamination from nutrients from sewage disposal and salt-water intrusion.

The National Park Service recently acquired water wells within the former North Truro air force station and is continuing the Air Force-initiated seasonal, emergency provision of water to the town of Provincetown on a temporary basis. The resolution of this unusual situation presents a practical application of the seashore's water resource planning function.

Before the national seashore was authorized, at least a portion of all coastal wetlands and floodplains (both freshwater and marine) had been altered by diking, ditch drainage, road and railroad construction, or mosquito control measures. These actions led to a loss of wetlands, and the restriction of seawater flow (by means of tidal

influx) triggered chemical changes that degraded once productive wetland fish and wildlife habitat. Most physical alterations persist, despite efforts to restore diked systems. Multiple ownership, diverse management objectives, and overlapping jurisdictional status complicate and prolong the restoration process.

VEGETATION AND WILDLIFE

The plant and animal communities on Cape Cod have adapted to the unique aspects of this coastal barrier environment. Because these communities are part of the ecosystem, management involves working cooperatively with regional, local, and individual stakeholders to understand and protect the entire system on a sustainable basis.

At least 800 plant species occur within the seashore in a wide variety of community types, including heathlands, freshwater and saltwater wetlands, upland forests, beaches, dunes, and grasslands. No federal threatened or endangered plant species are known within the national seashore; however, the seashore has 20 plant species that are classified as threatened, endangered, or of special concern by the state. Non-native plant species compete with and could displace native species. The use of pesticides and other chemicals within and near the seashore may affect native plants.

During the last 50 years natural succession has changed vegetative patterns within the seashore, with open fields and heathlands succeeding to a mostly closed-canopy pitch pine and oak forest, with an understory of highly flammable live and dead fuels. Heathland communities, which support a wide diversity of plants and animals, are becoming increasingly diminished as a result of this encroachment.

Over 500 animal species inhabit the seashore, including migratory and resident birds, terrestrial and marine mammals, reptiles and amphibians, and salt- and freshwater fish, as well as invertebrate species. Inventories for most major taxonomic groups are lacking. The seashore has 17 federal threatened or endangered animal spe-

cies. To protect the threatened piping plover, an intensive management program has been developed; however, no management programs have been implemented for the other species. The seashore also has 42 species that are listed as threatened, endangered, or of special concern by the state. While the seashore has a comprehensive tern management program, no other programs have been developed to protect state-listed species.

The National Park Service allows hunting and fishing within the national seashore under the discretionary authority of the authorizing legislation; both the state and the Park Service share jurisdiction over hunting and fishing. Shellfishing is under the jurisdiction of the state and the towns. Trapping is prohibited.

CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

The Outer Cape has a distinctive pattern of human activity that is inextricably linked with the land and sea. This heritage draws from the prehistoric culture of native people, from the arrival of the Pilgrims and settlement by Europeans, from the whaling and fishing industry, from Portuguese and Cape Verdean migrations, and from artists and writers who have lived and worked on the Cape.

In 1995 a preliminary ethnographic study for the national seashore identified the range of cultural use patterns of seashore resources and their value to both traditionally associated and contemporary neighboring people. Representatives of several Cape Cod cultural communities participated, including Wampanoag, Portuguese and Portuguese Americans, Cape Verdeans, and contemporary neighbors. More detailed studies are required, however, to identify relationships between specific groups and seashore resources.

Cultural resources can be tangible (material resources such as historic structures or archaeological artifacts) or intangible (expressive

resources such as arts, skills, folklife, and folkways). Additional knowledge about the people of the Outer Cape is needed to support interpretive programming and resource preservation efforts. The rich heritage of Cape Cod life is an important story to be told and sustained.

Cape Cod National Seashore was created in part to help preserve and maintain the cultural heritage. The certain special ambience and pattern of human activity on the Cape are hard to describe but have been variously characterized in the legislative record as "quaint," "contemplative," "inspirational," and representing a "mutuality of understanding between man and nature." The national seashore is part of a geographical area with established town governments and many residents whose roots reach back far into the past. Therefore, it is impossible for the National Park Service to achieve its preservation goals without the cooperation of its neighbors and residents on the Cape.

CULTURAL LANDSCAPES

A cultural landscape is a geographic area that includes both natural and cultural resources that are associated with a historic event, an activity, a person, or a cultural group. Cape Cod National Seashore's varied cultural landscapes are best characterized as "historic vernacular landscapes." The National Park Service defines this type of landscape as one that illustrates people's values and attitudes toward the land and that reflects settlement patterns, use, and development over time. Agricultural areas, fishing villages, and homesteads are all examples of this type of landscape.

Cultural landscapes on Cape Cod have not been inventoried, making them susceptible to loss. As these landscapes evolve, their form and value may be obscured. Restoring cultural landscapes often requires the removal of encroaching nonhistoric vegetation, some of which may be native species. This may conflict with natural resource protection goals.

Cultural landscape protection requires a comprehensive stewardship approach, where people

work together and form coalitions with private landowners, local governments, and state agencies to address threats and foster a sense of stewardship.

HISTORIC ARCHITECTURE

Cape Cod National Seashore contains numerous historic structures within its boundaries, and many others exist within the adjacent Outer Cape communities. These historic structures, when combined with cultural landscapes and archeological resources, reflect the history and traditional character of the Outer Cape.

Adequate studies and assessments to identify both the condition and significant character-defining features of structures are lacking. Therefore, some historic structures have been subject to destruction or alteration, with a resulting loss of cultural assets to Cape Cod and the nation.

In accordance with section 110 of the National Historic Preservation Act, as amended, the National Park Service has evaluated all federally owned buildings within the national seashore. A total of 62 of these buildings have been determined eligible for the National Register of Historic Places. Maintenance for these buildings is not funded annually, and major problems at virtually all historic buildings need attention. Fire alarm systems and intrusion detection are obsolete or nonexistent, and many buildings are being used inappropriately.

Approximately 240 privately owned historic buildings have been identified by the Historic American Buildings Survey within the national seashore; these sites also include associated landscapes. Property owners have the right to alter these structures, with the possibility that changes could diminish the Cape's cultural character.

Historic structures are also subject to loss as a result of natural coastal processes. The National Park Service is required to document any historic structure and its associated landscape before it is destroyed by natural processes. If deemed appropriate by the secretary of the

interior, a historic structure threatened by destruction can be moved to another location that approximates its original setting.

ARCHEOLOGICAL RESOURCES

Cape Cod National Seashore contains numerous archeological resources, both on the land and submerged along the coast. In addition, many other archeological resources exist outside the seashore boundaries. These and other related cultural resources reflect the history and traditional character of the Outer Cape.

Inventories of archeological resources are not comprehensive. Surveys are needed to prevent the loss or alteration of resources and a subsequent loss to the scientific database, as well as the historical record of the Outer Cape. Such information would also provide a better understanding of maritime resources and opportunities for research. For example, at Nauset Marsh some prehistoric sites extend from federal land onto private land, and ground disturbance on these sites could destroy or degrade the resources.

A rising sea level and shoreline retreat are submerging some land-based resources and changing the national seashore's offshore boundary (defined as 0.25-mile from the shoreline). As a result, significant submerged archeological resources, including certain shipwrecks, will eventually be outside the seashore boundary. Submerged resources under the jurisdiction of the state are managed differently from those under NPS jurisdiction. For example, the Park Service does not allow shipwrecks to be salvaged, but the state does issue salvage permits. Because there has not been consistent oversight of salvage work, valuable information may have been lost.

MUSEUM COLLECTION

Cape Cod National Seashore has a substantial collection of archeological, archival, historical, and natural history objects, including prehistoric

artifacts, a scrimshaw collection, historic papers associated with prominent individuals and families, and a large historical photograph collection. Each collection is an important reference source and an interpretive tool.

The lack of storage, display, and research space with environmental controls to ensure the protection of these artifacts is a continuing problem. The material deterioration of objects is largely an effect of the environment, and the harsh environment on Cape Cod is especially detrimental to objects in the collection. The scheduled rehabilitation of a building for additional storage at the former North Truro air force station will only partially alleviate this problem because limited funding will not allow for complete climate control in the converted storage area. At the Salt Pond visitor center, where some of the most sensitive and important objects in the collection are on exhibit, insurmountable problems with the environmental controls demonstrate the need to replace the system.

A lack of funding and staffing in the curatorial office has resulted in a catalog backlog of over 250,000 objects. Without a comprehensive inventory and controls, the collection is in jeopardy. Also, uncataloged materials are not readily accessible for research, interpretation, or exhibit.

Future collecting activity should be tightly focused on specific areas to round out the collection. However, there is little control over archeology and resource management collections that are added to as a result of shoreline erosion, facility construction, and other ground-disturbing activities.

PUBLIC USE

INFORMATION AND ORIENTATION

Most information and orientation services on Cape Cod are independently provided by chambers of commerce in the numerous communities and by the National Park Service. There is no integrated information system that helps visitors

understand all the options available to them in a unified and coordinated manner.

For visitors to the national seashore, information is provided at the Salt Pond and Province Lands visitor centers and the headquarters building. During the summer information is also available at the six beach entrance stations. General information about Cape Cod is not tied into any on-line computer systems that visitors may access from their homes, although Cape Cod National Seashore, chambers of commerce, and many other visitor-related service organizations have home pages on Internet.

Because the national seashore and local communities often give information about their own facilities and attractions, it is difficult for visitors to understand the full range of opportunities available on Cape Cod. Secondary sources, such as commercial tour operators, travel agents, and guidebooks, sometimes provide people with inaccurate or out-of-date information. In other instances, information is duplicated and would be more effectively presented at facilities nearer the attractions or at a regional visitor center.

Signs directing visitors to the national seashore are inadequate, and visitors often get lost or arrive at town beaches designated for residents only. Visitors also congregate in certain areas, not knowing that noncrowded facilities are available elsewhere.

ACCESS AND TRANSPORTATION

Traffic congestion on Cape Cod has increased to the point of gridlock at some intersections along U.S. 6 during the peak summer season. The national seashore is part of a complex natural and social environment that brings people to the Outer Cape year after year. However, based on a 1993 summer survey, it is not the primary destination for most visitors.

Traffic is a regional problem that must be addressed collectively. The Cape Cod Commission's 1995 *Long Range Transportation Plan* recommends actions to prevent widespread gridlock in the near future. Proposals range from

improving public transit to developing bicycle and pedestrian paths.

The Park Service can help reduce traffic congestion, facilitate circulation, enhance safety, and improve air quality through regional cooperative efforts to solve problems and promote alternative transportation modes, including innovative solutions within the national seashore. This is consistent with federal transportation initiatives stimulated by the 1991 Intermodal Surface Transportation Efficiency Act.

The national seashore is an active partner in Cape Cod Pathways, a county program that seeks to improve walking opportunities on the Cape. Long-distance hiking opportunities within the national seashore are limited. Except for some short bicycle trail segments and the Cape Cod Rail Trail through Eastham and South Wellfleet, bicycling from Wellfleet to Provincetown is primarily along roadways, which causes congestion and safety concerns.

During summer parking capacities at some beaches, visitor centers, trails, and scenic viewing areas are frequently met or exceeded, causing cars to be turned away to less crowded locations. Proposals to add parking have caused local concern about impacts and congestion.

The Provincetown airport is on federal lands within the national seashore and operates under a special use permit. In conformance with the deed of conveyance of the Province Lands, the Park Service leases land for airport purposes. The airport is an important transportation facility for the Outer Cape and is part of the national aviation system. The airport commission is engaged in a long-term master planning and environmental analysis program, with participation by the Park Service and other agencies. The Park Service is vitally interested in how airport public safety upgrades could potentially affect national seashore resources and values.

INTERPRETATION AND EDUCATION

Cape Cod National Seashore offers many opportunities for visitors and residents of all ages to understand and appreciate the value and significance of the Cape's resources and character. Interpretive facilities include two visitor centers, eight self-guided interpretive trails, and four historic properties with public access. Information is provided through four audiovisual programs, several museum exhibits, three bookstores, and more than 30 wayside exhibits.

The personal services interpretive program offers a wide variety of guided walks and hikes, tours of historic properties, evening illustrated talks, sunset beach campfires, and special events. Outreach programs are given for local schools, groups, and civic organizations. In addition, environmental education programs based at two national seashore facilities have reached thousands of area students during the past three decades. Volunteers and representatives of several partner organizations and agencies conduct or help provide many of these activities and programs.

Many aspects of the Cape's character are represented outside the national seashore boundaries. The National Park Service cooperates with other organizations and agencies to provide interpretive and educational programs, but there is potential to strengthen current partnership agreements and create new ones.

Within the national seashore there is an opportunity to more fully interpret critical resource issues (such as the preservation of kettle ponds and the protection of plover habitat) so the public understands the challenges. There are also opportunities to enhance the interpretation of historic structures and to expand interpretive programs in the Orleans/Chatham area.

Visitation at the Salt Pond visitor center has increased dramatically, and additional staff space and bus-loading areas are needed. Facility improvements would also better meet the needs of visitors and staff. Audiovisual facilities at the amphitheaters at the Salt Pond and Provincetown visitor centers are outdated. Alternatives

need to be studied for the Coast Guard Beach environmental education facilities, which may soon be lost to coastal erosion.

ACTIVITIES, FACILITIES, AND SERVICES

Cape Cod National Seashore and adjacent towns provide a wide variety of opportunities for visitors to enjoy athletic, sporting, touring, and educational activities of all types. The national seashore has two visitor centers, two environmental education centers, trails and picnic areas, several historic buildings, and numerous beach facilities that are available to the public.

All public activities within the national seashore are managed in a way that will provide enjoyment and minimize user conflicts, as well as protect resources and promote public safety. Rangers enforce regulations and laws governing all uses and activities within the seashore.

Resource protection priorities and public use pressures are sometimes in conflict, affecting access to and use of seashore resources. Areas where conflicts occasionally occur include wetlands, archeological sites, barrier beaches and dunes, tidal marshes and flats, and freshwater ponds. Some activities, such as offroad vehicle use, and hunting have been closely regulated, and clothing-optional sunbathing has been completely prohibited. Some local regulations differ from NPS regulations, such as restrictions on personal watercraft use. Use regulations are not changed by a general management plan, but through a rule-making process.

Approximately 600 private residential properties covering more than 1,600 acres are included within the national seashore. With few exceptions, these private lands are not available for public use, and visitors sometimes trespass inadvertently onto these lands. The Park Service is required by legislation to preserve privacy and property values for these owners, while allowing public access to publicly owned lands, consistent with resource preservation.

Demand is increasing for additional opportunities at ocean beaches, kettle ponds, historic sites, and other attractions. While some recreational demand is simply due to growth in local communities and the region, as well as increasing public visitation, there is also a strong demand for additional educational experiences.

Ways to deal with existing use impacts and to take advantage of future public opportunities at Fort Hill, Pamet cranberry bog, the former North Truro air force station, and Herring Cove Beach need to be analyzed.

CONCESSIONS AND COMMERCIAL SERVICES

The National Park Service must ensure that commercial operations within park units are appropriate and necessary, considering the availability of nearby services in local communities. When these basic needs cannot be met by others, the Park Service is authorized to provide products or services to visitors through the use of concessioners. Four concessioners currently operate within Cape Cod National Seashore — the Herring Cove Beach refreshment stand in Provincetown, the Highland Golf Links in Truro, the youth hostel in Truro, and the Nauset Knoll Motor Lodge in Orleans.

These commercial establishments all existed before 1961, when the national seashore was authorized. Some towns also have agreements with concessioners at town-owned beaches within the boundaries of the national seashore (primarily snack stands and a boat rental at Gull Pond).

A relatively new concession mechanism has been created to enhance historic preservation opportunities — the historic property lease / concession authority allows the government to lease properties and to have the payments be directed to the maintenance of the historic property rather than being returned to the general treasury.

VISTA MANAGEMENT

When Cape Cod National Seashore was established 35 years ago, views, vistas, and overlooks were common throughout the area's rolling terrain because there were few stands of mature forest to block the panoramas. Many of the vistas were a direct result of centuries of cutting forests to create farmland or to provide fuel and construction materials. After the national seashore was established, facilities such as the Salt Pond and Province Lands visitor centers and bicycle trails were located to take advantage of these expansive views. However, in the interim many areas of forest cover have regenerated, obscuring the earlier vistas.

Except for open areas like cliffs, coastline, and unforested dunes, panoramic views on Cape Cod generally require frequent maintenance because of the rolling landscape. Present vista management practices range from mowing grass, to removing tree limbs, to clearing trees. Without specific guidelines for managing vistas, efforts to maintain attractive views could be sporadic, and possibly misguided.

NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE PLANNING AND PROTECTION

More than 30% of the land within the national seashore is under the jurisdiction of other public entities, and nearly 4% is privately owned. Approximately 25 parcels of non-NPS undeveloped land could be subdivided and developed, and the National Park Service has limited mechanisms to regulate their development and use. As a result, the protection of national seashore resources depends on local zoning bylaws and health codes, state regulations, the threat of condemnation, and the cooperation of property owners.

Many of the Outer Cape's greatest assets are shared among property owners — groundwater, beaches, river systems, and the rural character of the region. It is impossible to address land use

and protection for the national seashore without considering adjacent uses and threats to sensitive resources. While the Park Service has the ability to protect sensitive resources within the seashore boundaries, it has limited authority outside the boundaries. Privately held lands inside the boundaries are subject to acquisition if used inconsistently with park-approved local zoning bylaws. These bylaws are out of date. The Park Service must begin to work more closely with local communities, the Cape Cod Commission, and land conservation organizations like the Trust for Public Land and the Compact of Cape Cod Conservation Trusts to address these types of issues. The Natural Resources Conservation Service has offered technical assistance for land protection.

The Cape Cod Commission is charged with reviewing and regulating developments of regional impact, recommending the designation of districts of critical planning concern, and preparing and overseeing the implementation of a regional land use policy plan. The purpose of the regional plan is to outline a coherent set of planning policies and objectives to guide development on Cape Cod and to protect its resources. In its 1996 *Regional Policy Plan* the commission identifies several opportunities to coordinate planning among local communities, the commission, and the National Park Service.

In partnership with such organizations, the Park Service would be better able to meet land protection needs within national seashore boundaries and to assist in protection efforts outside the boundaries. The national seashore has also developed guidelines for the alteration of improved properties. These guidelines, as well as the secretarial standards, are out of date and need to be revised to reflect current conditions.

PRIVATE RESIDENTIAL PROPERTIES

Approximately 600 privately owned residential properties are included within the national seashore boundaries. These private properties are a result of an exemption from government acquisition for certain properties that predated the authorization of the seashore. Some properties may

be found not to have improved status if it is proved they were built after September 1, 1959. Improved properties are subject to local zoning bylaws in accordance with the park's enabling legislation (see appendix A) and subsequent Cape Cod National Seashore zoning standards (see appendix B). NPS use guidelines were developed in the 1980s to address deficiencies, but they are also inadequate. Existing Cape Cod National Seashore zoning standards and bylaws need to be amended to ensure consistency among them and to add state-of-the-art planning and zoning techniques.

Many improved properties possess significant historic and aesthetic qualities that contribute to the valued character of the Outer Cape. For instance, more than 70 privately owned buildings have been documented by the Historic American Buildings Survey. Many more have been documented by local historical commissions, which have completed surveys of the historic properties in seashore communities.

As the year-round and the summer resident populations grow and change, pressures become greater to develop upon and expand improved properties. Some improved properties have been altered and expanded with little sensitivity to their historical character or sense of place. Modern additions to or replacements of modest Cape Cod cottages alter the traditional character of development within the national seashore. The development or redevelopment of private improved properties could result in the loss or alteration of historic buildings, an increase in the intensity of use, impacts on water resources, and a loss of the Cape's rural character.

The subdivision of private properties within national seashore boundaries presents a potential threat to resources. New construction on subdivided land would be subject to condemnation. Historic and other sensitive resources on privately owned property are also of concern.

PRIVATE COMMERCIAL PROPERTIES

Ten privately owned commercial businesses, including several gas stations, cottage colonies,

campgrounds, and a motel and restaurant existed before the national seashore was authorized, and they continue to operate within Cape Cod National Seashore. No new businesses are allowed. As provided in the authorizing legislation, these commercial properties are able to continue as long as they operate in accordance with the terms and conditions listed in the certificate of exemption from acquisition.

There is no guarantee that private commercial properties will continue to be operated consistently with the needs of seashore users or overall seashore purposes. Factors that are considered in renewing permits, which must be done every five years, have not been formalized. New or additional commercial uses of these pre-existing commercial properties are inconsistent with current certificates permitting them to operate within the national seashore. The development of criteria for the alteration of an existing commercial use would be advantageous.

MUNICIPAL AND STATE LANDS

Lands and waters within Cape Cod National Seashore are owned by the state and local towns, as well as private individuals and the National Park Service. The resulting patchwork of land-ownership has resulted in sensitive resources being owned and managed by different entities.

Approximately 2,600 acres of land within the national seashore are owned by local towns. Municipal lands within the seashore boundaries are of several types: undeveloped parcels of varying sizes, roads, parking areas, beaches, and other facilities. Population growth in the Outer Cape communities exceeds the state average, creating demand for more municipal services. New sites for services are not readily available outside the national seashore, or they could be too expensive to develop. Consequently, the towns are under considerable pressure to use undeveloped town-owned land inside national seashore boundaries. The National Park Service has limited mechanisms for influencing and managing the use and development of municipal lands.

Within the national seashore the state owns submerged lands of the "great ponds" (natural bodies of freshwater larger than 10 acres) and offshore lands extending up to 0.25 mile from the mean low water line, except for Truro and a portion of Provincetown. NPS concerns relate to protecting the natural resource values of great ponds, some of which are under the jurisdiction of both the state and the Park Service or are split by the seashore boundary. These ponds could be affected by private development and public access. While the Park Service is also concerned about the integrity of intertidal lands, submerged natural and cultural resources, aquaculture, and other proposed uses of state-owned lands, it does not have extensive authority to regulate uses in these areas.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

COOPERATIVE PLANNING AND MANAGEMENT

The management of Cape Cod National Seashore must balance public use requirements with the protection of sensitive resources. The special resources that characterize the Outer Cape transcend political boundaries. The quality of life and the economic needs of nearby communities affect seashore resources, just as the management of resources within the national seashore has significant effects on the towns. For this reason a collaborative approach to stewardship among the six Outer Cape towns and all seashore partners is essential.

A program to identify collaborative decision-making models that can be jointly selected by a town and the national seashore is currently underway. The use of some models may require legislative action. Also, the Cape Cod Commission's 1996 *Regional Policy Plan* identifies several opportunities to coordinate planning among the National Park Service, local communities, and the commission. The commission is working with some seashore communities to develop local comprehensive plans. The commission has also identified several developments

of regional impact both inside and outside national seashore boundaries.

There is a mutually beneficial relationship between the business community on the Outer Cape and the national seashore, and together the public and private sectors have opportunities to ensure the long-term health of the Cape, environmentally as well as economically.

National seashore managers would continue to emphasize collaborative decision making to address topics involving shared resources. For example, negotiated rule making for ORV use involved all interested parties, and parking at Truro beaches was initially addressed jointly by town and seashore staff members. The Park Service would encourage other groups on the Cape to follow similar collaborative approaches when addressing topics of mutual concern.

In cooperation with its partners, the Park Service would encourage a holistic approach to making decisions that are respectful of local residents and mindful of the overall health and future of Cape Cod's shared resources.

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

Primary locations for NPS administrative offices include the headquarters building at Marconi Station, the Salt Pond and Province Lands visitor centers, and three ranger stations at Race Point in the north district and at Marconi Station and Little Creek on Nauset Road in the south district. The two primary maintenance facilities are the north district maintenance yard on Race Point Road and the south district maintenance yard at Marconi Station.

Most administrative and maintenance facilities at the national seashore were built or acquired within 10 years of its authorization. There is a shortage of appropriate office and maintenance space, and it is anticipated more space will be needed in the future.

National seashore operations create development impacts (such as parking, utilities, maintenance

facilities, and administrative buildings) that conflict with the natural setting. Several landscapes surrounding NPS facilities require maintenance and irrigation. There are concerns about possible groundwater contamination from fertilizers and other lawn maintenance practices.

STAFF HOUSING

Government housing at the national seashore is made available to employees and volunteers to ensure the presence of staff to manage and protect resources, reduce the burden on the local housing supply, provide for appropriate visitor use, and ensure public safety. Housing is provided for seasonal employees since Cape Cod is a summer resort area, and short-term employees are often unable to find affordable housing in local towns. Approximately 80 housing units suitable for year-round and seasonal occupancy are scattered throughout the national seashore. The seashore has the capacity to house approximately 24 year-round employees and 138 seasonal employees. Under current maintenance conditions and projected staffing needs there may not be sufficient park housing or an appropriate distribution to satisfy future needs.

Some government housing is in or near sensitive resource areas or interferes with the setting of the national seashore (for example, houses along Nauset Marsh).

The national seashore's current housing program is not financially self-sustaining for several reasons. All housing was constructed before 1960, and this aging housing stock requires high levels of maintenance; however, the seasonal housing units only generate rent for a few months each year. Housing unit rents are not sufficient to maintain the units in good condition.

Current annual expenditures for staff housing are significant (\$250,000 to \$300,000). However, this is insufficient to keep pace with annual operational and maintenance costs due to the age of the housing stock. This has resulted in an extensive backlog of deferred maintenance. About two-thirds of the housing stock is in fair, poor, or obsolete condition. Recent legislation

authorizes the National Park Service to develop innovative alternative means of providing for employee housing needs.

The national seashore has a *Housing Management Plan*, with a detailed housing assessment. This plan is updated periodically.

UTILITIES

Facilities both within and outside Cape Cod National Seashore use water from wells on NPS property. Water for NPS facilities in the Province Lands is provided by the town of Provincetown, with water acquired from the town's municipal wells outside the national seashore boundary; also, two wells on federal land at the former North Truro air force station have been used to supplement Provincetown water supplies during the summer months since 1978. Other towns may be interested in municipal water system withdrawals within the national seashore. The National Park Service is concerned about the potential effects of groundwater withdrawals, particularly with respect to decreased groundwater discharge to wetland and riparian ecosystems. The Park Service has begun a joint process with the Outer Cape towns, under the auspices of the Cape Cod Commission, to address water supply issues on a regional basis; this process started with the Lower Cape water study. The goal is to identify optimum sites for safe withdrawal, taking into account both water quality and resource protection, regardless of political boundaries.

Septic systems are the primary means of dealing with human waste throughout the national seashore. Many systems need to be continuously maintained and upgraded.

Aboveground utility lines (electricity, telephone, and cable television) to improved properties within the national seashore cross NPS land. In some cases the property owners are responsible for maintenance costs. At issue is the damage to resources and the landscape that can occur during maintenance operations.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

Public users, as well as NPS staff, at Cape Cod National Seashore currently benefit from services provided by local towns, including police and fire protection, ambulance service, potable water supply (in Provincetown), use of regional wastewater treatment facilities, use of waste transfer stations (in Eastham, Provincetown, Truro, and Wellfleet on a fee-for-service basis), road maintenance and snow plowing, and schools. In turn the National Park Service provides law enforcement, firefighting, search and rescue, emergency medical services, road maintenance and snow plowing, environmental education and interpretive programs, and lifeguard services to local towns. The Provincetown and Truro trash transfer stations are within the national seashore boundary.

Many of the services provided to the national seashore are paid for through cooperative agreements and fees. Sometimes these payments are not perceived by town residents to be equitable. This situation is compounded because visitors to the national seashore are also visitors to the Outer Cape towns, and it is unclear whether the presence of visitors and the workload they create is the responsibility of the national seashore, the towns, or both.

Sand roads throughout the national seashore receive both public and private use. The roads are owned by private landowners, local towns, and the Park Service, but the ownership of some roads is difficult to determine and is disputed. At issue is who is responsible for maintenance and whether these roads should continue to be open for vehicle use or closed and not maintained.

RESERVATIONS OF USE AND OCCUPANCY

The majority of the properties under use-and-occupancy reservations contain structures that were built after September 1, 1959. Upon acquisition by the National Park Service, many owners were paid the appraised value of their homes at the time of sale. However, some

owners elected to take part of the purchase price, or full compensation for their residences when property ownership rights were in dispute, in the form of a retained right to use and occupy the properties for up to 25 years or for the rest of their lives. At the end of the occupancy period, the right to use and occupy the premises expires, and the National Park Service takes full possession of the property and all improvements on it without further compensation. At that time the Park Service decides whether the structure(s) would be removed or adaptively used. Use-and-occupancy reservation structures are subject to the intent of the national seashore legislation and the agreements made with the affected homeowners at the time of acquisition. Subsequent reuse of the structures must be consistent with these considerations.

Originally there were more than 100 properties under use-and-occupancy reservations. One-third have expired (or have ended voluntarily), and the dwellings have been vacated. Approximately 65 use-and-occupancy reservations remain, about two-thirds of which are due to expire within the next five years. Some holders of the use-and-occupancy reservations are seeking to retain occupancy past the expiration of their reservations. The Park Service has no authority to extend a reservation because the period was established under the sales contract. There are some cases where the use of a property is meeting a fundamental shelter need for the occupant, and the possibility of hardship must be considered.

At issue is what should be done with the structures when they become vacant. NPS decisions regarding appropriate uses of these properties must meet federal property laws and policy guidance, as well as national seashore administration needs. If and when any properties are permitted to private individuals, the workloads involved in satisfying the necessary requirements and the lack of authority to retain permit revenues at the national seashore must be taken into account. Each structure is considered individually when it becomes vacant.

ALTERNATIVES,
INCLUDING THE PROPOSED ACTION

OVERVIEW OF ALTERNATIVES

This section describes three alternatives for management actions at Cape Cod National Seashore. Alternative 1 is a continuation of current management, often referred to as the "no-action" or "minimum requirements" alternative. Under this alternative the Park Service would manage the national seashore to protect natural and cultural resources, while allowing appropriate public use related to those resources. Alternative 2, the proposed action, would also seek to maintain a balance between resource protection and public use. However, more opportunities would be provided for the public to experience the resources of the national seashore. Collaborative stewardship of resources on the Cape would be emphasized, including cooperative efforts with other governmental entities, organizations, local residents, and users to address resource management and use concerns. Alternative 3 would focus on the

National Park Service taking a more active role in directing efforts to preserve natural and cultural resources.

Although a proposed action has been identified and analyzed in this document, several variables could change over the life of the approved plan relative to current conditions. Changing resource conditions, funding priorities, and facility needs could require the consideration of other actions, including those actions discussed in alternatives 1 and 3. If it became necessary to evaluate additional actions, appropriate NEPA review and documentation would be conducted as part of the evaluation process.

Table 1 allows for the comparison of alternatives by topic. A full description of the alternatives begins on page 45.

TABLE 1: SUMMARY OF MAJOR ALTERNATIVE ACTIONS

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Alternative Concepts	Continue current efforts to cooperate with public and private landowners to enhance natural and cultural resource protection on the Outer Cape. Promote public awareness of resource management issues.	Actively promote a land stewardship ethic and practices to enhance natural and cultural resource protection on the Outer Cape, and emphasize cooperative efforts. Create new opportunities to further educational and interpretive opportunities and to share the stewardship of resources through task forces, inter-governmental partnerships, councils, ombudsmen, volunteers, community policing, cooperative agreements, and other cooperative means.	Take a more directive role in coordinating and managing resource protection and visitor activities on the Outer Cape by working with local communities and organizations. Ensure that national seashore resources are protected; develop cooperative agreements and memorandums of understanding as needed to improve collaboration and consistency in day-to-day operations.
Natural Resources			
Air Resources	Continue cooperative efforts to monitor air quality.	Engage in cooperative efforts to improve air quality; expand research and monitoring programs, including the biological effects of air pollution; identify indicator plant species for air pollution effects. Seek to reclassify the seashore as a class I area to provide the highest resource protection.	Same as alternative 2.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Coastal Processes	<p>Allow natural shoreline processes to continue unabated except where they conflict with existing human development or other interests.</p> <p>Prevent artificial beach nourishment and revetment of marine scarps on NPS land to the greatest extent possible, while still protecting existing interests. To minimize effects on national seashore resources, assist in the design and management of proper mitigations for engineering structures proposed on town or private lands.</p> <p>Decide case by case what to do with facilities and cultural resources threatened by coastal erosion.</p> <p>Redesign NPS developments when extremely threatened by shoreline erosion.</p>	<p>Allow natural shoreline processes (overwash, inlet migration, dune dynamics) to take place unimpeded, while also neutralizing human-caused disturbances; assist towns in planning for natural shoreline changes that might affect public or private facilities.</p> <p>Prevent artificial beach nourishment and revetment of marine scarps on NPS land; discourage these activities on private land; discourage deposition of dredge spoils on town and private lands within the seashore.</p> <p>Minimize programs such as sand fencing and dune grass planting to protect NPS property, except where needed to counteract human disturbance.</p> <p>Take minor actions to cost-effectively manage nuisance sand in stable areas.</p> <p>Decide case by case, using consistent criteria and in consultation with affected towns, whether to move or rehabilitate facilities and cultural resources threatened or damaged by coastal erosion or storm events.</p> <p>Cooperate with local agencies and private landowners to explore alternatives to prevent the construction of groins and jetties within the seashore.</p> <p>Develop a comprehensive long-term monitoring program for shoreline processes.</p>	<p>Same as alternative 2 except for the following:</p> <p>Allow natural shoreline processes to occur without human intervention; prevent artificial beach nourishment and revetment of marine scarps on NPS land, and work to prevent these activities on private land within the seashore.</p> <p>Document and remove facilities and cultural resources seriously threatened by coastal erosion. Potentially seek legislation to prevent the construction of groins and jetties within the seashore.</p> <p>Remove existing NPS developments that conflict with coastal processes.</p> <p>Eliminate sand fencing and dune grass planting on NPS lands.</p>
Water Resources	<p>Implement the national seashore water resources management plan.</p> <p>Participate with regional and town water resource planning groups.</p> <p>Protect ground and surface water quality and quantity, and adjacent wetlands; develop a water resource management plan.</p> <p>Gather data about potential impacts of municipal water wells on town-owned land adjacent to NPS property; allow a temporary, short-term sale or lease of water to non-NPS entities only under certain conditions.</p> <p>Develop pond-specific resource management plans as needed; manage groups of ponds in a similar manner.</p> <p>React as necessary to offshore activities and incidents.</p> <p>Complete saltmarsh restoration at Hatches Harbor.</p>	<p>Same as alternative 1 plus the following:</p> <p>Develop a professional water resource management program; develop a comprehensive water resource database; determine impacts of groundwater withdrawal on estuaries, and impacts of shellfish and finfish aquaculture on water quality and marine resources.</p> <p>Study the merits of the National Park Service providing groundwater to towns through an exchange of rights and working with towns to develop water conservation measures and growth controls.</p> <p>Establish water quality standards and limits of acceptable change in cooperation with local, state, and federal agencies.</p> <p>Determine impacts of private septic systems on wetlands and develop mitigating measures; develop wastewater treatment techniques; upgrade NPS septic treatment facilities; improve improper drainage and wetlands protection.</p> <p>Coordinate with public and private entities to restore the salt marsh in the Herring River and natural flows in the Pamet River; study Pilgrim Lake.</p>	<p>Same as alternative 2, except as an upland owner, seek more restrictive measures for shellfish aquaculture; prohibit finfish aquaculture.</p>

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
<p>Vegetation and Wildlife</p>	<p>Allow natural process to continue unimpeded; allow minor intervention to maintain cultural landscapes and developed areas, but no major intervention.</p> <p>Continue to protect species listed as threatened, endangered, or of special concern by the federal or state government.</p> <p>Continue state stocking programs; allow hunting and fishing, subject to existing regulations.</p> <p>Research and restore or simulate the natural role of fire in selected areas, in accordance with the approved <i>Fire Management Plan</i>.</p> <p>Implement integrated pest management activities as needed.</p>	<p>Allow natural processes to continue unimpeded except when active manipulation to manage for native biological diversity or rare, threatened, or endangered species or communities is deemed appropriate.</p> <p>As an upland owner, cooperate with state and local agencies to evaluate shellfish aquaculture; allow finfish aquaculture if certain criteria are met.</p> <p>Develop management plans for heathlands.</p> <p>Review dune grass planting programs.</p> <p>Develop a comprehensive vegetation/wildlife database.</p> <p>Seek to reduce the impact of insect control programs within the seashore, emphasizing the need to cooperatively ensure a healthy aquatic ecosystem.</p> <p>Develop a comprehensive nonnative species management program; control or eliminate invasive, nonnative species; use native species in all NPS revegetation efforts, and encourage others to do likewise; develop an integrated pest management program.</p> <p>Enhance cooperative management efforts with the state for hunting, stocking, and reintroduction programs.</p> <p>Research and restore or simulate the natural role of fire in selected areas (same as alt. 1)</p>	<p>Same as alternative 2 plus the following:</p> <p>As an upland owner, proactively designate limited intertidal areas for aquaculture; do not allow nonnative species; prohibit finfish aquaculture.</p> <p>In cooperation with the state, cease stocking nonnative animals for hunting and fishing.</p> <p>Specify terms and conditions for insect control programs.</p>
<p>Cultural Resources</p>			
<p>Cultural Heritage and Ethnographic Resources</p>	<p>Continue to allow customary activities, such as beachcombing, driftwood collecting, berry picking, mushroom harvesting, shellfishing, and fishing.</p> <p>Consult with cultural groups on Cape Cod, including Native Americans, for input on cultural heritage and landscape preservation.</p>	<p>Same as alternative 1 plus the following:</p> <p>Undertake collaborative efforts to define and preserve distinctive cultural heritage and significant ethnographic resources; conduct an ethnographic study to gain a better understanding of what to preserve and foster within the national seashore.</p> <p>Work with local entities to preserve and conserve local arts, skills, folklife, and folkways; provide educational programs about cultural heritage; assist in identifying and preserving tangible and intangible resources (such as ethnographic sites, historical records, artifacts, performing and written arts, crafts, folklore); provide opportunities for local people to present interpretive programs; develop the Highlands center for the arts and environmental as a venue for cultural heritage on Cape Cod.</p>	<p>Same as alternative 2.</p>

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Cultural Landscapes	<p>Identify significant cultural landscapes; focus protection efforts on Fort Hill, the Highlands area, the Pamet cranberry bog, the Atwood-Higgins complex, and the dune shacks district.</p> <p>Promote and encourage local organizations to help protect and preserve cultural landscapes and historic structures.</p>	<p>Identify and preserve the integrity of significant landscapes; integrate natural and cultural management actions for landscapes; reestablish historic uses (e.g., agriculture); consider leasing NPS historic properties to ensure the protection and maintenance of landscapes.</p> <p>Encourage local groups and organizations to protect cultural landscapes on the Outer Cape; identify and inventory historic landscapes on the Outer Cape; help develop preservation strategies to document and preserve significant landscapes.</p>	<p>Same as alternative 2 <i>plus</i> the following:</p> <p>Acquire historic preservation easements (viewsheds) on improved properties; seek legislative authority for funds for the Park Service to purchase improved properties from willing sellers if the integrity of the landscape was threatened.</p>
Historic Architecture	<p>Determine the use and treatment of historic buildings case by case; adaptively use NPS historic buildings and protect their historic character; continue short-term leasing agreements, with maintenance to NPS standards.</p> <p>Either relocate structures threatened by coastal erosion or document before their loss.</p> <p>Promote and encourage local organizations dedicated to protecting and preserving the Outer Cape's historic structures.</p>	<p>Same as alternative 1 <i>plus</i> the following:</p> <p>Establish priorities for the use and treatment of federally owned historic buildings; prepare a maintenance plan for all NPS historic structures; develop partnerships for the care of historic properties; allow adaptive use of historic structures under long-term leases with local towns, groups, and individuals.</p> <p>Identify historic structures on improved properties; actively seek to preserve historically significant improved properties;</p> <p>Preserve or rehabilitate the interiors of selected historic buildings to improve interpretive opportunities.</p> <p>Cooperate with private landowners and managers to protect historic structures outside the seashore; identify, preserve, and interpret all historic structures on the Outer Cape in cooperation with local groups and commissions; collaborate with local communities to develop preservation strategies to protect the Cape's historic structures.</p>	<p>Same as alternative 2 <i>plus</i> the following:</p> <p>Protect historic buildings on improved properties whose integrity was threatened.</p> <p>Allow NPS acquisition of all needed buildings and structures on a willing-seller basis.</p>
Archeological Resources (including submerged resources)	<p>Manage and maintain all land-based and submerged archeological resources on the National Register of Historic Places; salvage land-based sites as needed; survey submerged resources; cooperate with the state to protect submerged resources.</p>	<p>Survey and monitor archeological sites; complete terrestrial and submerged archeological surveys; develop with the state a joint protection strategy for submerged archeological resources, such as a state underwater archeological preserve; work closely with the state to protect state-owned submerged resources and to ensure scientific salvage operations and documentation; consider transferring oversight responsibility of specific resources to a single manager; phase out and remove nonhistoric uses from archeological sites.</p> <p>Develop educational programs about archeological resources and offer technical assistance to improved property owners; seek easements to protect resources on improved properties and adjacent private land; allow NPS acquisition of improved properties with significant resources on a willing-seller basis.</p>	<p>Same as alternative 2 <i>except</i> for the following:</p> <p>Make archeological resources subject to loss from coastal erosion available for research to amateurs and field schools.</p> <p>Seek legislation to extend the seashore boundary farther to sea (define by degrees of latitude and longitude); seek the transfer of ownership of submerged state lands with significant cultural resources to the Park Service.</p> <p>Acquire all offshore bottomland within the seashore boundary that is not federally owned.</p>

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Archeological Resources (cont.)		Work with local communities to require an archeological survey on improved properties before any ground disturbance during construction. Cooperate in helping protect and preserve the Outer Cape's archeological resources; inventory all archeological resources on the Outer Cape; collaborate with local towns and groups to document and preserve significant resources.	
Museum Collection	Use existing facilities to preserve museum objects in as stable a condition as possible.	Upgrade environmental climate controls in existing facilities; provide additional exhibit space for archeological artifacts; collect objects that would fill gaps in the existing collection.	Same as alternative 2 except ensure all acquired objects fill gaps in the existing collection.
Public Use			
Information and Orientation	Provide information to potential visitors who call or write; provide information at numerous locations on the Cape, with the Salt Pond and Province Lands visitor centers as a primary sources for Capewide information, orientation, and trip planning.	Develop an integrated and coordinated information system in partnership with Cape Cod communities and regional entities; provide pre-arrival information, as well as local travel information; provide kiosks at Cape information centers and transit sites; improve signs on U.S. 6 to help visitors find seashore sites and convey beach access information.	Same as alternative 2 except help develop a coordinated, Capewide information distribution system, with displays, bulletin cases, etc. at town/state information centers and transit sites. Provide information kiosks throughout the region.
Access and Transportation	Support regional transportation improvements; promote shuttle use at selected sites; study solutions to congestion and parking case by case. Review proposals for upgrading or improving airport facilities within the national seashore on a case-by-case basis to ensure that they would be as unobtrusive as possible and that vegetation, wetlands, dunes, and other resources would not be adversely affected. New impacts on natural, recreational, and scenic values would have to be minimized or found to be not detrimental.	Help improve access (e.g., joined and improved bicycle and pedestrian trail segments, intermodal links among various transportation systems and destinations, safety improvements to U.S. 6, interconnected shuttle loops, on-demand jitney service). Develop a comprehensive trail plan; work with local towns and the state to develop road, trail, intersection, and parking standards that conform with the scenic rural environment. Invest in public transit vehicles using alternative power sources; expand shuttle service; convert the NPS fleet vehicles to alternative fuels as feasible; move or reduce the impact of beach parking in hazard and sensitive resource areas. Continue to work with the Provincetown Airport Commission and other interested agencies to determine ways to ensure that airport operations and redevelopment would be compatible with national seashore resources and values (e.g., opportunities for quiet contemplation, reasonable access to NPS facilities, and the preservation of vegetation, wildlife, wetlands, dunes, views, and cultural resources). Ensure compliance with section 4f of the Department of Transportation Act. Consider airport initiatives in light of federal, state, and regional intermodal transportation planning objectives.	Same as alternative 2 except allow no installation of Provincetown airport facilities outside the permitted area.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
<p>Interpretation and Education</p>	<p>Continue current interpretive and educational programs; pursue new partnerships to expand interpretation that would require minimal expenditures of seashore staff and funds (e.g., produce temporary exhibits, assistance with special activities, joint training programs).</p>	<p>Broaden the interpretive focus to link the national seashore with the region; interpret the significance other cultures have had on Cape Cod's character and history; consider developing educational programs at the former North Truro air force station and Nauset Knoll Motor Lodge; provide interpretive information about Monomoy National Wildlife Refuge and Stellwagen Bank National Marine Sanctuary.</p> <p>Provide access to key historic structures (Atwood-Higgins and Penniman houses, Old Harbor Life-saving Station, Highland and Three Sisters Lights); interpret the stabilized and preserved Pamet cranberry bog house.</p> <p>Redesign the Salt Pond visitor center and amphitheaters at both visitor centers to better accommodate visitor use and programs, special activities, and employee workspace; promote public awareness of resource-related issues.</p>	<p>Same as alternative 2 <i>plus</i> consider establishing a cooperating interpretive center with the U.S. Fish and Wildlife Service in the southern part of the seashore and with the National Oceanic and Atmospheric Administration for Stellwagen Bank National Marine Sanctuary.</p>
<p>Activities, Facilities, and Services</p>	<p>Determine the compatibility of each public use with the seashore's purpose, impacts on resources, and other uses case by case; manage uses to minimize user conflicts; gauge appropriateness of requests for new uses and recreation trends; provide access to key historic structures; continue fishing access at beaches and ORV corridors.</p> <p>Emphasize nonmotorized forms of recreation; allow motorized recreation when impacts can be mitigated or resolved; continue to prohibit unlicensed motorized recreation vehicles.</p> <p>Minimize conflicts between seashore visitors and residents; balance the needs of visitors and residents; discourage visitor uses near residences.</p> <p>Provide facilities that do not adversely impact cultural and natural resources; respond to overcrowding or loss of facilities as needed; continue to implement parts of the 1988 <i>Bicycle Trail Plan</i>.</p> <p>Coordinate with local governments and other public/private providers to address mutual concerns, such as trail development, by conferring with the seashore advisory commission.</p>	<p>Evaluate the appropriateness of activities against specific criteria, as needed; continue surf-fishing access at beaches and ORV corridors; emphasize nonmotorized recreation; provide and promote more opportunities for trail use.</p> <p>Minimize use conflicts and resource impacts; use traffic management and travel information techniques to manage beach access, parking, and capacity; develop more beach shuttle operations.</p> <p>Create a loop trail through the heathlands; maintain nature trails; plan mountain bike routes; explore walk-in access to a bayside beach in Wellfleet; identify new public use areas; increase NPS presence in the southern part of the seashore; provide for group picnicking at Pilgrim Heights or Marconi; designate areas for limited primitive camping and a group overnight area for educational groups in the Marconi area; provide representative experiences to visitors with disabilities.</p> <p>Coordinate with Truro to consolidate beach facilities / services at Head of the Meadow; possibly develop a co-managed beach with Wellfleet at Duck Harbor.</p> <p>Build visitor support facilities to serve average summer visitation, not peak use; evaluate existing facilities and locations for consistency with management goals and objectives and take remedial action; reexamine the appropriateness of facilities destroyed by natural forces before replacing them.</p> <p>Minimize conflicts between visitor use and residential areas; designate parking; plan visitor routes to avoid residential areas where possible.</p>	<p>Same as alternative 2 <i>except</i> place signs along visitor routes to inform users of private properties and the need to respect property rights.</p>

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Concessions and Commercial Services	Continue existing concession permits; issue new commercial use licenses as requested.	Provide the minimum commercial enterprises needed for adequate public services not provided outside seashore boundaries; require concessions to meet NPS policy requirements or provide alternative management needs, or phase them out; consider providing limited vending at some NPS beach areas; use historic property lease/concession agreements to preserve and interpret historic buildings and areas; consider commercial permits for public transportation to certain seashore destinations; manage commercial activities that might conflict with national seashore values through special agreements/permits.	Discontinue concession enterprises at Herring Cove and Nauset Knoll within national seashore boundaries; depend on private businesses in adjacent towns to provide basic visitor services; issue strict commercial use permits.
Vista Management	Manage vistas by developing criteria consistent with the <i>Resource Management Plan</i> and seashore management objectives; inventory and evaluate current and historic vistas.	Develop a vista management plan that would specify views to preserve; define routine vegetation practices; and identify facilities that should be relocated. Provide access to views that occur naturally in open areas; maintain vistas only to meet cultural landscape objectives, operational/safety needs, or interpretive needs that could not be met elsewhere; establish criteria for developing new vistas.	Same as alternative 2.
Nonfederal Lands within the National Seashore			
Land Use / Protection	Preserve the qualities of the human environment on the Outer Cape, including its natural and cultural resources. Update priorities for land acquisition; consult with local communities, agencies, and governments about major land use activities that could affect the national seashore.	Undertake a broad-based educational program to foster stewardship on Cape Cod; work with local towns in developing comprehensive plans; encourage compatible development to protect sensitive resources or acquire lands to prevent incompatible development. Seek additional land acquisition authorization and appropriation. Cooperatively inventory and monitor areas throughout the Outer Cape that are critical to the seashore; in cooperation with local communities, consider designation as a district of critical planning concern; seek <i>ex officio</i> NPS membership on the Cape Cod Commission.	Same as alternative 2.
Private Residential Properties	Protect the traditional character of the Outer Cape, including its natural and cultural resources. Encourage local towns to adopt as bylaws the seashore's use guidelines for improved properties; work with towns to enforce zoning bylaws for the development of improved properties. Pursue the acquisition of parcels with important natural or cultural values on a willing-seller basis.	Encourage towns to establish local historic districts or architectural design review processes; encourage local banks and communities to develop financial incentive programs to support responsible redevelopment. Continue to take a flexible position in allowing changes from exclusive residential use to other appropriate uses when changes would preserve the architectural integrity and rural character and not cause adverse impacts; continue to decline to exchange public land for private property threatened by coastal erosion.	Same as alternative 2 <i>except</i> adopt existing use guidelines as part of the Cape Cod National Seashore zoning standards through a public process.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Private Residential Properties (cont.)	In cooperation with local land trusts, secure conservation easements or acquire available parcels to protect important resources.	Identify residential properties without improved property status. Acquire subdividable lands in the national seashore or purchase easements or development rights. Develop a more effective building permit application and review process; give towns greater responsibility to address issues relating to the redevelopment of residential properties; work with towns in revising Cape Cod National Seashore zoning standards and town zoning bylaws, and ensure consistency among them.	
Private Commercial Properties	Review commercial property renewal certificates every five years; use criteria for evaluation based on legislation.	Establish criteria for renewing commercial certificates, including whether a use has changed, contribution to the public's use and enjoyment, or adverse effects on seashore resources; withdraw certificates for properties not meeting these criteria.	Same as alternative 2 except acquire any commercial property not meeting the standards.
Municipal and State Lands	Improve the management and protection of resources owned and managed by multiple jurisdictions; work with local agencies and interests to protect sensitive areas; seek to acquire state and municipal lands with important resources values.	Encourage a mutual process for guiding the development of municipal properties in the national seashore; negotiate to exchange municipal lands with sensitive resources for less critical NPS lands; work with towns regarding management and information sharing about town beach facilities; work with towns and the state to protect jointly owned kettle ponds, and consider transferring day-to-day operations to one entity. Pursue the cooperative management of state-owned submerged lands in areas where there are sensitive resources.	Same as alternative 2 except consider the transfer of all management responsibilities to one entity for some ponds.
National Seashore Management and Operations			
Cooperative Planning and Management	Cooperatively promote land stewardship by working with landowners and managers; continue existing cooperative efforts; share stewardship or management of resources through mechanisms such as task forces and cooperative agreements.	Same as alternative 1 plus the following actions: Continue discussions with the Cape Cod National Seashore Advisory Commission; use guiding principles for decision making that incorporate authorities, local concerns, and sustainable practices; develop formal methods of intergovernmental cooperation (such as memorandums of agreement, ombudsmen, compacts, joint powers agreements, community policing); encourage the creation of joint working groups for collaborative problem solving; encourage fund raising and outreach efforts; engage in new cooperative ventures, such as cultural resource preservation activities, expanding natural resource protection, and developing a cooperative biology laboratory for Atlantic coastal seashore research; obtain staff expertise to coordinate partnership activities.	Same as alternative 2.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
<p>Administrative and Maintenance Facilities and Operations</p>	<p>Provide adequate, safe, energy-efficient, cost-effective office space with minimal impacts on critical resources; develop criteria for making operational space need decisions.</p> <p>Use size, scale, color, and design that relate to the appearance of facilities constructed during the 1960s.</p> <p>Reexamine the need for intensively managed landscapes around seashore facilities.</p>	<p>Similar to alternative 1 <i>except</i> for the following:</p> <p>Use size, scale, color, location, and facility designs that are functional, sustainable, and compatible with other existing structures and that perpetuate the character of Cape Cod.</p> <p>Evaluate NPS operational space needs with consistent criteria.</p> <p>When use-and-occupancy reservations end, adaptively use some structures for NPS housing or operations, especially when impacts would be reduced elsewhere by vacating existing NPS facilities.</p> <p>Assess all maintained landscapes associated with NPS facilities and modify as needed to comply with sustainable practices; eliminate or substantially reduce more intensively maintained landscapes.</p>	<p>Move administrative and maintenance functions outside the seashore boundary, and remove vacated facilities; plan for administrative and maintenance functions and programs that would minimize the need for federally owned facilities.</p> <p>Provide no artificial landscaping around any facilities except to meet minimum requirements for fire suppression, safety, and functionality.</p>
<p>Staff Housing</p>	<p>Periodically update the <i>Housing Management Plan</i>.</p> <p>Provide a variety of staff housing; provide adequate, safe, energy-efficient, and cost-effective housing, with minimal impact on sensitive resources; reduce NPS dependency on staff housing.</p> <p>Adaptively use existing structures; preserve significant historic or cultural values; avoid hazardous areas; when use-and-occupancy reservations end, consider using structures for staff housing; consider providing housing at the former North Truro air force station; limit the number of NPS housing units for permanent employees.</p>	<p>Similar to alternative 1 <i>plus</i> the following:</p> <p>Locate seasonal employee housing in existing residential areas; renovate facilities at the former North Truro air force station for seasonal housing; make housing units as accessible as possible to persons with disabilities.</p> <p>Pursue alternative arrangements to repair, rehabilitate, and replace housing units, including financial support and volunteerism; minimize impacts of wastewater treatment systems; maximize year-round occupancy.</p> <p>Permit required-occupancy employees to live outside the seashore; explore housing subsidies for staff living outside the seashore; lease housing for staff rentals; help staff find private sector housing.</p>	<p>Emphasize dispersed housing throughout the national seashore.</p> <p>Limit the number of housing units available for permanent employees.</p>
<p>Utilities</p>	<p>Provide safe, energy-efficient, and cost-effective utilities, with minimal impact on critical resources.</p> <p>Resolve regional problems relating to potable water, wastewater treatment, and solid waste disposal; ensure all NPS septic systems meet local standards.</p> <p>To eliminate visual intrusions, place all NPS powerlines underground; encourage the power company and private property owners to do the same.</p>	<p>Similar to alternative 1 <i>plus</i> the following:</p> <p>Maintain a stronger regional perspective when considering options for utilities and service, including potable water; promote public awareness of water conservation issues; ensure all NPS septic systems meet standards and encourage system upgrades on improved properties in sensitive areas; develop a model wastewater treatment facility; emphasize sustainable practices (recycling water, reducing waste, using environmentally sound waste disposal techniques, using alternative fuels and energy sources, reducing energy consumption); review telecommunications facility proposals in context with NPS policies.</p> <p>Ensure underground fuel storage tanks meet codes; consider alternative energy sources for NPS facilities.</p> <p>Minimize energy consumption.</p>	<p>Same as alternative 2.</p>

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
<p>Services Exchanged with Local Communities</p>	<p>Encourage a regional coordinating role in providing services such as police and fire protection, ambulance service, waste removal, hazardous waste management, and road maintenance.</p> <p>Evaluate cost sharing and agreements between the national seashore and local agencies.</p> <p>Assign maintenance responsibility of paved roads to the owner(s); maintain NPS sand roads based on existing use and funding availability.</p>	<p>Similar to alternative 1 <i>except</i> for the following:</p> <p>Continue to use those services for which the seashore pays a proportionate share.</p> <p>Analyze the use of paved roads within the seashore and work with towns to ensure roads are appropriately maintained.</p> <p>For sand roads, assign maintenance responsibility to the owner(s); close some roads on NPS land where not needed for vehicular access after evaluation and consultation with affected communities to reduce maintenance costs and to provide for continued walking and bicycling access.</p>	<p>Same as alternative 2 <i>except</i> provide fire protection on a fee-for-service basis.</p>
<p>Reservations of Use and Occupancy</p>	<p>Eventually remove use-and-occupancy property improvements; permit residential use by former owners in hardship cases; determine whether to adaptively use buildings for staff housing or operational needs or remove through demolition.</p>	<p>Consider resource values, hardship issues, and practical considerations before eventually removing use-and-occupancy properties; determine if structures should be removed or retained for short- or long-term use according to priorities:</p> <ul style="list-style-type: none"> • remove structures in sensitive areas • for the long term, either use for NPS purposes or for land exchanges with municipalities • for the short term, either use for private residential use or office space for nonprofit organizations, with specific terms and conditions • consider for salvage/surplus, or use as affordable housing outside the seashore. 	<p>Same as alternative 2.</p>

ALTERNATIVE 1 — CONTINUE CURRENT MANAGEMENT

Actions described under alternative 1 represent, for the most part, management decisions that are currently in place. In some cases, actions are not yet in evidence, but the decisions have already been made for a given course of action. This alternative is the required minimum requirements alternative in terms of lower cost improvements and minimum protection and safety actions.

NATURAL RESOURCES

AIR RESOURCES

◆ **GOAL: Monitor air quality.**

STRATEGY: *Air quality programs* — Cooperative efforts would be continued with the Massachusetts Department of Environmental Protection, the U.S. Environmental Protection Agency, and other agencies for air quality monitoring at a monitoring station within the national seashore.

COASTAL PROCESSES

◆ **GOAL: Allow natural shoreline processes to continue unabated except where they conflict with existing human development or other interests.**

STRATEGIES: *Inlet formation, overwash, and dune migration and formation* — Response would be decided on a case-by-case basis. Artificial beach nourishment and the revetment of marine scarps would be prevented on NPS land within the seashore to the greatest extent possible, while still protecting existing interests. Inlet formation, overwash, and dune migration and formation would be monitored as they occur. Where town and private lands are involved, the national seashore would assist in design and management of proper mitigations for beach nourishment and revetment projects in

order to minimize their effect on national seashore resources.

Facilities/cultural resources threatened or damaged by coastal erosion — What to do with facilities that were threatened or damaged by coastal processes, including storm events, would be decided on a case-by-case basis. Options are limited to loss, demolition, or movement of the facility. Relocations that would affect or be in sensitive resource areas would be prohibited.

Existing NPS developments that conflict with coastal processes would be redesigned when they become extremely threatened.

WATER RESOURCES

◆ **GOAL: Protect ground and surface water quality and quantity, and adjacent wetlands.**

STRATEGIES: *Implementation of the national seashore water resource management plan* — Groundwater quantity and quality is likely to become the most important social and political issue on the Cape in the near future, as there are limited areas for developing municipal supply wells outside national seashore boundaries. Complicating the issue is the fact that the presence of water, the ability to withdraw it, and the effects of withdrawal are not and cannot be managed strictly within administrative boundaries of landownership. Within this context the water resource management plan for the national seashore addresses the long-term management of both estuarine and freshwater resources within the national seashore and provides guidance on water resource issues.

Participation with regional and town water resource planning groups — An Outer Cape community-wide discussion needs to continue about how to manage groundwater resources to preserve the natural, cultural, and economic characteristics that make the Cape so special. To

that end the National Park Service jointly participated in and contributed to the recent development of a coordinated regional groundwater management study for local towns. The Cape Cod Commission's 1997 *Final Report of the Lower Cape Water Management Task Force* addresses groundwater issues of regional concern and identifies and evaluates potential municipal well sites in Eastham, Wellfleet, Truro, and Provincetown. The Park Service would continue to recommend that this planning report be used as a basis for further research and development of a regional approach to groundwater management.

Supplementing municipal water supplies — Wells would be allowed within national seashore boundaries to supplement municipal supplies under existing policy, which only allows the use of water under the existing use provisions of NPS Special Directive 78-2. The intent would be to protect sensitive resources and to provide potable water for existing development, not to provide water for additional development. The Park Service is gathering scientific information about the effects of groundwater pumping to determine if town water supply wells on municipal lands adjacent to NPS property (both inside and outside the boundaries) are adversely affecting seashore resources or could do so in the future.

Currently, the National Park Service has very limited authority to provide water, or any other resource, to non-NPS entities. In conformance with NPS Special Directive 78-2, the Park Service could consider a temporary, short-term sale or lease of water from inside a unit of the national park system to a non-NPS entity, but only if the following conditions were met:

- The entity provides services of direct or indirect benefit to the park unit or park visitors.
- There is no reasonable alternative water supply available.
- The effects on the park's environment, administration, management and

protection, and visitors have been examined, and these effects have been determined to be acceptable.

- The water use is in accordance with laws and regulations governing ownership and use of federal water and rights.
- The government would recover the full cost of providing the water.
- The arrangement has been reviewed in Washington.
- The use is for a short time (one year or less), revocable, does not convey permanent rights, and is conditioned to allow NPS review of planned development by the applicant that would increase water demand.

The National Park Service would consult with other federal and state agencies and local communities to determine the options and alternative water supplies in deliberating on any proposal for a temporary, short-term sale or lease of water.

Kettle pond monitoring — The kettle pond monitoring program would be continue, and pond-specific resource management plans would be developed as needed. In cooperation with towns, landowners, the county, and the state, specific resource management plans would be developed for ponds in the national seashore as needed. Ponds with similar features, or those near each other, would be managed in a consistent fashion. Clusters that could be managed include Duck Pond, Gull Pond, Slough Pond, Snow Pond, and Spectacle Pond. Management plans would include strategies to reduce recreational use impacts (for example, using no-flush toilet systems and hardening access to shorelines).

Offshore activities and incidents — In accordance with applicable regulations, the National Park Service would react as necessary to offshore activities and incidents within national seashore boundaries and affecting seashore resources.

◆ **GOAL: Restore the natural hydrography and ecosystems of estuaries.**

STRATEGY: Salt marsh restoration at Hatches Harbor — The incremental restoration of the salt marsh at Hatches Harbor would be completed, which would require continued coordination with various private and public entities, extensive outreach, and continued ecological monitoring. The reversion from a freshwater marsh back to a salt marsh system would be designed so as to still provide storm and tidal flooding protection for the Provincetown Municipal Airport. Restoration work at Hatches Harbor has been proposed since 1986; a separate environmental assessment for this project is now being prepared. The restoration work would be subject to a memorandum of understanding with the town of Provincetown detailing the development of a long-term cooperative arrangement for restoration and ensuring no adverse impacts on the airport. Monitoring before and after restoration would document changes. Any alterations in the restoration process needed to deal with unforeseen effects would be determined by a review committee composed of representatives from the airport commission, the Federal Aviation Administration, the national seashore, and other interested parties.

VEGETATION AND WILDLIFE

◆ **GOAL: Manage biotic resources by allowing natural processes to continue unimpeded; take minor management actions to maintain cultural landscapes and developed areas, but no major intervention to alter succession.**

STRATEGIES: Threatened or endangered species — The National Park Service would work with the U.S. Fish and Wildlife Service, the National Marine Fisheries Services, the Massachusetts Natural Heritage Program, the towns, and groups such as the Native Plant Conservation Program to protect and manage species that are listed by the state or federal government as rare, threatened, endangered, or of special concern. Where information was

available, work would be undertaken to restore native species lost due to human intervention. State authorities would be regularly contacted to update inventory lists and to consult on all activities that might affect state-listed species.

◆ **GOAL: Manage special uses affecting wildlife populations and other biotic resources to minimize ecosystem impacts and to sustain natural processes.**

Stocking programs — A memorandum of understanding would be maintained with the Massachusetts Division of Fish and Wildlife to manage stocking programs that would continue to meet recreational needs.

Hunting and fishing — Hunting and fishing opportunities (focusing on native species) would be allowed at levels compatible with the purposes of the seashore. Conflicts with private landowners and other visitor uses would be minimized. Public safety would continue to be addressed by use area designations, patrols, and other monitoring techniques.

Fire management — In accordance with the national seashore's approved *Fire Management Plan*, the natural role of fire would be researched and then restored or simulated in fire-dependent ecosystems and in selected areas. Reintroducing the role of fire would only be done in areas where feasible, considering political, social, and environmental restrictions. Fuel levels around identified NPS structures would continue to be reduced.

Pest management — Pest management actions would be taken as needed, with attempts to reduce the use of chemicals.

CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

◆ **GOAL: In participation with local communities, explore, define, and maintain the**

components of the distinctive cultural heritage and pattern of human activity that make the character of Cape Cod unique.

STRATEGIES: *Customary activities* — Customary activities such as beachcombing, driftwood collecting, berry picking, mushroom harvesting, shellfishing, fishing, and contemplative activities would continue to be allowed, subject to applicable federal, state, or local regulations.

Consultation with cultural groups — Cultural groups on Cape Cod would be consulted for input on cultural heritage and landscape preservation. Specifically, Native Americans would be consulted to assist in identifying sacred sites, in accordance with the Native American Graves Protection and Repatriation Act. Informal consultations on cultural landscapes and areas of potential archeological sensitivity could also occur.

CULTURAL LANDSCAPES

- ◆ **GOAL: Identify, manage, and maintain cultural landscapes that are on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: *Significant cultural landscapes* — Significant cultural landscapes, as described in section 110 of the National Historic Preservation Act of 1966, as amended, would be identified. Cultural landscape protection would be focused on five areas: Fort Hill, the Highland area, the Pamet cranberry bog, the Atwood-Higgins complex, and the dune shacks district. The Park Service would develop cultural landscape reports and recommendations for treatment.

- ◆ **GOAL: Interpret cultural landscapes to educate the public about their existence and to solicit their assistance in preservation efforts.**

STRATEGIES: *Interpretive programs* — Volunteers-in-the-Parks would be used to interpret cultural landscapes. Interpretation would be

provided through wayside exhibits, guided walks, talks, and publications.

- ◆ **GOAL: Promote and encourage local groups and organizations dedicated to protecting and preserving the Outer Cape's cultural landscapes and historic resources.**

STRATEGY: *Cooperative protection of cultural landscapes* — Local friends groups and other cooperators would be encouraged to assist in protecting and maintaining cultural landscapes. This could include shared historic materials and studies and, in some circumstances, the use of concession management (e.g., the Highland Golf Links).

HISTORIC ARCHITECTURE

- ◆ **GOAL: Manage and maintain buildings and structures on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: *Historic structures* — All structures within the national seashore boundaries would be protected until their eligibility for the national register could be determined.

Use and treatment — The use and treatment of historic buildings would be determined on a case-by-case basis.

Historic structures on improved properties — Historically significant properties that were privately owned would be identified.

NPS historic buildings — Historic buildings owned by the Park Service would be used for interpretation and administration. Any such adaptive uses would ensure that their historical character was not destroyed.

Resource Management Plan — Private homeowners, local governments, and other agencies would be encouraged to have a role in resource stewardship to implement the national seashore's *Resource Management Plan* (NPS 1992h).

Adaptive uses of historic buildings — Short-term leasing agreements would be continued with municipalities, local groups, and individuals for adaptive uses such as historical society museums, educational programs, and housing, with maintenance agreements to NPS standards. The intent would be to protect structures and provide a greater appreciation and understanding of various facets of Cape Cod's history.

Historic structures threatened by natural coastal processes — Buildings and structures threatened by natural coastal processes would be identified, and management strategies would be developed on a case-by-case basis. Each threatened property would be evaluated and ranked on the basis of its uniqueness and prevalence within a historical Cape Cod context. Management actions would be limited to either (1) relocating the structure if it is unique within its historical context, or (2) documenting it before its loss to natural processes if it is a common example within its context.

- ◆ **GOAL: Interpret historic structures to educate the public about their existence and to solicit public assistance in preservation efforts.**

STRATEGIES: Interpretive programs — Volunteers-in-the-Parks and other cooperating organizations would be used to interpret historic buildings and structures. Interpretation would be provided through wayside exhibits, guided walks, talks, and publications.

- ◆ **GOAL: Promote and encourage local groups and organizations dedicated to protecting and preserving the Outer Cape's historic structures.**

STRATEGY: Cooperative agreements and relationships — Cooperative agreements and relationships would be encouraged with volunteers, universities, and friends groups for historic structure preservation, interpretation, and maintenance, in addition to developing stronger constituencies.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

- ◆ **GOAL: Manage and maintain all land-based and submerged archeological resources that are listed on or eligible for the National Register of Historic Places.**

STRATEGIES: Land-based archeological sites — Specific land-based archeological sites would be selected for interpretation, and public access to remaining sites would be discouraged. Land-based archeological sites would be salvaged on an emergency basis (e.g., when exposed by storm erosion).

Submerged archeological resources — A survey of submerged archeological resources would be initiated. Cooperative protection measures would be undertaken with the state.

Consultation with Native Americans — Native American groups would be notified of archeological excavations.

- ◆ **GOAL: Interpret archeological resources and historic artifacts to educate the public about their existence and to solicit public assistance in preservation efforts.**

STRATEGIES: Interpretive programs — NPS interpretive staff and volunteers would be used to interpret archeological resources and historic artifacts. Selected historic archeological sites (such as Smith Tavern and the Carns site) would continue to be interpreted on a limited basis. The prehistory of Cape Cod would continue to be interpreted in the Province Lands visitor center.

Prehistoric archeology collection — Efforts to catalog the backlog of items in the prehistoric archeology collection would be continued.

MUSEUM COLLECTION

- ◆ **GOAL: Protect the national seashore's archeological, historic, and museum objects.**

STRATEGY: *Artifacts and museum objects* — Museum objects would be preserved in as stable a condition as possible, focusing on noninter-ventive actions such as monitoring, recording, and controlling environmental agents (light, humidity, temperature, dust, and gaseous pol-lutants). A building at the former North Truro air force station has been rehabilitated to provide curatorial storage for most of the collection. Sensitive items, such as scrimshaw, archival and photographic materials, and textiles, would continue to be stored in existing climate-controlled facilities.

PUBLIC USE

INFORMATION AND ORIENTATION

- ◆ **GOAL: Provide opportunities for the public to have access to accurate and up-to-date trip planning, orientation, and park information before leaving home, and at convenient seashore facilities on the Cape.**

STRATEGIES: *Advance information* — Advance information would be provided to potential visi-tors to the Cape who phone or write the national seashore.

National seashore visitor centers — Informa-tion, orientation, and trip planning for most visitors to the Cape would continue to be provided at the Salt Pond and Province Lands visitor centers.

ACCESS AND TRANSPORTATION

- ◆ **GOAL: Adopt the intermodal transporta-tion goals of the Cape Cod Commission's *Long Range Transportation Plan*, including alternative forms of transportation and air quality initiatives.**

STRATEGY: *Transportation improvements* — Technical and moral support for transportation improvements would be provided wherever feasible and appropriate, in cooperation with the towns, the county, and the state.

- ◆ **GOAL: Provide access to public use areas that is environmentally sensitive, safe, and consistent with the desired public use expe-rience and the intermodal planning initiatives.**

STRATEGIES: *Shuttle service* — Shuttle service at Coast Guard Beach would be continued. The possibility of establishing shuttle services at other selected sites would be considered as needed.

Congestion and parking — Solutions to conges-tion and parking would be studied on a case-by-case basis.

Provincetown airport — Proposals for upgrad-ing or improving airport facilities within the national seashore would be reviewed on a case-by-case basis to ensure that they would be as unobtrusive as possible and that vegetation, wetlands, dunes, and other resources would not adversely affected. New impacts on natural, rec-reational, and scenic values would have to be minimized or found to be not detrimental.

INTERPRETATION AND EDUCATION

- ◆ **GOAL: Provide a wide variety of interpre-tive and educational opportunities for a diverse public so that they understand and appreciate how Cape Cod's natural and cultural resources are interrelated with its history and the people who live there.**

STRATEGIES: *Interpretive and educational programs* — All existing interpretive and edu-cational programs, cooperative efforts in environmental education, and joint and reciprocal interpretive programs with other agencies and institutions would be continued.

Interpretive partnerships — Partnerships for interpretive programs that would require minimal expenditures of seashore staff and funds would be pursued. This might include the occasional production of temporary exhibits, assistance with special activities or events, or

participation in joint training programs with cooperating entities.

ACTIVITIES, FACILITIES, AND SERVICES

◆ **GOAL: When problems or questions arise, determine the compatibility of each public use activity with the seashore's purpose, as well as the impacts on resources and other uses.**

STRATEGIES: Public activities — Public activities would be managed to prevent one person's use from degrading another person's experience. The thresholds would be based on safety, resource protection, and the experiences indicated by the management zone within which the use occurred (see appendix D).

Customary uses would be maintained, and the quality of existing visitor experiences would be improved, largely at historic locations.

Requests to pursue new activities within the national seashore, and the implications of new recreation trends, would be reviewed on a case-by-case basis. The appropriateness of activities would be gauged according to the potential for conflicts with resource protection and other users.

Fishing access — Fishing access at existing beach access points and along approved ORV corridors would continue to be allowed.

◆ **GOAL: Emphasize nonmotorized forms of recreation.**

STRATEGIES: Motorized recreation — Motorized recreational activities would be allowed within existing regulations or guidelines that minimize or mitigate impacts and that attempt to resolve conflicts.

Unlicensed motorized recreation vehicles, such as off-road motorcycles and ATVs, would continue to be prohibited.

◆ **GOAL: Continue to provide facilities and services that do not adversely impact natural and cultural resources.**

STRATEGIES: Public facilities — Improvements such as parking and restroom facilities would be constructed at particular sites as visitation increased and in response to specific needs. Essential public services would be provided inside national seashore boundaries. The overcrowding or the loss of facilities due to coastal erosion would be addressed on a site-by-site basis.

Access to historic structures — Public access to key historic structures like the Atwood-Higgins and Penniman houses would continue to be provided.

Fishing access — Access for fishing would continue to be provided.

Trails — Parts of the 1988 *Bicycle Trail Plan*, including working with the state and three towns to extend the Cape Cod Rail Trail, would be implemented. Work with local, state, and regional governments would continue in order to expand the network of trails.

◆ **GOAL: Communicate with local governments and other public and private providers as issues arise.**

STRATEGY: National seashore managers would regularly confer with the Cape Cod National Seashore Advisory Commission to address issues of mutual concern to the National Park Service, the towns, and Cape Cod residents.

◆ **GOAL: Minimize use conflicts between public use areas and residential areas within the national seashore.**

STRATEGY: Public uses within the national seashore would be balanced with residents' needs for privacy. Public use areas would be minimized near residences.

CONCESSIONS AND COMMERCIAL SERVICES

- ◆ **GOAL: Continue existing commercial services inside national seashore boundaries.**

STRATEGIES: *Concessions* — Existing concession operations would be continued, and contracts would be renewed when they expire.

Commercial services — New commercial use licenses would be issued as requested.

VISTA MANAGEMENT

- ◆ **GOAL: Manage vistas by developing criteria for vista management consistent with the Resource Management Plan and management objectives for the national seashore.**

STRATEGIES: Current and historic vistas would be inventoried and evaluated based on management objectives.

NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE PLANNING AND PROTECTION

- ◆ **GOAL: Preserve the qualities of the human environment on the Outer Cape, including natural and cultural resources.**

STRATEGIES: *Land acquisition* — Priorities for land acquisition, as stated in the national seashore's *Land Protection Plan*, would be updated.

Land use activities — National seashore managers would consult with local communities regarding major land use activities that could affect the national seashore.

Communications with other land use agencies — To become better informed about state policies and activities and to improve coordination between state agencies and the seashore, the National Park Service would communicate with the Massachusetts Department of Transporta-

tion, the Office of Coastal Zone Management, and other state agencies that influence land use and other activities on the Outer Cape.

Consultation with the Cape Cod Commission and Outer Cape communities — The Park Service would consult with the Cape Cod Commission and Outer Cape communities as they prepared local comprehensive plans and addressed regional issues on the Outer Cape such as land use, natural resources, open space, historic preservation, transportation, and water resources. This would allow NPS decision makers to remain informed of neighboring activities and to better coordinate NPS activities with those outside the seashore.

Support for land protection goals — National seashore staff would work with local and regional land trusts such as the Compact of Cape Cod Conservation Trusts and with national organizations such as the Trust for Public Land and The Nature Conservancy to support land protection goals.

PRIVATE RESIDENTIAL PROPERTIES

- ◆ **GOAL: Help protect the traditional character of the Outer Cape, including natural and cultural resources, and prevent resource degradation that often results from development.**

STRATEGIES: *Local zoning and subdivision bylaws* — The Park Service would encourage towns to enforce local zoning and subdivision bylaws to regulate use, development, alteration, and expansion of improved properties.

Use guidelines for development — Local communities would be encouraged to adopt the seashore's use guidelines as bylaws for the development of improved properties. The guidelines might need to be adapted to conform with state zoning laws.

Construction permitting — National seashore staff would work with communities and owners

of improved property to review building permit applications, site plans, and related documents.

Acquisition of private properties — The Park Service would pursue the acquisition of parcels important for their natural or cultural values on a willing-seller basis, depending on the availability of funds.

Cooperation with local land trusts — National seashore managers would work with local land trusts to secure conservation easements or to acquire available parcels that are important for resource protection.

PRIVATE COMMERCIAL PROPERTIES

- ◆ **GOAL:** Ensure that the use and development of commercial parcels are managed consistent with national seashore purposes and that any negative impacts on seashore resources, community character, or visitor experience are minimized.

STRATEGY: *Commercial certificate renewals* — Criteria based on legislation would be developed to review commercial certificate renewals every five years.

MUNICIPAL AND STATE LANDS

- ◆ **GOAL:** Improve the management and protection of resources that are owned and managed by multiple jurisdictions.

STRATEGIES: *The protection of sensitive areas* — National seashore managers would work with state and local community interests to encourage the protection of sensitive areas, such as salt marshes and kettle ponds, through coordinated planning, management, and education efforts.

Resources under multiple ownership — National seashore managers would work with the Massachusetts Office of Coastal Zone Management, Massachusetts Department of Fish and Wildlife, and other relevant state agencies in managing or

developing policy for resources under multiple ownership.

Consultation with the Cape Cod Commission and Outer Cape communities — The Park Service would consult with the Cape Cod Commission and Outer Cape communities as they prepared local comprehensive plans and addressed regional issues on the Outer Cape.

Acquisition of municipal and state lands — The Park Service would seek to acquire lands that have important resource values through fee-simple purchase, land exchange, or other means where appropriate and feasible.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

COOPERATIVE PLANNING AND MANAGEMENT

- ◆ **GOAL:** Help promote a land stewardship ethic and practice that will enhance natural and cultural resource protection on the Outer Cape.

STRATEGIES: *Cooperation with public and private landowners and land managers* — Planning documents would be developed in conjunction with local towns, adjacent land management agencies, and landowners to integrate goals, objectives, and products ecosystemwide.

Continuation of cooperative efforts — Existing cooperative efforts on the Cape, such as cooperation with the towns and the state historic preservation officer to complete a survey of private historic structures, would continue.

Shared stewardship or management of resources — Such mechanisms as task forces and cooperative agreements would be used to provide for the shared management of resources. This would include

- serving on the Lower Cape Water Management Task Force

- monitoring air resources in conjunction with the Massachusetts Department of Environmental Protection and the U.S. Environmental Protection Agency
- working cooperatively to protect both federal and state-listed rare, threatened, or endangered plants or animals
- working with the state and local towns on shellfishing, hunting, and fishing management issues
- maintaining a cooperative agreement with the University of Massachusetts for archaeological work
- working with the state historic preservation officer and towns to survey the Outer Cape's historic buildings and landscapes
- developing cooperative agreements with a variety of groups to protect historic structures and landscapes

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

◆ **GOAL: Provide adequate, safe, energy-efficient, cost-effective office space and workspace in a manner that will minimize impacts on natural and cultural resources.**

STRATEGIES: Existing and projected operational space needs — Existing and projected operational space needs for the entire national seashore would continue to be studied and compared to the inventory of all present facilities. This would allow the Park Service to determine:

- the best distribution of operational functions
- which structures should be retained or rehabilitated and for what uses
- what new structures, if any, should be built and where

- what structures should be eliminated

Criteria for deciding operational space needs — Management decisions would be based on the following criteria:

- Existing facilities would be used when feasible and cost-effective rather than constructing new facilities.
- Facilities would blend into the environment, complement natural features, and have a minimal impact on the character of the national seashore.
- Significant historical or cultural values would be preserved.
- The proposed use of a site or structure as an operations facility would be compatible with the existing or proposed use of the immediate environs.
- Impacts on sensitive resources, such as wetlands and archeological sites, would be avoided.
- No hazardous areas (sites with unstable soils and geologic conditions, floodplains, and coastal high-hazard areas) would be affected when relocating or siting new facilities.
- Operational facilities could be made as accessible as practicable to persons with visual, hearing, mobility, and mental impairments.

Appearance of new facilities — The size, scale, color, and designs of new facilities would relate to the appearance of existing seashore facilities that were constructed in the 1960s.

◆ **GOAL: Ensure that site planning and revegetation associated with national seashore facilities are environmentally appropriate, meet the functional needs of the associated facility, are attractive, and serve as good models for sustainable practices.**

STRATEGY: Maintained landscapes — The philosophy of landscaping for national seashore facilities that existed in the 1960s, under which the national seashore has been operating, would be reexamined. Fertilizers, pesticides, and irrigation were required to maintain landscapes, which is inconsistent with the present NPS movement toward more sustainable practices.

STAFF HOUSING

◆ **GOAL: Address staff housing needs by developing a variety of housing options for employees and volunteers; over the long term, reduce NPS dependency on staff housing within the seashore for permanent employees.**

STRATEGIES: Staff housing needs — Existing and forecasted housing needs would continue to be comprehensively studied, with a comparison to the inventory of all seashore housing. This analysis would provide a basis for determining shortages or excesses, which structures need to be retained, rehabilitated, removed, or relocated, and what new structures need to be built and where.

This information would be used to update the national seashore's *Housing Management Plan*. Decisions would be based on the following guidelines:

- In general, use dispersed, single detached units for year-round employees and concentrated, multiple units (such as duplexes, efficiency apartments, and dormitories) for seasonal employees. However, for seasonal employees with families or domestic partners, consider making single detached units available.
- Consider subdividing large, single-family homes into smaller living units.

NPS housing for permanent employees — Housing units for permanent employees would be limited over the long term.

Alternative housing options — Structures at the former North Truro air force station and structures no longer under use-and-occupancy reservations would be considered for staff housing. Former use-and-occupancy structures would have to be in areas with nonsensitive resources or where impacts could be mitigated.

◆ **GOAL: Provide adequate, safe, energy-efficient, and cost-effective staff housing in a manner that will have minimal impact on natural and cultural resources.**

STRATEGIES: Adaptive use structures — Only those historic houses or other structures that were in good physical condition, that were suitable for use, and that could be cost-effectively rehabilitated would be considered for reuse.

Siting of staff housing — In evaluating a site or structure for staff housing, the National Park Service would ensure that there are no sensitive resources (including archeological resources or sensitive vegetation) onsite or that impacts could be mitigated, and that housing would be compatible with the immediate environs. Hazardous areas include sites with unstable soils and geologic conditions, floodplains, and coastal high-hazard areas.

UTILITIES

◆ **GOAL: Provide safe, energy-efficient, and cost-effective utilities in a manner that minimizes impacts on natural and cultural resources.**

STRATEGIES: Regional cooperation — National seashore managers would work with local towns to help resolve regional problems related to the provision of potable water and the disposal of solid waste and sewage.

Water conservation measures and public awareness of water resources — Water conservation measures would be implemented as facilities were upgraded, such as the installation of waterless toilets and low-flow fixtures. Public

awareness of water resource concerns, water conservation, and pollution prevention would be promoted in conjunction with towns, the Cape Cod Commission, and the Association for the Preservation of Cape Cod.

NPS septic systems — NPS septic systems would meet required standards.

Placing utility lines underground — To reduce visual intrusions caused by overhead utility and landscape disruption due to associated maintenance, all NPS-owned lines would be placed underground. The Park Service would also encourage the power company and property owners to place all utility and locally owned powerlines underground, while accommodating concerns relating to archeological remains and cultural landscapes.

Maintenance standards for overhead utility lines — Standards would be developed for the maintenance of aboveground utility lines that are not owned by the National Park Service. These standards, which would be applied on a case-by-case basis, would seek to protect vegetation, habitat, soils, and archeological resources, and to minimize landscape disruption. Property owners and the power company would be required to meet the special standards or conditions.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

◆ **GOAL: Continue building cooperative and trusting relationships with local communities to provide a framework for the National Park Service to fulfill its obligations to protect resources and serve the public while furthering the social and economic well-being of local communities and residents.**

STRATEGIES: Regional coordination of services — National seashore managers would encourage that services such as police and fire protection, ambulance service, waste removal and recycling, hazardous waste management, and road maintenance be coordinated on a regionwide basis.

Cost-sharing agreements — Cost-sharing agreements would be identified and periodically evaluated, along with payments that can be negotiated and implemented at the local level by the national seashore, as well as those requiring upper level NPS approval and those requiring congressional initiative and action. The Park Service and local towns have an interdependent relationship in cost-sharing agreements for local services and schools. Just as towns provide services for national seashore staff and visitors, the Park Service also provides services to local residents in a number of ways (e.g., provision of curriculum packets and programming to local schools, emergency services, etc.).

Paved roads within national seashore boundaries — Maintenance responsibility for paved roads would be assigned to the owners of roads.

Sand roads within national seashore boundaries — National seashore managers would work with towns and private property owners to maintain sand roads as one of the characteristic features of the Outer Cape scene. The level of NPS effort would be limited by the availability of maintenance funds.

RESERVATIONS OF USE AND OCCUPANCY

◆ **GOAL: Identify and apply strategies to achieve the eventual removal of use-and-occupancy property improvements.**

STRATEGY: Continued use of properties under hardship conditions — Limited continued use of properties formerly under use-and-occupancy reservations would be permitted by private individuals under hardship conditions. In such cases properties would be available for continued residential occupancy for an interim period only in bona fide hardship situations (for example, in the case of medical or financial hardship). A special use permit would be issued to authorize the occupancy. Consideration would be generally given only to original owners who are year-round residents with no other home. Those former owners could be permitted to live out their lives in these residences. Federal law

pertaining to the private rental of government-owned structures would apply in establishing rental rates.

Disposition of structures once use-and-occupancy reservations expire — The range of possible actions include the following:

- adaptive use for staff housing or operational needs
- removal of the structure(s) through demolition, open-market sale, donation, salvage, or surplus to another agency (in cases other than demolition, the new owner would be responsible for removal and cleanup)
- municipal land exchange

MANAGEMENT ZONES

The management zones under the no-action alternative would normally be based on the last approved plan for a park area. However, various changes since the *Master Plan* for Cape Cod National Seashore was approved in 1970, such as in landownership, new legislation and regulations, increased cooperation with residential property owners, and dwindling federal funding, have resulted in modifications to the original management zoning strategy.

The 1970 *Master Plan* had two zones: preservation/conservation, and public use and development. For purposes of this planning effort, the zoning used in the original *Master Plan* has been reconfigured into four management zones, which are further broken down into 11 subzones. The proposed zoning categories reflect both the current management strategies and make it comparable with the zoning categories for alternative 2.

Current management zones within Cape Cod National Seashore are identified in table 2; the visitor experience and management practices for each subzone are described in appendix D.

TABLE 2: CURRENT MANAGEMENT ZONES
(IN ACRES)

MANAGEMENT ZONES	ACRES	PERCENTAGE OF TOTAL
Natural Zone		
Concentrated Use Subzone	587	1
Dispersed Use Subzone	11,759	28
Low Use Subzone	8,887	22
Marine/Intertidal Subzone	14,907	36
Subtotal	36,140	87
Historic Zone		
Structures and Landscape Subzone	155	0
Natural Settings Subzone	1,726	4
Subtotal	1,881	4
Developed Zone		
Visitor Facility Subzone	288	1
Motorized Corridor Subzone	625	2
Nonmotorized Corridor Subzone	42	0
Subtotal	955	3
Special Use Zone		
Rural Settlement Subzone	1,976	5
Administration/Operations Subzone	450	1
Subtotal	2,426	6
TOTAL	41,402	100

NOTE: Acres are estimates based on geographic information systems (GIS) analysis and are used for comparative purposes only. The total acres listed do not match the total number of acres in the authorized boundary (43,570) because shoreline processes and storm events have changed the shoreline configuration.

NORTH

0 5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,033a



- Private
- Town
- State
- Federal and National Park Service
- Cape Cod National Seashore boundary

ON MICROFILM

NORTH

0 5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,026a



- ⊙ Protected open space
 - Undeveloped land
 - Agricultural
 - Open space for recreation
 - Wetland
 - Industrial
 - Residential
 - Commercial
 - Transportation
 - Water
 - Cape Cod National Seashore boundary
- Source: MacConnell land use data

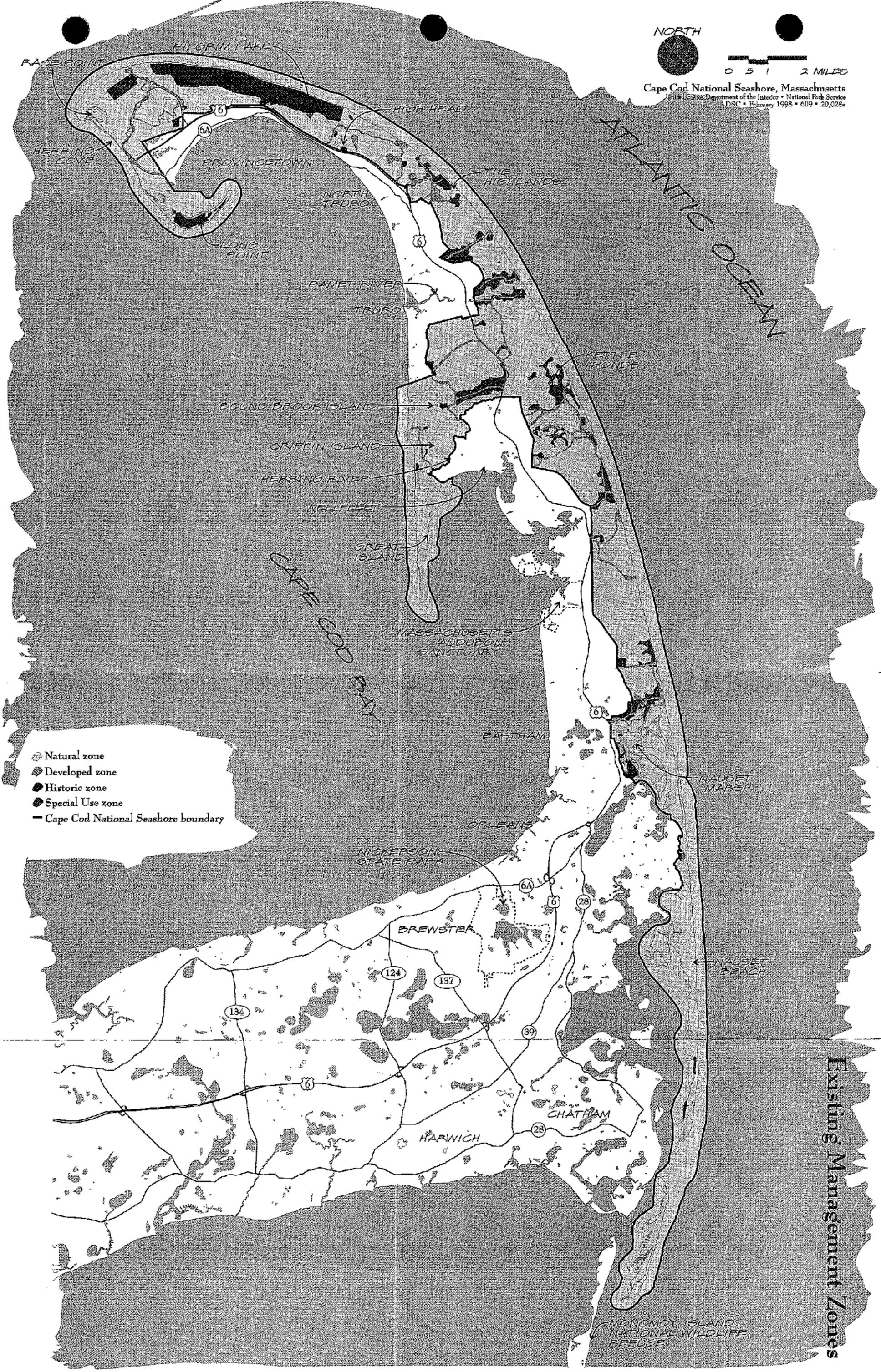
Land Use

ON MICROFILM

NORTH

0 5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,028a



- Natural zone
- Developed zone
- Historic zone
- Special Use zone
- Cape Cod National Seashore boundary

Existing Management Zones

ON MICROFILM

ALTERNATIVE 2 — PROPOSED ACTION

The intent of alternative 2 is similar to that of alternative 1 — balancing resource protection with public use. However, in alternative 2 there would be more emphasis on collaborative stewardship of resources to help preserve the “timeless” character of Cape Cod in terms of the natural, dynamic landscapes; historic and rural landscapes and architecture; and longstanding lifestyles and heritage. New management actions are proposed, and more emphasis would be placed on working closely with local communities and officials to more effectively meet the national seashore’s management philosophy and objectives, and to more successfully address problems and concerns with the local communities.

NATURAL RESOURCES

AIR RESOURCES

- ◆ **GOAL: Engage in cooperative regional efforts to improve air quality.**

STRATEGIES: *Research and monitoring programs* — The National Park Service would continue cooperative efforts with the Massachusetts Department of Environmental Protection, the Environmental Protection Agency, and other agencies to expand research and monitoring programs, including the effect of air pollution on relevant natural and cultural resources. The Park Service would also work to help develop emission control strategies for reducing existing air quality problems at Cape Cod and preventing future occurrences.

Biological effects of air pollution — A program for monitoring the biological effects of air pollution would be developed. Seashore staff, in conjunction with NPS and other experts, would determine which plant and animal species could be used as indicator species.

Air quality impacts from within the national seashore — Means to reduce impacts could include using cleaner means of transportation (such as propane or electric powered vehicles) and converting existing facilities to alternative energy sources. Temporary air quality impacts of prescribed burning would be considered in accordance with the approved *Fire Management Plan* (see discussion under “Vegetation,” page 72).

Regional air quality partnerships and class I status — To reduce threats to seashore resources and human health, the National Park Service would participate in regional air quality partnerships in Massachusetts and other states. Such participation could include requests for involvement in emission permit reviews, rule making, and planning related to air quality to reduce threats.

To ensure the highest possible protection for natural and cultural resources, the Park Service would cooperate with the Environmental Protection Agency, residents, and businesses, to request the state to consider redesignating Cape Cod National Seashore as a class I area instead of a class II area. This would strengthen the ability of the Park Service to influence air quality emissions on a regional level. Under class I status continuous efforts must be made to maintain a specific standard of air quality at the national seashore, in accordance with the Clean Air Act.

The CLEAR initiative — Cape Cod National Seashore would participate in a program known as A Clearer Look at Eastern Air Resources (CLEAR). This program emphasizes cooperative efforts by local, state, and federal agencies to minimize air pollution impacts on natural and cultural resources, to protect public health, and to enhance public enjoyment.

Public reporting — When air pollution episodes exceed state or federal health standards, visitors would be advised of potential health risks.

COASTAL PROCESSES

- ◆ **GOAL: Allow natural shoreline processes to take place unimpeded, while also counter-acting human-caused disturbances.**

STRATEGIES: *Inlet formation, overwash, dune migration and formation* — The following criteria would determine the response to inlet formation, overwash, and dune migration and formation:

- Allow all overwashes and blowouts to occur without human disturbances, except for minor intervention, such as sand fencing and dune grass planting where there is evidence of human-induced impacts, with consideration of public safety.
- Prevent artificial beach nourishment on NPS land, and discourage beach nourishment on town and private land within the national seashore.
- Prevent revetment of marine scarps on NPS land, and discourage such activities on town and private land within the national seashore.
- Monitor inlet formations, overwash, and dune migration and formation, and initiate follow-up actions on a case-by-case basis.

Where town and private lands are involved, the national seashore would assist in scientific analysis to plan ahead for natural shoreline changes that might affect public and private facilities or interests. Analysis could include participation in evaluating the problems, conducting research and predictive modeling, developing a full range of options, and generating possible mitigating actions. Where beach nourishment or revetment construction occurred on town or private land, the National Park Service would work actively to minimize adverse effects on federal property and national seashore resources by attempting to influence the design and management of the project and its mitigations.

Beach nourishment activities — Staff at the national seashore, in consultation with staff of the Massachusetts Office of Coastal Zone Management, would develop a policy statement clarifying the NPS position on discouraging beach nourishment activities within the national seashore. This statement would be developed as part of a cooperative program with other national park system areas along the Atlantic seaboard. The rationale for discouraging such actions, in accordance with NPS and seashore policies, would be explained. Additionally, the National Park Service would continue to discourage the deposition of dredge spoils on town and private lands within the national seashore, and it would not allow such deposition on NPS lands due to the level of interference with natural coastal processes.

Sand fencing and dune grass planting — In allowing natural shoreline processes to occur, the use of sand fencing and dune grass planting to protect NPS property would be minimized as much as possible. Such minor intervention would be used to counteract human disturbance. The National Park Service would also encourage judicious use of these mitigation methods on municipal and private lands.

Coastal facility maintenance in stable areas — Where coastal systems are in equilibrium, some minor actions could be taken to cost-effectively manage nuisance sand. Examples include moving sand that has shifted from one side of a parking lot to another, or moving sand from one parking lot to another in the same geologic sand transport system or zone. No habitat alteration would be permitted, and there would be no attempt to interfere in a progressive coastal erosion situation.

The maintenance of developed facilities and hardened surfaces in stable coastal areas, such as Herring Cove Beach, would continue unless catastrophic damage occurred that required capital replacement (also see the Herring Cove beach discussion in "Public Use: Activities, Facilities, and Services," page 93). At that time alternative design, siting, and management

approaches would be developed in consultation with affected towns.

Facilities/cultural resources threatened by coastal erosion in progressive erosion areas — Whether to move or rehabilitate facilities and cultural resources that are seriously threatened or damaged by coastal erosion or storm events would be decided on a case-by-case basis, using consistent criteria and in consultation with affected towns. No relocations would be allowed that would affect or would be sited in sensitive resource areas. Facilities in the coastal flood hazard area, which is directly subject to severe wind and wave action, would be relocated or moved back from the coastal bank or hazard area. When deciding whether to relocate, rehabilitate, redesign, or remove facilities, buildings, bathhouses, access points, and other developments within coastal areas and on seashore beaches, the following questions would be considered:

- Is the facility serving a core public use or park management function? Can this function be provided at an alternative location?
- Is the facility currently preventing natural coastal process from taking place, such as coastal erosion, dune migration, sediment supply to adjacent beaches, flooding or flood protection, or vegetation succession?
- Does the facility require extensive, or beyond normal, maintenance to keep it and the surrounding environs safe and open to the public?
- Is the facility on top of, in, or encompassing sensitive resources, such as a barrier dune, wetland, coastal bank, pond, or ocean beach, or is it causing impacts to adjacent residences?
- Does the facility currently conform to relevant federal and state environmental regulatory laws?

- Is there an alternative location for the facility that would not impair public use of the beach or resource area but would reduce its environmental impact?
- Is the facility in a sustainable location in terms of (1) water use and wastewater disposal, aesthetics, and public safety; (2) its compatibility with the functioning of natural systems?

Exceptions could be considered to protect resources, such as providing boardwalks and stairs to prevent dune damage or shuttle dropoffs to reduce parking. Additionally, historic resources would be subject to other criteria (see page 79).

Alternatives to groins, jetties, revetments, or seawalls — The National Park Service would explore alternatives to prevent the construction of groins, jetties, revetments, or seawalls on all lands within the national seashore, including town and private property. Cooperative efforts would be undertaken with the Cape Cod Commission, the Office of Coastal Zone Management, the Massachusetts Natural Heritage and Endangered Species Program, and the USDA Natural Resources Conservation Service. Possible actions include designating sensitive coastal areas as districts of critical planning concern or developing a task force on coastal processes to examine this issue. Soft solutions to deal with coastal erosion, such as dune grass planting, would be emphasized on non-NPS lands.

Long-term monitoring — The purpose of a comprehensive, long-term monitoring program for shoreline processes would be to help seashore managers distinguish between natural and human-induced changes by providing a measure for change, and to make appropriate resource management decisions. A cooperative program involving private landowners and public agencies would be essential because coastal processes transcend private and political boundaries.

WATER RESOURCES

- ◆ **GOAL: Protect ground and surface water quality and quantity, as well as adjacent wetlands.**

STRATEGIES: *Implementation of the national seashore's water resource management plan* — Groundwater quantity and quality is likely to become the most important social and political issue on the Cape in the near future, as there are limited areas for developing supply wells outside national seashore boundaries. Complicating the issue is the fact that the presence of water, the ability to withdraw it, and the effects of withdrawal are not and cannot be managed strictly within administrative boundaries of landownership. Within this context the water resource management plan for the national seashore addresses the long-term management of both estuarine and freshwater resources and provides guidance on water resource issues.

Participation with regional and town water resource planning groups — An Outer Cape community-wide discussion needs to continue about how to manage groundwater resources to preserve the natural, cultural, and economic characteristics that make the Cape so special. To that end the National Park Service jointly participated in and contributed to the recent development of a coordinated regional groundwater management study for local towns. The Cape Cod Commission's 1997 *Final Report of the Lower Cape Water Management Task Force* addresses groundwater issues of regional concern and identifies and evaluates potential municipal well sites in Eastham, Wellfleet, Truro, and Provincetown. The Park Service will continue to recommend that this planning report be used as a basis for further research and development of a regional approach to groundwater management.

A professional water resource management program — The National Park Service would require expertise in both hydrology and hydrogeology for the collection and analysis of data for seashore managers and to more effectively manage water resources. This program would develop resource condition criteria affected by

potential water use in and around the national seashore. The program's goals would include: (1) establishing carrying capacities of the aquifer lenses; (2) working with the local communities regarding water supply and demands, and (3) carrying out the specific strategies outlined below.

A water resource database — In collaboration with local communities and other public agencies, a comprehensive water resource database would be developed from information collected by the NPS staff in cooperation with private landowners and others. The affected local communities and the state would be invited to help develop the components of this study, the manner of data collection, and the management of the database. Operational agreements and mechanisms to transfer funds and staff between agencies and research institutions would also be developed. An automated retrieval system for resource information from other water resource institutions using technologies such as Internet would be developed, and all accumulated information would be made available to the affected communities on a periodic basis. Expertise in database management would be required to support the inventory and monitoring program.

Water quality criteria and limits of acceptable change — Together with the Cape Cod Commission (or a similar regional agency) and the U.S. Environmental Protection Agency, the U.S. Geological Survey, the Massachusetts Department of Environmental Protection, and the towns, the National Park Service would cooperate in identifying and defining resource-specific water quality standards and limits of acceptable change. Based on appropriate scientific data, monitoring would ensure that these natural resource standards and thresholds were not compromised.

Existing authority for water use — Currently, the National Park Service has very limited authority to provide water, or any other resource, to non-NPS entities. In conformance with NPS Special Directive 78-2, the Park Service could consider a temporary, short-term sale or lease of water from inside a unit of the national park

system to a non-NPS entity, but only if the following conditions were met:

- The entity provides services of direct or indirect benefit to the park unit or park visitors.
- There is no reasonable alternative water supply available.
- The effects on the park's environment, administration, management and protection, and visitors have been examined, and these effects have been determined to be acceptable.
- The water use is in accordance with laws and regulations governing ownership and use of federal water and rights.
- The government would recover the full cost of providing the water.
- The arrangement has been reviewed in Washington.
- The use is for a short time (one year or less), is revocable, does not convey permanent rights, and is conditioned to allow NPS review of planned development by the applicant that would increase water demand.

The National Park Service would consult with other federal and state agencies and local communities to determine the options and alternative water supplies in deliberating on any proposal for a temporary, short-term sale or lease of water.

New approaches to the withdrawal of water from inside the seashore — The merits of the National Park Service providing groundwater to towns through an exchange of rights and working with towns to develop water conservation measures and growth controls would be studied. Hydrological circumstances may exist that favor the use by municipalities of water withdrawn from within the national seashore. Specifically, if municipalities near the seashore develop their groundwater resources on lands immediately outside the seashore, then it is possible that seashore water-dependent resources could be

injured. The Park Service is gathering scientific information about the effects of groundwater pumping to determine if town water supply wells on municipal lands adjacent to NPS property (both inside and outside the boundaries) are adversely affecting seashore resources or could do so in the future.

In accordance with the National Environmental Policy Act, an environmental review would be necessary to identify municipal well sites that would be most protective of national seashore resources and values. This document would also analyze environmental consequences, including but not limited to impacts on vegetation, wildlife, and other freshwater-based resources, as well as surrounding well water quality. The Park Service would determine whether there was a benefit to seashore resources from allowing water withdrawal within the boundary (thus avoiding or significantly reducing the impacts of groundwater withdrawal outside but near seashore lands, which could ultimately have greater adverse effects on national seashore resources than withdrawal from within seashore boundaries). As stated above, the National Park Service currently has limited administrative authority. If allowing a water withdrawal within the boundary appeared beneficial, then a long-term legislative or administrative solution would be sought. A solution would have to include an extensive monitoring program to identify any unforeseen adverse impacts so that withdrawal provisions could be adjusted and other mitigations required if necessary.

Private septic systems — Research would be conducted to identify the impacts of private septic treatment systems on seashore wetlands, ponds, and estuaries, and alternatives to mitigate impacts would be developed. Alternatives might include encouraging private landowners to use alternative wastewater treatment procedures.

Nitrate contamination — To limit nitrate contamination of bays and estuaries, as well as of freshwater wetlands and ponds, all NPS septic treatment facilities would be upgraded to remove nitrates from the waste stream. Public septic facilities adjacent to sensitive resources,

such as the Salt Pond visitor center, would be upgraded first, followed by facilities for NPS housing within the seashore (also see septic system discussion in the "Utilities" section, page 108). The contribution of town and private septic systems would also be evaluated, as necessary.

Alternative potable water sources and wastewater treatment techniques — For NPS facilities other potable water sources and wastewater treatment techniques (including graywater management) would be developed, with a public demonstration project at the Salt Pond visitor center to showcase sustainable practices to the public (also see the "Utilities" section, page 107).

Wastewater treatment facility outfall pipe — National seashore managers would work with other interested parties on Cape Cod to provide feedback to the Massachusetts Water Resources Authority concerning the discharge permit and other permits for the wastewater treatment facility outfall pipe. The treatment facility is planned in part to address the cleanup of Boston Harbor; however, the outfall pipe has the potential to adversely affect Cape Cod Bay. The National Park Service would work with the Cape Cod Commission, the towns, and others to raise concerns regarding the assessment and mitigation of project impacts, including establishing an environmental baseline to determine if and when there are changes; monitoring nutrients, water temperature, toxics, and toxins or viruses; and preparing a contingency plan in the event of adverse impacts, with a commitment to timely mitigations.

Improper drainage remediation — Road and parking lot runoff that creates point-source water pollution would be corrected. The National Park Service would work with the Massachusetts Highway Department, towns, and private individuals, as necessary. Various drainage solutions would be applied to improve water quality at ponds and wetlands, and as water flows into the bay and the ocean.

Wetlands protection — The national seashore would continue to consult with town conservation commissions and the Massachusetts Department of Environmental Protection (in accordance with the Massachusetts Wetlands Protection Act) to review federal projects affecting wetlands, dunes, and the coastal bank. This consultation is required by the Clean Water Act. The national seashore would also respond to requests to review projects proposed by adjacent landowners and requiring variances from the state's Wetlands Protection Act.

Kettle ponds — The present kettle pond monitoring program would be reviewed and improved, and specific resource management plans would be developed for all ponds in the national seashore, in cooperation with towns and landowners, the county, and the state. Ponds with similar features, or those near each other, would be managed in a consistent fashion. Clusters that could be managed include those around Duck Pond, Gull Pond, Slough Pond, Snow Pond, and Spectacle Pond. Management plans would include strategies to reduce recreational use impacts (for example, using no-flush toilet systems, or hardening access to shorelines).

Aquaculture — The effects of aquaculture on marine resources (including water quality) would be researched, and monitoring procedures would be developed. (Also see the description of aquaculture under "Vegetation and Wildlife," page 73).

Offshore activities and incidents — In accordance with applicable regulations, the National Park Service would work cooperatively with state agencies and towns to monitor, respond to, and regulate offshore activities and incidents that occur within the national seashore boundary (which migrates with shoreline change at a quarter mile offshore) and that could affect seashore resources.

◆ **GOAL: Restore the natural hydrography and ecology of estuaries in consultation with affected municipalities.**

STRATEGIES: Salt marsh restoration at Hatches Harbor — The salt marsh at Hatches Harbor would be restored incrementally to ensure that restoration would not cause unforeseen adverse effects. The restoration work is subject to a memorandum of understanding with the town of Provincetown that details the development of a long-term cooperative arrangement for incremental restoration and ensuring no adverse impacts on the airport. Monitoring before and after each restoration step would document changes. Any alterations in the restoration process needed to deal with unforeseen effects would be determined by a review committee composed of representatives from the airport commission, the Federal Aviation Administration, the national seashore, and other interested parties.

This project would require continued coordination with various private and public entities, along with extensive outreach, and continued ecological monitoring. The reversion from a freshwater marsh back to a salt marsh system would be designed so as to still provide storm and tidal flooding protection for Provincetown Municipal Airport. Restoration work at Hatches Harbor has been proposed since 1986; a separate environmental assessment for this project is now being prepared.

Salt marsh restoration at Herring River — Restoration would increase fish nursery and breeding habitat, improve water quality, and decrease herring kills and other aquatic problems. It would also address the reestablishment of herring runs, as well as protection issues for existing land uses partially located in the floodplain. The restoration project would be based on past extensive studies of the hydrology, biology, and chemistry of this system, and it would be coordinated with the town of Wellfleet, state and federal agencies, fishermen, adjacent private landowners, and the community golf course. An environmental assessment would be prepared, required regulatory clearances would be ob-

tained, and any necessary mitigation measures and monitoring would be identified.

Pamet River restoration — The Pamet River restoration project would respond to (1) existing problems in the Pamet River system shared among the town, the national seashore, and numerous private property owners, and (2) a desire to improve the ecological balance in areas affected by the artificially diked system. The natural drainage and waterflow of the Pamet River would be studied to understand its current condition and to determine the interactions of freshwater, groundwater, and saltwater in the river system. Concerns regarding saltwater reintroduction would be addressed, including impacts to private wells, and an analysis of biological and physical changes from extending tidal flow into freshwater areas. Complete saltwater restoration is not proposed throughout the entire Pamet River valley because it is precluded by existing roadways and development.

Pilgrim Lake — Pilgrim Lake is a coastal lagoon that functioned until 1868 as a tidal estuary and salt marsh system that was connected to Cape Cod Bay by an inlet; original tidal flow has been eliminated. The ecology of Pilgrim Lake would be studied to determine how to restore the lake to a more balanced hydrological state. Concerns to be addressed include continuing experiences with algal blooms, fish kills, and insect outbreaks, and the feasibility of returning Pilgrim Lake to a more natural tidal system.

VEGETATION AND WILDLIFE

◆ **GOAL: Manage native biotic resources by allowing natural processes to continue unimpeded except where appropriate to selectively manage for native biological diversity or rare, threatened, or endangered species or communities.**

STRATEGIES: Vegetation and wildlife database — A comprehensive database for plants and animals would be developed. Inventories of fish, invertebrates, and small mammals would be conducted to augment existing inventories for

other groups. National seashore staff would consult with local experts and others. Based on this information, a long-term monitoring program would be established to help seashore managers understand the differences between natural and human-induced changes and to make appropriate resource management decisions. Collaboration with affected communities would occur as needed.

Species listed by the state or federal government as endangered, threatened, or of special concern

— The National Park Service would ensure that national seashore management is consistent with the protection of rare, threatened, or endangered species listed by or proposed for listing by the state or federal government. In accordance with the Endangered Species Act and NPS policies, the National Park Service would work with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Massachusetts Natural Heritage Program, towns, and groups such as the Native Plant Conservation Program to protect and manage such species. Where information was available, work would be undertaken to restore native species lost because of human intervention. State authorities would be regularly contacted to update inventory lists and to consult on all activities that might affect state-listed species.

As needed, special management plans would be prepared for listed and proposed species. These plans would include assessments of existing and proposed management actions as they might affect a species. Species listed by the state or federal government would be protected at a similar level throughout the seashore, regardless of management zone. To protect or manage listed threatened or endangered species, human access would be maintained to the extent possible for an area and would be consistent with the management needs for that species.

Fire management — In accordance with the national seashore's approved *Fire Management Plan*, the natural role of fire would be researched and then restored or simulated in fire-dependent ecosystems and in selected areas using prescribed burning techniques. Prescribed burning

could also be a useful management tool to maintain or restore cultural landscapes. Reintroducing the role of fire would only be done in areas where feasible, considering political, social, and environmental restrictions. Fuel levels around identified NPS structures would continue to be reduced. Prescribed burning would only be carried out under favorable atmospheric conditions. Fire and other sand roads would be maintained to varying levels to provide access for fire suppression.

Heathlands — The Park Service would develop management plans for heathlands, which are relatively rare in the United States and restricted throughout the world. Such communities would be preserved in various locations for their contribution to global biodiversity and to perpetuate the quality of open moors for cultural and aesthetic enjoyment. Because heaths are caused by natural disturbances such as severe storms or fire, or from intense human activity, the locations of heathlands may change over time as existing areas naturally succeed to other communities and new disturbances create heaths in other areas. Vegetation management techniques, including the use of controlled burning, could be employed to retain heath communities in selected areas.

Restoring native habitats and revegetating disturbed areas — National seashore managers would engage in revegetation and soil stabilization projects to prevent or correct resource degradation. Vegetation management would include the planting of native species for erosion control, wildlife habitat, and the mitigation of impacts from construction projects and public use. The USDA Natural Resources Conservation Service would continue to work with the national seashore to collect and propagate native plant species.

Nonnative species management — A comprehensive management program for nonnative species would be developed based on studies of the abundance, distribution, and potential impacts of nonnative species on native biota and natural processes. Some nonnative species might be controlled or eliminated (for example, inva-

sive nonnative species that threaten native species or habitat). Native species would be used in all NPS revegetation and development projects, and owners of improved properties and seashore neighbors would be encouraged to reduce the use of nonnative varieties that could have long-term adverse effects on seashore resources. One method to help control nonnative species would be to provide educational programs in the community and to distribute research results. In addition, the Park Service could recommend native species to be sold in local nurseries for use by residential property owners and seashore neighbors.

Required expertise — To accomplish vegetation and wildlife management programs, the national seashore would need expertise in aquatic ecology, terrestrial ecology, and wildlife biology.

◆ **GOAL: Manage special uses affecting wildlife populations and other biotic resources to minimize ecosystem impacts and to sustain natural processes.**

Shellfish aquaculture activities within the national seashore — As an upland landowner, the National Park Service would cooperate with state agencies and local towns on shellfish aquaculture activities within the national seashore. Shellfish aquaculture uses of tidal flats within seashore boundaries would be supported if the customary low technology and dispersed character of small shellfishing grants for individuals and families were maintained, and if cultural patterns of use and enjoyment were sustained, as long as marine biodiversity was safeguarded.

The Park Service would research and monitor the potential effects of shellfish aquaculture activities on the health of native species, marine systems, and genetic diversity. As an upland landowner, the Park Service would also provide technical input to town shellfish officers regarding the municipal issuance or renewal of shellfish aquaculture grant permits within national seashore boundaries. Issues to be addressed would include maintaining the genetic

integrity of wild shellfish beds and limiting pollutant discharges into bays and estuaries.

Because the National Park Service has a responsibility as an upland owner, when national seashore managers are approached to evaluate aquaculture activities, they would consider the following:

- species proposed — native species would be preferred over the introduction of exotic species or species not normally found in the habitat proposed for aquaculture use
- potential impacts of increased aquaculture development on marine systems and other environmental, recreational, and aesthetic impacts
- considerations of the density of aquaculture use in balance with other values of the tidal flats and coastal area

Finfish and aquatic plant aquaculture — Finfish and aquatic plant aquaculture, including such technologies as floating pens, would be reviewed and allowed within national seashore boundaries if the proposal (1) was compatible with current uses and values of the specified area, (2) would maintain marine water quality, (3) would not involve the introduction of any kind of exotic species or native species not normally found in the habitat of the project area, or (4) was for research or other noncommercial purposes (due to strict congressional control over commercial activity in units of the national park system). In the case of any viable finfish aquaculture proposals, the project proponent would be required to fully analyze the environmental effects of the proposal in accordance with the National Environmental Policy Act before a decision would be made by the National Park Service regarding its appropriateness. The Park Service would cooperate in defining what information might be needed to evaluate the proposal. The applicability of any appropriate deed restrictions or federal and state regulations would be considered.

Stocking and reintroduction programs — A consistent policy toward stocking programs for hunting and fishing would be developed in cooperation with the Massachusetts Division of Fish and Wildlife. The use of native species would be encouraged in such programs.

Hunting, fishing, and shellfishing — Hunting and fishing within the national seashore (focusing on native species) would be allowed at levels compatible with the purposes of the seashore and with sustainable populations and ecosystems. Efforts would be made to minimize conflicts with other visitor uses and private property. Public safety would continue to be addressed by use area designations, patrols, and other monitoring techniques. Habitat would not be altered merely to support game animals. Shellfishing activities would not be altered by the proposed plan; they would continue to be managed by the state and local communities.

Pest management — A comprehensive pest management program would be developed to control nuisance insects and other pests by using environmentally sensitive solutions that would protect important resources. Pest species, such as brown-tailed moths and mosquitoes, would be defined in accordance with NPS policies (also see the glossary). Pest-control methods are always to be the least toxic, use the minimal amount needed, and must be targeted at a specific pest without harming other plant or animal species. An educational program would be developed to explain to the public what a pest species is and why an integrated management approach is needed.

To ensure a healthy aquatic ecosystem, the Park Service would work with the state's Cape Cod Mosquito Control District and the Cape Cod Cooperative Extension (through the University of Massachusetts) in developing appropriate responses and techniques to respond to nuisance insects affecting visitors and neighbors of the national seashore. The need to cooperatively reduce adverse effects of nuisance insects and their management methods would be emphasized.

CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

- ◆ **GOAL:** In concert with local communities, explore, define, and maintain the components of the distinctive cultural heritage and pattern of human activity that make the character of Cape Cod unique.

STRATEGIES: Customary activities — The National Park Service would encourage participation in customary activities, including, but not limited to, beachcombing, driftwood collecting, berry picking, mushroom harvesting, shellfishing, fishing, and contemplative activities. These uses would continue, subject to applicable federal, state, or local regulations.

Consultation with cultural groups — Cultural groups on Cape Cod would be consulted for input on cultural heritage and landscape preservation. Specifically, Native Americans would be consulted to assist in identifying sacred sites, in accordance with the Native American Graves Protection and Repatriation Act. Informal consultations on cultural landscapes and areas of potential archeological sensitivity could also occur.

Significant or important themes, patterns, and sites associated with cultural groups — Additional significant or important themes, cultural patterns, and sites associated with Native Americans and a broad variety of other ethnic and cultural groups with both historical and contemporary associations with the Outer Cape would be explored. A formal study would be initiated, which would begin with the identification of associated ethnic and cultural groups. This would build on the preliminary ethnographic study.

Significant ethnographic resources — National seashore managers and local communities would undertake collaborative efforts to define and preserve distinctive cultural heritage and significant ethnographic resources. This would include exploring the first-hand experiences and knowledge of local residents, combined with abilities in cultural resource documentation.

In collaboration with local communities and residents, a systematic, in-depth documentary study of the material and expressive cultural aspects of the peoples of the Outer Cape would be conducted to gain a better understanding of what to preserve and foster within Cape Cod National Seashore. Specialists in this field would be engaged to work with individuals and entities who have expertise in regional history and culture or who have personal experience as long-time residents of the Outer Cape. Folklife fieldworkers could document the full seasonal round of activities. Peer scholarly review would ensure objectivity in evaluating the recommended content of interpretation and preservation in park programming. Research projects would include members of the Outer Cape communities to provide input and feedback on study elements and products.

◆ **GOAL: Develop programs and actions that nurture and celebrate the culture of the Outer Cape.**

STRATEGIES: *Cooperative preservation of the Cape Cod cultural heritage* — In accordance with the National Historic Preservation Act, as amended, NPS staff would work with local entities to preserve and conserve the intangible elements of their cultural heritage, such as arts, skills, folklife, and folkways. These elements are a living expression of the cultural heritage of the Cape and part of the American heritage. National seashore staff would engage in the following types of actions to ensure the preservation and celebration of local culture (also see "Public Use: Interpretation and Education," beginning on page 87).

- Provide for public benefit education about cultural heritage on the Outer Cape.
- Contribute to telling the story of the local culture of the Outer Cape, in cooperation with local governments, entities, and individuals.
- Assist in identifying, gathering, and preserving material resources, such as significant ethnographic sites, historical records, artifacts, and objects associated with local culture on the Outer Cape.
- Assist in conserving and celebrating distinctive forms of cultural expression of the peoples of the Outer Cape, including (but not limited to) language, performing and written arts, crafts, folklore, folkways, and occupations.
- Provide opportunities for local people to deliver interpretive programs, which convey information on the Outer Cape's ethnographic resources.
- Develop the Highlands center for the arts and environment at the former North Truro air force station as a venue for cultural heritage on Cape Cod.

CULTURAL LANDSCAPES

◆ **GOAL: Identify, manage, and maintain cultural landscapes that are on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: *Significant cultural landscapes* — In accordance with section 110 of the National Historic Preservation Act of 1966, as amended, all significant cultural landscapes at Cape Cod National Seashore would be identified, surveyed, and nominated to the National Register of Historic Places, if eligible.

Landscape restoration and maintenance — A plan based on cultural landscape reports would be prepared to preserve or maintain significant

landscapes, to maintain site integrity, and to support interpretive and resource management programs. The plan would provide for the implementation of recommendations of cultural landscape reports, including landscape restoration and maintenance treatment at Fort Hill.

Partnerships for landscape preservation and maintenance — Cooperative agreements and relationships would be encouraged with volunteers, universities, and partner organizations, such as the Friends of Cape Cod National Seashore, to foster landscape preservation and maintenance.

Historic uses of landscapes — Reestablishing historic uses (such as agriculture) of selected significant cultural landscapes would be considered to maintain features that define the character of these landscapes. The Natural Resources Conservation Service has offered assistance with landscape conservation planning at historic agricultural landscapes within the national seashore; this may include the Fort Hill and Pamet bog areas (see discussions of site planning for these areas in the "Activities, Facilities, and Services" section, beginning on page 91.)

Integrated management of cultural landscapes and natural areas — Cultural landscapes and their associated historic buildings and natural areas would be managed as an integrated whole. The intent would be to coordinate natural and cultural resource management policies, such as the potential use of prescribed burning at Fort Hill to control weedy growth and to perpetuate an open farm landscape.

Consultation with Native Americans and cultural groups — Cultural groups on Cape Cod would be consulted for input on cultural landscape preservation. Native Americans would be asked to help identify sacred sites, in compliance with the Native American Graves Protection and Repatriation Act. Also, Cape Verdeans would continue to be consulted about the Pamet cranberry bog. Informal consultations on cultural landscapes could also occur.

Researching the effects of natural succession — Research would be conducted to understand and predict how natural succession of vegetative communities would affect cultural landscapes. The findings would be used to determine effective protection measures for landscapes.

The dune shacks of the Peaked Hill Bars Historic District in the Province Lands — The landscape encompassing the dune shacks would be preserved as a setting associated with the humanities and the arts. As the determination for the National Register of Historic Places states, "the dune landscape, as the source of natural beauty and artistic inspiration, is the linchpin of the district's cultural importance." This strategy would be achieved by continuing to perpetuate the dune shacks' use as a remote, inspirational retreat. Historic property leasing (or a combination historic property lease and concession operation, see page 95) for residential use, and cooperative agreements for artist-in-residence programs consistent with the historical uses of the shacks, would be considered. These options would provide for use by a variety of public and private individuals and organizations. Individuals in the artists program would be asked to share their works with the public as a way of interpreting the shacks without disturbing the setting.

Leasing of historic properties with cultural landscapes — To assist in the long-term preservation and maintenance of significant cultural landscapes, leasing agreements would be explored with municipalities, charitable organizations, local groups, and individuals.

The identification and preservation of cultural landscapes on improved properties — NPS guidelines would be developed to help identify and preserve significant cultural landscapes on improved properties in cooperation with national seashore interpreters. These guidelines would focus on design, materials, and environmental circumstances, and they could be applied on a case-by-case basis.

Cultural landscapes on historically significant improved properties — The Park Service would

work with owners of historically significant improved properties and offer technical assistance for sensitive preservation. The intent would be to cooperate in the preservation and protection of cultural landscapes.

- ◆ **GOAL: Interpret cultural landscapes to educate the public about their significance and to solicit public assistance in preservation efforts.**

STRATEGIES: Partnerships for interpretation — Volunteers-in-the-Parks would continue to interpret cultural landscapes. To build stronger partnerships for interpreting cultural landscapes, the Park Service would encourage cooperative agreements and relationships with volunteers, universities, and partner organizations.

Techniques for cultural landscape interpretation — Cultural landscapes would be interpreted through wayside exhibits, guided walks, talks, brochures, and publications.

Expertise required — Interpretive staff would also be increased to improve the interpretation of cultural landscapes for the public. As explained under "Historic Architecture," staff expertise would be required to coordinate, train, and supervise volunteer groups.

- ◆ **GOAL: Promote and cooperate with local groups and organizations dedicated to protecting and preserving the Outer Cape's cultural landscapes.**

STRATEGIES: Cooperative protection of cultural landscapes on the Outer Cape — The National Park Service would seek to work with public and private landowners and land managers to help protect cultural landscapes outside national seashore boundaries.

Helping protect the historical integrity of cultural landscapes on the Outer Cape — To help define Cape Cod's historical integrity and character, the Park Service would advocate and provide technical support to historical commissions and

societies to complete an inventory of all cultural landscapes on the Outer Cape.

Preservation strategies — The Park Service would offer to help communities and local groups document and preserve significant cultural landscapes. These techniques could include the creation of historic districts or the publication of restoration guidelines.

HISTORIC ARCHITECTURE

- ◆ **GOAL: Manage and maintain buildings and structures on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: Significant historic structures — In accordance with section 110 of the National Historic Preservation Act of 1966, as amended, the National Park Service would strive to protect all known historic structures within national seashore boundaries until they were fully evaluated for eligibility to the National Register of Historic Places. As time passes, buildings that are not now considered historic might need to be reevaluated, and if determined eligible, they would be nominated to the national register.

Priorities for the use and treatment of federally owned historic buildings — The following categories for the use and treatment of federally owned historic structures would be established:

- (1) Buildings to be interpreted for visitors by the National Park Service or through use agreements:
 - Atwood-Higgins complex (nine buildings)
 - Bog house
 - Cohen dune shack
 - Highland House museum
 - Highland Light
 - Old Harbor Life-saving Station
 - Margo dune shack
 - Nauset Light
 - Edward Penniman house and barn
 - Three Sisters Lights

- (2) Buildings needed for NPS administrative purposes (including employee quarters):
- Adams house
 - Beacon cottage (Slade house)
 - French cable hut
 - Henry Gray (LeHac) house and garage
 - Nauset Coast Guard station (both buildings)
 - Race Point Coast Guard station (four buildings)
- (3) Buildings available for the historic property leasing program or concession contract administration, which would allow public stays in the dune shacks:
- Ahearn house
 - Bratten dune shack
 - Fleurant dune shack
 - Jedediah Higgins house
 - Jones dune shack
 - Samuel Rider house, two outbuildings, Dyer barn
 - Schmid dune shack
- (4) Eleven dune shacks (and seven outbuildings) are still subject to life estates or use-and-occupancy reservations. When available, each would be assigned to either category 1 or 3.
- (5) Three lighthouses and five lighthouse-related buildings in Provincetown are owned by the U.S. Coast Guard and listed on the national seashore's list of classified structures. The Park Service would continue to encourage the consistent use and treatment of the structures by the Coast Guard and its cooperators. Future transfer by the Coast Guard may be anticipated.

Treatments for historic buildings would include preservation and rehabilitation (see glossary). Exterior preservation or restoration for most buildings, and interior rehabilitation treatments for some buildings, would be undertaken; full restoration or minimal stabilization treatment would only be used as necessary. Those historic

buildings that were adaptively used would be rehabilitated, but the actions would be reversible. The highest priority would be to preserve and maintain those historic structures that best exemplify the character of the Outer Cape. Efforts to maintain or improve the condition of historic buildings within the national seashore would continue, in accordance with new servicewide goals, such as pursuing increases in appropriations for preservation efforts, staffing, and other creative solutions.

Historic structure maintenance plan — A maintenance plan for long- and short-term preservation and protection needs for federally owned historic structures would be prepared. This would serve as a condition assessment and preservation guide. Uses, funding, and personnel requirements for maintaining individual buildings would be determined.

Consultation with the state historic preservation officer — The National Park Service would continue to work with the Massachusetts Historical Commission and the state historic preservation officer to review federal actions that have the potential to affect properties eligible for the national register.

Public partnerships for resource stewardship — Partnerships would be developed with volunteers, local historical commissions and societies, and partner organizations for cooperative programs and the care of historic properties. For example, caretaker opportunities could be created for historic properties. Caretakers would be generally required to make minor repairs, maintain the grounds, and protect the resource. Staff support for the increased use of volunteer services would be required.

Adaptive uses of historic buildings — Adaptive uses of federally owned historic buildings would be allowed through long-term leases. The intent would be to foster a greater appreciation and understanding of various facets of Cape Cod's history, and to ensure the protection of historic buildings and their settings. Agreements would be explored with municipalities, local groups, and individuals to use historic resources for such

purposes as historical society museums, educational programs, and housing. Maintenance agreements would meet NPS standards. However, the Park Service, would consider the interpretive potential and the need to allow public access to historic structures before deciding whether to allow adaptive uses.

Historic structures on improved properties — Historic structures on improved properties that should be maintained and preserved because they contribute to the distinctive architectural style and setting of Cape Cod would be identified by the Park Service in cooperation with local entities and owners.

Historic preservation easements — To further protect the historical scene, the national seashore's *Land Protection Plan* would be revised to allow the acceptance and management of historic preservation easements (e.g., facade easements), when feasible and where historic preservation provisions are not included in town bylaws. Easements could be donated or purchased by historical associations, or a special fund could be developed to allow easement purchases.

Historically significant improved properties — The National Park Service would take an active approach to preserving historically significant improved properties. Techniques to protect such properties could include

- developing preservation agreements and strategies with private owners, including seeking deed restrictions to support historic preservation and limit inappropriate development
- identifying private individuals and preservation groups to purchase properties
- providing technical assistance in support of historically sensitive rehabilitation to protect the integrity of historic buildings
- establishing partnerships with organizations, such as local historical commissions and societies and the Friends of Cape Cod

National Seashore, for developing a grant and loan program to help protect and maintain the historic appearance and architectural integrity of buildings

Historic structures threatened by natural coastal processes — What to do with historic structures threatened by natural coastal processes would be determined on a case-by-case basis. Each threatened property would be evaluated and ranked on the basis of its uniqueness and prevalence within a historical Cape Cod context. Especially unusual or historically important structures that were threatened would be relocated if the following criteria were met (more common structures would be documented and allowed to be lost to natural processes or removed):

- A suitable relocation site is available that would preserve the building's physical context.
- Relocation would fulfill a compelling visitor or other national seashore operational need that could not be met elsewhere.
- The action would be financially feasible and cost-effective.
- Funding would be available.

Expertise required — Expertise in the following fields would be needed to ensure compliance with section 106 of the National Historic Preservation Act, to monitor the historic building maintenance program, to update the national seashore's *Resource Management Plan*, and to provide input for interpretive programs: history, historical architecture, architectural conservation, architectural history, historical landscape architecture, cultural geography, and exhibits. Continued support would be needed from the Building Conservation Branch of the NPS Northeast Cultural Resources Center and from the Olmsted Center for Landscape Preservation.

- ◆ **GOAL: Interpret historic structures to educate the public about their significance and**

to solicit public assistance in preservation efforts.

STRATEGIES: Partnerships for interpretation — Volunteers-in-the-Parks would continue to interpret historic buildings and structures within Cape Cod National Seashore. The Park Service would also work to develop stronger partnerships and to encourage cooperative agreements and relationships with volunteers, universities, and partner organizations, including the Friends of Cape Cod National Seashore, to meet interpretive needs.

Preservation of building interiors — The interiors of selected historic buildings would be preserved or rehabilitated to improve interpretive opportunities. Exhibits, climate control, and security devices would be installed when necessary and appropriate. Tour opportunities would be increased.

Expertise required — Staff expertise would be required to coordinate, train, and supervise volunteer groups and to coordinate outreach programs. NPS staff would be added to interpret the national seashore's historic structures.

- ◆ **GOAL: Promote and encourage local groups and organizations dedicated to protecting and preserving the Outer Cape's historic buildings and structures.**

STRATEGIES: Cooperative protection of historic structures on the Outer Cape — The National Park Service would seek to work with public and private landowners and land managers to help protect historic structures both inside and outside national seashore boundaries. The intent would be to coordinate and simplify preservation activities.

Perpetuating the integrity and traditional character of Outer Cape structures — The National Park Service would work with historical commissions and societies, local groups, and communities to help perpetuate the integrity and traditional character of historic structures on the Outer Cape. The first step would be to support

the completion of ongoing inventories of historic buildings on the Outer Cape and to offer assistance in this task when requested. The intent would be to help ensure the protection, preservation, and interpretation of historic structures that are listed on or eligible for listing on the National Register of Historic Places, or that are designated as national historic landmarks or districts of critical planning concern.

Preservation strategies — The Park Service would collaborate with local communities to develop preservation strategies to help ensure that alterations to historic buildings complied with local laws and design standards established by the Cape Cod Commission or the "Cape Cod National Seashore Zoning Standards" (see appendix B) for local zoning bylaws.

Recognition of outstanding preservation efforts — In cooperation with local communities and organizations, the Park Service would recognize outstanding achievements in preserving historic structures on the Outer Cape.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

- ◆ **GOAL: Manage and maintain all land-based and submerged archeological resources that are listed on or eligible for the National Register of Historic Places.**

STRATEGIES: Terrestrial and submerged archeological surveys — Terrestrial and submerged archeological surveys would be completed in accordance with section 110 of the National Historic Preservation Act of 1966, as amended. The purpose would be to determine the extent of remains within seashore boundaries. Protection measures for archeological sites would be identified.

Significant submerged cultural resources — Submerged cultural resources would be identified in a comprehensive survey. Significant resources would be placed on the National Register of Historic Places as a district.

Cooperative survey program — The National Park Service would develop a cooperative program with the state archeologist of the Massachusetts Historical Commission and the Massachusetts Archeological Society for conducting surveys, monitoring archeological sites, and providing input for the interpretive program. Expertise in archeology would be required at the national seashore to oversee this program.

Additional protection agreements for submerged archeological resources — A joint protection strategy would be developed with the Massachusetts Board of Underwater Archeological Resources for those submerged resources whose ownership has already changed or could change in the future because of shoreline migration. The strategy would address consistent resource preservation standards for shipwrecks and other underwater archeological resources regardless of ownership. Designation of areas as state underwater archeological preserves, as allowed by Massachusetts General Laws (chapter 6, section 180, and chapter 91, section 63) would be considered to adequately protect resources.

State-owned submerged resources — The National Park Service would work closely with the state to protect submerged cultural resources in areas where the ocean floor is owned by the state and to ensure that underwater salvage operations are conducted and documented in a scientific manner. The transfer of oversight responsibility for specific submerged archeological resources would be explored, such as an individual shipwreck, in order to define a single manager for some resources and to operate more efficiently. This could also be addressed in the development of any state underwater archeological preserves.

Facilities at archeological sites — To protect archeological remains from further impacts, the National Park Service would phase out and remove nonhistoric housing and administrative facilities from known archeological sites or those discovered in the future (such as at Nauset Marsh).

Consultation with Native Americans — The Archeological Resources Protection Act of 1979

requires that religious or cultural sites of importance to Native Americans be identified and protected. The Native American Graves Protection and Repatriation Act of 1990 seeks to protect grave sites and encourages the preservation in place of sites containing human remains and associated funerary objects. In accordance with these acts, the Wampanoag Tribe of Gay Head (Aquinnah), the Mashpee Wampanoag Tribal Council, and the Assonet Band would be consulted about prehistoric archeological excavations within the national seashore.

Artifact remains or sites — Employees would be trained to recognize artifact remains, archeological sites, and violations of the Archeological Resources Protection Act. An archeological interpretive program would be developed to educate the public about the importance of archeological sites and to deter looting.

Educational programs and technical assistance for improved property owners — An educational program would be developed to help owners of improved properties recognize the value of archeological resources and the need to protect them. Technical assistance would be provided to mitigate or scientifically salvage archeological resources before ground disturbance.

Archeological resources on improved properties — Easements would be sought to protect significant archeological resources on improved properties and adjacent private land when other means of protection had failed. The seashore's *Land Protection Plan* would be revised to allow the Park Service to acquire easements in the Nauset March area and other land areas containing archeological resources. This would help protect land-based archeological resources currently within the seashore boundary but not under the jurisdiction of the Park Service.

Mitigating the loss of resources — To mitigate the destruction of valuable archeological resources, the Park Service would work with local communities to develop bylaws that require archeological testing on improved properties before any construction-related ground

disturbance. These bylaws would apply to areas with a high potential for archeological resources.

Archeological resources threatened by coastal erosion — In cases where archeological resources were subject to loss due to coastal erosion, the possibility of using them for educational research and study before they were lost would be explored. Some significant archeological resources would be preserved as museum objects, while others might be lost to erosion. The development of a partnership with an educational institution for research and study would be considered. Educational opportunities and public participation would be promoted during archeological excavations on NPS land.

Partnerships for resource protection — To foster stronger partnerships to protect and maintain archeological resources, the Park Service would encourage cooperative agreements and relationships with volunteers, universities, and partner organizations, including the Friends of Cape Cod National Seashore.

- ◆ **GOAL: Interpret archeological and artifact resources to educate the public about their significance and to solicit public assistance in preservation efforts**

STRATEGIES: *Partnerships for interpretation* — To foster the interpretation of archeological and artifact resources, the Park Service would encourage cooperative agreements and relationships with volunteers, universities, and partner organizations, including the Friends of Cape Cod National Seashore.

Expertise required — Interpretive expertise in archeology would be required on the staff to provide greater oversight and opportunities to interpret archeological resources. As described under "Historic Architecture," a new volunteer coordinator position would coordinate, train, and supervise volunteer groups.

Interpreting archeological sites — Prehistoric and historic archeological sites would be interpreted in existing or new facilities and generally

without referring to site locations in order to protect sites from vandalism. Some onsite interpretation would be conducted.

Archeological excavations — Educational opportunities and public participation would be promoted during archeological excavations on NPS land.

- ◆ **GOAL: Promote and cooperate with local groups and organizations dedicated to protecting and preserving the Outer Cape's archeological resources and historic artifacts**

STRATEGIES: *Cooperative protection of archeological resources on the Outer Cape* — The National Park Service would cooperate with public and private landowners and land managers to protect archeological resources outside national seashore boundaries.

Helping protect the historical integrity of archeological resources on the Outer Cape — To identify and help protect archeological resources that contribute to the historical integrity of Cape Cod, the Park Service would support the completion of an inventory of all known archeological resources on the Outer Cape by historical commissions and societies, local groups, and communities.

Public education and resource protection programs — Public educational and resource protection programs would be developed through a collaborative approach with regional research institutions and museums.

Preservation strategies — The Park Service would offer to work with communities and local groups to develop preservation strategies to document and preserve significant archeological resources.

MUSEUM COLLECTION

- ◆ **GOAL: Protect the seashore's archeological, historic, and museum objects.**

STRATEGIES: *Preservation of artifacts and museum pieces* — Museum objects would be preserved in as stable a condition as possible, focusing on noninterventive actions such as monitoring, recording, and controlling environmental agents (light, humidity, temperature, dust, and gaseous pollutants). A building is currently being rehabilitated to provide curatorial storage for most of the collection. Sensitive items, such as scrimshaw, archival and photographic materials, and textiles would continue to be stored in existing climate-controlled facilities. Environmental climate controls would be upgraded in existing exhibit and storage areas.

Historic furnishings — Historic furnishing reports would be completed for historic buildings where historic collections are expected to be housed (for example, the Penniman house and the Old Harbor Life-saving Station). Environmental controls in historic structures would be upgraded to protect historic furnishings and museum collections housed in these structures.

Archeological artifacts — Where feasible, additional exhibit space would be dedicated to viewing and interpreting archeological artifacts.

Shelter and interpretation of the hay barge — The construction of a shelter to house and interpret the hay barge would be considered.

Scope of collection statement — The national seashore's "Scope of Collection Statement" would be updated regularly. A revised statement would be written to ensure that collections donated or purchased would fill gaps in the existing collection (for example, historic furnishings).

PUBLIC USE

INFORMATION AND ORIENTATION

- ◆ **GOAL: Provide opportunities for the public to have access to a variety of accurate and up-to-date trip planning and orientation information about the national seashore and Cape Cod before leaving home.**

STRATEGIES: *An integrated and coordinated information system* — A well-integrated, coordinated information system would be developed in partnership with Cape Cod communities and regional entities to help visitors better plan their trips before leaving home and while visiting the Cape. The system would include a unified yet diverse system of information distributed by various means. Information to potential visitors at their homes would primarily be distributed by mail, telephone, and computer, while assistance on the Cape would be available through coordinated sign, kiosk, and exhibit systems, as well as informational and educational programs. The purpose of the information system would be to provide visitors with adequate pre-trip information, as well as detailed information so visitors could make informed decisions about how, when, and where to experience the Cape. As part of the system, the following would be provided:

- **Initial information** — A cooperative effort would be undertaken with towns and other entities on the Cape to provide information to people related to services, facilities, seasonal variety, places to visit, and sensitive resources that can be affected by their activities. Off-Cape visitors would be given information about alternatives to car travel, the best access routes, alternative destinations on the Outer Cape, and shoulder season activities. Efforts would be made to make this information available to people at home as they were planning their trips. As a partner in developing a coordinated information system, the National Park Service would supply technical information to other entities about national seashore facilities and destinations. The Park Service would continue to provide

information about the national seashore by telephone and mail. Additional programs would be cooperatively developed through various online computer network systems. These programs could be flexible and respond more in depth to individual needs, including fairly detailed information about where to go and what to do. The national seashore's home page on the Internet would be frequently updated with information about access to the Cape, as well as recreational opportunities on the Outer Cape. The national seashore would work with others to minimize the duplication of information and to incorporate the information needs of others, as appropriate.

- *Arrival and local travel information* — A partnership and presence would be established at the Provincetown and Hyannis airports and ferry operations in Provincetown and elsewhere on the Cape. The national seashore would also provide up-to-date information at town and state information centers and major transportation hubs throughout the Cape. Visitor information would be publicized through displays, bulletin cases, individualized computers, brochures, and other means. Information would focus on helping people get to their destinations easily and pleasantly and to realize their vacation plans, such as where to find a particular trail or historic house, or how to find a town center or a national seashore beach facility; referrals to chambers of commerce would be made for information on commercial campgrounds, bicycle rentals, and places to stay or eat. At information areas, the seashore would take the opportunity to convey key environmental messages, such as the benefits of taking shuttles, how climbing on dunes damages plants, or how washing or bathing in ponds with soap degrades water quality.
- *Partnership and stewardship opportunities* — Partnership opportunities would be extended to area businesses that serve the public. For example, in cooperation with

local radio and cable television stations, the Park Service could provide technical consultation on informational and educational programs for Cape residents and guests at area motels. Coordinated training programs for the many providers would focus on improving the quality, consistency, and accuracy of information and orientation on Cape Cod. Public outreach would also identify volunteer opportunities for Cape residents and the general public to address national seashore stewardship needs, as appropriate.

- *National seashore visitor centers* — The Salt Pond visitor center would continue to serve as the primary information/orientation facility for the national seashore, and it would be improved for visitor use. It would also provide information on other related public educational programs and Outer Cape features open to the public. The Province Lands visitor center would provide a similar information/orientation function near Provincetown. Both centers would provide trip-planning options to offer a variety of resource-based experiences and to distribute use so as to reduce traffic, crowds, and frustration.
- *Highway and local information signs* — The Park Service would work with the Massachusetts Highway Department and others to improve informational signs along U.S. 6. These signs would help visitors find key destinations and distribute visitors more effectively to parking areas, beach access points, trails, and other use areas. The national seashore would improve its sign system by adding signs that help people find NPS sites and tell them when they have entered or left the national seashore. Signs would be designed to blend with the character of the area.

ACCESS AND TRANSPORTATION

- ◆ **GOAL: Adopt the intermodal transportation goals of the Cape Cod Commission's Long Range Transportation Plan and provide support for them.**

STRATEGIES: Cooperation with local communities — The National Park Service would cooperate in planning with local communities to provide or improve various modes of access. Even though the peak period of concern for the national seashore is the summer months, public transportation solutions that improve both seasonal and year-round options would be encouraged. National seashore managers would support local initiatives to improve transportation. For example,

- Encourage nonmotorized transportation by joining and expanding existing bike and pedestrian trail segments so that they link major destinations throughout the Cape.

- (1) The Cape Cod Rail Trail should be extended from South Wellfleet to Provincetown. The national seashore would work in collaboration with the state and the towns of Wellfleet, Truro, and Provincetown to help identify favorable routes.
- (2) Safe pedestrian/bike routes, including the construction of bicycle paths or designating bicycle routes, would be identified with surrounding communities. Bicycle routes might need to be provided along existing roadways due to environmental, political, and fiscal constraints associated with building new bicycle paths outside road corridors. Routes could be provided by widening road shoulders to accommodate bicycles; or where feasible, designating one lane for vehicles and one lane for two-way bicycle traffic could also be explored. Solutions should mitigate Outer Cape traffic problems and improve public safety. Other opportunities could be

provided by using and interconnecting existing sand roads and trails.

- (3) Foot trails could be provided along the length of Cape Cod in cooperation with Cape Cod Pathways. Trail linkages on the Outer Cape within the national seashore would be planned in conjunction with communities; connecting town centers and residential/lodging clusters to seashore attractions would be considered. Trailheads would be established at selected locations for longer trails.
- Expand shuttles and related services to encourage the use of alternative modes of transportation from town centers and other transportation facilities on the Cape, such as bus and ferry terminals and airports, in cooperation with towns and transportation planners and providers.
 - Help provide appropriately located support facilities such as secure bicycle storage, park-and-ride lots, restroom facilities, and racks for beach equipment and bicycles on shuttle buses.
 - Explore parking supply solutions that would mutually benefit the towns and the national seashore.
 - Encourage the adoption of financial incentives, such as free or reduced prices for beach access for bicyclists and walkers, so people would use alternative transportation modes.
 - Encourage or help plan safety and traffic improvements to U.S. 6, such as slower speeds, carefully located pedestrian and bicycle crossings, and turning lanes.
 - Explore interconnected shuttle loops in Provincetown/North Truro, South Truro/Wellfleet, and Eastham in cooperation with the towns, with stops at town centers, national seashore destinations, and shuttle collector lots off U.S. 6.

- Encourage municipalities to support on-demand jitney service from shuttle collector lots off U.S. 6, and work with them to engage and permit appropriate commercial businesses to provide this service.
- Encourage regional and local transportation planners and providers to increase ferry service to bayside locations, possibly including a link to the Plymouth area.

◆ **GOAL: Provide access to public use areas that is environmentally sensitive, safe, and consistent with the desired experience and the intermodal planning initiatives; ensure that the transportation system does not detract from the Cape Cod character.**

STRATEGIES: *A trail plan* — A comprehensive trail plan would be developed to consider locations and specifications for more walking opportunities of all kinds. This plan, which would be undertaken in cooperation with Cape Cod Pathways, would provide more options for recreation, nature appreciation, and alternative transportation, including connecting some trails to town destinations and residential areas. Sand roads would continue to be available for hiking, dog walking, and bicycling. Some existing undesignated trails and new trail connections would be identified, and some unplanned trails resulting from persistent use (referred to as social trails) would be closed off and revegetated where resource damage was occurring.

Preferred routes for mountain bicycles would be identified to direct this use to areas where it could be accommodated without use conflicts or resource degradation. Bicycle routes could include fire/sand roads that were made more accessible and signed, and support facilities (such as vehicle and bicycle parking) could be provided.

Road, trail, intersection, and parking standards — In cooperation with local towns and the state, standards and designs could be developed for roads, trails, intersections, and parking areas,

along with potential facilities. The purpose of these standards would be to improve access while helping perpetuate Cape Cod's scenic rural character and environment.

Alternative energy vehicles — The Park Service would invest in public transit vehicles using alternative power sources, such as electricity, propane, and natural gas. The national seashore's fleet vehicles would be converted to alternative fuels as feasible, in accordance with federal initiatives. The Park Service would also encourage the use of alternative energy vehicles by local towns and other private transportation providers.

Shuttle service to beaches — Shuttle service would be continued to Coast Guard Beach, and establishing or permitting NPS, municipal, or commercial shuttle services to other selected sites would be considered. The national seashore would work with the towns to consider providing parking and staging at Nauset Regional High School or Truro Central School in the summer when schools are not in session, and making shuttle connections to some town centers.

Congestion and parking — Solutions to congestion and parking would be studied on a case-by-case basis. Generally, parking lots would not be sized to accommodate peak use due to the environmental and fiscal impacts of providing additional parking spaces that would go unused for many months of the year.

Beach parking — The Park Service would reduce the impact of beach parking at locations where there are natural resource concerns, such as coastal hazard areas and wetlands. As parking facilities in the coastal hazard area erode, portions might be removed to avoid pavement and other materials from being swept to sea. In some areas they would be replaced or relocated nearby, or they might not be replaced with facilities of equivalent size, given that shuttle and bicycle access improvements could help reduce automobile use. (Also see the discussion of coastal processes beginning on page 66).

Provincetown airport — Cape Cod National Seashore would continue to work with the Provincetown Airport Commission and other interested agencies, including the Federal Aviation Administration, the Massachusetts Aeronautics Commission, and the Cape Cod Commission, to determine ways to ensure that airport operations and redevelopment would be compatible with national seashore resources and values. The seashore resources and values that would be considered include opportunities for quiet contemplation, reasonable access to NPS facilities, and the preservation of vegetation, wildlife, wetlands, dunes, views, and cultural resources. Community transportation alternatives would also be considered. New impacts on natural, recreational, and scenic values would have to be minimized or found to be not detrimental. The National Park Service must also ensure compliance with section 4f of the Department of Transportation Act, which requires a determination that there is “no prudent or feasible alternative” to the use of lands in a park, and that “the proposed action includes all possible planning to minimize harm to the property resulting from such use.” Airport initiatives would also be considered in light of federal, state, and regional intermodal transportation planning objectives. (Also, see the “Authorization of Conveyance of Commonwealth Lands” in appendix A and the discussion of the Hatches Harbor restoration project in the “Water Resources” section; the latter project is subject to a memorandum of understanding with the town of Provincetown.)

INTERPRETATION AND EDUCATION

- ◆ **GOAL: Provide a wide variety of interpretive and educational opportunities for a diverse public to help them understand and appreciate how Cape Cod’s natural and cultural resources are interrelated with its history and the people who live there.**

STRATEGIES: *Interpretive and educational programs regarding Cape Cod cultural heritage* — Existing interpretive and educational programs at the national seashore, including partnership

arrangements, would continue. However, the interpretive focus would be significantly broadened to link the national seashore with the relatively diverse region and to present a more integrated picture of the Cape Cod character. This would include interpreting the significance of Native Americans and a broad variety of other ethnic and cultural groups that have both historical and contemporary associations with the Outer Cape and that have contributed to its character and history. More opportunities would be explored to cooperate with communities, agencies, institutions, and cultural groups to jointly develop interpretive and educational programs. An interpretive plan for the national seashore would specify the types of exhibits and other media for these programs.

Broadened interpretive programs and collaborative efforts — Programming would be broadened to include more topics related to the six major interpretive themes for the seashore. NPS interpretation would continue, and educational opportunities of various types would be offered year-round.

Environmental education and outreach to schools — Better connections would be made with other environmental education programs on the Cape. This could include programs for schoolchildren and continuing education, as well as programs that attract ecotourism groups.

Expertise required — An educational program coordinator would be needed to serve as a liaison with schools, to help develop curriculum, and to conduct workshops. In addition, not all program expansion could be handled by volunteers; some additional specialists on staff would likely be needed. Efforts would be made to include local experts.

Relocation of the Coast Guard Beach educational program — The National Park Service must study alternative sites for eventually relocating the educational program at Coast Guard Beach. Coastal erosion will soon eliminate access, and subsequently the facility itself will be lost. The alternative location with the best potential for the existing elementary school

program is the current Nauset Knoll Motor Lodge (see the "Concessions and Commercial Services" section, page 95). The Nauset Knoll complex could be redesigned to accommodate one large group or several smaller groups. The beach, dunes, and marsh are essential learning areas nearby that would be readily available for environmental education programs for elementary or secondary schools.

Morris Island / Monomoy National Wildlife Refuge — In cooperation with the U.S. Fish and Wildlife Service, the Park Service would establish an interpretive presence, such as a kiosk and brochures, at the existing Morris Island / Monomoy National Wildlife Refuge facility. Such a program would expand the availability of information about the national seashore in the southern part of the seashore and the Outer Cape.

Stellwagen Bank National Marine Sanctuary — In cooperation with the National Oceanic and Atmospheric Administration, the National Park Service would provide interpretive information related to the offshore sanctuary at the Province Lands visitor center. Information would be geared to common themes shared by the national seashore and the sanctuary. Media could include exhibits on the second floor, which offers spectacular views out to the sanctuary, and wayside exhibits in the parking lot. Collaboration on an interpretive training and evaluation process for whale watch guides is expected to be the primary assistance sought by the National Oceanic and Atmospheric Administration.

Historic structures — Year-round interpretive programs would be provided at key historic structures, such as the Atwood-Higgins and Penniman houses, the Old Harbor Life-saving Station, Highland Light, and the Nauset and Three Sisters Lights. Interpretive programs and media for these structures would focus on their historical significance and relate directly to primary interpretive themes. In considering adaptive uses for other historic structures (through leases or cooperative agreements), the Park Service would give highest priority to interpretive potential and the need to allow public access.

Pamet cranberry bog house — The restored bog house at Pamet cranberry bog would be interpreted in context with the associated cultural landscape. Interpretive programs and media developed for this site would also focus on the historical significance and relate directly to the primary interpretive themes.

Salt Pond and Province Lands visitor centers — The Salt Pond and Province Lands visitor centers would be redesigned to better accommodate visitor flow, provide more efficient work areas for employees, and reflect sustainable design principles. Facilities for buses, bus loading and unloading, restrooms, and audio-visual program options would also be improved. The amphitheaters at Salt Pond and Province Lands would be redesigned to better present a variety of outdoor presentations and special activities.

◆ **GOAL: Promote public awareness of resource management issues in cooperation with local towns, the Cape Cod Commission, and other partners.**

STRATEGIES: Public awareness of resource-related issues — To create public awareness of resource issues, the national seashore would continue to develop and expand a wide variety of resource-focused programs. The public's role and active participation in resource stewardship would be encouraged. Examples include developing a working groundwater model or exhibits on current wetland restoration projects; demonstrating how archeological excavations are conducted; creating programs on coastal processes and sea level rise, historic restoration, local culture, and cultural landscapes; and expanding school programs. These efforts would dovetail with efforts to disseminate resource information through interpretive and educational programs.

Cooperative interpretation of sensitive resource issues — Partnership opportunities would be developed throughout Cape Cod to explore methods and locations for interpreting sensitive resource issues and promoting stewardship to protect valuable resources and resource systems.

Dissemination of information about resources and environmentally sound practices — Methods to disseminate resource information in a timely manner would include collaboratively developing programs with regional research institutions and museums. The intent would be to educate all segments of the public on how to protect and preserve historic buildings, cultural heritage, cultural landscapes, archeological resources, water, vegetation, wildlife, coastal processes, and air resources. Collaborative efforts with local museums and institutions would also be encouraged to develop programs and media on topics related to regional themes.

The National Park Service would also promote and showcase day-to-day examples of responsible environmental practices to increase public knowledge of alternative, more sustainable approaches and systems. Examples include recycling options, use of environmentally sound building materials, energy-saving methods, water-conserving devices, and low-impact septic system technologies. (Also see "Private Residential Properties," page 98, and "Utilities," page 107.)

Reporting on new research projects — A reporting mechanism would be developed as new research projects were initiated to distribute information on project design, as well as research results. Videos, sound clips, and written text on various topics such as NPS management philosophies, resource values, and the rationale for management actions could be regularly presented.

ACTIVITIES, FACILITIES, AND SERVICES

- ◆ **GOAL: Consider and allow public activities at Cape Cod National Seashore that are compatible with the seashore's purpose and that have minimum impacts on resources and other uses.**

STRATEGIES: Public activities — As the need arose, public activities at Cape Cod National Seashore would be evaluated in consultation

with affected stakeholders to see if they met the following criteria:

- The use would be compatible with the purposes and management objectives of the national seashore.
- User conflicts would be minimized.
- This use would not result in resource degradation beyond what is reasonable in the relevant management zone.
- The use would not impair the quality of the desired experience defined for the relevant management zone.
- The scale of use would be in character with Cape Cod.
- The use would not constitute a public health or safety hazard.

Some uses could be restricted to certain areas or to certain times, with the regulation and level of use varying from season to season or from place to place. For example, areas have been designated for ORV driving, and hunting is allowed only during certain seasons. Most existing recreational use would continue. Changes in the management of specific uses and activities could result from focused discussions or planning efforts in consultation with the towns and the public; in such cases a range of issues and solutions would be jointly evaluated. When there were public use conflicts or disagreements, discussions would be held with concerned parties, and mediation or other alternative dispute resolution methods could be employed to resolve conflicts among the parties.

Long-term ORV management changes are anticipated from the completion of the negotiated rule-making process started in 1995. Some of these changes could include additional miles of ORV corridor and new access points. The draft regulation, which was addressed in a separate environmental assessment (NPS 1977), was designed to provide flexibility without additional threats to resources.

Fishing and surf-fishing access — The national seashore would work with the state and others to ensure that healthy native fish populations are available in freshwater and saltwater areas. Fishing would continue to be regulated by the state and, where authorized, by the National Park Service. Fishing in the Province Lands area is specifically addressed in the deed of conveyance of commonwealth lands. Surf-fishing access would continue throughout the national seashore; vehicular or walk-in surf-fishing access opportunities would continue to be provided at existing beaches and access points, and along approved ORV corridors.

Recreation emphasis — To minimize conflicts, passive and nonmotorized forms of recreation would be emphasized in NPS brochures. Offroad motorized vehicles that cannot be licensed for use on public streets, such as all-terrain vehicles (ATVs) and dirt bikes, would continue to be prohibited.

Public use management strategies — The National Park Service would continue to develop public use management strategies to minimize resource impacts and use conflicts, especially based on management zoning (see appendix D) and information gathered through long-term monitoring. In consultation with local communities, this could include

- (1) defining a trail through an area with many unofficial social trails that serve as substitute pathways to get to a scenic viewpoint or destination, such as coastal beaches like the Herring Cove back-dunes; some other social trails would then be eliminated and revegetated to correct significant resource damage problems or use conflicts
- (2) providing a cliff overlook at a location that is attractive for viewing but not dangerous, such as the Highland Light area, and closing off access and social trails to more unsafe locations along the coastal bank

People would be dispersed from congested areas that are being overused and that are not func-

tioning as desired for a specific management zone. High-use areas would be concentrated in the developed management zone, and sites would be improved to accommodate larger groups of people.

Beach management strategies — Beach access, parking, and capacity for national seashore beaches would be managed by employing traffic management and travel information techniques, including the following:

- Use a system to communicate when parking lots were full (such as remotely operated electric light boards at key locations), coordinating public service announcements with radio stations, using low-watt radio advisory systems, or informing people at state and town visitor centers.
- Provide information at hotels, tourist information centers, in newspapers, and on local radio stations.
- Provide or encourage the adoption of incentives for nonmotorized beach access and the use of public transportation.
- Encourage the development of more beach shuttle operations where appropriate, in conjunction with local towns, schools, and businesses.

◆ **GOAL: Create opportunities for more diverse activities at various locations, and facilities to support them.**

STRATEGIES: Visitor activities — People would be made aware of the level of ability required, the amount of exertion necessary, and the time commitment required for each activity.

Opportunities for visitors with disabilities — Wherever possible, the National Park Service would make a wide range of experiences available to visitors with disabilities, in conformance with accessibility standards.

Maintenance of nature trails — The national seashore's nature trails would continue to be provided and maintained to provide leisurely walking, birdwatching, and other contemplative opportunities. Erosion would be controlled and boardwalks replaced as necessary. Additional short nature trails might be established as site planning was completed.

Visitor opportunities at distinctive sites within the national seashore — Visitor facilities and access would be provided in the following areas, which represent special places within the national seashore:

- **Natural and cultural areas:** The Park Service would explore trailhead/parking areas for the Hollows area, Bound Brook, and the Atwood-Higgins complex.
- **Heathlands:** An interpretive loop trail would be created through a heathland community, possibly in the High Head area, which could extend to a viewing area near the cliff.
- **Dunes:** More formalized pedestrian access to the dunes would be provided on a limited basis. For example, a boardwalk (designed to protect resources) could be provided at the Province Lands visitor center, the Herring Cove Beach area, or both areas.
- **Bayside beaches:** Providing walk-in access to an NPS public bayside beach in Wellfleet, with offsite parking, would be explored.
- **A kettle pond:** The Park Service would consider developing a pulloff/viewing area at a kettle pond near U.S. 6, perhaps at Snow Pond in Truro along an existing state right-of-way to give the public an opportunity to view a kettle pond. Access would be carefully controlled to ensure the protection of natural resources and to provide a quality visitor experience.

Viewpoints and picnic areas — Small, unpaved parking areas or pull-offs would be provided at appropriate locations along popular scenic routes to reduce parking at undesignated locations along roadsides. Parking would primarily be located in previously disturbed areas. People would be able to take trails to scenic viewpoints or picnic areas, or short interpretive trails.

Group picnicking — A group picnic area or areas would be developed at Pilgrim Heights and/or in the Marconi area to provide locations for events and gatherings. An alternative would be to arrange for the occasional use of existing town scout camps.

Primitive camping — Appropriate areas for limited walk-in camping would be designated; this activity would be allowed by permit only. Conditions on sanitary issues and campfires would be specified. Locations that could be considered include High Head, Great Island, or the Marconi area.

Group camping — A group camping area would be provided for structured volunteer work groups or environmental education groups participating in seashore-related programs. A site might be provided in a previously disturbed area at the Marconi station area or the former North Truro air force station. Referrals to scout group camping sites in local communities might also be made.

Fort Hill, Pamet cranberry bog, the former North Truro air force station, and Herring Cove Beach — The Park Service is currently considering improvements for public use at Fort Hill, the Pamet cranberry bog, the former North Truro air force station, and Herring Cove Beach. Site plans (and if necessary, environmental assessments, which would be prepared at a later date with public involvement and consultation with the affected local communities), would present detailed proposals. Actions being considered are described briefly below.

- **Fort Hill:** Encompassing 100 acres of grasslands and forest bordering Nauset Marsh in Eastham, Fort Hill is one of the

premier historic and scenic resources within the national seashore, and one of the most popular nonbeach destinations. The site also contains the historic Penniman house, historic stone walls, Skiff Hill, and the Fort Hill scenic overlook.

The management concept for the site is (1) to preserve and maintain the historic features and qualities of the culturally significant structures, landscape, and archeological resources, while protecting natural resources; and (2) to encourage pedestrian use of the site to support contemplative activities, public education, and the serenity of the environment. Improvements being considered include improving wayfinding and interpretive information, reconfiguring parking, using shuttles from the visitor center for events and tours, improving Penniman house maintenance and accessibility, restoring additional cultural landscape features, and focusing trail use at the Hemenway Landing area in cooperation with the town of Eastham.

- Pamet Cranberry Bog: Nestled in a lowland swamp surrounded by wooded hillsides and Ballston Beach, this 27-acre site has a rich history from the earliest days of cranberry cultivation. The site contains vestiges of three cranberry bogs and a dilapidated building that once housed workers during the harvest season. Proposals to restore the area as a working cranberry bog have not yet been feasible.

The management concept for the Pamet cranberry bog is to preserve highly valued and interesting cultural and natural features of the Pamet Valley area, and to manage public use so as not to overwhelm the specialness of the area. Improvements being considered include preserving the landscape to include the possible continuation of the demonstration cranberry bog for interpretive purposes, plus stabilizing and preserving the bog house. Parking, disabled access, trail improvements, interpretive

program enhancements, and an upgraded viewing platform on an adjacent hilltop are also being considered.

- Former North Truro Air Force Station: This former radar tracking facility has recently been incorporated into the national seashore. The site includes over 100 acres of wooded open space, two water wells used for the base itself and municipal purposes, and over 70 former military structures. The remaining structures require considerable ongoing maintenance. Productive reuse of this former military site would be planned in concert with the town of Truro and a broad spectrum of interested local and regional organizations. A range of possible uses that would be consistent with the purposes of the national seashore are being considered in a site plan and environmental assessment. These include the demolition of the majority of facilities and site restoration and approximate levels of building reuse. The completion of the site plan is expected to stimulate the first phases of project implementation.

The emerging management concept is to establish a Highlands center for the arts and environment — a community for the development of the arts, sciences, and environmental understanding. Activities at the center would foster creative investigations of the interdependence of human and natural systems and the linking of arts and sciences. The center would be inspired by and in harmony with the surrounding community, native history and culture, and the landscape setting of the North Truro Highlands.

The center would house a collaborative of organizations, forming a unique community where creative people could work, communicate, and learn. It would also be a place to demonstrate the use of sustainable technologies, as well as the location of the town's experimental native plant nursery and the NPS North Atlantic

Coastal Laboratory. The center would be patterned after similar public/private program initiatives in other national park system units.

Demolishing or rehabilitating structures, reusing them on an interim basis for operational or special programs, and long-term redevelopment of the core portion of the former air force station are being planned. The buildings could be retrofitted or converted to dormitories, offices, and meeting spaces for use by nonprofit organizations and the National Park Service or for higher education or continuing education programs for which there is a demand both locally and regionally.

It is anticipated that a management oversight group would assist the Park Service in stimulating interest in the center, obtaining funding, and soliciting and coordinating appropriate partners to lease and improve facilities and to provide public programs. Partners would be organizations that could provide financially self-sustaining programs and that would make use of innovative and collaborative abilities. NPS parameters and criteria would be developed in the forthcoming site plan. The facility would be open to the general public and would contribute to the year-round community and economy.

- **Herring Cove Beach:** This popular beach area west of downtown Provincetown is the site of both heavy public use and sensitive resources. The area includes miles of sandy beach, bay vistas, barrier dunes, upland dunes, tidal flats, and marshlands. National seashore managers would initiate a planning process, in consultation with the local community and other interested parties, to consider proposed improvements. Improvements being considered include building updated restroom and changing facilities when the existing facility becomes outdated, developing an inland boardwalk trail to interconnect beach access points, providing a

pedestrian path from Provincetown, maintaining the visual access to the water, and providing educational opportunities. Shuttle, bicycle, pedestrian, and disabled access would be improved.

Continued routine maintenance would maintain the present parking lots as long as the coastline remains stable. If major portions of facilities were undermined or destroyed by coastal erosion, the relocation of facilities behind the primary dune would need to be considered in consultation with the community.

- ◆ **GOAL: Plan for public recreational opportunities and services throughout the region in cooperation with other public and private providers.**

STRATEGIES: *Outer Cape recreation facilities, needs, and coordinated planning* — Recreation providers on the Outer Cape, including the National Park Service, would be encouraged to cooperatively inventory existing facilities, forecast future needs, and coordinate planning efforts.

Coordinated management of public use facilities — The Park Service would coordinate the management of its public use facilities with those of towns and other public and private providers. The intent would be to strive for consistency in operations, making it easier for people to get information on various visitor services, regardless of the provider. This would include identifying common and different policies and services to the public (such as hours of operation, any fees, and regulations).

Consolidated Truro beach facilities — In collaboration with the town of Truro, the Park Service would consider consolidating beach facilities and parking at Head of the Meadow to achieve operational efficiencies. This could include coordinating bathhouse and parking facilities, fee collection, lifeguards, and maintenance. At a minimum, the northern portion of

the NPS parking lot would be moved farther from the wetland.

Bayside beach access — The possibility of establishing bayside beach access in the Great Island / Duck Harbor vicinity for nonresident seashore visitors would be discussed with the town of Wellfleet.

Access to town beaches threatened by erosion — The Park Service would work with local towns, as needed, to maintain access to town beach facilities that were threatened by erosion. Assistance could be provided, such as engaging in mutually beneficial land exchanges or other planning projects. NPS objectives for resource protection, public safety, access for emergency vehicles, and promotion of bicycling and transit options would be emphasized.

- ◆ **GOAL: Provide facilities and services that do not adversely impact natural and cultural resources and that are in harmony with the character of Cape Cod.**

STRATEGIES: *Facilities for average peak crowds* — The Park Service would build visitor support facilities such as parking lots and bathhouses to serve average summer levels rather than crowds. Exceptions would include water/wastewater systems and other systems that would need to accommodate the highest visitation levels to meet public health and safety requirements.

Upgrade existing public use facilities — Existing facilities would be upgraded to ensure that they were environmentally sound and safe for public use. In the short term, sanitary facilities at several beaches would be provided or replaced. Other facility improvements would be identified and evaluated for future action, as necessary.

Facilities destroyed by natural acts — The Park Service would reexamine the appropriateness of any facilities destroyed by acts of nature before rebuilding or authorizing rebuilding (also see the discussion on coastal processes beginning on page 66).

- ◆ **GOAL: Minimize use conflicts between public use areas and residential areas within the national seashore.**

Directional signs — To ensure that visitors respected private property and did not get lost, parking would be designated, and effective but unobtrusive directional signs would be provided.

Visitor routes — Where feasible, the Park Service would plan visitor routes to avoid residential areas. To minimize impacts on residents when trails or other uses were planned near improved properties or other private property, the following procedures would be adopted:

- Ask private property owners to participate in planning efforts for activities or routes occurring near their properties.
- Take advantage of natural topography and vegetation to reduce visual and audio effects.
- Identify private property on trail maps.

Solutions to conflicts would be developed on a case-by-case analysis.

CONCESSIONS AND COMMERCIAL SERVICES

- ◆ **GOAL: Provide the minimum commercial services that are necessary to adequately serve the public and that are not otherwise provided outside national seashore boundaries.**

STRATEGIES: *Concessions not meeting NPS requirements or management needs* — Concession operations would need to meet NPS policy requirements or provide for alternative management needs, or they would be phased out. Efforts would be made to continuously monitor and improve existing concessions to ensure that high-quality services are provided to the public.

Upon expiration of the concession contract for the Nauset Knoll Motor Lodge, this property

could be considered for reuse for other purposes. The Park Service would work with the town of Orleans to plan for future public uses of the motor lodge. Opportunities for interpretation and educational experiences for the public would be explored, such as an environmental education program (see page 87). Any change of use that would generate adverse traffic impacts would not be considered. If the Park Service decided not to use the motor lodge property, national seashore managers would consider working with the town of Orleans to help them use the property for municipal purposes. This could include giving the town the first opportunity (as allowed by law and policy) to acquire the structure or the real estate, possibly using a land exchange.

Beach concession operations — Limited food items (snack and beverage vending machines) could be considered at some beaches to better serve visitors using shuttles, walking, or biking. This would occur when beach parking areas were reduced in size and moved farther from beaches because of coastal erosion. Any vending machines deemed necessary would be placed with other public service facilities, such as restrooms and trash/recycling receptacles.

Public transportation concessions or permits — Concessions or other commercial permits would be considered to provide public transportation to select destinations within the national seashore.

Historic property lease / concession operation — Selected properties would be made available for a historic property lease or concession operation. The concessioner's payments to the government would be directed to the preservation of the historic property rather than being returned to the general treasury as is done with other concessioner payments. These new historic property lease / concession arrangements would be put in place to operate and maintain historic properties suitable for commercial activity and for upkeep by others, as specified in the agreements. For example, a concession operation at the Highland Light complex would provide guide service and souvenir sales, and a concession operation could manage some of the dune shacks in the Peaked

Hill Bars Historic District to provide for short-term rental occupancy. The Highland Golf Links contract is being converted from a conventional concession to this type of historic property lease/concession operation.

Commercial activities — Commercial activities that originate and end outside national seashore boundaries; for example, within the national seashore bus tours and boat rentals would be managed through licenses, special agreements, or incidental business permits to ensure consistency and appropriate use. Permit conditions would establish expectations for services and resource preservation.

NOTE: The 10 privately owned commercial businesses that existed before the national seashore was established are discussed under "Nonfederal Lands within the National Seashore" (see page 100).

VISTA MANAGEMENT

◆ **GOAL:** Provide access to views that occur naturally in open areas; maintain vistas only to meet cultural landscape objectives, operational/safety needs, or interpretive needs that could not be met elsewhere.

STRATEGIES: *Vista management plan* — Priorities would be set for vista maintenance throughout the national seashore to contain costs and environmental impacts. A vista management plan would be developed, in consultation with local communities and interested parties, to accomplish the following:

- Identify specific views to be preserved for historical significance, interpretive programs, or for reasons that influenced the placement of an associated facility; establish priorities for maintaining these views. In areas where facilities such as parking areas and vista points had been developed exclusively to take advantage of panoramic views that have since been eliminated by forest/vegetative succession, either (1) reestablish the original views,

(2) adapt the facilities to the current views (with views provided into the forest as it matures), or (3) relocate the facilities. Because views at visitor centers are essential to the visitor experience, maintain them in the same manner as for significant cultural landscapes.

- Define acceptable routine vegetation maintenance practices, such as tree limb removal; remove or clear vegetation only in prescribed areas.
- Prescribe how frequently vistas would be maintained, consistent with management zoning.
- Evaluate former, existing, and potential vistas to determine their appropriateness and the feasibility of maintaining them.

Criteria for new vistas — Any new vistas, such as trails, road turnouts, and low-profile viewing platforms designed exclusively to provide scenic views, would be provided where possible in open landscapes (for example, coastal bluffs, open dunes, cultural landscapes, or heathlands). Any new viewpoints would be developed in accordance with the seashore's management zoning plan, the vista management plan, public safety measures, and the following considerations:

- Would the vista provide a unique visitor experience?
- Would the viewpoint be a designed vista or one created as part of a cultural landscape?
- Would a high degree of manipulation be required to maintain the vista?
- Would the vista be near public access?
- Would the vista be cost-effective in terms of development, maintenance, and the number of potential viewers?

- Would the surrounding resource area be capable of withstanding vista development and maintenance activities?
- Would the vista be compatible with the management zone for this site?

NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE PLANNING AND PROTECTION

- ◆ **GOAL: Preserve the qualities of the human environment on the Outer Cape, and prevent resource degradation that often results from inappropriate land uses.**

STRATEGIES: *A cooperative stewardship educational emphasis* — To help protect the traditional character and natural systems on the Outer Cape, the National Park Service would cooperatively work with local communities and regional entities on the Cape to develop broadly based stewardship educational programming or to better use existing programs. The emphasis would be to reach the people who, through their activities, would most likely have an impact on Cape Cod's resources, for example, improved property owners, year-round and seasonal residents, and the business community. Examples of activities include adult education, outreach to schools, and the adopt-a-pond volunteer program.

Support for local comprehensive plans — National seashore staff would offer support, when requested, to local communities as they develop and implement local comprehensive plans. As part of this effort, the Park Service would encourage towns to develop a joint consultative process to discuss possible municipal uses and site plan development for town-owned lands inside seashore boundaries and adjacent property that could affect seashore resources. Towns would also be encouraged to work with the national seashore to establish performance standards for development within the national seashore and to plan uses that would be compatible and environmentally sensitive.

Conservation land trusts — The Park Service would engage in an effort with conservation land trusts, regional government, or agencies to set up an independent land banking fund. Funds would be used to acquire interests in lands both inside and outside seashore boundaries, especially sensitive or otherwise special resources, or those areas that provide public green space or opportunities for trails. Also, the Park Service would continue to work proactively with national organizations, such as the National Parks and Conservation Association, the Trust for Public Lands, or other interested groups.

Land acquisition and the need for legislation — The primary emphasis to protect sensitive resources and lands within the national seashore would be to encourage compatible development practices. Failing that, or when there were willing sellers, a full range of acquisition techniques (fee simple, land trusts/donations, less-than-fee acquisition, or transfer of development rights) would be used where necessary. The National Park Service would seek the authorization and appropriation of additional land acquisition funds to support ongoing land protection efforts within the national seashore because all of the land acquisition funding has been depleted at this time. These efforts are identified and prioritized in the seashore's *Land Protection Plan*, which is periodically updated.

Additionally, a minor boundary change has been requested to add an 11-acre undeveloped parcel of state land to the boundary in the Province Lands to complete the equal-value land exchange for the town's transfer station.

Areas critical to the national seashore's value — The National Park Service would collaborate with local communities and the Cape Cod Commission (or other similar regional agencies) to continue to inventory and monitor areas that are critical to the national seashore's value and to identify the appropriate level of protection for each area. This information would be mapped using a geographic information system to make it readily available and so that it could be used in making decisions. Together with design standards for architecture and site plans, this infor-

mation would be kept on file at the commission and made available to each Outer Cape town.

The National Park Service would offer technical assistance, when requested, to municipalities and private landowners on a number of critical topics that support land and resource protection, as discussed throughout this plan. Examples include environmentally sound septic technologies, native plant landscaping and grounds maintenance, historic preservation, sensitive development, and other land and resource conservation techniques. Referrals to other agencies, such as to town staff, boards of health, conservation commissions, the Cape Cod Commission (or other similar regional regulatory agencies), and the Natural Resources Conservation Service, would be made as needed.

Designation of a district of critical planning concern (DCPC) — The Park Service would work with the Cape Cod Commission, the Cape Cod National Seashore Advisory Commission, and Outer Cape communities to determine whether to seek designation of all or a portion of Cape Cod National Seashore as a district of critical planning concern to broaden land protection opportunities (see glossary). Agreement with each community would be reached through a collaborative decision-making process to formulate any DCPC proposal in one or more of the towns.

NPS ex officio membership on the Cape Cod Commission — Cape Cod National Seashore would seek *ex officio* membership on the Cape Cod Commission to help address multi-jurisdictional land use issues more effectively. Such membership could provide opportunities for continuing dialogue on regional planning issues.

Future development projections and capacity analyses — The towns of Provincetown, Truro, Wellfleet, and Eastham have developed a pilot Outer Cape capacity model that gives towns the basis to assess the impacts of a range of future development projections on water, natural resources, transportation, and municipal finances. Also, a Monomoy capacity study, which includes Orleans and Chatham, has been

completed. The Park Service would support the further development of analyses to look at issues beyond the scope of the initial studies, such as the cumulative impacts of growth on the rest of the Outer Cape in terms of site-specific natural resource problem areas, water, and alternative modes of transportation. The findings would be applied in decision making for the national seashore as appropriate.

PRIVATE RESIDENTIAL PROPERTIES

- ◆ **GOAL: Help protect the traditional character of the Outer Cape, including natural and cultural resources, and prevent resource degradation that often results from development.**

STRATEGIES: *Fostering the preservation of historic properties* — Local towns would be encouraged to consider establishing local historic districts and/or architectural design review processes (under Massachusetts General Laws, chapter 40C) to foster the preservation of historic properties and cultural landscapes within the national seashore (see page 80).

The Cape Cod Commission's design guidelines — The National Park Service would endorse and encourage local towns to use the 1994 *Designing the Future to Honor the Past: Design Guidelines for Cape Cod*, which were prepared by the Cape Cod Commission.

Sensitive redevelopment and innovative technologies to reduce pollutants — Two types of programs could be encouraged in cooperation with the local communities to help protect the national seashore's sensitive resources and historic character and to reduce nonpoint source pollutants.

- (1) Community-based banks would be encouraged to develop low-interest loan programs to support improved property redevelopment that would be sensitive to protecting resources and the Cape's historical character. Also, local towns would be encouraged to provide tax

abatements, credits, or other tax incentives for sensitive redevelopment of improved properties. Towns would be further encouraged to seek additional protection for properties under the Cape Cod Commission Act by pursuing national register listings for sites and structures within the national seashore.

- (2) Local towns and other entities (such as community-based banks) would be encouraged to develop a grant or loan program for innovative technologies. Such a program could provide matching grants and low-interest loans to private property owners within the national seashore who wanted to upgrade their septic systems and otherwise retrofit their homes with features to reduce nonpoint source pollutants (such as composting toilets).

These two programs could be advantageous to property owners within the national seashore and could also be applied broadly throughout the towns if they so decide.

Innovative technology demonstration projects at national seashore facilities — Demonstration projects would showcase small- and large-scale innovative practices and applications for sustainable technology. For example, projects showing emerging techniques for energy generation, water conservation, solid and septic waste treatment, and new environmentally sound building materials would illustrate how sustainable design practices can be used in private property redevelopment. (Also see page 89 about resource information, page 104 about sustainable practices for national seashore operations, and page 107 about septic systems.)

Changes of use for historic properties — The Park Service would continue to take a flexible position on changes of historic properties from exclusive residential use to other appropriate uses (for example, bed-and-breakfast establishments or home occupations for historic properties that could otherwise lose their historic integrity). Changes in use would be encouraged

where doing so would preserve the architectural integrity and rural character of the historic properties and their settings and would not result in adverse impacts, such as expanded parking, greater intensity of use or development, or increased congestion. Supporting such changes would have to be discussed or negotiated case by case with the affected communities, in accordance with respective town zoning bylaws.

Identifying residential properties without improved property status — National seashore managers would continue to attempt to determine those properties that might not have been built by September 1, 1959. These properties would not be eligible for a certificate of suspension of condemnation, and they would continue to be identified for acquisition in a revised *Land Protection Plan* for the national seashore.

Protecting subdividable lands — The Park Service would seek to acquire subdividable lands in the national seashore or to work with local land trusts to buy easements or development rights. Acquisition could be by purchase or by donation.

Property exchanges — The National Park Service would continue to decline to exchange private land for public land in order to allow private structures threatened by coastal erosion to be relocated. Nor would the Park Service approve exchanging threatened private parcels for previously undeveloped private land within the seashore.

◆ **GOAL: Develop a more effective building permit review process for improved properties within the national seashore.**

Revised Cape Cod National Seashore zoning standards and town zoning bylaws for redeveloping private improved properties — The National Park Service would work cooperatively with each of the affected Outer Cape communities in revising the current Cape Cod National Seashore zoning standards and the towns' zoning bylaws to include state-of-the-art planning and zoning techniques and to ensure

consistency among them. The revisions would focus on design and environmental circumstances. This would be a mutual, consensus-oriented process whereby national seashore and community values would be acknowledged and respected. This process would primarily pertain to Wellfleet, Truro, and Eastham, where over 96% of the improved properties are located.

Minimum zoning standards would be defined to amend the existing national seashore zoning standards, as provided by law and regulation. The bylaws for the towns' Seashore Districts should include updated performance standards for permitted and prohibited uses, lot coverage, design, scale, water quality, and health regulations (such as septic discharge nutrient levels). Standards and bylaws would continue to address the demolition, moving, and reconstruction of buildings. The focus of national seashore input into the revised town zoning and subsequent reviews of variances or exceptions would be on retaining the character of the existing development and the intensity of use of the property.

Cape Cod Commission planners or other technical specialists could be asked to share their zoning expertise. Design guidelines prepared by the Cape Cod Commission should be considered in the development of new zoning standards and bylaws. Revised NPS guidelines that mirrored the new proposed zoning standards and bylaws developed with the towns and landowners would be voluntarily applied by property owners until towns adopted similar bylaw provisions and new NPS zoning standards were in effect.

Construction permitting — The National Park Service would work with local towns to develop a more direct system of construction permitting for improved properties so that ideally development oversight by national seashore managers could focus only on cases where a waiver, such as a variance, was requested. It is hoped that the towns and the Park Service would agree on the content of amended Seashore District zoning bylaws and any interim revised NPS guidelines

and how they would be administered. Pending the adoption of amended local bylaws, the Park Service would continue to review construction proposals. The revised bylaws and permitting system would give Outer Cape towns more responsibility for deciding how improved properties within the seashore could be modified. A mechanism for notifying seashore managers of development projects would be needed so building projects could be monitored and up-to-date files could continue to be kept on the improved properties.

PRIVATE COMMERCIAL PROPERTIES

- ◆ **GOAL: Ensure that commercial parcels are managed in accordance with the national seashore purpose and that any negative impacts on seashore resources, community character, or visitor experience are minimized.**

STRATEGIES: *Renewing permits for private commercial uses* — In collaboration with the Cape Cod National Seashore Advisory Commission, the National Park Service would develop consistent standards for renewing permits for private commercial uses every five years. The following standards would be applied:

- There has been no change in use since the previous certificate renewal.
- The commercial activity contributes to the public's use and enjoyment of the national seashore.
- The commercial activity does not adversely affect resource protection or visitor activities in the national seashore.

For commercial activities that did not meet these standards, further performance conditions would be specified when the permits were reissued. These conditions would be based on deficiencies in meeting the standards. If acceptable compliance with the standards could not be achieved, the permits (or certificates for exemption) could be withdrawn.

MUNICIPAL AND STATE LANDS

- ◆ **GOAL: Encourage the protection of resources that are owned, managed, or regulated by multiple jurisdictions.**

STRATEGIES: *Municipal lands within the national seashore* — In collaboration with local towns, the National Park Service would encourage a mutual process for guiding the development of municipal properties within the national seashore. The process would be multidisciplinary and consistent with the resource protection and open space goals in local comprehensive plans, the Cape Cod Commission's *Regional Policy Plan*, and the national seashore's approved general management plan. The maintenance of open space would be emphasized. Any development of town-owned land within the national seashore should not threaten to degrade sensitive resources, and the use of environmentally sensitive technologies would be encouraged. Development should be consistent with preserving the local character of each town, the intended uses of the town's Seashore District, and the established use of the seashore.

Land exchanges with municipalities — In cases where municipal facilities are encroaching on NPS lands (for example, restrooms or parking lots at beach facilities), the Park Service would seek a land exchange with the town for property of equivalent value.

Exchange of municipal lands with sensitive resources — In some cases the National Park Service would negotiate with local towns to exchange municipal lands with sensitive resources for less critical NPS lands. Any such land exchanges would have to be mutually beneficial. Where possible, efforts to expedite the land exchange process would be made.

Management of town beach facilities — Town-owned beaches within the national seashore would continue to be managed and operated by the towns, including Nauset Beach in Orleans, several ocean and bay beaches in Wellfleet, and four ocean beaches in Truro. The National Park Service would continue to work cooperatively

with towns on sharing information and approaches to address common beach management issues to strive for consistency across jurisdictional boundaries. Technical support on important and complex natural resource management issues would be provided, as requested. In cases where town beach facilities are eroding, the Park Service would work with the affected towns upon request to determine what course of action to take (also see the discussion in the "Activities, Facilities, and Services" section, page 94).

Activities at kettle ponds — The National Park Service would encourage the consistent management of human activities at kettle ponds under municipal, state, or federal jurisdiction in order to protect the ponds from degradation due to development, overuse, or inappropriate use (also see the discussion under "Water Resources," page 70). Decisions should also be made about the kinds and levels of use that may be accommodated at the ponds. In these efforts the Park Service would propose the following actions:

- Coordinate with the state and towns to develop joint pond management plans for undeveloped lands, ponds, and beaches.
- Explore the transfer of day-to-day operational responsibilities for some ponds so that a single manager could be defined for each pond to achieve efficiencies in national seashore and town operations; however, maintain a collaborative, overall management approach.

Resources or activities under state jurisdiction — For state-owned submerged lands where there are sensitive resources (such as Nauset Marsh and shipwreck sites), the Park Service would pursue the cooperative management of these submerged lands, or other means of permanent protection of these resources (also see the discussion under "Archeological Resources," page 81). For activities under state jurisdiction, the Park Service would seek to collaborate in setting consistent management practices.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

COOPERATIVE PLANNING AND MANAGEMENT

- ◆ **GOAL: Engage in collaborative processes to enhance natural and cultural resource management and public use on the Outer Cape.**

STRATEGIES: Discussions with the Cape Cod National Seashore Advisory Commission — The advisory commission provides a forum for the National Park Service and commission members to discuss and understand various issues, including town concerns, public reactions to planning proposals, impacts of NPS actions on local residents, and the effects of local actions on national seashore resources. Community representatives would continue to be relied upon to act as liaisons with their towns. As is the case now, the public would be encouraged to participate in advisory commission meetings. Standing and special subcommittees would continue to be used to focus on particular subject areas requiring more in-depth participation and analysis.

Guiding principles for decision-making — In addition to the goals and strategies articulated in this plan, national seashore decision makers would take the following broader overarching considerations into account:

- compliance with the enabling legislation, deeds, and other legal arrangements
- relevant laws and regulations and existing authorities
- specific town or other agency concerns
- compatibility with national seashore mandates, including natural and cultural resource protection, public safety, and other concerns
- the range of public opinions and community desires, including points of agreement and disagreement
- applicability of local comprehensive plans

- estimated costs, cost-effectiveness, and cost-sharing possibilities or the ability to leverage federal funds
- sustainable, or environmentally sound, practices or conservation methods

Opportunities for mediation, collaborative problem solving, negotiated rule making, and other forms of alternative dispute resolution would be explored, as necessary.

Methods to formalize intergovernmental cooperation — Mechanisms that formalize intergovernmental relationships with municipalities or other governmental agencies would be explored and adopted as appropriate to address specific concerns or to provide a structure for collaborative problem solving or decision making to address specific issues of concern or interest that might arise in the various Outer Cape communities. These could include memorandums of agreement, memorandums of understanding, cooperative agreements, joint powers agreements, compacts, partnerships, ombudsmen, task forces, community policing, and councils. Each mechanism would include guidance for participatory public involvement. Models from other areas would be considered for adaptation to seashore and community purposes. An advisory commission task group has been convened to help identify proper partnership approaches. Consultations with town boards of selectmen, other agencies, and the public would also continue.

Collaborative problem solving — As situations and opportunities arose, joint working groups would be encouraged to address problems of mutual concern. Representatives of local towns, the Cape Cod Commission, the National Park Service, and others should be included on the working groups. Joint town/seashore working groups, with the assistance of the Cape Cod Commission, would continue to address regional topics, such as water management, land banking, pathway development, and the cumulative regional implications of various capacity studies for the Cape.

Collaborative problem-solving strategies with local communities and other entities would be mutually determined with each Outer Cape town, citizen groups, and other organizations and entities. Matters that could be addressed include public use management, town interests and the use of municipal lands within the national seashore, the management of ponds that are owned and managed by different entities, public safety, transportation, water, coastal issues, land use planning, public facilities and services, and utility projects, such as telecommunications facility proposals and underground utilities.

- ◆ **GOAL: Help promote a land and resource stewardship ethic and practice that will enhance natural and cultural resource protection on the Outer Cape.**

Partnership building — Links to organizations like the Lower Cape Community Development Corporation would be established to obtain technical assistance in building partnerships. For example, this could include assistance in identifying and organizing partnership programs for the reuse of the former North Truro air force station for educational and research purposes, consistent with mutual Outer Cape and national seashore objectives. Partnership programs at the Highlands center for the arts and environment (at the former North Truro air force station) would be encouraged and could have a positive effect on the year-round economy while promoting effective stewardship.

Cooperative fund-raising and outreach efforts — Fund-raising and educational outreach efforts could be cooperatively developed with the business community through organizations such as the Friends of Cape Cod National Seashore, chambers of commerce, and economic development associations. Possible examples include business sponsorship of educational outreach programs, or businesses helping friends groups and other organizations develop business expertise that could be used for successful fund raising and grant writing to support and engage in special projects (such as fund raising to preserve

the bog house or trail construction and maintenance).

Cooperative ventures to preserve resources — National seashore managers would continue to undertake cooperative ventures with nonprofit partners, volunteers, and others to support the purposes of the national seashore, and they would seek new cooperative relationships and organized volunteer opportunities in a variety of roles, as appropriate. Examples of cooperative ventures include the following:

- maintaining historic buildings and cultural landscapes through cooperative agreements with a variety of groups, such as the operation and maintenance of Highland Light through a cooperative historic lease arrangement with the Truro Historical Society, and the Nauset Light through the Nauset Light Preservation Society
- preserving and protecting lighthouses in Provincetown in cooperation with the U.S. Coast Guard, the U.S. and New England Lighthouse Foundations, and others
- contacting schools, such as Cape Cod Regional Vocational Technical School, to request assistance in maintaining seashore buildings
- jointly developing and operating facilities, and potentially sharing funding and exchanging personnel
- cooperatively implementing recommendations of ethnographic research to preserve the cultural heritage of Cape Cod
- recording archeological site data in cooperation with the Massachusetts Historical Commission, with the assistance of volunteers from the Massachusetts Archeological Society
- producing historic structure reports and recommendations for maintaining and renovating historic buildings within the national seashore through contracts and existing cooperative agreements with other agencies and organizations, such as The Society for the Preservation of New England Antiquities
- working with a coalition of groups interested in historic preservation of the Penniman house and the Fort Hill area in Eastham
- working with the Friends of Cape Cod National Seashore and the Cape Cod Cooperative Extension on the preservation of the Pamet cranberry bog house and bog
- examining possibilities for longer permit periods for historic buildings and other facilities within the seashore, including concessions and privately owned commercial properties, to improve reinvestment incentives in order to keep the properties in good shape
- expanding air resources research and monitoring programs in conjunction with the Massachusetts Department of Environmental Protection and the U.S. Environmental Protection Agency
- working cooperatively with the state and local towns to manage hunting, to assist in enforcing fishing regulations, and to establish a common understanding of aquaculture issues as they relate to the national seashore and to develop shared resource protection goals
- working cooperatively with federal, state, and local agencies and private landowners to protect and restore wetlands
- working cooperatively with state and local agencies, land trusts, and private landowners to continue to protect open space and public access opportunities, possibly including trail maintenance agreements with organized hiking groups
- working cooperatively with organizations such as the Massachusetts Audubon Society

and the Massachusetts Natural Heritage Program to expand efforts to protect both federal and state-listed species of rare, threatened, or endangered plants or animals

- working cooperatively with other federal land managing agencies at Stellwagen Bank National Marine Sanctuary and Morris Island / Monomoy National Wildlife Refuge on issues of mutual concern, including public information on common themes
- working with the Cape Cod Commission, Barnstable County, and other entities on major projects that could affect the Outer Cape, including the Massachusetts Water Resources Authority outfall pipe, developments of regional impact, and other issues of similarly broad effect
- developing the Cape Cod National Seashore biology lab into a cooperatively shared facility for Atlantic coastal seashores (called the North Atlantic Coastal Laboratory — NACL), and providing information applicable to local and regional land managers and other federal agencies

Staff expertise — An additional staff position would be required to coordinate joint partnership activities. A priority would be placed on past experience in public/private or federal/local partnerships.

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

- ◆ **GOAL: Provide adequate, safe, energy-efficient, cost-effective facilities in a manner that minimizes impacts on natural and cultural resources, national seashore residents, and local communities.**

STRATEGIES: Sustainable practices — A comprehensive action plan would be developed to incorporate sustainable practices into seashore operations. National seashore staff would review all operations and determine how to perform routine tasks or functions with less impact on

both regional and global resources. For example, facilities could be upgraded with technologies such as no-flush toilets, graywater management systems, reduced-flow fixtures, and alternative wastewater treatment facilities. Native species that require little water could be used in landscaping.

Operational space needs — Existing and projected operational space needs for the entire national seashore would be studied and compared to the inventory of all present facilities. From this information the seashore staff would determine the following:

- the best distribution of operational functions
- which structures should be retained and rehabilitated and for what uses
- what new structures should be built and where
- which structures need to be retrofitted
- what structures should be removed

Criteria for deciding operational space needs — Management decisions would be based on meeting the following criteria:

- The configuration and physical condition of existing facilities would allow for cost-effective rehabilitation.
- The facilities would blend into the environment, complementing natural features and having a minimal impact on the character of the national seashore.
- Significant historical or cultural values could be preserved.
- The use of a site or structure as an operations facility would be compatible with the existing or proposed use of the immediate environs.

- Impacts on sensitive resource areas would be avoided.
- Impacts on local communities would be minimized.
- No hazardous areas (sites with unstable soils and geologic conditions, floodplains, and coastal high-hazard areas) would be affected when relocating or siting new facilities.
- Operational facilities could be made as accessible as practicable to persons with disabilities.

Appearance of new facilities — The size, scale, color, location, and design of new facilities would be functional, sustainable, and compatible in appearance with existing structures. The intent would be to perpetuate the character of Cape Cod.

Former use-and-occupancy structures — Once use-and-occupancy reservations have ended, the structures could be adaptively used for staff or volunteer housing or operational needs. This would be especially advantageous when impacts would be reduced elsewhere by vacating existing park facilities (also see the “Reservations of Use and Occupancy” section, page 110).

Expertise needed — Greater support would be needed, potentially from volunteers, to maintain national seashore facilities. Additional training would also be needed for NPS personnel in maintenance procedures for historic properties.

◆ **GOAL: Ensure that site planning and revegetation efforts associated with NPS facilities are environmentally appropriate, meet the functional needs of the associated facility, are attractive, and serve as models for sustainable practices.**

Maintained landscapes — Nonnative, more intensively maintained landscapes would be eliminated or substantially reduced. All maintained landscapes (primarily at the Salt Pond

visitor center, the Three Sisters Lights, the national seashore headquarters, and the North Truro air force station) would be assessed and modified as necessary, in accordance with sustainable practices and the following standards:

- Highly maintained landscapes would be minimized at public use facilities. The amount of landscaping at administrative and maintenance facilities should be limited to that needed to protect the structures from fire and natural hazards and to provide exercise and training space for employees.
- The restoration of native plant species would be emphasized over maintained landscapes except where operational and cultural landscape needs could not otherwise be met. Where lawns were desired, native species would be used where possible.
- Plant materials that have minimal need for fertilizers, pesticides, irrigation, and maintenance would be selected.
- Construction features and materials that minimize the need for maintenance would be used.
- Landscape design features and materials would need to complement both the surrounding natural landscape and the facility itself.
- Design features and materials would not be allowed to create a fire hazard.

STAFF HOUSING

◆ **GOAL: Address staff housing needs by developing a variety of housing options for employees and volunteers.**

STRATEGIES: Staff housing needs — Existing and forecasted housing needs would be comprehensively studied and compared to the inventory of all seashore housing to identify shortages or

excesses, which structures need to be retained, rehabilitated, removed, or relocated, and what new structures need to be built and where. Local communities would be consulted before any changes in housing patterns likely to have an impact on them, such as new construction or major shifts in type or density. Surplus structures might be made available to local communities for affordable housing.

Decisions would be based on the following guidelines:

- In general, dispersed, single detached units would be used for year-round employees; concentrated, multiple units (such as duplexes, efficiency apartments, and dormitories) would be used for seasonal employees. However, for seasonal employees with families or domestic partners, single detached units could be made available.
- Large, single-family homes would be considered for subdivision into smaller living units.

Seasonal employee housing — The National Park Service would emphasize locating seasonal employee housing in existing NPS residential areas or at renovated facilities at the North Truro air force station. The intent would be to concentrate housing to provide better access to services and transportation and to improve cost-effectiveness. Reducing housing at dispersed sites throughout the national seashore would be considered.

Housing repair, rehabilitation, or replacement — Alternative arrangements would be explored to repair, rehabilitate, and replace housing units. Examples include financial support from the business community and volunteer work through organizations such as the Friends of Cape Cod National Seashore.

Extended occupancy of seasonal housing — To help make the maintenance of seasonal staff housing more cost-effective, efforts would be made to have units occupied longer. Examples

could include renting seashore housing to volunteers, visiting researchers, and employees of cooperating agencies or other partners.

Emergency-response employees — Certain emergency-response employees must be able to respond to resource or visitor protection needs at any time of the day or night. Housing would be provided within the national seashore where appropriate, or employees might occupy housing in the surrounding communities.

Developing alternative housing options — Staff housing would be provided to permanent employees who might not be able to afford housing in the private sector. Methods to develop alternative housing options could include

- providing housing with shared cooking facilities, perhaps by rehabilitating structures at the North Truro air force station as dormitories
- exploring possibilities to provide housing subsidies to staff who live outside the national seashore when local housing is not affordable
- exploring opportunities for the Park Service to lease housing outside seashore boundaries to use as staff rentals
- providing information to help staff find housing outside the seashore and to assist groups of employees to live together and share costs

Use-and-occupancy structures — Once use-and-occupancy reservations have ended, structures in areas with nonsensitive resources or where impacts could be mitigated would be considered for staff housing.

- ◆ **GOAL: Provide adequate, safe, energy-efficient, and cost-effective staff housing in a manner that minimizes impacts on natural and cultural resources, national seashore residents, and local communities.**

STRATEGIES: Structures in sensitive resource areas — Existing structures would be removed from sensitive resource areas unless appropriate mitigating measures were taken. Sensitive resource areas would include pond frontages, sensitive vegetation communities, and areas where structures would be incompatible visual intrusions or where structures would be located on prominent landforms.

Preservation of significant historical or cultural values — Properties eligible for listing on the National Register of Historic Places would be considered for continued use for staff housing or the historic leasing program to ensure their upkeep. Any significant historical or cultural values associated with structures identified for housing would be preserved. Only those historic houses or other structures that were in good physical condition, that were suitable for use, and that could be cost-effectively rehabilitated would be considered for reuse.

Siting of staff housing — In evaluating a site or structure for staff housing, the Park Service would ensure that there are no sensitive resources (including archeological sites or sensitive vegetation) onsite or that impacts could be mitigated, and that housing would be compatible with the immediate environs. Also, hazardous areas would be avoided when relocating or siting new facilities. Hazardous areas include sites with unstable soils and geologic conditions, floodplains, and coastal high-hazard areas.

Wastewater treatment systems — Wastewater treatment systems would be assessed for existing and future housing, and necessary actions to minimize impacts on adjacent natural and cultural resources would be taken. For example, nitrate contamination to bays and estuaries would be limited. In accordance with public health and wetland standards, the National Park Service would continue to request approval from local towns or where necessary the state for national seashore septic systems.

Accessibility for persons with disabilities — Selected housing units would be adapted as

necessary to improve them for use by persons with disabilities.

UTILITIES

◆ **GOAL: Provide safe, energy-efficient, and cost-effective utilities in a manner that minimizes impacts on natural and cultural resources, national seashore residents, and local communities.**

STRATEGIES: Regional cooperation and joint use of utilities — The National Park Service would cooperatively develop and maintain a stronger regional perspective when considering options for providing utilities and services, including potable water. (A more in-depth discussion of water is contained in the "Water Resources" section, see pages 68–71).

Water conservation measures and public awareness of water resources — Water conservation measures would be implemented as facilities were upgraded, such as the installation of waterless toilets and low-flow fixtures. Public awareness of water resource concerns, water conservation, and pollution prevention would be promoted in cooperation with local towns and the Cape Cod Commission and the Association for the Preservation of Cape Cod.

Municipal groundwater use — The Park Service would study the merits of allowing groundwater use from wells within NPS boundaries if the special concerns, conditions, and authorities discussed in the "Water Resources" section were met (see pages 46, 69).

Septic systems — At a minimum all NPS septic systems would meet state and local standards. Where feasible, the National Park Service would use phosphorous- or nitrate-reducing or zero-discharge systems. In cooperation with town boards of health, the Park Service would encourage the owners of improved properties in sensitive resource areas (such as ponds, watersheds, and saltmarsh environments) to similarly upgrade septic systems.

The national seashore would proactively promote alternative systems and ongoing septic system upgrades. As a demonstration project, the Park Service would use alternative technologies to provide for wastewater treatment at facilities such as the former North Truro air force station and the Salt Pond visitor center. These facilities would then be used as models to show sustainable practices to the public (also see page 98).

Wastewater treatment systems would be assessed for existing and future housing, and necessary actions to minimize impacts on adjacent natural and cultural resources and community character would be taken. For example, nitrate contamination to bays and estuaries would be limited.

Waste management practices — The National Park Service would consult with the county and local towns to develop waste management practices for the national seashore. Some of these practices are already proving to be economically and environmentally viable in dealing with household composting, recycling, hazardous material disposal, trash burning, and the exchange of usable household items.

Solid waste removal — More cost-effective and efficient solid waste removal practices within the national seashore would be considered, including eventually contracting with a private company. Waste is disposed of by local town transfer stations on a fee basis.

Undergrounding powerlines — To reduce visual intrusions caused by overhead powerlines and landscape disruption from associated maintenance, NPS-owned powerlines would be placed underground where it was possible to do so without harm to archeological resources, cultural landscapes, or natural resources. The National Park Service supports county efforts to promote the undergrounding of all distribution lines. Local utility companies and national seashore residents would also be encouraged to place all powerlines underground, while at the same time addressing concerns related to archeological resources, cultural landscapes, and natural

resources. Where federal property was served by the line, costs to help place the powerlines underground would be shared, as funding allowed. Any new or relocated powerline right-of-way alignments should follow existing disturbed areas, such as roadbeds.

Maintenance standards for overhead powerlines — Standards would be developed to minimize disruption to natural and cultural resources during maintenance operations of remaining aboveground powerlines not owned by the Park Service. Property owners and utility companies would be required to meet these standards on national seashore lands. Utility companies or owners of improved properties would be encouraged to consider the environmental and scenic impacts of utility line installation and maintenance.

Telecommunication towers — In collaboration with the local communities and the Cape Cod Commission, proposals for telecommunication towers or antenna arrays within the national seashore would be reviewed in context with NPS policies and relevant town zoning and/or regional policies. Freestanding towers above a certain height are also subject to Cape Cod Commission review. Alternatives would be considered that would not create new visual or scenic impacts, site disturbance, public health and safety problems, or other natural or cultural resource impacts.

Underground fuel storage tanks — The Park Service would ensure that underground fuel storage tanks met current codes and that threats to the environment were minimized or prevented on NPS-owned use-and-occupancy properties. The Park Service would also inventory and encourage owners of improved properties to upgrade underground fuel storage systems or remedy problems to comply with current codes and regulations, as needed.

Alternative energy sources — Alternative energy sources, including photovoltaic systems and wind generators, would be considered wherever impacts on the national seashore's resources would be reduced. Regional and local standards

would be considered. Demonstration projects for providing energy to NPS facilities would be undertaken for energy efficiency and public education purposes.

Natural gas — The use of natural gas could be considered if energy- and cost-efficient. Requests to cross seashore lands with natural gas distribution lines might require authorizing legislation. For the placement of gas lines, the National Park Service would require the use of existing road or utility corridors only.

Reduced energy consumption — The Park Service would seek to reduce energy consumption in general. In achieving this strategy, the following programs would be emphasized:

- recycled graywater systems
- reduced waste production
- environmentally sound waste disposal techniques, such as composting
- alternative fuels for vehicles
- alternative energy sources
- conversion to efficient lighting fixtures

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

◆ **GOAL: Continue building cooperative and trusting relationships with local communities to provide a framework for the National Park Service to protect resources and serve the public while being sensitive to the social and economic well-being of local communities and residents.**

STRATEGIES: Regional coordination of services

— National seashore managers would work to coordinate services such as police and fire protection, community-oriented policing strategies, ambulance service, waste removal and recycling, hazardous waste management, and road maintenance with the Outer Cape towns. Collaboration

with the Cape Cod Commission would be one mechanism to achieve this coordination. The National Park Service would seek *ex officio* membership on the commission and offer assistance in coordinating efforts. The national seashore would continue to use those services, such as trash disposal, water, and wastewater treatment, for which it pays a proportionate share.

Waste management — Consultation with relevant towns would continue regarding waste management practices by and within the national seashore. Activities at the Truro and Provincetown trash transfer station facilities within the national seashore would be subject to applicable federal, state, and local regulations. The Provincetown facility would also be subject to relevant commonwealth and NPS deed restrictions.

Equitable compensation for services — It is important that local towns and the Park Service continue to cooperate in providing mutually beneficial services. It is also important that where compensation is involved, it be equitable and reflect the true value of responsibilities and services. The Park Service and local towns are mutually dependent in creating and updating cost-sharing agreements for local schools and services. The Park Service would work with the towns to identify and periodically evaluate cost sharing and agreements that can be negotiated and implemented at the park level or at an upper NPS policy level, and those that must be addressed by Congress.

Paved roads within national seashore boundaries — The use of NPS-owned paved roads within the national seashore would be analyzed. The Park Service would also cooperate with towns and private owners to ensure that all roads within the national seashore were appropriately maintained for their level of use.

Sand roads within national seashore boundaries — The Park Service would work with local towns, landowners, and other affected users to determine the ownership, level of use, and access rights for all sand roads. Maintenance would be the responsibility of the owner or

shared among multiple owners. Where NPS-owned sand roads were not needed for fire suppression access purposes, access to remote private residences, or alternative routes for emergency vehicles, the roads would be considered for closure to vehicle traffic; there would be prior consultation with affected towns. The purpose in closing such roads would be to reduce maintenance costs and impacts on resources, and to prevent access to areas where illegal dumping occurs. Some sand roads would be left open for access to park features and recreation spots. Special consideration would be given to longstanding public, designated ways, such as the Old King's Highway, which has been used continuously and maintains its cultural significance. Former sand roads no longer used for vehicular traffic would continue to be used for hiking, dog walking, and bicycling.

RESERVATIONS OF USE AND OCCUPANCY

- ◆ **GOAL: Identify and apply strategies to achieve the eventual removal of use-and-occupancy property improvements, taking into account resource values, bona fide hardship issues, and practical considerations such as the condition of the structures and the availability of funds to remove them.**

STRATEGIES: *Continued use of properties under hardship conditions* — Limited continued use of properties formerly under use-and-occupancy reservations would be permitted by private individuals under certain conditions. In such cases properties would be available for continued residential occupancy for an interim period only in bona fide hardship situations (for example, in the case of medical or financial hardship). A special use permit would be issued to authorize the occupancy. Consideration would be generally given only to original owners who are year-round residents with no other home. Former owners with a medical hardship could be permitted to live out their lives in these residences; former owners with a financial hardship would be permitted occupancy for the period of the hardship.

Use of other properties where use-and-occupancy reservations have ended — Except in cases of hardship as discussed above, once use-and-occupancy reservations have ended, the following actions would be considered for structures:

- Determine if a structure should be removed or retained for a short- or long-term use.
- Remove any structure in or adjacent to a sensitive resource area, as determined by staff specialists, such as a wetland protection area or an archeological site.
- For structures that were not to be removed, national seashore managers would decide which ones could be used for national seashore purposes for long- or short-term periods according to the following priorities:

- (1) For long-term use, national seashore managers would
 - (a) consider using structures for NPS purposes (such as housing, environmental programs, or offices, or for historic leasing, if appropriate), especially when impacts elsewhere could be reduced by vacating existing structures already in use. (If a structure on one of these properties was retained indefinitely, removal of another park structure would be undertaken in exchange.)
 - (b) consider seeking arrangements of mutual benefit, such as surplus for relocation and reuse outside the seashore, land exchanges with local towns for affordable housing in return for municipal properties when such exchanges would protect sensitive resource areas, or donation for use outside the seashore by towns or appro-

private agencies for affordable housing

- (2) For other properties, national seashore managers would consider short-term use and would

- (a) issue short-term permits or short-term leases for selected properties for residential purposes, and seek authority to use the proceeds for administrative expenses and eventual building demolition and site restoration (selection among applicants for short-term residential use would be based on current NPS policy and equity issues for choosing private users and length of tenancy)
 - (b) use the property for temporary park purposes (such as staff housing or offices), or use existing authority or seek authority to lease the property for appropriate uses other than residential (such as office space for nonprofit, resource-oriented organizations)
- If properties were not used or disposed of for one of the above purposes, removal from within the seashore would be accomplished through open-market sale for reuse or salvage, surplus to another agency, donation to a public agency, or demolition.

Terms of nongovernmental use of federal property — When a property was deemed suitable for use as housing, the following terms would apply:

- All properties would be leased at current fair market value and could only be used for private residential use, in accordance with federal law and NPS policy; no subletting or renting to a third party would be allowed.
- In all cases where the property was occupied by a nongovernmental party, the

permittee would be required to maintain and insure the property, pay applicable local possessory use taxes, and possibly remove (relocate or demolish) the structure and restore the site at the end of the term.

MANAGEMENT ZONES

Proposed management zones within Cape Cod National Seashore are identified in table 3; the visitor experience and management practices for each subzone are described in appendix D.

Standards and indicators for desired resource conditions and visitor experiences for each zone would be established (see appendix D). These would allow the National Park Service to identify whether physical, social, and resource protection goals were being met. If standards and indicators demonstrated that an area was in danger of being overused, management actions would be taken, such as dispersing users to other areas.

The following description is an acreage and percentage of change comparison between alternatives 1 and 2. The acreage calculations are approximate and for comparative purposes only. Some individual projects would require additional appropriate levels of National Environmental Policy Act compliance, depending on the extent and potential impacts of the project.

- **Natural Zone:** There would be no net change in natural zone acres. However, there would be substantial changes within the subzones, most significantly a decrease of 1,063 acres within the low use subzone. This decrease would be balanced by increases in other natural zones, particularly the marine/intertidal subzone, which would increase 640 acres because of proposed wetland restoration in the Hatches Harbor and Herring River estuaries. An area around the Province Lands ponds would be changed from dispersed use to low use to protect pond and wetland resources. Other changes include an increase in the dispersed use subzone by 256 acres, much of which had been zoned as low use in the

Camp Wellfleet area. The concentrated use subzone would increase by 167 acres, primarily at High Head where more trail access and other visitor use opportunities would be provided.

- **Cultural Zone:** Alternative 2 would increase the acreage within the cultural zone by 43 acres, or about 2%, due to the inclusion of the archeological sites at Fresh Brook Village.
- **Developed Zone:** Compared to alternative 1, alternative 2 would have a net decrease of approximately 4 acres. Approximately 25 acres at the former North Truro air force station would be reclassified from the visitor facility subzone to the special use zone (administration/operations subzone). About 14 acres would be added to the visitor facility subzone for the following purposes:
 - working with Provincetown to convert a portion of the Provincetown landfill into a public use area
 - providing additional areas for future replacement beach facilities and parking areas at Herring Cove Beach, if needed
 - relocating the Head of the Meadow parking facilities

- converting the Nauset Knoll Motor Lodge into an appropriate interpretive use
- developing a group picnic/gathering area inland from Marconi Beach
- providing beach access at Griffin Island and near the Great Island trailhead
- working with Wellfleet to develop a joint NPS/town beach facility at Duck Harbor
- providing a bicycle staging area along U.S. 6 for access to the Wellfleet area

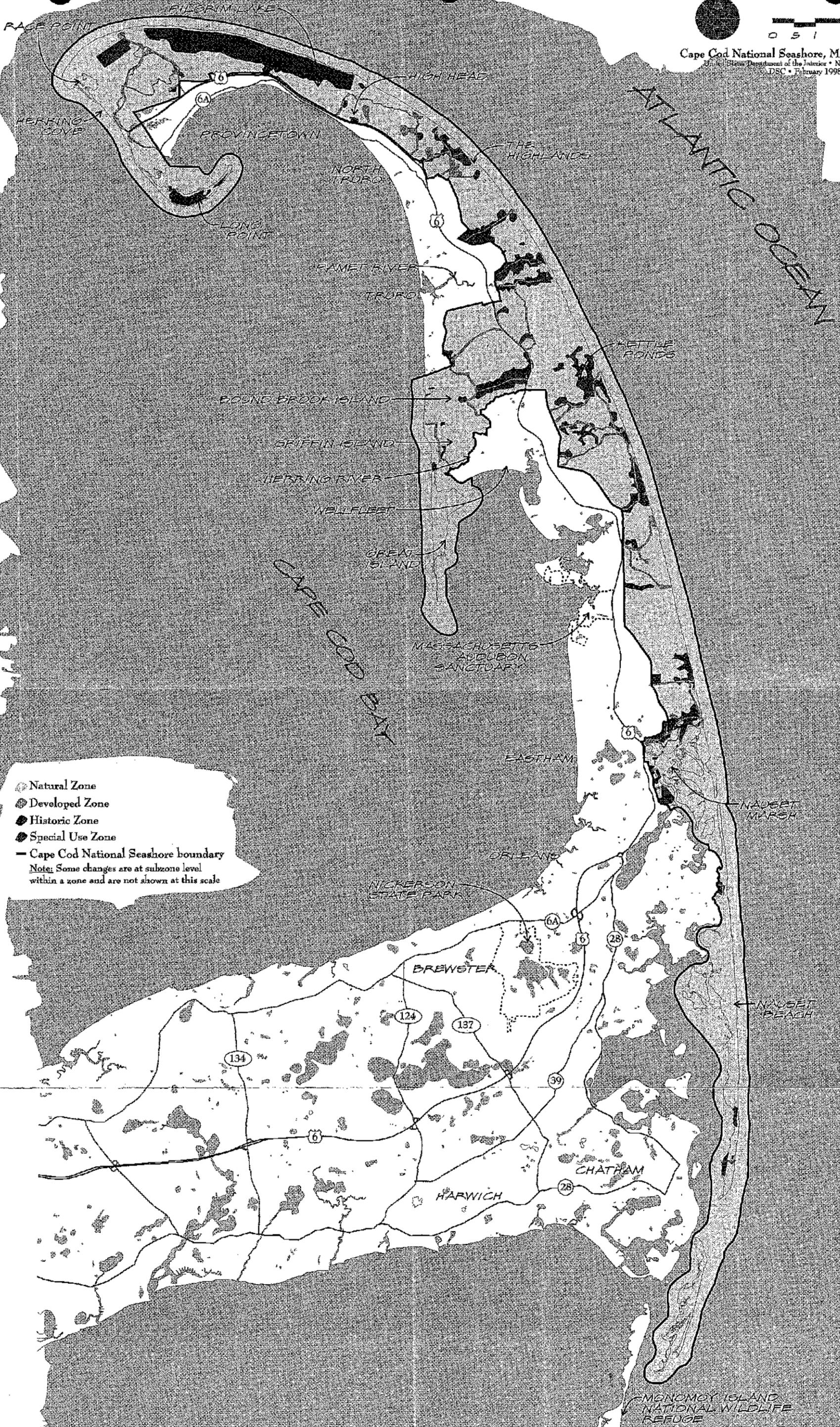
The motorized corridor subzone would increase slightly to provide access to a group picnic facility at Marconi Beach near national seashore headquarters.

- **Special Use Zone:** The primary changes are in the administration/operations subzone, which would decrease by 37 acres (8%). These changes are due to converting a portion of the Province Lands landfill for passive recreational purposes and portions of the former North Truro air force station into an environmental research and education center and a national seashore administrative operations area, with the restoration of some developed areas not proposed for rehabilitation into natural areas.

NORTH

0 5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,029a



- Natural Zone
- Developed Zone
- Historic Zone
- Special Use Zone

— Cape Cod National Seashore boundary
 Note: Some changes are at subzone level within a zone and are not shown at this scale

Proposed Management Zones

ON MICROFILM

TABLE 3: PROPOSED MANAGEMENT ZONES
(IN ACRES)

MANAGEMENT ZONES	ACRES	PERCENTAGE OF TOTAL	DIFFERENCE FROM CURRENT MANAGEMENT	PERCENTAGE CHANGE IN SUBZONE
Natural Zone				
Concentrated Use Subzone	754	2	167	+28%
Dispersed Use Subzone	12,015	29	256	+2%
Low Use Subzone	7,824	19	-1,063	-12%
Marine/Intertidal Subzone	15,547	37	640	+4%
Subtotal	36,140	87	0	0%
Historic Zone				
Structures and Landscape Subzone	155	0	0	0%
Natural Settings Subzone	1,769	4	43	+2%
Subtotal	1,924	4	43	+2%
Developed Zone				
Visitor Facility Subzone	277	<1	-11	-4%
Motorized Corridor Subzone	632	2	7	+1%
Nonmotorized Corridor Subzone	42	0	0	+0%
Subtotal	951	2	-4	<-1%
Special Use Zone				
Rural Settlement Subzone	1,974	5	-2	0%
Administration/Operations Subzone	413	1	-37	-8%
Subtotal	2,387	6	-64	-2%
TOTAL	41,402	100	0	0%

NOTE: Acres listed are estimates based on geographic information systems (GIS) analysis and are used for comparative purposes only. The total acres listed do not match the total number of acres in the authorized boundary (43,570) because shoreline processes and storm events have changed the configuration of the shoreline.

ALTERNATIVE 3

Under alternative 3 the National Park Service would take a more active role in directing efforts to preserve natural and cultural resources. All goals and strategies would be the same as those under alternative 2 except as identified below.

NATURAL RESOURCES

COASTAL PROCESSES

- ◆ **GOAL: Allow natural shoreline processes to take place unimpeded, including overwash, inlet migration, and dune dynamics.**

STRATEGIES: The following strategies would be the same as alternative 2 (see pages 66, 67):

- *beach nourishment activities*
- *long-term monitoring*

The following strategies would be more restrictive than under alternative 2:

Inlet formation, overwash, and dune migration and formation — The criteria for determining responses under this alternative would be similar to those under alternative 2, but they would be more restrictive.

- Allow all overwashes and blowouts to occur without human disturbances, including those events caused or exacerbated by human activities.
- Prevent artificial beach nourishment on NPS land in the seashore, and work to prevent beach nourishment on town and private land within the national seashore.
- Prevent revetment of marine scarps on NPS land in the seashore, and work to prevent revetments on all land within the seashore.

- Monitor inlet formations, overwash, and dune migration and formation as they occur.

Alternatives to groins, jetties, revetments, and seawalls within seashore boundaries, including town and private property — As described under alternative 2, the National Park Service would explore alternatives to prevent the construction of groins, jetties, revetments, or seawalls on all lands within the national seashore, including town and private property. Cooperative efforts would be undertaken with the Cape Cod Commission, the Office of Coastal Zone Management, the Massachusetts Natural Heritage and Endangered Species Program, and the USDA Natural Resources Conservation Service. Possible actions include designating sensitive coastal areas as districts of critical planning concern or developing a task force on coastal processes to examine this issue. Soft solutions to deal with coastal erosion, such as dune grass planting, would be emphasized on non-NPS lands. However, under alternative 3 if these other means did not prevent the construction of such structures, legislation would be sought to accomplish this strategy.

Sand fencing and dune grass planting — These activities would be eliminated on NPS lands.

Facilities and cultural resources seriously threatened by coastal erosion — All such facilities and cultural resources would be documented and removed.

NPS developments — Existing NPS developments that conflict with coastal processes, such as some beach support facilities at Herring Cove and Head of the Meadow, would be removed.

WATER RESOURCES

- ◆ **GOAL: Protect ground and surface water quality and quantity, and adjacent wetlands.**

STRATEGY: All strategies would be the same as those described for alternative 2 except for aquaculture. The effects of aquaculture on water resources would be researched, and the National Park Service, acting as an upland landowner, would be more stringent in reviewing shellfish aquaculture applications to protect marine and estuarine water quality and coastal carrying capacity. (Also see the description of aquaculture under "Vegetation and Wildlife" below.)

VEGETATION AND WILDLIFE

- ◆ **GOAL: Manage special uses affecting wildlife populations and other biotic resources to minimize ecosystem impacts and to sustain natural processes.**

STRATEGIES:

All strategies would be the same as those described for alternative 2 except for the following:

Designation of limited areas for aquacultural use of intertidal areas — No exotic species or species not normally found in the habitat proposed for shellfish aquaculture would be allowed. A carrying capacity for aquacultural development would be established, considering impacts on marine systems and other environmental, recreational, and aesthetic impacts. Any shellfish aquaculture use would have to be in balance with other values of the tidal flats and coastal area.

Finfish aquaculture — No finfish aquaculture would be allowed.

Insect control programs — Memorandums of understanding would be developed with the state and local communities for insect control programs within the national seashore. Agreements would specify terms and conditions for programs.

Stocking programs — A memorandum of understanding would be developed with the state to cease the stocking of nonnative animals for hunting and fishing

CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

The goals and strategies would be the same as alternative 2.

CULTURAL LANDSCAPES

- ◆ **GOAL: Identify, manage, and maintain cultural landscapes that are on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Significant cultural landscapes — The National Park Service would purchase or otherwise acquire historic preservation easements on improved properties (e.g., viewsheds) to protect significant cultural landscapes.

Acquisition of cultural landscapes — The National Park Service would seek authorization and appropriation of additional land acquisition funds to allow the purchase of certain improved properties. Improved properties would be acquired from willing sellers if the integrity of the cultural landscape was threatened and if preserving that landscape would support the cultural significance of the Outer Cape. The *Land Protection Plan* would also be amended to permit such acquisitions.

HISTORIC ARCHITECTURE

- ◆ **GOAL: Manage and maintain buildings and structures on or eligible for listing on the National Register of Historic Places.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Nationally significant structures — The national seashore's *Land Protection Plan* would be amended to allow the acquisition on a willing-seller basis of any buildings or structures on or eligible for listing on the National Register of Historic Places.

Historic structures threatened by natural coastal processes — The National Park Service would seek to protect improved properties containing historic buildings that are threatened by demolition or loss of integrity. The Park Service would acquire these structures if no other means were available to protect them. This strategy would require additional funds for the Park Service to acquire such structures.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

- ◆ **GOAL: Manage and maintain all land-based and submerged archeological resources that are listed on or eligible for the National Register of Historic Places.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Archeological resources subject to loss from coastal erosion — If resources were subject to eventual loss due to natural coastal processes, they would be made available for amateurs and field schools to excavate beforehand.

Protection of submerged resources — If necessary to protect submerged archeological resources, the Park Service would seek legislation to fix the current the boundary of the national seashore. This boundary change would make minor adjustments to the current boundary and would be defined by degrees of latitude and longitude, rather than by having the present 1/4-mile offshore boundary subject to migration as a result of coastal erosion. The new boundary could also include several shipwrecks just outside the present boundary. In areas within the present national seashore boundary where the ocean floor is owned by the state, the transfer of

those areas with significant cultural resources to the National Park Service would be sought. In the interim the national seashore's *Land Protection Plan* would be revised to allow the acquisition of all the ocean floor within the boundary that is not federally owned.

MUSEUM COLLECTION

- ◆ **GOAL: Protect the national seashore's archeological, historic, and museum objects.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except that the national seashore's collection (particularly for natural science objects) would be expanded. The "Scope of Collections Statement" would be updated to ensure that collections donated or purchased would fill gaps in an expanded collection.

PUBLIC USE

INFORMATION AND ORIENTATION

- ◆ **GOAL: Provide opportunities for the public to have access to a variety of accurate and up-to-date planning and orientation information about the national seashore and Cape Cod before leaving home.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

A coordinated Capewide information distribution system — In partnership with Cape communities and the state, the Park Service would help develop a coordinated Capewide information distribution system to ensure that all locations provide accurate, adequate, and current information to the public. As part of this arrangement, the national seashore would provide displays, bulletin cases, literature, etc., at town/state information centers and at transit sites throughout the Cape. A similar partnership

would be established at airports and ferry operations on the Cape.

Information kiosks — Kiosks would be provided at each town's chamber of commerce information station and at convenient locations in local communities and throughout the region.

ACCESS AND TRANSPORTATION

- ◆ **GOAL: Provide access to public use areas that is environmentally sensitive, safe, and consistent with the desired public use experiences; ensure that the transportation system does not detract from the character of Cape Cod.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except that no new installation of facilities would be allowed at the Provincetown airport outside the permitted areas.

INTERPRETATION AND EDUCATION

- ◆ **GOAL: Provide a wide variety of interpretive and educational opportunities for a diverse public so that they understand and appreciate how Cape Cod's natural and cultural resources are interrelated with its history and the people who live there.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

A cooperative national seashore / national wildlife refuge interpretive center — The establishment of an interpretive center at the Morris Island / Monomoy National Wildlife Refuge would be explored in cooperation with the U.S. Fish and Wildlife Service. Such a facility would expand the NPS presence in the southern part of the seashore and greatly increase interpretive services offered by both agencies.

Cooperative interpretation of the Stellwagen Bank National Marine Sanctuary — In coopera-

tion with the National Oceanic and Atmospheric Administration, interpretive information and wayside exhibits would be provided. If desired, the National Park Service would cooperate with the National Oceanic and Atmospheric Administration to establish and staff a joint visitor center.

ACTIVITIES, FACILITIES, AND SERVICES

- ◆ **GOAL: Minimize use conflicts between seashore visitor use areas and residential areas.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except that signs would be placed along visitor routes to inform users of private properties and the need to respect private property rights.

CONCESSIONS AND COMMERCIAL SERVICES

- ◆ **GOAL: Eliminate duplicative commercial enterprises from within the boundaries of the national seashore; depend on private businesses in the surrounding towns to provide basic visitor services.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Existing seashore concessions — Existing seashore concessions at Herring Cove Beach (the food concession) and Nauset Knoll Motor Lodge would be discontinued when the current contracts expire. The Nauset Knoll facility would be redeveloped for park interpretation or education.

Commercial use permits — Strict commercial use permits would be issued for offsite operators of tours within the national seashore.

NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

PRIVATE RESIDENTIAL PROPERTIES

All strategies would be the same as those described for alternative 2 except for the following:

Regulations for private residential (improved) property owners — The existing NPS use guidelines for private improved property owners would be adopted as part of the Cape Cod National Seashore zoning standards through a public process. The proposed rule would restrict demolition and would guide the alteration or relocation of residences, as well as overall expansion and accessory uses (see the discussion of existing use guidelines in the "Affected Environment"). Noncompliance would be grounds for revoking a certificate of suspension of condemnation, which could result in acquisition.

PRIVATE COMMERCIAL PROPERTIES

- ◆ **GOAL: Ensure that commercial parcels are managed consistent with the national seashore purposes and that any negative impacts on seashore resources, community character, or visitor experience are minimized.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except that the following standards would be established for renewing permits for private commercial uses in the national seashore every five years:

- There has there been no change of use.
- The commercial activity contributes to the public's use and enjoyment of the national seashore.
- The commercial activity does not adversely affect resource protection or visitor activities in the national seashore.

If compliance standards could not be met, certificates of suspension of condemnation would be withdrawn, and the private commercial properties would be acquired.

MUNICIPAL AND STATE LANDS

- ◆ **GOAL: Encourage the protection of resources that are owned and managed by multiple jurisdictions.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except that human activities at kettle ponds under municipal and state jurisdiction would be managed to protect the ponds from degradation due to development, overuse, or inappropriate use. Decisions would also be made about the kinds of and levels of use. In these efforts the Park Service would propose the following actions:

- Coordinate with the state and towns to develop joint management plans for undeveloped lands, ponds, and beaches.
- Explore the transfer of all management responsibilities for some ponds so that a single manager could be defined for each pond; however, maintain a collaborative, overall management scheme.
- Negotiate with towns for land exchanges to acquire municipal interests in the ponds.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

ADMINISTRATIVE AND MAINTENANCE FACILITIES

- ◆ **GOAL: Provide adequate, safe, energy-efficient, cost-effective office space and work space in a manner that minimizes impacts on natural and cultural resources.**

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Administrative and maintenance functions — NPS facilities would be moved outside the boundary of the national seashore, and vacated facilities would be removed. In addition, the Park Service would plan for administrative and maintenance functions and programs that would minimize the need for federally owned facilities.

Landscaping — No artificial landscaping would be provided around any facilities except to meet minimum requirements for fire suppression, safety, and functionality.

STAFF HOUSING

- ◆ **GOAL:** Provide a variety of staff housing options for seasonal employees and volunteers; over the long term, reduce the Park Services's dependence on staff housing within the seashore for permanent employees.

STRATEGIES: All strategies would be the same as those described for alternative 2 except for the following:

Dispersed housing — Dispersed housing would be emphasized throughout the national seashore. Existing clustered housing areas would be dispersed.

Permanent employee housing — The number of seashore housing units available for permanent employees would be limited.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

- ◆ **GOAL:** Continue building cooperative and trusting relationships with local communities to provide a framework for the National Park Service to fulfill its obligations to protect resources and serve the public while furthering the social and economic well-being of local communities and residents.

STRATEGY: All strategies would be the same as those described for alternative 2 except that fire protection would be provided on a fee-for-service basis.

ALTERNATIVES AND STRATEGIES CONSIDERED BUT REJECTED

PRELIMINARY ALTERNATIVES

In the fall 1993 newsletter three concepts for management were presented in a "Framework for Alternatives." These included an emphasis on natural resource protection, an emphasis on Cape Cod's cultural heritage, and an emphasis on public use opportunities. These proposals were intended to illustrate the different extremes to which national seashore managers could direct their efforts and to form the basis for public discussion. These preliminary alternatives were eliminated from further consideration because any plan for the national seashore must address natural and cultural resources as well as public use. In addition, there was significant public support for an alternative that balanced these emphases and placed a greater emphasis on acknowledging the context in which the national seashore functions.

PUBLIC USE STRATEGIES

ACCESS AND TRANSPORTATION

Build an internal connector road between Nauset Lighthouse and the Marconi area — This proposal was rejected because impacts on previously undisturbed uplands would be too great.

ACTIVITIES, FACILITIES, AND SERVICES

Create developed overnight campgrounds for individual camping on NPS property — This proposal was rejected because such camping opportunities exist in private and state campgrounds on the Outer Cape.

Consolidate public use at fewer, more developed sites — This proposal was rejected because larger developed sites would offer a limited

range of experiences and would result in greater impacts on resources.

Consider new ocean beach access using the public experience/resource protection criteria and locational criteria if maximum capacity was reached despite beach traffic management techniques — This proposal was rejected because of the significant adverse effect on the natural environment that would result from a major new ocean beach area. Due to the unique cliff-side topography prevalent along much of the national seashore's ocean beach, those access points most easily developed are already in use.

Expand existing beach parking lots to accommodate more cars — This proposal was rejected because the existing parking lots are in fragile areas that should not be further developed. Also, this strategy could encourage a continuous process of placing parking lots in areas likely to be lost to coastal erosion in a relatively short time.

Replace in kind land lost by others through natural processes such as erosion — The seashore is also experiencing loss of land and cannot commit additional federal lands to development for nonseashore purposes.

Avoid placing any seashore activity or improvement near private property — Because private property is distributed throughout and along the national seashore, and because many properties are within areas that are near public use facilities, this proposal would preclude most new activities, which would be inconsistent with legislative intent.

- *When uses conflict, give priority to the use with fewer impacts; for example, restrict ORV driving to a smaller area to avoid sunbathers* — This proposal was rejected because it would unduly constrain some allowed uses.

AFFECTED ENVIRONMENT

NATURAL RESOURCES

CLIMATE

Cape Cod has a humid maritime climate characterized by a moderate annual range of temperatures and definite summer and winter seasons. Prevailing westerly winds tend to bring continental climate extremes to the Cape, but the sea tempers the higher summer and lower winter temperatures that occur at inland locations. July is the warmest month along the seashore with an average daily temperature of 70°F in Hyannis; the warmest temperature on record is 97°F. In January the average daily temperature is 30°F; the lowest temperature on record is -7°F.

Average annual precipitation in Barnstable County is 43". Moisture falls in all months, and snowfall averages about 24". The average relative humidity in midafternoon is about 70%. Humidity is higher at night, and the average at dawn is about 80%. The sun shines 60% of the time possible in summer and 50% in winter. The prevailing wind is from the northwest, with the highest average wind speed in winter (22 miles per hour).

In winter Cape Cod experiences severe coastal storms unique to this section of North America. A "nor'easter" evolves from a marine cyclone that builds up south and east of New England. The resulting low pressure system then draws cold air from polar air masses over the North Atlantic. The storms sweep in from the northeast, bringing strong winds, high waves, and heavy rain. Even though nor'easters occur relatively frequently, few are severe enough to cause extensive damage.

AIR RESOURCES

The purpose of the Clean Air Act (42 USC 7401 et seq.) is to protect and enhance the nation's air quality. States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Pro-

tection Agency (EPA). These standards have been established for several pollutants: inhalable particulate matter (PM-10), sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. These pollutants can have adverse impacts on seashore resources and visitors.

Three air quality categories are established for national park system areas: class I, class II, and class III. The seashore is a class II area. The state may permit a moderate amount of new air pollution (sulfur dioxide, particulate matter, and nitrogen oxides) as long as neither national ambient air quality standards nor the maximum allowable increases (increments) over established baseline concentrations are exceeded.

Cape Cod is part of the Metropolitan Providence Interstate Air Quality Region, which includes southeastern Massachusetts. This region has the greatest influence on the air quality of Cape Cod because of the prevailing winds. The region was a nonattainment area for ozone as of October 1994. One of the largest emitters in southeast Massachusetts is the Canal Electric Company in Sandwich; it is also the only major emitter (>100 tons per year) on the Cape. Tables 4 and 5 list major emitters in Rhode Island and southeastern Massachusetts.

Under certain conditions pollutants from the Boston Metropolitan Air Quality Region (60 miles to the northwest) reach the seashore. In and around Boston are large sources of several stationary and mobile contaminants, and this area does not meet EPA standards for ozone or carbon monoxide. Visitors may be affected even by ozone levels that meet federal standards; carbon monoxide is toxic to humans at low levels.

The major pollutants originating in the seashore are vehicle emissions (primary hydrocarbons, carbon monoxide, and nitrogen oxides), most of which are generated during periods of high visitation. The Cape Cod Commission has developed a *Long Range Transportation Plan* for Cape Cod, which identifies the need to reduce

TABLE 4: MAJOR EMITTING FACILITIES (>100 TONS/YEAR),
RHODE ISLAND AIR POLLUTION CONTROL DISTRICT

COMMUNITY	SOURCE	TONS/YEAR				
		TSP	SO ₂	NO ₂	CO	VOC
Bristol	Premier Thread					177
Central Falls	GTE Products Division		204	291		
Coventry	Arkwright, Inc.					169
	Hoechst Celanese Corp. Coventry Plant		137			
Cranston	RI Central Power Plant		233			
Cumberland	CCL Custom Manufacturing					203
East Greenwich	Stanley Bostitch					113
East Providence	Getty Oil					115
	Mobil Oil Corp					298
Johnston	Decorative Specialties International					167
Newport	NETC		213	104		
North Kingstown	RI Port Authority		192			
Pawtucket	Colfax, Inc.		112			
Providence	Narragansett Electric		282	631		
	Quebecor					1,655
	RI Hospital			130		
	Star Enterprise (Texaco)					263
	Sun Oil Inc					133
	Union Industries					179
Richmond	Kenyon Industries					218
Westerly	Bradford Dyeing			107		

vehicle emissions substantially to meet national ambient air quality standards (Cape Cod Commission 1995).

Ozone monitoring has been conducted annually on Cape Cod since 1987 in cooperation with the Massachusetts Department of Environmental Protection and the Environmental Protection Agency. The national ambient air quality standard for maximum hourly concentrations of ozone is 0.12 parts per million (ppm). At the seashore monitoring station this level is exceeded more often than at any Massachusetts site, and ozone concentrations at the seashore

have been among the highest reported in any national park system area (NPS 1992g). Some NPS areas post health warnings for visitors on nonattainment days.

Evidence suggests that reduced growth and increased mortality of some sensitive species are occurring in heavily polluted national park system areas, perhaps decreasing species diversity. Ozone as low as 0.06 ppm is believed to cause foliar damage to plants. Other pollutants known to cause foliar injury are sulfur dioxide, hydrogen fluoride, and nitrogen dioxide (NPS 1992g).

TABLE 5: MAJOR EMITTING FACILITIES (>100 TONS/YEAR),
SOUTHEAST MASSACHUSETTS AIR POLLUTION CONTROL DISTRICT

COMMUNITY	SOURCE	TONS/YEAR				
		TSP	SO ₂	NO ₂	CO	VOC
Attleboro	Texas Instruments		303			124
Fall River	Aluminum Processing					124
	Arkwright Finish Division		224			
	DPW Incinerator				557	
	Globe Manufacturing					252
	Gold Medal Bakery					156
	Shell Oil Company					128
	Stevens Realty Company		105			
Foxboro	The Foxboro Company					161
Medway	Boston Edison Station			130		
Milford	American National Can Company		399	627		
	Archer Rubber Company					304
Nantucket	Nantucket Electric Company		124	1,719	184	
New Bedford	Aerovox Industries					146
	Brittany Dye and Printing					191
	Cannon Street Station		324	219		
	Dartmouth Finishing					143
	Polaroid Corporation		183			
Rochester	Semass	163	525	1,944	646	
Rockland	Venture Tape					124
Sandwich	Canal Electric Company	256	82,747	11,999	895	
Somerset	Montaup Electric Company		11,511	3,008	128	
	New England Power Company	483	83,686	36,030	1,117	144
Taunton	Paul Dever State School		100			
	Taunton Municipal Light Company		1,038	690		

The National Park Service monitors acid deposition levels on the Outer Cape through the national atmospheric deposition program. National seashore staff have undertaken an acid rain monitoring project at 25 sites on a quarterly basis since 1981. This program was initiated through the Massachusetts acid rain monitoring program.

A long-term pH decline has been observed at several ponds (NPS 1992a). The risk of acidification of surface waters is considered to be great in the poorly buffered kettle ponds and vernal pools (NPS 1993a). Acid deposition affects soil nutrients and microorganisms and can cause release of aluminum ions, which are toxic to some aquatic organisms (NPS 1992a).

No monitoring of visibility or the particulates that affect visibility has taken place. There has been very little assessment of air quality related impacts on vegetation or other resources in the seashore. Current monitoring does not include all parameters likely to be influencing seashore resources.

In 1993 the National Park Service developed a strategy to initiate actions that preserve and protect air resources in park units east of the Mississippi. Known as CLEAR (*A Clearer Look at Eastern Air Resources*), this program emphasizes cooperative efforts between the National Park Service, the public, and federal, state, and local agencies to minimize air pollution impacts on natural and cultural resources, to protect the health of seashore visitors and employees, and to enhance visitor enjoyment (NPS 1993c).

GEOLOGY AND COASTAL PROCESSES

Cape Cod is composed almost entirely of material deposited by glaciers about 14,000–18,000 years ago (Brownlow 1979). Wind and water reworked these sediments to create the landforms we see today — beaches, spits, marshes, pampets, cliffs, and dunes. Coastal processes such as tides, winds, storms, and longshore sediment transport continue to shape and reshape the area. Cape Cod's outer beach is renowned for its long, largely undeveloped expanses of sand.

In addition to their value as habitat, the natural landforms of the Cape protect landward areas from storms and coastal flooding. Beaches and marshes dissipate destructive storm waves over their gradual slopes. Dune systems prevent direct wave attack against inland areas. Barrier islands and spits, and their inlets, are fundamental to the development of rich biological resources found in the protected, low-energy estuaries behind them. Barrier beaches migrate slowly inland and downdrift with the moving sands; this movement maintains their elevation and protective capability relative to rising sea level and storm forces (NOAA and Massachu-

setts Executive Office of Environmental Affairs 1978).

Investigators have estimated that the Outer Cape may have originally extended from 2.5 to 4 miles to the east (Leatherman et al. 1981). Wave-induced erosion of the coast has caused steep cliffs to form between Coast Guard Beach in Eastham and Head of the Meadow in Truro. Analysis of several short-term studies since 1887 indicates that the erosion rate in this area averages 2–3 feet per year, with individual values ranging from 0 to 7 feet (Leatherman et al. 1981).

While some areas of the Cape are eroding, others are accreting, including the Province Lands Hook and Monomoy Spit. Still other areas, such as Nauset Spit, follow a cycle of spit growth and inlet formation. More localized changes in the Outer Beach, however, have a complex history, are unpredictable, and yet affect the management of many resources.

Natural coastal processes, including hurricanes and northeasterly storms, which created and continue to reshape the coastal landforms of the Cape, are also responsible for damage caused by flooding and erosion. NPS facilities have been lost to winter storms, and time and money have been spent to protect, reconstruct, and relocate facilities. The seashore inherited facilities at Herring Cove Beach that are in a barrier dune zone and are protected by stone groins and an asphalt revetment. These erosion control structures are a safety hazard, require extensive maintenance, and interfere with natural barrier beach dynamics.

Several historic structures threatened by coastal erosion have been relocated. The National Park Service, the U.S. Coast Guard, and the Truro Historical Society worked to relocate Highland Light away from the eroding bluff where it originally sat. Similarly, the Park Service, the U.S. Coast Guard, and the Nauset Light Preservation Society worked to relocate that light in Eastham.

Archeological sites exposed during storms have required salvage excavation. Shoreline configuration determines the access routes and available corridor for ORVs in the 8-mile public use area from Race Point to High Head. Shoreline changes in the past have resulted in ORV traffic being routed closer to nests of the piping plover, which is federally listed as threatened.

Erosion and the cyclic formation of a barrier beach that is within the seashore boundary but that is owned by the town of Chatham has contributed to several million dollars worth of damage to private homes; decisions on the management of that beach may affect seashore resources. Parking facilities at Ballston Beach, which is managed by the town of Truro, have been lost to natural processes of overwash and migrating dunes. The town is requesting replacement facilities on seashore property.

In the Nauset Marsh area revetments to stop local shoreline erosion have been built on private land within the seashore boundary and on land adjacent to the boundary. Private property owners have also requested to use seashore land to build protective structures or to relocate houses back from the eroding shoreline.

General NPS policy relating to coastal processes is to let shoreline processes take place unimpeded:

Natural shoreline processes . . . that are not influenced by human actions will be allowed to continue without abatement except where control measures are required by law. In instances where human activities or structures have altered the nature or rate of shoreline processes, the National Park Service will, in consultation with appropriate state and federal agencies, investigate alternatives for mitigating the effects of such activities or structures. The National Park Service will comply with provisions of state coastal zone management plans prepared under the Coastal Zone Management Act (16 USC 1451 *et seq.*) when such provisions are more environmentally restrictive than NPS management zoning (NPS *Management Policies* 1988b).

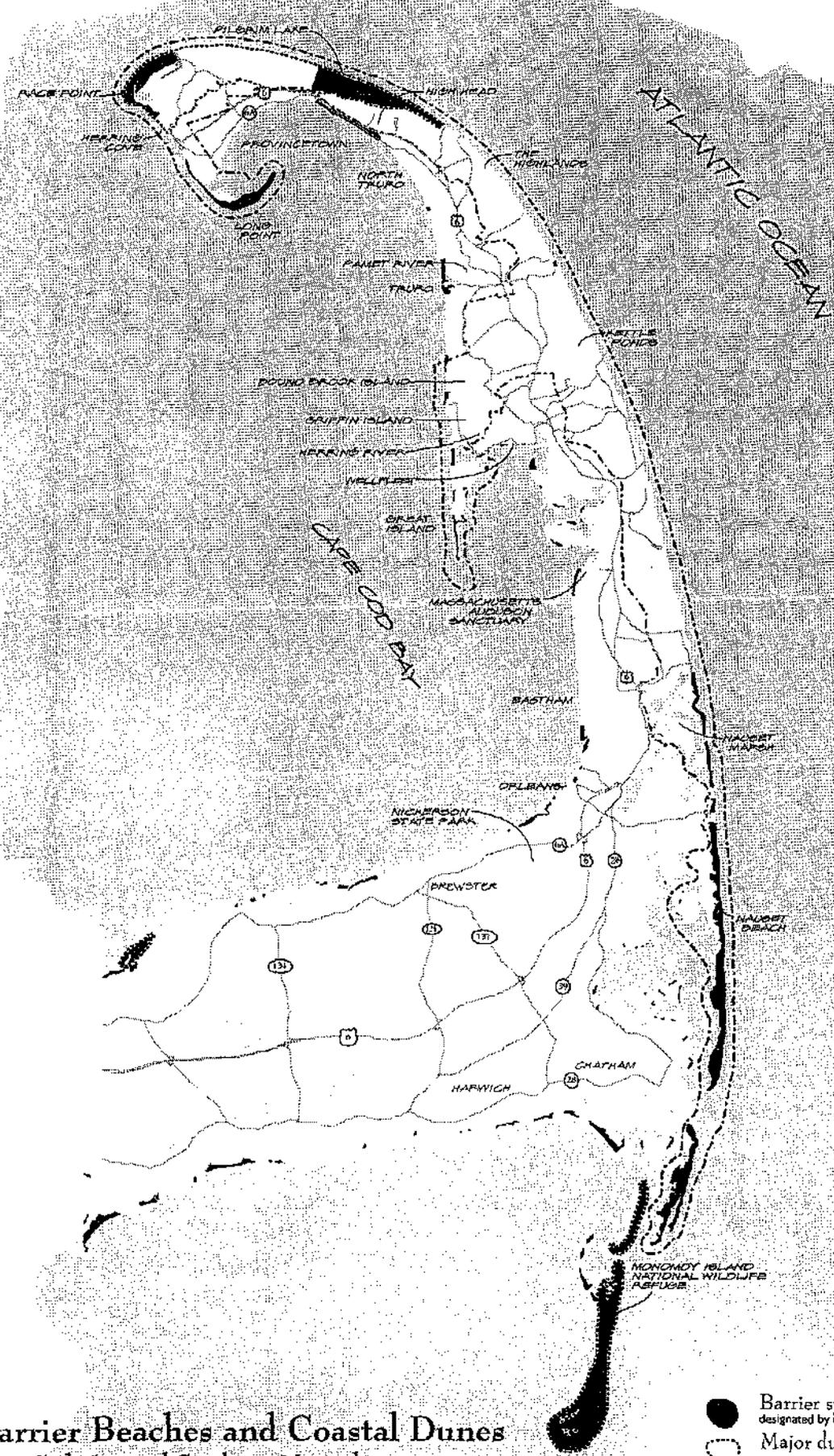
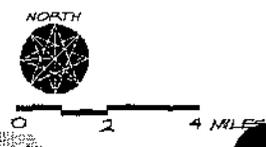
In 1978 Massachusetts adopted policies concerning the protection, development, and revitalization of coastal resources in the state. All lands on Cape Cod except federal lands are subject to Massachusetts coastal zone management policies; all federal activities related to marine resources must be consistent with these policies. In 1994 the Massachusetts Office of Coastal Zone Management, in conjunction with the Massachusetts Audubon Society and the Association for the Preservation of Cape Cod, published guidelines for managing barrier beaches in Massachusetts (Massachusetts Barrier Beach Task Force 1994).

Private or municipal coastal engineering structures must be reviewed for conformance with the Massachusetts Wetlands Protection Act because these actions affect the coastal bank. The National Park Service has the opportunity to express opinions when projects involving interventions in natural coastal processes are being reviewed.

Extensive information on coastal processes within Cape Cod National Seashore is available; however, it has been gathered intermittently and not consistently enough to be used to confidently in making decisions. Examples of shoreline processes include erosion, accretion, and changes to dunes, inlets, and bluffs. Significant pedestrian impacts on dunes and bluffs exist but have never been quantified. Sediment budgets for littoral and estuarine environments, and for migrating dunes in the Province Lands, have not been determined. It is important to understand the normal limits of variation resulting from natural coastal processes in order to make informed management decisions.

BARRIER BEACHES

Barrier beaches are low-lying beaches and coastal dunes separating open water or wetland systems from the ocean; they comprise a complex assemblage of different landforms, environments, habitats, land cover, and land use (see the *Barrier Beaches and Coastal Dunes* map). Numerous federal, state, regional and local laws



Barrier Beaches and Coastal Dunes
Cape Cod National Seashore, Massachusetts
 United States Department of the Interior • National Park Service
 DSC • February 1998 • 609 • 20,034

-  Barrier system designated by the Massachusetts Coastal Zone Management Office
-  Major dune system mapped by the Association for the Preservation of Cape Cod
-  Cape Cod National Seashore boundary

ON MICROFILM

have been enacted that pertain to the use and protection of barrier beaches, including the 1982 Coastal Barrier Resources Act, as amended in 1990, and the 1972 Coastal Zone Management Act, as amended in 1990. To enhance barrier beach management, the Massachusetts Office of Coastal Zone Management has identified and delineated barrier beaches within each coastal town.

Near Provincetown, Long Point and Race Point have been identified as barrier beaches. In Truro, Pilgrim Beach (on the bayside) and the area between the west end of Pilgrim Lake and Head of the Meadow are barrier beaches. Bayside beaches in Truro include a small section of beach at the north end of Great Hollow Beach, Harbor Bar, and the beach at the mouth of Bound Brook. Ballston Beach is also a barrier beach. In Wellfleet several small sections of bayside beach are barrier beaches, the most notable being Jeremy Point. Most other Wellfleet barrier beaches are adjacent to salt marshes. Nauset Beach, which runs along the east shore of the towns of Eastham, Orleans, and Chatham, is a barrier beach for nearly its entire length.

SOILS

The soils of Cape Cod have been classified as excessively drained outwash and are derived from glacial outwashes and moraines. They vary in composition and include glacial till, sand, gravel, interspersed layers of clay and silt, and scattered large boulders. In several areas of the Cape, dune deposits overlie the glacial soils. Many of these dunes are formed from beach material that was transported inland by winds.

The general soil map of Barnstable County shows four general soil types on the Outer Cape (see table 6). These soil types are referred to as general soil map units. More detailed soil map units are described in the *Soil Survey of Barnstable County* (Soil Conservation Service 1993) and should be used to determine site-specific suitability for development.

PRIME AND UNIQUE FARMLANDS

The U.S. Department of Agriculture defines prime farmland as the land that is best suited for food, feed, forage, fiber, and oilseed crops; unique farmland produces specialty crops such as fruit, vegetables, and nuts. According to an August 11, 1980, memorandum from the Council on Environmental Quality, federal agencies must assess the effects of their actions on soils classified by the Soil Conservation Service as prime or unique.

The Soil Conservation Service (now the Natural Resources Conservation Service) office in Barnstable County, Massachusetts, was consulted for a determination of prime and unique farmland within the national seashore. Prime farmlands within Barnstable County include 12 different soil types, of which only three occur within Cape Cod National Seashore — Nantucket sandy loam, Boxford silt loam, and Merrimac sandy loam.

About 36 acres of Nantucket sandy loam occur within the national seashore; about 15 acres are private land, about 6 acres town owned, and less than 1 acre state owned. This soil type occurs near Nauset Heights, Sampson Island, Pochet Island, and the small islands near Pochet Island.

About 28 acres of Boxford silt loam occur within the national seashore, of which 14 acres are privately owned. This soil type occurs at Pochet Island.

Nearly 15 acres of Merrimac sandy loam occur within the national seashore, of which almost 4 acres are privately owned. This soil type occurs in an area near Doane Rock.

Cape Cod has both commercial and wild cranberry bogs, and both types are considered unique farmlands. A combination of hydrology and soil type provides the potential to produce the unique cranberry crop.

Commercial bogs have been developed from red maple swamps, Atlantic white cedar swamps,

TABLE 6: GENERAL SOIL TYPES, CAPE COD NATIONAL SEASHORE

Map Unit	Description	Location	Primary Use	Limitations
Hooksan/Beaches/ Dune Land	Beaches, dune land, and nearly level to steep, drained, sandy soils formed in windblown deposits.	Province Lands and along both exposed shores of the Outer Cape.	Limited recreation or animal habitat. Beaches are well suited to sunbathing and swimming.	Hooksan soils support sparse vegetation and are subject to severe wind erosion. Revegetating road cuts and trails is difficult. Dune land is subject to severe wind erosion.
Ipswich/Pawcatuck/ Matunuck	Nearly level, very deep, very poorly drained peats formed in marine organic and sandy deposits.	Areas sheltered from ocean waves along coastal shorelines and adjacent to bodies of brackish water, including salt marshes. Soils are subject to daily tidal fluctuations. Sites include the Pamet and Herring River estuaries, Pleasant Bay, and Nauset Marsh	Best suited to animal habitat.	Not suitable for uses other than animal habitat because of tidal inundation and a high organic matter content.
Carver/Hinesburg/ Nantucket	Nearly level to steep, very deep, excessively drained and well drained, sandy and loamy soils formed in glacial outwash, glacial lake sediments, and glacial till.	Found on outwash plains and in areas of glacial lake deposits, mostly in the area surrounding Orleans.	Most areas are woodland. Many areas have been developed for homesites, and a few areas are farmed.	Droughty and poorly suited to crops and pasture. The steep slopes in this unit are management concerns in areas used as building sites. Excavations in Carver soils are unstable and can cave in. Poorly suited for septic tank absorption fields or sanitary landfills.
Carver	Nearly level to steep, very deep, excessively drained, sandy soils formed in glacial outwash and ice-contact deposits.	Found on outwash plains and kames, from just south of Eastham north to Pilgrim Lake.	Most areas are woodland. Many areas have been developed for homesites, and a few areas are farmed.	Droughty and poorly suited to crops and pasture. No major limitations affect the use of these soils as building sites. Excavations in Carver soils are unstable and can cave in. Poorly suited for septic tank absorption fields or sanitary landfills.

and salt marshes. The water table in these cranberry bogs is controlled by extensive irrigation and drainage ditches. Only two formerly cultivated cranberry bogs are known within national seashore boundaries. One near the Pamet River on the North Pamet Road was formerly a commercial bog, 0.25–0.5 acre of which has been restored and is maintained to interpret 19th century cranberry production practices.

There are at least 20 acres of wild cranberries (*Vaccinium macrocarpon*) in the national seashore (University of Massachusetts Cranberry Experiment Station, Caruso, pers. comm. 1996). Wild cranberries, which often grow across sphagnum and quaking bogs, are only a minor component of wetlands near most Cape ponds, but in the Province Lands many areas are occupied solely by the species and some cover an acre or more. Pitch pine, inkberry, and bayberry are occasionally scattered among the cranberry communities.

WATER RESOURCES (INCLUDING WETLANDS AND FLOODPLAINS)

Cape Cod National Seashore has a wide variety of marine and fresh water resources formed by the geological events that created the land mass of Cape Cod. These diverse water resources are often interrelated, and each is an integral part of the ecology, history, and beauty of Cape Cod.

MARINE RESOURCES

The ocean and Cape Cod have always been inseparable. Much of what is unique about the Cape derives from the sea that surrounds it. Henry David Thoreau, who first popularized the Cape in his 1865 book, wrote:

Commonly, in calm weather, for half a mile from the shore, where the bottom tinges it, the sea is green, or greenish, as are some ponds; then blue for many miles, often with purple tinges, bounded in the distance by a light almost silvery strip; beyond which there is generally a dark-

blue rim, like a mountain ridge in the horizon, as if, like that, it owed its color to the intervening atmosphere.

The marine resources of Cape Cod National Seashore — open ocean, estuaries, tidal flats, salt marshes, and rockweed-barnacle communities — are all influenced by the tidal cycle, ocean currents, and the influx of fresh surface and groundwater. Massachusetts has designated all coastal waters surrounding the seashore as an ocean sanctuary (NPS, Mitchell and Soukup 1981).

The coastline is vulnerable to submergence relative to a rising sea level, possibly accelerating due to global climate changes. There is increasing evidence that climate change could result in marine water temperature changes, which could dramatically affect marine resources (Cape Cod Commission 1991).

The national seashore has been selected as a prototype monitoring park for the Atlantic and Gulf Coasts in the National Park Service's inventory and monitoring program. Several aspects of this proposal involve monitoring marine water resources — possible eutrophication in coastal bays and estuaries, marine debris, ecological changes resulting from improved tidal flushing in restored salt marshes, and ecological changes in Nauset Marsh. Some of these programs have already been initiated.

Marine ecosystems are extremely vulnerable to oil spills, and the potential for a major oil spill to reach the seashore is high. Large tankers, freighters, fishing boats, and recreational vessels frequent the Gulf of Maine (which includes both Massachusetts and Cape Cod Bays). In addition, there is a major shipping lane 6 miles offshore; intensive commercial fishing activity takes place just 10 miles to the north; and major ports are just across Cape Cod Bay. Between 1969 and 1980 at least 13 major oil spills occurred in waters surrounding Cape Cod (NPS 1993a). In 1992, 5.3 billion gallons of petroleum were shipped through Cape Cod Canal (Association for the Preservation of Cape Cod 1994).

The national seashore has an extensive knowledge base about some areas in the seashore such as Nauset Marsh, Hatches Harbor, and the estuaries of the Herring and Pamet Rivers (NPS, Burroughs and Lee 1991c; Cape Cod Planning and Economic Development Commission 1989; NPS, Jones et al. 1990a; Marine Research, Inc. 1986; NPS, Martin 1993g; NPS, Pelton 1991d; Roman 1987; Roman and Able 1989; Jason M. Cortell and Associates 1983). However, basic resource information is lacking in other areas. Comprehensive long-term ecological monitoring data are lacking in all areas, although some monitoring has been started.

Stellwagen Bank National Marine Sanctuary lies north of Cape Cod National Seashore; it encompasses 842 square miles of open ocean stretching between Cape Ann and Cape Cod. The bank has nutrient rich waters and supports extensive marine life diversity, including many marine mammals. Whale watching is a major activity.

Coastal Waters

Shallow coastal waters around Cape Cod have fairly constant salinity, averaging 33–35 parts per thousand, are weakly alkaline, and are strongly buffered. Shallow marine waters are influenced by the offshore ocean environment, as well as by the nutrient rich estuarine waters. Sediments are transported by longshore currents, wave action, and rip currents. Longshore drift on the east shore is an important factor in reshaping the shoreline.

The marine shore within the national seashore is generally flat, sloping gently to deeper waters. The substrate is bare sand, with some silt and clay plus organic remains such as shell deposits. Submerged eelgrass beds occur in sheltered coastal areas. They are productive communities that supply nutrients to marine organisms. The shallow coastal environment provides habitat for young and adult forms of many species of shellfish and finfish.

There are growing signs that the quality of Cape Cod's coastal waters is deteriorating. There has

been a dramatic increase in the amount of shellfish acreage closed to harvest as a result of high coliform bacteria counts. Closures rose from less than 1,000 acres in 1982 to more than 6,300 acres in 1992 (Cape Cod Commission 1991 and Association for the Preservation of Cape Cod 1994). The amount of debris (plastics and other garbage) that floats onto the beaches in the seashore is another indicator of degraded coastal waters. Offshore dumping, although illegal, still occurs.

In some areas human-caused eutrophication of coastal waters is a serious problem. Nitrogen is thought to be the limiting nutrient in the marine waters surrounding the Cape. Increased nitrogen loading (from septic wastes, stormwater runoff, and boats) enters coastal waters directly and with groundwater. The aquifer is highly permeable, and nitrogen compounds are carried with little dilution to the shoreline. When excess nitrogen enriches the coastal waters, algal blooms may occur, causing reduced light penetration and increased sedimentation and oxygen demand. Groundwater nitrogen concentrations downgradient of developed areas and immediately upgradient of sensitive surface waters are often much above background unpolluted conditions.

There are five major marsh and estuarine systems in the seashore, four of which have been dramatically altered over the past 100 years. Dikes and tide gates at Hatches Harbor and along the Herring and Pamet Rivers have severely restricted tidal flow. In addition, mosquito ditching and channelization have altered these natural systems. The Pilgrim Lake system is a brackish marsh separated from Cape Cod Bay by a barrier beach, a dike, and tide gates.

Research over the last 10 years has provided information about the impacts of reduced tidal flow on the hydrology, chemistry, and biology of these systems. Significant habitat degradation has been documented. Efforts to restore these modified wetlands are in various stages of implementation. Federal, state, and local governments, as well as private landowners, have ex-

pressed concerns about the restoration projects. Cooperation to resolve these concerns and to develop a workable plan is key to successful restoration.

When the seashore was established, the deeds of conveyance for the Province Lands and Pilgrim State Park included a provision allowing the Cape Cod Mosquito Control Project to conduct certain activities for the "proper control" of mosquitoes and greenhead flies. The control project also carries out activities such as ditch maintenance and larvicide treatments on wetlands that are not covered by the provisions of the deed. Activities used to control these insects influence water resources at the national seashore. There is no formal agreement between the National Park Service and the Cape Cod Mosquito Control Project to coordinate water resource management activities.

Estuaries

Estuaries on Cape Cod have been formed by the drowning of river valleys as sea level has risen. These zones of fresh and salt water mixing are very productive environments that serve as nursery grounds for many marine species. Most estuaries are bounded by intertidal salt marshes near the mouth. Farther up the estuary, as the water becomes fresher, the marsh vegetation changes to a freshwater community. It is the marsh bordering the estuary that contributes a large portion of the organic production. Many estuaries also support underwater vegetation such as eelgrass beds and various types of algae.

Five major marsh and estuarine systems exist within the national seashore. The largest and most undisturbed is Nauset Marsh in the towns of Eastham and Orleans. The Herring River in Wellfleet has been disturbed through diking and drainage, but is still a major example of an estuarine system in the seashore. The Pamet River in Truro is an estuary on the bayside until it transitions to freshwater at the point where U.S. 6 influences flow of the river much like a dike. Other smaller estuaries include areas behind the dike in Provincetown near Wood End

and immediate areas within Hatches Harbor in front of the existing dike structure.

Because estuarine systems depend on the inflow of freshwater, the quantity and timing of groundwater inflow also influence coastal water quality. Groundwater withdrawal reduces freshwater discharge to coastal marshes. Reduced freshwater discharge to coastal waters could also increase the salinity of nearby estuaries.

Estuarine waters are threatened by effluvia (septic leachate, road runoff, and lawn fertilizer) from upgradient residential development. In this case nitrogen is the limiting nutrient; excess loading might lead to massive algal blooms, oxygen depletion, and fish and shellfish kills. The bulk of groundwater-borne nitrogen entering Cape Cod's coastal bays derives from domestic wastewater systems outside seashore boundaries. Seashore facilities, especially heavily used public restrooms near the coast, can also contribute to the eutrophication of nearby surface waters.

Intertidal Areas

Tidal flats, including both sand flats and mud flats, are intertidal areas protected from heavy wave turbulence. Sand flats, which are often associated with barrier spits, are generally less protected from wave action than mud flats and are subject to constant sand movement. In the more protected areas of a sand flat, algal mats develop. Benthic fauna colonize the area and stabilize the bottom sediments. As organic matter accumulates and mixes with the sand, mud flats are formed. Eventually salt marsh plants become established, and the area that was once bare sand can become covered with salt marsh vegetation. Within the national seashore, major sand flats occur on the northwest side of Hatches Harbor, on Nauset Spit, at Coast Guard Beach, and at Wood End. Mud flats, which generally occur on the periphery and at the expanding edges of salt marshes, are found at Great Island, Nauset Harbor, and Wellfleet.

Salt marsh sediments are characterized by dark, very fine particles, rich in organic matter called peat. The peat underlying most salt marshes on Cape Cod varies between 3' and 9' thick. The peat layer under the Nauset Marsh system is approximately 6' thick. Salt marshes are highly productive ecosystems dominated by saltwater cordgrass (*Spartina alterniflora*). Two characteristic features of a salt marsh are meandering tidal creeks and pond holes (pannes) that often remain flooded at low tide.

Salt marshes produce a great deal of organic matter, most of which is flushed out by the tides into other coastal systems, such as estuaries and shallow marine waters. There is evidence that the exported products may supply energy and materials to communities in the waters above the continental shelf. Marshes, like estuaries, provide habitats for many marine organisms during all or part of their life cycles, including many commercially valuable species of finfish and shellfish.

In Cape Cod National Seashore salt marsh systems occur at Long Point/Wood End, Hatches Harbor, Great Island (just south of the area known as the Gut), and the lower reaches of the Herring River. A prime example occurs at Nauset Marsh.

Nauset Marsh is the most extensive and least disturbed salt marsh and estuary system within the seashore (Roman and Able 1989). In 1981 the Cape Cod Planning and Economic Development Commission (now the Cape Cod Commission) designated Nauset Marsh as a highly vulnerable area. Activities outside the national seashore may be having an impact on seashore resources, including Nauset Marsh. For example, recent increases in residential development along the southern and western shores of the marsh may be responsible for increased nitrogen loading within the system. The proximity of the Orleans town center and U.S. 6 may result in water quality degradation associated with storm-water runoff. Nauset Marsh is also susceptible to petroleum spills. In addition, Nauset Inlet, through which this estuary exchanges water with

the Atlantic Ocean, has migrated extensively since 1950.

To better understand the dynamic nature of Nauset Marsh and the numerous threats to the system, a comprehensive long-term monitoring program has been designed. When initiated, this program would help managers understand which changes are occurring naturally and which are induced by humans.

The rockweed/barnacle communities characteristic of rocky shores are relatively uncommon on Cape Cod, being restricted to large glacial boulders, dikes, and jetties within the range of the tides. The tidal range creates a zonation of organisms. Other influences on the pattern of zonation include wave action, light intensity, and slope of the surface. There are basically three major zones named for the predominant organisms: the periwinkle zone with black (blue-green) algae and lichens, the barnacle zone, and the seaweed or rockweed zone.

The productivity of this community is probably quite high but difficult to measure. The water is continually flushed seaward by tides and wave action, so the energy and nutrients from this rocky intertidal community enter other coastal marine systems. Large rocks like the ones west of Great Island and at the north end of Nauset Beach support rocky intertidal communities. The dikes from Provincetown to Wood End, at Hatches Harbor, and at Herring River support similar communities.

Ownership and Jurisdictional Status of Marine Resources

Jurisdiction of marine water resources at the seashore is complex. The seashore boundary extends seaward from the shoreline for 0.25 mile from the mean low-water line. Jurisdiction over the bottomland varies between the state and the National Park Service. As coastal processes change the configuration of the shoreline, the position of the boundary changes. Additionally, a commonwealth colonial ordinance of 1641-7

provides for fishing, fowling, and navigating in all intertidal areas.

Of the five major marsh and estuarine systems within the seashore, only one — Hatches Harbor, in the northwest corner of Provincetown — lies entirely on NPS property. The state owns the Hatches Harbor dike and leases it to Provincetown. The ownership and jurisdiction of the other four systems are mixed.

- Pilgrim Lake, which is in both Truro and Provincetown, is on NPS land, except for the barrier beach near Cape Cod Bay.
- The Pamet River, in the town of Truro, flows from the Ballston Beach area to Cape Cod Bay. The headwaters of the river's main stem, including an extensive area of marsh, are within the NPS boundary; but much of the land bordering this section of the river is privately owned. Downstream from U.S. 6 the river is not within national seashore boundaries.
- The main stem of the Herring River, in the town of Wellfleet, is on NPS land; there are significant private holdings south of the river and along its tributaries.
- The Nauset Marsh system is in the towns of Eastham and Orleans. Seashore lands include the barrier beach and the marsh; the adjacent upland to the north and west of the marsh is a mixture of private and NPS property. Massachusetts has jurisdiction over the bottomland in the open waters of the Nauset Marsh system. Much of the area to the south and southwest (Town Cove) is developed and not within the boundary. The town of Orleans lies at the head of Town Cove.

All of Cape Cod lies in the Massachusetts coastal zone. All federal activities related to marine resources must be consistent with Massachusetts coastal zone management policies. These policies recognize the ecological significance of coastal waters and strive to protect both

the water quality and the integrity of significant resource areas.

As authorized in the legislation creating Cape Cod National Seashore, shellfishing and recreational fishing are permitted. Shellfishing is controlled by Massachusetts and managed by local towns, including shellfish on NPS-owned submerged land. High coliform counts in marine water cause state authorities to close shellfish beds. The towns and the Massachusetts Division of Marine Fisheries monitor water quality and seek to limit point sources of pollution to protect shellfish habitat.

With the decline of finfish populations, more and more Cape Codders are turning to shellfish aquaculture as an alternative to shellfishing. The impacts of shellfish aquaculture on marine resources are unknown.

FRESHWATER RESOURCES

The basic hydrology of the Outer Cape is fairly simple. Precipitation falling on the sandy soils infiltrates and recharges the groundwater aquifer. Groundwater flows toward discharge areas, generally either the ocean or river valleys. Kettle ponds, swamps, and wetlands form where depressions in the land surface are lower than the water table. Streamflow is generally supported by outflow of groundwater from the aquifer.

The groundwater flow system of the Outer Cape is similar to that of an oceanic island. Even though the Cape is connected to the mainland, it is virtually surrounded by ocean. Salty groundwater underlies the fresh groundwater lenses.

All surface waters in and adjacent to the seashore are designated national resource waters (the highest state protection category), so they must meet minimum water quality standards. This designation also prohibits the discharge of any new pollutants (NPS 1981).

Proposed construction work (such as buildings and septic installations) must be reviewed for conformance with the Massachusetts Wetlands

Protection Act when a project occurs within a wetland or a wetland buffer zone. The National Park Service has the opportunity to express opinions on such projects.

Groundwater

The thick deposits of glacial sediments that make up Cape Cod have a large capacity to store water. Water fills the spaces between grains of sand and other materials, and forms a saturated zone. Thousands of years of precipitation filled these pore spaces with fresh water. The fresh groundwater layer extends several hundred feet below land surface in the sand and gravel deposits on the Outer Cape and "floats" on the underlying salty groundwater because saltwater is denser than freshwater. The thickness of the freshwater lens varies depending on the width of the Cape, the type of sediments, depth to bedrock, and rate of recharge from precipitation.

The entire layer or zone of fresh water underlying the Cape is referred to as an aquifer. Within this single Capewide aquifer are six separate lenses of groundwater, four of which underlie parts of the national seashore. These lenses are hydrogeologically separated from one another by tidal rivers that cut across the Cape. From north to south, they are the Pilgrim, Pamet, Chequesset, and Nauset lenses. The freshwater contained in these lenses is vital to sustaining the Outer Cape's cultural and ecological resources. It is the Outer Cape's sole source of potable water, as well as the hydrologic source for water dependent natural resources (Cape Cod Commission 1997). The areal extent of aquifer lenses, not political boundaries, is the key to managing units for groundwater development and protection (Cape Cod Planning and Economic Development Commission 1987).

The elevation of the water table (or depth to groundwater) may fluctuate several feet over a year because of seasonal variations in precipitation, pumping of public supply wells, evapotranspiration by plants, and location relative to surface water bodies.

The source of freshwater to the aquifers of the Outer Cape is precipitation (40"–47" per year). A little less than half of this amount (about 18"–22" per year) infiltrates the aquifer and recharges the groundwater system. Precipitation that is not recharged to the aquifer evaporates or is transpired by plants. Surface runoff is negligible because of the highly permeable soils of the Outer Cape. The greatest percentage of the recharge passes slowly through the aquifer and is discharged into the ocean. Every day, millions of gallons of fresh groundwater seep out of the ground directly into the ocean (Cape Cod Planning and Economic Development Commission 1987).

The perpetual system of groundwater flow through the aquifer, from recharge to discharge, is one way for the aquifer to cleanse itself. However, it can take a long time for this cleansing to occur. Groundwater in the Cape Cod aquifer moves at an average rate of about 1' per day. Although this is fast when compared to most aquifers, it is a slow when considering the amount of time it would take to flush a contaminant from the aquifer. Thus, natural flushing cannot be relied on to keep the aquifer clean. Certain locations, such as recharge areas to private or public wells and areas where groundwater flow is toward a kettle pond or estuary, are particularly sensitive to contamination. Instead of being flushed toward the ocean, pollutants are sucked in by the pumping well or slowly discharged into sensitive environmental areas.

Under natural hydrologic conditions, the freshwater and saltwater flow systems are assumed to be in hydrodynamic equilibrium — groundwater discharge from the freshwater aquifer is balanced by recharge from precipitation, which results in a static interface between the two flow systems. Decreases in aquifer recharge or increases in groundwater pumping may decrease the rate of coastal freshwater discharge and a consequent landward movement of the boundary of the freshwater lens.

Significant growth in the number of summer and permanent residents has increased groundwater use during the past 30 years, placing stress on

groundwater resources (U.S. Geological Survey, Persky 1986). According to the Cape Cod Planning and Economic Development Commission, the population on the Cape is expected to increase 23% between 1990 and 2000 (cited in Cape Cod Commission 1994).

Groundwater is primarily threatened by contamination from nutrients and saltwater intrusion. Hydrocarbon contamination has already occurred in one area and potentially threatens others. There is also concern over the extent of long-term declines in groundwater, pond, and wetland levels; in the quantity of streamflow; and in the possibility of saltwater intrusion from the surrounding ocean.

Massachusetts implemented regulations under the Clean Water Act, title V, on March 31, 1995, using state authority under the federal act and other state laws. Title V requires all existing and new septic systems to meet certain criteria, including system upgrades such as holding tanks, leachfields, and minimum percolation rates. In addition, setbacks are required in relation to wells and adjacent properties, and minimum sizes for septic systems are prescribed at certain locations, depending on the number of bedrooms, offices, or hotel rooms. Title V will limit development or expansion in many areas because of the stringent performance standards required for septic systems. Title V regulations are enforced during property transfers.

Groundwater resources on Cape Cod are protected by the Environmental Protection Agency as a sole source aquifer, meaning that the unconsolidated sand and gravel aquifer is the sole or principal source of drinking water for the area. The designation of a sole source aquifer allows the Environmental Protection Agency to review, at its discretion, federally financed projects proposed in the area to determine each project's potential for contaminating a sole source aquifer.

The entire Outer Cape depends on groundwater for potable water. An increasing permanent and seasonal population, as well as summer visitation, is creating a need to expand public water

supply capabilities. In addition, some areas not currently being served by public water supply systems will develop systems in the future as a result of water quality concerns. Most towns have retained title and development rights to large parcels of land within the seashore. These lands could be used for, and have been proposed for, municipal water supply wells. Several towns within the national seashore have expressed a desire to use undeveloped areas for supply wells.

In accordance with NPS Special Directive 78-2, the National Park Service is limited by law and policy to permit the sale or lease of seashore water to a non-NPS entity only under the following conditions: if that entity provides services of direct or indirect benefit to the park or park visitors; if there is no reasonable alternative water supply; if the effects on the park's environment, administration, management and protection, and visitors have been examined and determined to be acceptable; if the government would be able to recover the full cost of providing the water; if the arrangement has been reviewed in Washington; and if the use is for a short time, is revocable, does not convey permanent rights, and is conditioned to allow NPS review of planned development by the applicant that would increase water demand.

The national seashore staff participates in a Lower Cape Water Management Task Force, which is working to develop a comprehensive water management plan focusing on freshwater quantity and quality issues.

Ponds and Lakes

The freshwater ponds and lakes of the national seashore can be divided into three types based on geological history — dune ponds, kettle ponds, and coastal ponds.

- Dune ponds occur in the low interdune areas in the Province Lands. These low areas are created by sand movement, most commonly from wind deflation (producing a blowout). This low area can be deepened until the groundwater level is reached and a

shallow dune pond is formed. Over 20 large dune ponds are found in the national seashore and many more smaller ones, including some that are seasonal. Interdunal ponds in the Province Lands are home to a number of rare plant colonies.

- Kettle ponds on Cape Cod, formed by remnant ice blocks as the glaciers retreated, are popular as recreational spots, in part because of their clear water, which results from natural acidity and low nutrient levels. The deeper kettle hole depressions became filled with fresh groundwater as the sea level rose after glaciation; some ponds are now over 60' deep. These kettle ponds are surface exposures of the water table. They are also home to an unusual assemblage of plants and fish, including some state-listed rare plants. Cape Cod National Seashore has 20 kettle ponds.

Most of the kettle ponds have private dwellings adjacent to the shorelines. Given the porous nature of the groundwater aquifer, the proximity of residences can contribute to pond eutrophication. Some seasonal residences are being converted to year-round residences, with a resulting year-round impact, especially from septic effluent, gardening herbicides and fertilizers, and eroded soils and sediments.

Several kettle ponds within the national seashore have been largely protected from the extensive shoreline development on other Cape ponds outside the seashore, making them quite rare and special, both for the region and within the entire national park system. However, their clear water is continually threatened by excess nutrient inflow (especially phosphorous) imported by bank erosion or with polluted groundwater.

Kettle pond jurisdictions are complicated, and the towns, the state, and the National Park Service often have conflicting management objectives. For example, restrooms at town-operated swimming beaches could contribute to nutrient loading. Efforts by

Massachusetts to improve stocked trout viability by liming ponds could lead to reduced water clarity and damage to rare shoreline plants.

Acid deposition is well documented on Cape Cod. Surface waters are poorly protected against deposition of acids and other contaminants such as mercury. About 63% of the seashore's kettle ponds are highly acidic and poorly buffered. Some ponds, like Great Pond in Wellfleet, are naturally acidic. Liming of at least one of these ponds to increase sport fishing has already occurred, but there is little certainty of this pond's original condition.

- Coastal ponds form when ocean bays or lagoons are sealed off by barrier spits created by sediments carried by wind and water currents. If the connection to the sea is completely severed, the water in the coastal pond is diluted by precipitation and fresh groundwater and becomes brackish or possibly fresh. The only major example of a coastal pond within the seashore that has been isolated from the ocean is Pilgrim Lake.
- Vernal pools, or temporary forest wetlands, are numerous and occur throughout the deep kettle depressions of Cape Cod. These pools generally hold water only during winter and spring and are topographically isolated from permanent surface water bodies. Vernal ponds are devoid of fish and the effects of fish predation; therefore, they comprise a distinctive and essential habitat for many kinds of plants and animals. They may be the most sensitive among freshwater bodies to atmospheric acidification because of their isolation from inorganic soil buffers and direct exposure to acidic rainfall.

Streams and Rivers

Since there is a limited elevation gradient and the glacial sediments are highly porous, surface runoff is limited, and the Outer Cape has few

streams and rivers. The ones that do exist are small and sluggish, often bordered by marshes and swamps. Streamflow originates from precipitation, groundwater, or outflow from water table ponds, and the quality of the river water reflects that of the river's source. The two major stream systems within Cape Cod National Seashore are the Herring and Pamet Rivers. Both of these rivers follow a channel cut during the glacial outwash period. There are also several smaller drainages in the seashore such as Fresh Brook and Blackfish Creek.

The Herring River in Wellfleet is approximately 3 miles long and has the three features of a river system (headwaters, floodplain, and estuary), although on a relatively small scale. The river begins as a small stream about 2 meters wide, draining Herring Pond which, in turn, receives water from Williams, Higgins, and Gull Ponds. The floodplain area begins about halfway from Herring Pond to U.S. 6, where there are extensive bottomlands of marshes and shrub swamps. Near the mouth, the river widens out into the intertidal estuarine environment. A dike at the mouth of the Herring River partially inhibits the natural tidal flushing of the estuary.

There is generally enough flow in the Herring River to prevent freezing in the winter, making this an extremely important area for overwintering animals. The river is also a run for two species of herring.

The Pamet River flows toward Cape Cod Bay through a bottomland filled with cattail marshes and shrub swamps. The freshwater portion of the Pamet is 1.6 miles long, stopping just upstream from the tide gates under U.S. 6. Downstream of the dike, the river is under tidal influences and becomes an estuary for the rest of its length to its mouth in Pamet Harbor.

The portion of the Pamet River within Cape Cod National Seashore is fresh or mildly brackish. No major ponds drain into the Pamet; its water level and flow depend either on the groundwater flowing under the uplands on either side and on direct precipitation. The river's former headwater uplands have been removed by coastal

erosion processes. The present headwaters of the Pamet — a freshwater marsh — are being encroached upon as the dune behind Ballston Beach migrates slowly westward with the eroding shoreline. During big storms, salt water from the ocean has washed into the headwaters of the Pamet.

Freshwater Marshes

Marshes are wetlands characterized by standing water most of the year. The soil is generally soft muck and is rich with decaying organic matter. Freshwater marshes are very productive in terms of plant growth and create a large amount of organic matter. A considerable amount of material can accumulate if it is not broken down or transported away by water flow. Over time, marshes tend to fill with organic matter and become drier communities.

Most of the marshes within Cape Cod National Seashore are associated with river drainages (the Herring and Pamet Rivers and Bound Brook are good examples), or in former intertidal areas (such as Pilgrim Lake and part of Hatches Harbor), or in interdune depressions associated with dune ponds. The source of water is precipitation and groundwater seepage. Some wetlands are perched above the groundwater table elevation and are formed by entrapment of precipitation by low permeability sediments.

Bogs

A bog is a unique ecological community both chemically and biologically. Sphagnum bogs are perpetually saturated wetlands distinguished by unusually thick mats of *Sphagnum* moss and deep layers of peat. Quaking bogs are floating mats of tangled roots and rhizomes that support thick accumulations of *Sphagnum* moss.

Cranberry bogs deserve special attention because of their relationship to the cultural history of Cape Cod. It was on Cape Cod that the commercial propagation and harvesting of cranberries began, an activity that is still

identified with Cape Cod across the nation. Today Cape Cod has both commercial and wild cranberry bogs. (See the discussion of cranberry bogs under "Prime and Unique Farmlands.")

Freshwater Swamps

A shrub swamp is characterized by a dense, 3–4 meter high cover of shrubs such as swamp azalea, and highbush and downy blueberry. The soil is wet, sometimes with standing water, usually less than 1' deep. The soil is usually peaty, and rich with organic matter. Shrub swamps are often found on the edges of marshes and ponds, especially bog ponds. Many of the interdune hollows in the Province Lands support shrub swamps, as do many of the kettle hole depressions of Truro and Wellfleet. Shrub swamps also occur along streams such as the Herring and Pamet Rivers.

The soil of tree swamps is usually waterlogged and may be covered with 1' or less of standing water. Within the seashore there are two types of tree swamps — Atlantic white cedar and red maple/tupelo swamps.

- The Atlantic white cedar swamp is restricted to wet areas and the conditions for seed germination (open peat and sunlight) are no longer common on Cape Cod due to ecological succession. Historic logging and cranberry bog development also eliminated many sites. As a result, the Atlantic white cedar swamp near the Marconi site in South Wellfleet (approximately 8 acres), a young stand in the Province Lands, and two stands in Eastham are the only four areas of this community within the seashore.
- The red maple/tupelo swamp is more common. Red maple survives well in both wet and dry areas, so some red maple stands are found in terrestrial habitats. There are red maple/tupelo stands near the Fort Hill nature trail, in Paradise Hollow, along portions of the Pamet River, and in low-lying areas of the Province Lands.

FLOODPLAINS

Floodplains are land areas that are susceptible to flooding by either river or coastal waters, but are not normally submerged. The 100-year floodplain is an area with a 1% or greater chance of flooding in any given year; a 500-year floodplain has only a 0.2% chance of being flooded. Of the 43,570 acres within the national seashore boundaries, about 9,200 acres are classified as being within the 100-year floodplain (see Water Resources / Floodplain map).

Because of the porous soils and small size of the rivers, flooding by river waters is infrequent on Cape Cod. Coastal flooding, which occurs in coastal flood hazard areas (100-year floodplain with wave action), is a big concern on the Cape and is discussed under "Geology and Coastal Processes."

VEGETATION

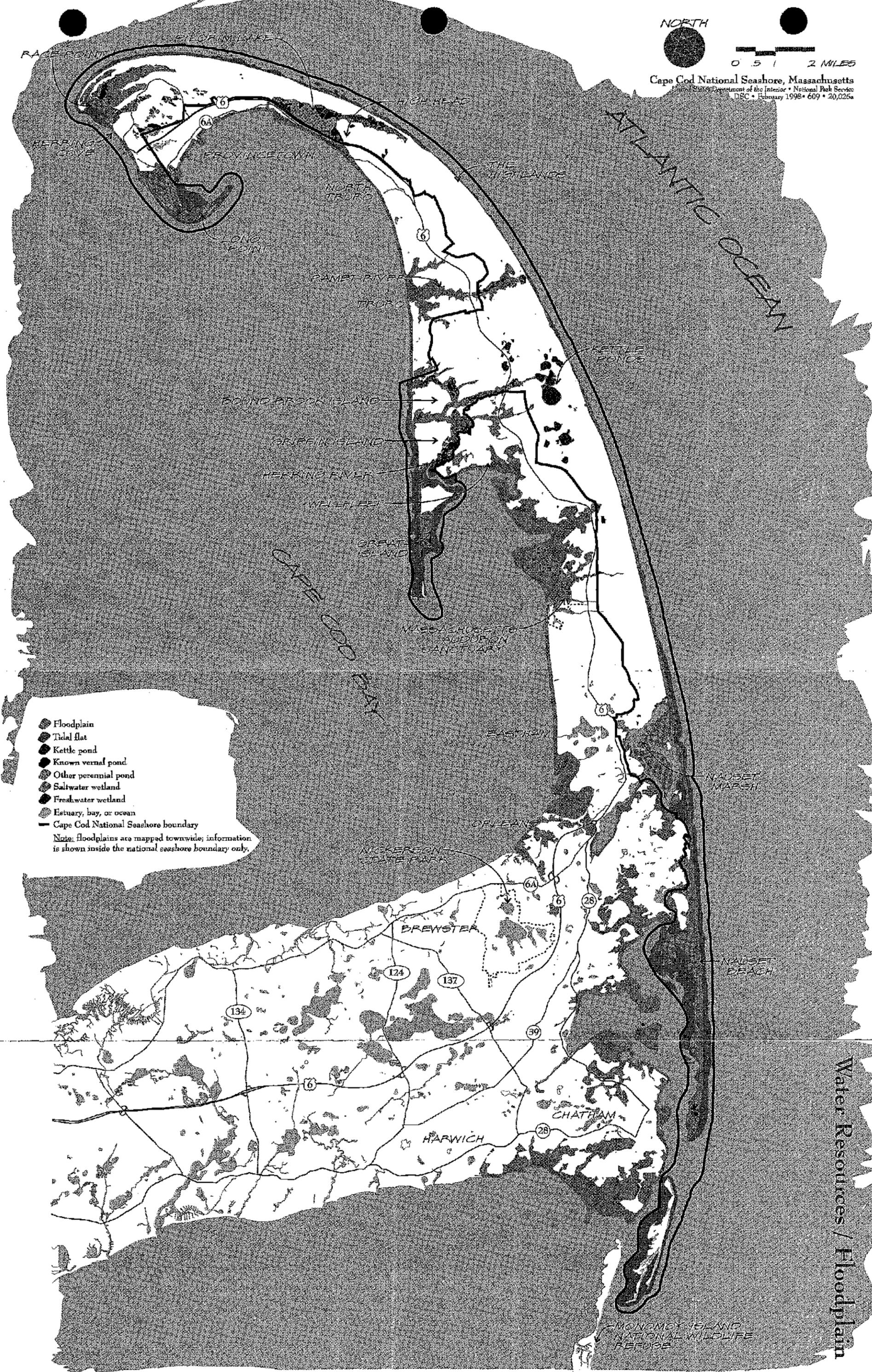
The vegetation of Cape Cod has developed since the most recent glacial period that ended 14,000 years ago. At first, the newly exposed landscape was colonized by tundra vegetation (hudsonia) on the windy ridges and by spruce and willows in protected hollows. As the climate warmed, this vegetation was replaced by a boreal forest assemblage of spruce, green alder, and jack pine; gradually moister and warmer conditions favored replacement of these species by white pine, pitch pine, beech, hemlock, and oak.

A dry period that peaked about 7,200 years ago increased fire frequency, resulting in pitch pine/scrub dominance. However, by 5,000 years ago the climate again was cooling and becoming moister, once again giving rise to the more mesophytic forest present when the area was settled. Beginning about 1,000 years ago, Native Americans began to influence the vegetation. Prior to the 18th century, the Wampanoag Indians grew corn and wheat, harvested shellfish, and managed the woodland, in part through the use of fire.

NORTH

0 0.5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,026a



- Floodplain
 - Tidal flat
 - Kettle pond
 - Known vernal pond
 - Other perennial pond
 - Saltwater wetland
 - Freshwater wetland
 - Estuary, bay, or ocean
 - Cape Cod National Seashore boundary
- Note: floodplains are mapped townwide; information is shown inside the national seashore boundary only.

Water Resources / Floodplain

ON MICROFILM

Cape Cod is one of the first areas colonized by Europeans in North America and has one of the longest histories of alteration. The early English colonists described Wood End, near present-day Provincetown, as "all wooded with oaks, pines, sassafras, juniper, birch, holly, vines, some ash, walnut" (Frederick 1858). They also found woodland tracts, freshwater ponds and streams, salt marshes, and areas of fertile soils.

As the population grew, forest was cleared for farming, and large numbers of cattle and sheep ranged the open pastures. Cedar and maple swamps were transformed into cranberry bogs. By the mid-19th century, 30% of the county was used for agriculture, and farming reached its peak. However, these changes were not without environmental costs. By the time Thoreau visited the Cape in the 1850s, many of the resources had been depleted, and he wrote the following:

The old houses are built of the timber of the Cape; but instead of the forests in the midst of which they originally stood, barren heaths, with poverty grass for heather now stretch away on every side. (Thoreau 1865)

Wood End, where the Pilgrims stood, no longer supports forest. Old stumps and soil outcrops in the sand plains and dunes around Provincetown indicate how much more extensive the forests once were.

Throughout the early 20th century human activities, such as livestock grazing, agriculture, and accidental fires, continued to suppress tree growth. However, late in the century these activities were substantially decreased. Grazing and other forms of agriculture are no longer practiced on the Outer Cape, while natural and human-caused fires have been suppressed. These changes have resulted in an increased tree cover: pitch pine and scrub oak have prospered, and the amount of heathland has decreased (Carlson et al. 1992). At least 800 species of plants occur within Cape Cod National Seashore in a wide variety of community types, including heathlands, freshwater and saltwater wetlands, upland forests, beaches, dunes, and grasslands. A 1991 vegetation study revealed 24 vegetation cover types within the national seashore (NPS 1991f). These cover types and approximate acreages are shown in table 7. These cover types were reclassified into the eight categories that are shown on the Vegetation map.

The vegetation in the seashore is constantly changing in response to both natural and human-induced factors (including storms, sea level rise, fire, and human use). Recognizing changes in species composition and vegetation structure, and determining what factors contribute to these changes, are essential for effective management.

In 1985 the seashore initiated a revegetation program to stabilize more than 900 acres of barren dunes in the Province Lands. To date 110 acres of dunes have been planted with beach grass.

TABLE 7: VEGETATION COVER TYPES WITHIN CAPE COD NATIONAL SEASHORE

Cover Type	Acres	Cover Type	Acres
Atlantic white cedar (forest)	11	Hairgrass	167
Barren	1,814	Highbush blueberry/swamp azalea	154
Bayberry/beach plum/black cherry	1,780	Huckleberry	10
Beach grass	3,379	Meadowsweet/goldenrod	80
Bear oak	657	Mixed grass	600
Bearberry	589	Pitch pine	7,814
Beech	60	Pitch pine/oak	4,784
Black and white oak	3,160	Reed	89
Black locust	304	Red maple	152
Cattail	475	Velvet grass	1
Cattail and reed	71		
Cordgrass	1,645	Developed Area	1,626
Cultivated	<1	Water	1,051
Dead trees	2		

This work was based on the assumption that human disturbance (such as deforestation and livestock grazing) had initiated dune migration (Leatherman et al. 1981). More recent information indicates that the Little Ice Age, with its correspondingly cooler temperatures and drier winds, may have contributed more than human disturbance (Winkler 1990).

Heathland communities support a wide diversity of plants and animals, including many endemic species that are becoming increasingly endangered. Protected heathlands are very rare in North America and uncommon globally. Approximately 670 acres of heathlands are found in nine major areas in the seashore. Some of these heathlands are becoming forested because of natural succession (tree growth). An ecological survey of heathlands (which includes management recommendations) was completed in 1992 (Carlson et al. 1992).

CULTURAL LANDSCAPES

Cultural landscapes include agricultural areas such as Fort Hill and the Pamet cranberry bog. Restoring or maintaining cultural landscapes involves active management of vegetation. (Also see "Cultural Landscapes," page 157.)

Vegetation management actions to maintain vistas throughout the national seashore range from mowing grass to cutting tree limbs to removing trees. Vista management actions have often been initiated site by site, rather than according to a long-term comprehensive plan. (Further discussion of vista management is found under "Public Use," see pages 171–172.)

PLANT SPECIES THAT ARE ENDANGERED, THREATENED, OR OF SPECIAL CONCERN

Between 1984 and 1987 the distribution of rare plants in the seashore was mapped. Of all habitats surveyed, the pond shore is the most threatened rare plant habitat in the seashore (NPS, LeBlond 1989b). No management plans have been developed to protect identified sites, communities, or habitats of rare plants. The Massachusetts Endangered Species Act is more com-

prehensive than the federal law and requires stricter environmental review of listed species.

Plant species facing possible extirpation in Massachusetts may be listed by the state as endangered, threatened, or of special concern. Each classification reflects the species' population size and stability, its global distribution, and threats to habitat viability.

- Endangered — reproductively viable native species that have been documented to be in danger of extirpation.
- Threatened — reproductively viable native species that have been documented to be rare or declining within the state and are likely to become endangered in the foreseeable future.
- Species of special concern — (1) those native species where a population decline could threaten the species if allowed to continue unchecked, or (2) those species that occur in such small numbers or with such a restricted distribution or specialized habitat that they could easily become threatened.

Massachusetts has listed 20 plant species within the seashore that have been classified as threatened, endangered, or of special concern. Of these, four species have been recorded historically but have not been confirmed in recent years (see table 8 and the Rare Plant Habitat map). No federally listed plant species are known to occur in the seashore.

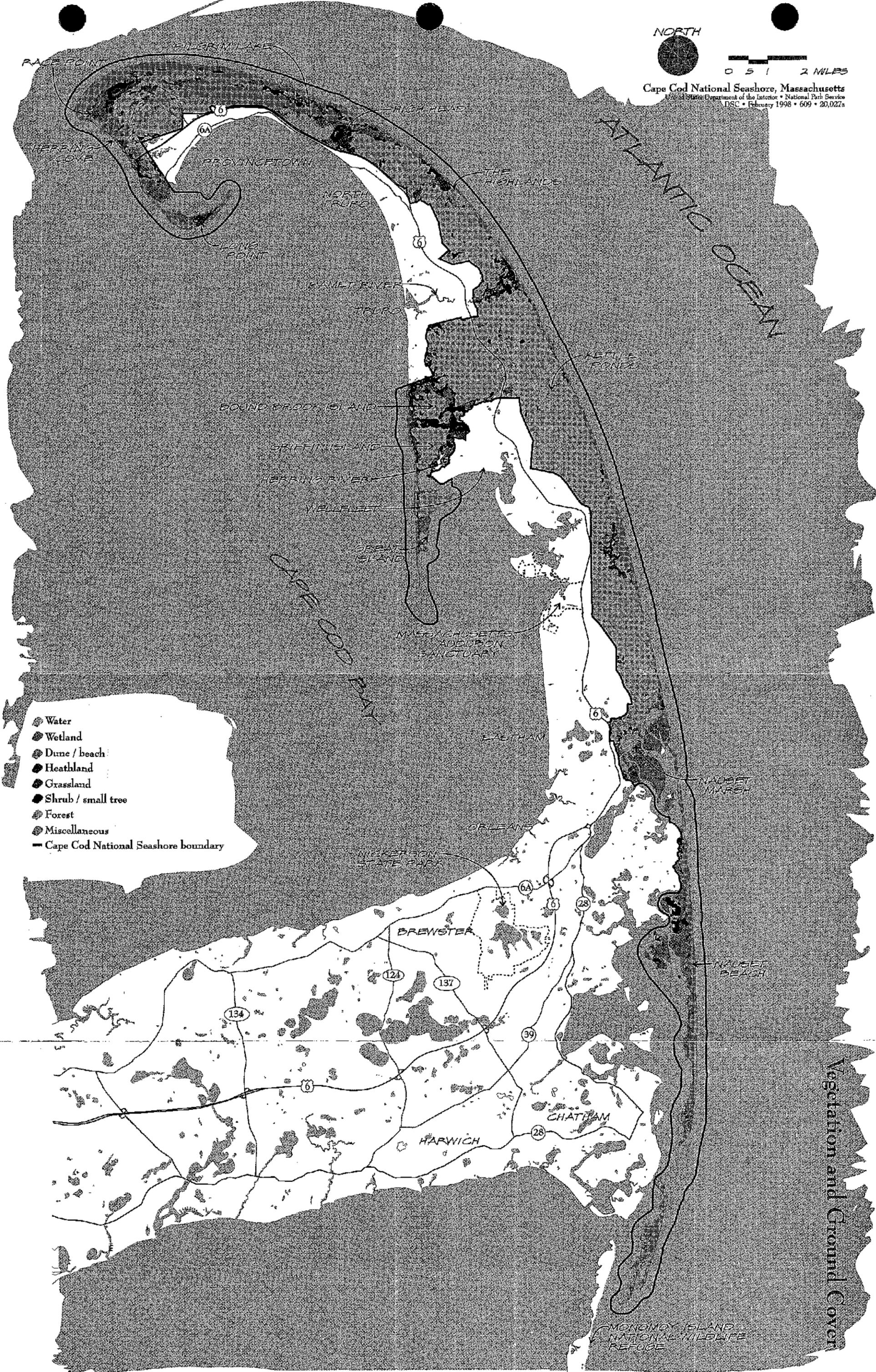
NONNATIVE PLANT SPECIES

Nonnative species of plants that have been introduced to the seashore ecosystem potentially compete with and displace native species. Data on the distribution, abundance, and impacts of exotic species on native biota and physical processes are lacking. NPS policy advocates an integrated pest management approach to control pest species.

NORTH

0 5 1 2 MILES

Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
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- Water
- Wetland
- Dune / beach
- Heathland
- Grassland
- Shrub / small tree
- Forest
- Miscellaneous
- Cape Cod National Seashore boundary

Vegetation and Ground Cover

ON MICROFILM

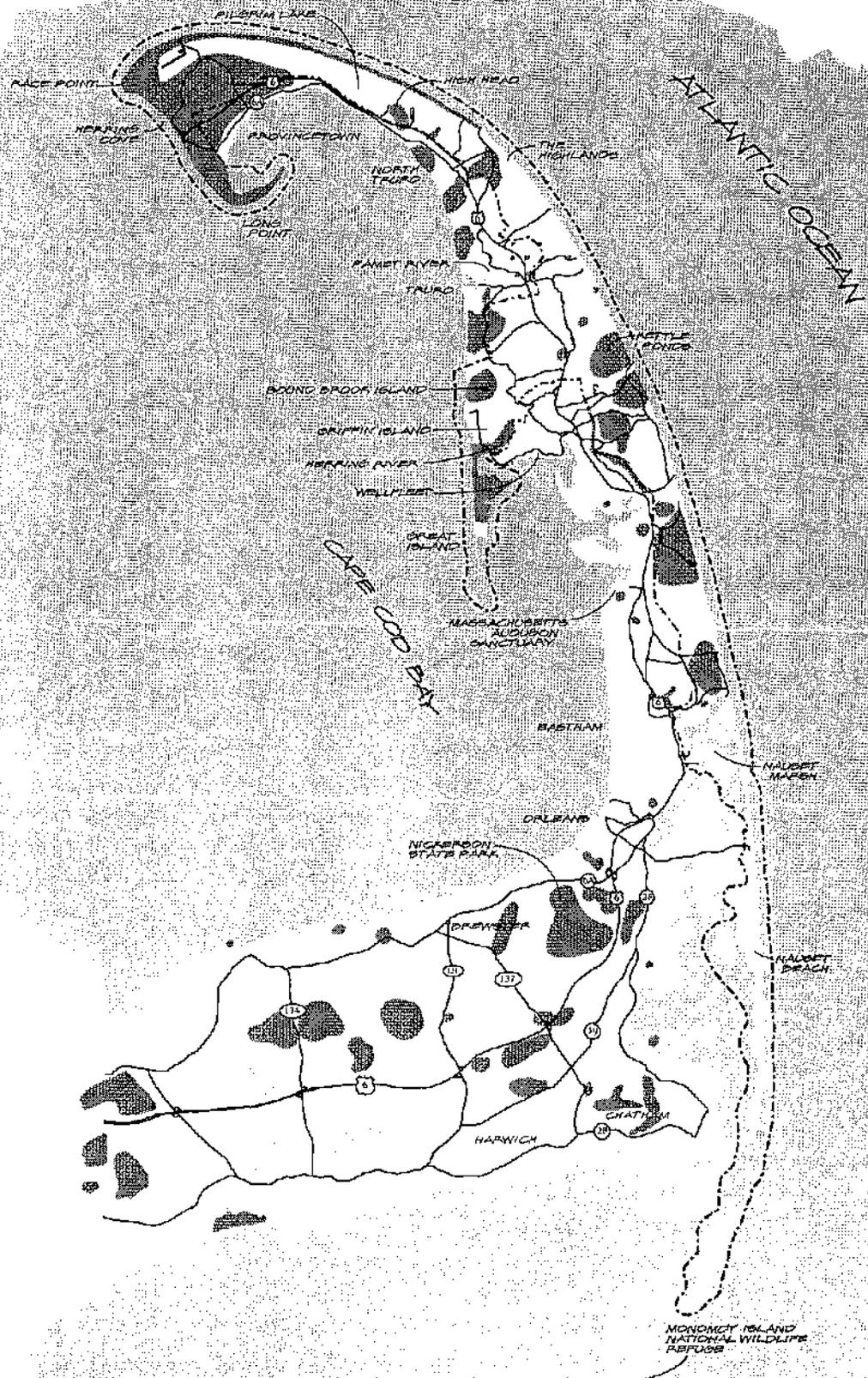
TABLE 8: STATE-LISTED PLANT SPECIES THAT ARE ENDANGERED, THREATENED, OR OF SPECIAL CONCERN AT CAPE COD NATIONAL SEASHORE

Family	Scientific Name	Common Name	Observed at Cape Cod National Seashore
Endangered Species			
Boraginaceae (Borages)	<i>Mertensia maritima</i>	Oysterleaf	Yes
Cyperaceae (Sedges)	<i>Carex striata</i> var. <i>brevis</i>	Walter's sedge	Yes
	<i>Eleocharis obtusa</i> var. <i>ovata</i>	Ovate spike-sedge	Historic recording
Juncaceae (Rushes)	<i>Juncus debilis</i>	Weak rush	Yes
Poaceae (Grasses)	<i>Elymus mollis</i>	Sea Lyme-grass	Historic recording
Threatened Species			
Araceae (Arums)	<i>Orontium aquaticum</i>	Golden club	Yes
Cactaceae (Cacti)	<i>Opuntia humifusa</i>	Prickly pear	Yes
Cyperaceae (Sedges)	<i>Carex oligosperma</i>	Few-fruited sedge	Yes
Lentibulariaceae (Bladderworts)	<i>Utricularia fibrosa</i>	Fibrous bladderwort	Yes
Ophioplossaceae (Grape Ferns)	<i>Ophioglossum pusillum</i>	Adder's-tongue fern	Historic recording
Poaceae (Grasses)	<i>Aristida purpurascens</i>	Purple needlegrass	Yes
	<i>Sphenopholis pennsylvanica</i>	Swamp oats	Yes
Species of Special Concern			
Alismataceae (Arrowheads)	<i>Sagittaria teres</i>	Terete (slender) arrowhead	Yes
Cistaceae (Rockroses, Pinweeds)	<i>Helianthemum dumosum</i>	Bushy rockrose	Yes
Cyperaceae (Sedges)	<i>Rhynchospora scirpoides</i>	Long-beaked bald-sedge	Yes
Empetraceae (Crowberries)	<i>Corema conradii</i>	Broom crowberry	Yes
Iridaceae (Irises)	<i>Sisyrinchium arenicola</i>	Sandplain blue-eyed grass	Historic recording
Lentibulariaceae (Bladderworts)	<i>Utricularia subulata</i>	Subulate bladderwort	Yes
Poaceae (Grasses)	<i>Dichanthelium commonsianum</i>	Common's panic-grass	Yes
	<i>Spartina cynosuroides</i>	Salt reedgrass	Yes

SOURCE: Massachusetts Natural Heritage Endangered Species Program.



0 2 4 MILES



Rare Plant Habitat
Cape Cod National Seashore, Massachusetts
United States Department of the Interior • National Park Service
DSC • February 1998 • 609 • 20,035

 Habitat for species protected by Massachusetts
----- Cape Cod National Seashore boundary

ON MICROFILM

FIRE MANAGEMENT

During the last 50 years vegetation has changed from open fields and heathlands to a mostly closed canopy pitch pine and oak forest, with an understory of highly flammable live and dead fuels. The seashore staff has aggressively suppressed all wildfires since 1961. The effect of a full-suppression policy on forest fuels and vegetative communities is unknown. As fuels continue to build, destructive wildfires could occur, endangering human life and affecting both seashore resources and private improved properties. Fire-dependent communities such as grasslands and heathlands may diminish and eventually disappear.

The 1994 *Fire Management Plan* seeks to protect human life and property and to research and then restore or simulate the natural role of fire. The National Park Service works closely with local and state agencies to ensure fire preparedness. The Park Service, in cooperation with the University of Massachusetts, has initiated programs to reduce fuel levels around identified seashore structures.

FISH AND WILDLIFE

Diverse and abundant vegetation within the national seashore supports a wide variety of fish and wildlife. A broad range of habitat is provided by the various community types as well as by the diversity of successional stages.

At least 18 freshwater fish species have been identified at Cape Cod, including gamefish such as trout, perch, bass, and pickerel, and other species such as eel, herring, shiners, and killifish. Ocean waters have more than 53 different species of fish. Commercial and recreational finfish caught in state waters include flounder, halibut, haddock, hake, pollock, cod, herring, mackerel, alewife, striped bass, bluefish and others (Lickus et al. 1989). Cape Cod is one of the best striped bass fishing areas in the United States.

Shellfish species that are harvested, both commercially and recreationally, include soft-shell

clams (*Mya arenaria*), surf clams (*Spisula solidissima*), blue mussels (*Mytilus edulis*), oysters (*Crassostrea virginica*), quahogs (*Mercenaria mercenaria*), and bay scallops (*Argopecten irradians*).

At least 30 species of terrestrial mammals occur throughout the forested uplands and heathlands of the seashore, including deer, rabbits, foxes, coyotes, raccoon, skunks, weasels, voles, bats, woodchucks, shrews, muskrats, chipmunks, squirrels, moles, mice, and rats. Muskrats and an occasional river otter occur in Cape Cod waters.

Many marine mammals occur throughout Cape Cod waters, including whales, dolphins, porpoises, and seals. The Marine Mammal Protection Act prohibits activities that cause the death or serious injury of marine mammals.

Marine mammals and sea turtles are regularly stranded within the national seashore. Seashore staff cooperate with a wide range of permitted specialists in the recovery and rehabilitation of stranded marine mammals.

At least 368 species of migratory and resident birds have been identified within the national seashore, including a wide variety of waterfowl, gulls, shorebirds, wading birds, and songbirds. Many neotropical migrants use Cape Cod as a breeding site. Cape Cod is along the Atlantic Flyway, a major route for migrating birds, and many transient species appear during spring and autumn. Areas close to the beach are especially important as feeding sites during migrations.

Because of the insular nature of the Outer Cape, and its glaciated past, the national seashore has a unique assemblage of amphibians and reptiles. There are at least 18 reptilian species and at least 13 amphibian species within the national seashore, including snakes, turtles, salamanders, newts, frogs, and toads.

Cape Cod is home to a number of freshwater macroinvertebrate animals, including sponges, flatworms, worms, leeches, mollusks, and crustaceans. Marine benthic macroinvertebrates such as shrimps, crabs, worms, mollusks, and

echinoderms provide a food source for many fish, and some are fished recreationally and commercially. In addition, numerous species of dragonflies, damselflies, butterflies, moths, diptera, and beetles inhabit the seashore.

Inventories have been conducted for several animal species, including white-tailed deer, lepidoptera, dragonflies, and tiger beetles. Monitoring of beach-nesting terns and piping plovers is completed annually. In addition, the seashore staff initiated an annual breeding bird survey in 1989 following U.S. Fish and Wildlife Service breeding bird survey protocol. During hunting season the state evaluates the sex and general age characteristics of harvested deer.

Despite the inventory work that has been done, inventory data for most major taxonomic groups is lacking. In addition, prescribed monitoring is usually not possible for those groups for which inventories have been conducted due to staff and funding constraints. Baseline inventories and monitoring of all rare, threatened, and endangered species and harvested species and their habitat is also needed.

HUNTING, FISHING, AND SHELLFISHING

The legislation establishing Cape Cod National Seashore allows hunting and fishing under the jurisdiction of the state and the Park Service, and shellfishing under the jurisdiction of the state and towns. White-tailed deer hunting is a major activity, and some birds and small game are also harvested. The state sets harvest quotas and hunting season dates. Saltwater fishing is popular, and while the state does not require a saltwater fishing license, limits on size and number are in place. A license is required for fishing in freshwater ponds.

The state stocks land within and adjacent to the seashore with exotic small game and some great ponds with exotic fish. Ring-necked pheasants (*Phasianus colchicus*) are stocked in three locations in the national seashore (the Marconi area, the area near Bound Brook Island, and in the Province Lands) for a six-week sport hunting

season. In addition, the state stocks rainbow trout and brown trout in two seashore ponds.

Shellfishing is controlled by the state and managed by the local towns. This control extends to shellfish on submerged land under the jurisdiction of the national seashore. Shellfishing activities include raking, dragging, and dredging; seeding estuaries with hard clams, and control of predators such as green crabs and moon snails. The impact of these activities on marine resources is unknown but may include physical impacts and decreased species diversity. The National Park Service is developing a protocol to inventory and monitor submerged aquatic resources (Beatty et al. 1993).

With the decline of finfish populations, more and more Cape Codders are turning to shellfish aquaculture as an alternative livelihood. Many towns on the Cape receive numerous requests for aquaculture licenses. Under Massachusetts law landowners can also own the intertidal zone (usually to mean low water), and the public may not trespass except for recreational fishing, shellfishing, fowling, or navigation. A 1993 court ruling determined that shellfish aquaculture is not fishing and thereby requires the approval of the upland landowner. The potential impacts of extensive shellfish aquaculture on marine resources within the national seashore are unknown. There are no finfish or aquatic plant aquaculture projects within the national seashore boundaries.

NONNATIVE SPECIES

Since European settlement, numerous nonnative species have been introduced on the Outer Cape, including brown-tailed and gypsy moths. Many brown-tailed moth surveys and control efforts have been conducted within the seashore over the last 30 years. However, very little quantitative data exist to indicate trends in their distribution or abundance on Outer Cape Cod. Some gypsy moth monitoring has been conducted.

RARE, THREATENED, OR ENDANGERED ANIMAL SPECIES

The Endangered Species Act requires that all federal agencies ensure that any actions they conduct, authorize, or fund will not likely jeopardize the continued existence of a listed species or result in the adverse modification of critical habitat. Species proposed for listing as threatened or endangered are referred to and ranked as candidate species and are also taken into consideration.

Consultation with the U.S. Fish and Wildlife Service reveals that 17 species found within the national seashore are listed as endangered or threatened. A portion of Cape Cod Bay within the national seashore is designated as critical habitat for the northern right whale (*Eubalaena glacialis*). The harbor porpoise (*Phocoena phocoena*) has been proposed for listing by the National Marine Fisheries Service. In addition, eight species of marine mammals are protected under the Marine Mammal Protection Act (see table 9). Most migratory birds are protected under the Migratory Bird Treaty Act.

Animal species that could be extirpated are listed by the Massachusetts Natural Heritage and Endangered Species Program as endangered, threatened, or of special concern. Each classification reflects the species' population size and stability, its global distribution, and the threats to habitat viability (the definitions are the same as for plants). Massachusetts lists 42 species known to occur within the national seashore, including 10 species listed as endangered, 11 threatened, and 21 of special concern (see table 10 and the Rare Wildlife Habitat map).

Management of the piping plover (*Charadrius melodus*), a federally listed species, is a major component of the national seashore's resource management program. It has been documented

that this species can be adversely affected by human activities. The U.S. Fish and Wildlife Service is proposing that portions of the seashore be designated as critical piping plover habitat. Intensive monitoring has been completed to coordinate use of the offroad vehicle (ORV) corridor with plover hatching and fledgling dates. Other federally listed species receive protection within the seashore and have received varying levels of monitoring but no additional management.

Several species of state-listed terns nest on seashore beaches. The seashore has a comprehensive tern management program similar to, and conducted in conjunction with, management actions for piping plovers. Other than terns, there have been no significant management actions to protect identified sites, communities, or habitats of state-listed animals.

MOSQUITO CONTROL ACTIVITIES

The state has jurisdiction over mosquito control activities in portions of the seashore and operates a mosquito control program through each town. Control activities include larvicide treatment in wetlands. The impact of these activities on native invertebrates (both target and nontarget species) and dependent fauna is not known. In addition, these activities conflict with NPS policy, which prohibits the control of native insects unless a public health emergency exists. NPS policy advocates an integrated pest management approach when control is necessary. There is no formal agreement between the National Park Service and the Cape Cod Mosquito Control Project to coordinate activities. The mosquito control project has the authority to conduct activities in the Province Lands and on town and state lands elsewhere within the seashore boundaries.

TABLE 9: FEDERALLY PROTECTED ANIMAL SPECIES AT CAPE COD NATIONAL SEASHORE

Scientific Name	Common Name	Observed at Cape Cod National Seashore	Status		Remarks
			USFWS	NMFS	
Vertebrates (listed in taxonomic order)*					
<i>Caretta caretta</i>	Loggerhead turtle	Yes	FT	FT	
<i>Chelonia mydas</i>	Green turtle	NMFS record	FT	FE	Rare; the Florida nesting population is endangered; the Caribbean nesting population, threatened.
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Yes	FE	FE	Rare.
<i>Lepidochelys kempi</i>	Atlantic ridley turtle	Yes	FE	FE	
<i>Demochelys coriacea</i>	Leatherback turtle	Yes	FE	FE	
<i>Haliaeetus leucocephalus</i>	Bald eagle	Yes	FE		Migratory; state-listed as endangered.
<i>Falco peregrinus anatum</i>	Peregrine falcon	Yes	FE		Migratory; state-listed as endangered.
<i>Charadrius melodus</i>	Piping plover	Yes	FT		May 1995 recovery plan; state-listed as threatened.
<i>Numenius borealis</i>	Eskimo curlew	Yes	FE		Migrant; nearly extinct; state-listed as endangered.
<i>Sterna dougallii dougallii</i>	Roseate tern	Yes	FE		State-listed as endangered.
<i>Phoca vitulina</i>	Harbor seal	Yes		MM	Common in winter.
<i>Pagophilus groenlandicus</i>	Harp seal	Yes		MM	Rare.
<i>Halichoerus grypus</i>	Gray seal	Yes		MM	State-listed as of special concern.
<i>Cystophora cristata</i>	Hooded seal	Yes		MM	Rare.
<i>Physeter catodon / macrocephalus</i>	Sperm whale	NMFS record	FE	FE	Rarely found at depths less than 600'; state-listed as endangered.
<i>Lagenorhynchus acutus</i>	Atlantic white-sided dolphin	Yes		MM	
<i>Orcinus orca</i>	Orca	Yes		MM	Rare.
<i>Globicephala melaena</i>	Pilot whale	Yes		MM	
<i>Phocoena phocoena</i>	Harbor porpoise	Yes		P	NMFS has proposed for listing under Endangered Species Act.
<i>Balaenoptera physalus</i>	Finback whale	Yes	FE	FE	State-listed as endangered.
<i>Balaenoptera borealis</i>	Sei whale	Yes	FE	FE	State-listed as endangered.
<i>Balaenoptera acutorostrata</i>	Minke whale	Yes		MM	
<i>Balaenoptera musculus</i>	Blue whale	NMFS record	FE	FE	Rare in shallow coastal waters; state-listed as endangered.
<i>Megaptera novaeangliae</i>	Humpback whale	Yes	FE	FE	State-listed as endangered.
<i>Eubalaena glacialis</i>	Right whale	Yes	FE	FE	Designated critical habitat includes a portion of the seashore; state-listed as endangered.
Invertebrates					
<i>Cicindela dorsalis dorsalis</i>	Northeastern beach tiger beetle	H	FT		April 1992 draft recovery plan; state-listed as threatened.

* Most migratory birds found at Cape Cod National Seashore are also protected under the Migratory Bird Treaty Act.
 NMFS = National Marine Fisheries Service. USFWS = United States Fish and Wildlife Service.
 FE = Federally listed as endangered. FT = Federally listed as threatened.
 MM = Protected under Marine Mammal Protection Act. P = Proposed for listing by NMFS.
 H = Historic record of sighting. Rare = Species not found annually; when found, occurs in small numbers (<5 individuals).

TABLE 10: STATE-LISTED ANIMAL SPECIES THAT ARE THREATENED, ENDANGERED, OR OF SPECIAL CONCERN AT CAPE COD NATIONAL SEASHORE (IN TAXONOMIC ORDER)

Scientific Name	Common Name	Status	Remarks
Vertebrates (listed in taxonomic order)			
<i>Hemidactylium scutatum</i>	Four-toed salamander	SC	
<i>Scaphiopus holbrookii</i>	Spadefoot toad	ST	
<i>Clemmys guttata</i>	Spotted turtle	SC	
<i>Malaclemys terrapin terrapin</i>	Northern diamondback terrapin	ST	
<i>Terrapene carolina</i>	Box turtle	SC	
<i>Gavia immer</i>	Common loon	SC	Migrant
<i>Podilymbus podiceps</i>	Pied-billed grebe	SE	
<i>Oceanodroma leucorhoa</i>	Leach's storm petrel	SE	Very rare in summer; rare in fall
<i>Botaurus lentiginosus</i>	American bittern	SE	
<i>Ixobrychus exilis</i>	Least bittern	SE	Rare
<i>Accipiter cooperii</i>	Cooper's hawk	SC	
<i>Accipiter striatus</i>	Sharp-shinned hawk	SC	
<i>Circus cyaneus</i>	Northern harrier	ST	
<i>Gallinula chloropus</i>	Common moorhen	SC	Rare
<i>Rallus elegans</i>	King rail	ST	Rare
<i>Bartramia longicauda</i>	Upland sandpiper	SE	Rare migrant
<i>Sterna antillarum</i>	Least tern	SC	
<i>Sterna hirundo</i>	Common tern	SC	
<i>Sterna paradisaea</i>	Arctic tern	SC	
<i>Tyto alba</i>	Common barn owl	SC	Rare
<i>Asio flammeus</i>	Short-eared owl	SE	
<i>Asio otus</i>	Long-eared owl	SC	Rare
<i>Cistothorus platensis</i>	Sedge wren	SE	Rare
<i>Lanius ludovicianus</i>	Loggerhead shrike	SE	Rare migrant
<i>Poocetes graminens</i>	Vesper sparrow	ST	
<i>Ammodramus henslowii</i>	Henslow's sparrow	SE	
<i>Ammodramus savannarum</i>	Grasshopper sparrow	ST	Rare
<i>Parula americana</i>	Northern parula	ST	Migrant
<i>Dendroica striata</i>	Blackpoll warbler	SC	Migrant
<i>Oporomis philadelphia</i>	Mourning warbler	SC	Migrant
<i>Vermivora chrysoptera</i>	Golden-winged warbler	SE	Rare migrant
<i>Halichoerus grypus</i>	Gray seal	SC	Federally protected (MMPA)
Invertebrates			
<i>Femissia walkeri</i>	Walker's limpet	SC	
<i>Enallagma laterale</i>	New England bluet	SC	
<i>Enallagma recurvatum</i>	Pine barrens bluet	ST	
<i>Abagrotis crumbi benjamini</i>	Coastal heathland cutworm	SC	
<i>Apharetra purpurea</i>	Blueberry sawfly	SC	
<i>Catocala herodias gerhardi</i>	Gerard's underwing moth	ST	
<i>Cingilia cetenaria</i>	Chain dot geometer	SC	
<i>Fixsenia ontario</i>	Northern hairstreak	SC	
<i>Hemileuca maia</i>	Coastal barrens buckmoth	ST	
<i>Papaipema sulphurata</i>	Decodon borer moth	ST	

SOURCE: Massachusetts Natural Heritage and Endangered Species Program.

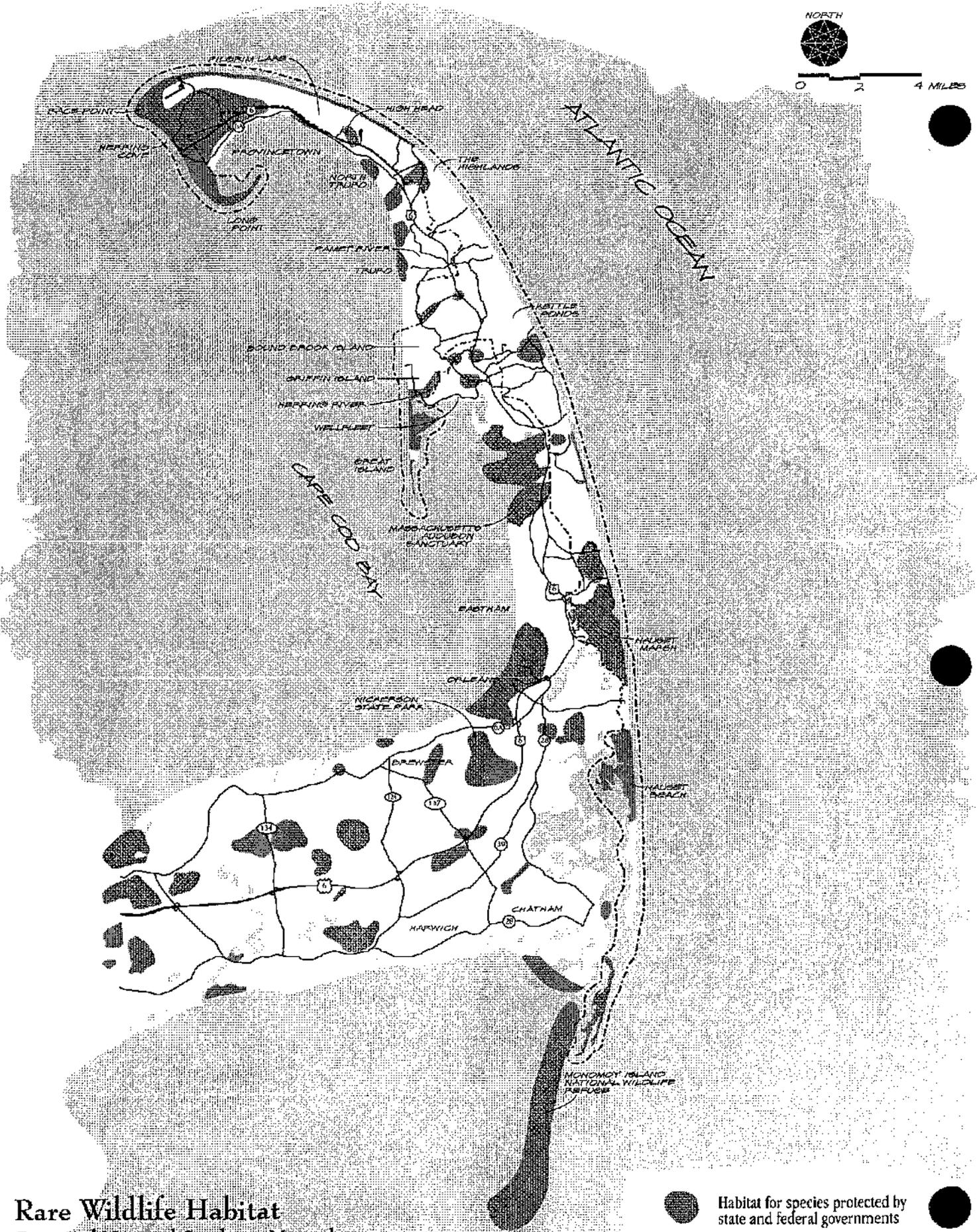
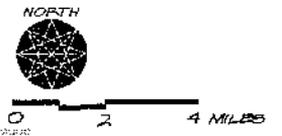
Note: Not listed are state-listed species that are also federally listed, including the bald eagle, peregrine falcon, eskimo curlew, roseate tern, and sperm, finback, sei, blue, humpback, and right whales (all state-listed as endangered); and the piping plover and northeastern beach tiger beetle (state-listed as threatened). The gray seal appears on both lists.

ST = State Threatened

SE = State Endangered

SC = Species of Special Concern

Rare = Species does not occur annually; when found, occurs in small numbers (<5 individuals).



Rare Wildlife Habitat
Cape Cod National Seashore, Massachusetts
 United States Department of the Interior • National Park Service
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 Habitat for species protected by state and federal governments
 Cape Cod National Seashore boundary

Note: Map does not include all known Piping Plover habitat due to scale

ON MICROFILM

CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

Ethnographic resources can include both natural and cultural resources, as well as resource based use and activities. In 1995 a rapid ethnographic assessment focusing on cultural and natural resources within Cape Cod National Seashore was prepared (Hall-Arber 1995). It was intended to provide a preliminary ethnographic overview for the general management plan. Representatives of a number of cultural communities on Cape Cod participated in this study, including Wampanoag, Portuguese and Portuguese Americans, Cape Verdeans, and other contemporary neighboring people.

The goal of the study was to identify the range of cultural patterns of use of seashore resources and to provide a preliminary assessment of their value to both traditionally associated and contemporary neighboring people. The assessment, however, was inconclusive; it did not assess the relationships of the groups identified and seashore resources. More detailed studies are therefore required.

A more detailed assessment was prepared for the Pamet cranberry bog and focused particular attention on the involvement of the local Cape Verdean population in the cranberry industry.

CULTURAL LANDSCAPES

Cape Cod National Seashore contains numerous cultural landscapes, and additional cultural landscapes exist outside the national seashore. These cultural landscapes when combined with other historic structures, archeological resources, and museum objects reflect the history and traditional character of the Outer Cape.

Cape Cod National Seashore's varied landscapes are best characterized as "historic vernacular," which are defined as landscapes that illustrate

people's values and attitudes toward the land and that reflect settlement patterns, use, and development over time.

The Cape Cod landscape reflects the ways in which Cape Codders have lived and worked over time. By adapting to the natural surroundings, inhabitants have left their mark in a continuum of land use that has modified the landscape. The Cape's landscape continues to evolve, and often natural succession conceals the cultural imprint. Lands that were once Native American fields, farmlands, and pastures used by European settlers, or lands that reflect past use by other cultural groups are now forested or have been altered through changes in use and/or design. The evolution of these landscapes threatens to obscure their former form and value.

A limited cultural landscape inventory was completed in 1995, resulting in the identification of a number of significant landscapes in the national seashore eligible for listing on the National Register of Historic Places, including Fort Hill in Eastham, the Pamet cranberry bog in North Truro, the dune shacks in Provincetown and Truro, the Highland complex in Truro, and the Atwood-Higgins site in Wellfleet. However, a complete inventory has not been undertaken. Consequently, there is a need to identify, preserve, and interpret the national seashore's cultural landscapes that are eligible for listing on the National Register of Historic Places.

HISTORIC ARCHITECTURE

Historic structures within Cape Cod National Seashore, along with many others within adjacent Outer Cape communities, reflect the history and traditional character of the Outer Cape, particularly in combination with cultural landscapes and archeological resources.

Some historic structures are subject to destruction or alteration before architectural features can be recorded, with a resulting loss of cultural

assets to the Outer Cape and the nation. The intent of the national seashore is to work in concert with local groups and governments to promote stewardship as a means to identify and protect this heritage.

In accordance with section 110 of the National Historic Preservation Act, as amended, the National Park Service has evaluated all federally owned buildings within the national seashore. A total of 62 structures have been determined eligible for listing on the National Register of Historic Places. As other buildings and structures reach 50 years of age, they are treated as eligible for listing on the national register until determined otherwise.

The federally owned historic buildings are only maintained through regional cyclic programs that do not provide sufficient annual funds for their year-to-year maintenance. A number of major problems such as water damage and painting need attention at virtually all historic buildings. Eight federally owned historic buildings are leased to public and private entities, but most permits have no agreement to have the occupant repair or maintain the buildings.

Federally owned historic buildings are frequently patrolled by park rangers and town police; however, fire alarm systems and intrusion detection are obsolete or nonexistent. Two historic properties, the Highland Light and the Highland House, are leased for concession use by the Truro Historical Society for interpretation, gift sales, and maintenance. The Adams cottage is leased for concession use as a clubhouse for the Highland Golf Links. Three historic buildings — the Samuel Rider, Ahearn, and Jedediah Higgins houses — are leased for residential use. In addition, four dune shacks in the Peaked Hill Bars Historic District are leased.

The Coast Guard NEED building (the former Nauset Coast Guard station) is used for outreach programs. The Race Point ranger station (the former Race Point Coast Guard station) is used for NPS administration and storage. Many federally owned historic structures lack appropriate treatment and use, and they are not adequately

managed. Among these are the Race Point ranger station, the Pamet cranberry bog house, the Atwood-Higgins house, the Penniman house and barn, the Old Harbor Life-saving Station, the Three Sisters Lights, and the Highlands complex. The Province Lands dune shacks, which are federally owned, are currently occupied by a mix of historic property leaseholders and use-and-occupancy reservation holders. As the use-and-occupancy reservations expire, new mechanisms will need to be in place to keep the structures occupied and maintained.

Staff interpreters operate the Old Harbor Life-saving Station for limited hours daily during the summer. In addition, staff interpreters present alternate annual programs at the Penniman house (every other Christmas) and the Atwood-Higgins house (every other Thanksgiving) primarily for the local communities.

Approximately 240 privately owned historic buildings and their associated landscapes are in the national seashore. These historic buildings and grounds reflect the distinctive architectural style and setting for which Cape Cod is noted. Because preservation of the historical character of these buildings and grounds is at the private owner's discretion, these historic structures and their associated landscapes can be altered to the point of compromising their architectural integrity and diminishing the Cape's cultural character. The loss or compromise of these valuable resources is of a critical concern to the national seashore, as well as the Outer Cape communities.

The national seashore is subject to natural dynamic coastal processes, such as migrating sand, sea-level rise, shoreline change, overwash, and inlet formation. These processes threaten cultural resources and their related settings, including the Marconi wireless site, the French cable hut, and the Province Lands dune shacks. Before a historic structure and its associated landscape are destroyed by natural coastal processes, the Park Service is required to document the site in accordance with section 110(b) of the National Historic Preservation Act of 1966, as amended. Cultural landscapes must also

be recorded before destruction and the records deposited in the Library of Congress or another appropriate agency, as designated. If deemed appropriate by the secretary of the interior, historic structures threatened with destruction can be moved to another location that approximates their historical setting.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

Archeological resources — the physical evidence of past human activity, including evidence of the effects of that activity on the environment — represent both prehistoric and historic time periods. They are found above and below the ground and underwater.

LAND-BASED RESOURCES

Prehistoric and historic archeological resources have been identified at various locations, such as Long Point, Fresh Brook Village, Smith Tavern, the Carns site, Fort Hill, Coast Guard Beach, Great Island, High Head, and at all national register properties (unless they have been moved). These resources are subject to threats such as development, vandalism, and erosion. These problems are not restricted to land within the boundaries of the national seashore. Some structures on improved properties, such as the ones around Nauset Marsh, are located in archeologically sensitive areas. A series of prehistoric archeological sites around Nauset Marsh have been listed as a national historic landmark. However, a portion of these sites extend from federal property onto privately owned property within the seashore boundary where ground disturbance could destroy valuable archeological resources.

The Archeological Resource Protection Act of 1979 requires that sites of religious or cultural importance to Native Americans be identified and protected. The Native American Graves Protection and Repatriation Act of 1990 seeks to

protect American Indian graves and encourages in situ preservation of archeological sites containing human remains and associated funerary objects. This act also requires that a consultation process be established with tribes in the event of inadvertent discovery. As a courtesy, the national seashore has begun to notify Native American groups of archeological excavations. Between 1979 and 1981 the seashore completed a survey of prehistoric archeological resources. No program of a similar nature has been undertaken for historic land-based archeology.

SUBMERGED RESOURCES

Continued sea level rise and shoreline changes have resulted in land-based archeological resources becoming partly submerged and in danger of becoming completely submerged. Shoreline changes have also caused an alteration in the seashore's quarter-mile offshore boundary. Since thousands of shipwrecks occurred along the Cape Cod coastline, significant submerged archeological resources are slowly being placed outside the offshore boundary. Submerged and partially submerged archeological resources have not been thoroughly surveyed. At the same time, the offshore bottomland within the seashore boundary in the Provincetown and Truro areas is federally owned. Much of the offshore bottomland within the seashore boundary is owned by the state.

In the area where the offshore bottomland is federally owned, submerged resources are treated in the same manner as land-based cultural resources. NPS policies rarely allow shipwrecks to be salvaged. When a state owns the offshore bottomland within a park boundary, as is the case at Cape Cod National Seashore, different regulations apply. The Abandoned Shipwreck Act of 1987 asserts United States government title to abandoned shipwrecks in a state's submerged lands. This act, however, transfers title for a majority of those shipwrecks to the respective states and requires that states develop policies for managing the wrecks so as to protect natural resources, permit reasonable public access, and allow for the recovery of

shipwrecks consistent with the protection of historical values and the environmental integrity of wrecks and sites.

Operating under this 1987 act, which differs from NPS policy, the state issues permits for salvage work to be done on submerged shipwrecks. Although the state requires permit holders to file a salvage plan that is designed to protect the historic values of shipwrecks, there is little oversight of the actual salvage work. As a consequence, permit holders often do not use accepted archeological practices when conducting salvage work, and valuable information on shipwrecks is sometimes lost.

MUSEUM COLLECTION

The objects in the national seashore's museum collection are 65% archeological, 32% archival, 2% historical, and 1% natural history. The collections include the prehistoric archeological collection, the Great Island Tavern collection, the Higgins Collection, and the scrimshaw collection, as well as the Hastings Keith, Warren Sears Nickerson, and Wiley and Rich papers. There are also historic objects and archival materials associated with the Penniman family and a large historical photograph collection. Each of these collections is an important reference source and an interpretive tool.

Lack of storage, display, and research space with environmental controls to ensure the protection of these artifacts is a continuing problem. The material deterioration of objects is largely an effect of the environment, and the harsh environment on Cape Cod is especially detrimental to objects in the collection. The scheduled rehabilitation of a building for additional storage at the North Truro Air Force Station will only partially alleviate this problem. Limited funding will not allow for complete climate control in the converted storage area. At Salt Pond visitor center, where some of the most sensitive and important objects in the collection are on exhibit, insurmountable problems with the environmental controls demonstrate the need to replace the system.

A lack of funding and staffing in the curatorial office has resulted in a catalog backlog of over 250,000 objects. This puts the collection in jeopardy because of a lack of inventory control. Uncataloged material is not readily accessible for research, interpretation, or exhibit.

No parameters have been defined for the scope of collections in terms of focusing on specific areas to fill gaps in the collection. There is little control over archeology and resource management collections that are driven by such circumstances as shoreline erosion, facility construction, or other ground-disturbing activities.

PUBLIC USE

INFORMATION AND ORIENTATION

Most information and orientation services on Cape Cod are provided by the National Park Service, chambers of commerce in the numerous communities. For national seashore visitors, the Salt Pond visitor center is the first NPS information facility encountered. Also, NPS information desks are at park headquarters and at the Province Lands visitor center.

Massachusetts operates a seasonal information center on U.S. 6 east of Hyannis on the Outer Cape. The first local chamber of commerce welcome center near the national seashore on U.S. 6 is at Eastham. At these centers, and at many motels, campgrounds, and restaurants, visitors can get oriented to the Cape, pick up a variety of informational brochures, ask questions, and consider various trip-planning options.

INTERPRETATION AND EDUCATION

Through a variety of interpretive facilities, media, and personal services programs, Cape Cod National Seashore offers many opportunities for visitors and residents of all ages to understand and appreciate the value and significance of the Cape's resources and character. The interpretive facilities include two visitor centers, eight self-guided interpretive trails, and four historic properties with public access. Media consist of four audiovisual programs, several museum exhibits, three bookstore sales areas, and more than 30 wayside exhibits.

The personal services interpretive program offers a wide variety of guided walks and hikes, tours of historic properties, evening illustrated talks, sunset beach campfires, and special events. Offsite programs include outreach presentations for local schools, groups, and civic

organizations. In addition, the environmental education program, which uses two of the national seashore's facilities, has reached thousands of area students over the past two decades. Volunteers and representatives of several partner organizations and agencies conduct or assist in conducting many of these activities and programs.

ACCESS AND TRANSPORTATION

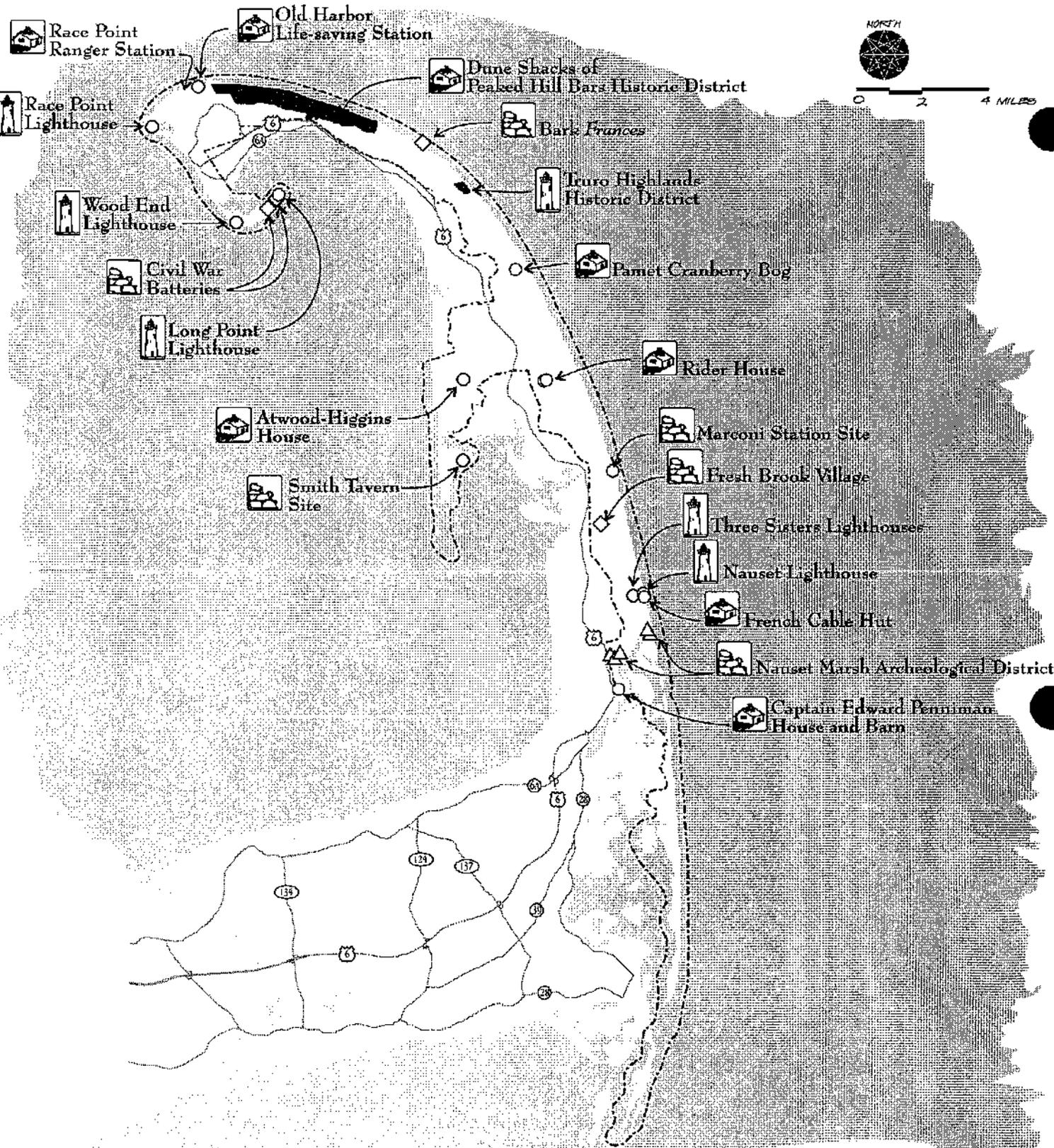
ACCESS TO CAPE COD

Ground Access

While visitors to the Cape may arrive by air (airports in Provincetown and Hyannis), bus, and boat, more than 95% arrive by private car. There are two major highway routes to the Cape: I-495, which crosses the Bourne Bridge, and MA 3, which crosses the Sagamore Bridge. U.S. Route 6, also known as the Mid-Cape Highway, is the main road for traversing the Cape. It is a limited access highway until the Orleans/Eastham rotary.

Traffic congestion on Cape Cod has increased to the point of altering vacation and development patterns over the years, and existing transportation facilities have become a limiting factor on tourism during the high use season. Traffic conditions are further compounded by pressure from nearby population centers for vacation destinations and the growth in year-round residency on the Cape.

Planning to alleviate the overburdened transportation system capewide, in accordance with the Intermodal Surface Transportation Efficiency Act of 1991, is the responsibility of the Cape Cod Commission and the Cape Cod Regional Transit Authority, in cooperation with the commonwealth of Massachusetts.



-  National historic landmark
-  National register property
-  Archeological site
-  National historic district
-  Cape Cod National Seashore boundary

Note: Privately owned historic structures are scattered throughout the seashore

Cultural Resources
Cape Cod National Seashore, Massachusetts
 United States Department of the Interior • National Park Service
 DEC • February 1998 • 609 • 20,037a

ON MICROFILM

Identified traffic problem areas on the Outer Cape that are of special concern to the National Park Service include (1) U.S. 6 in Eastham and (2) U.S. 6 between West Road on the Wellfleet/Eastham line and Wellfleet center, which cannot handle current traffic volumes. Approximately 17 of the 31 miles of U.S. 6 from Provincetown to Eastham are considered to be "congested" (when the ratio of traffic volume to roadway capacity is 80%). In the remaining 14 miles, capacity has been exceeded. By the year 2020 this congestion will stretch south to the Orleans rotary in Eastham.

Intersections that do not function well near the seashore corridor include MA 28 at Old Queen Anne Road, at MA 137 in Chatham, and at MA 39 in Orleans; and U.S. 6 at Governor Prence Road in Eastham and at West Road on the Eastham/Wellfleet line. Seventeen accident-prone intersections have been identified along U.S. 6 in Eastham, Orleans, Wellfleet, Truro, and Provincetown, with an additional intersection identified as dangerous in Provincetown. While only these intersections are listed, many more require long waits to turn, especially for left turns. Cars queuing behind left-turning cars bring traffic to a standstill, further diminishing capacity, safety, and traffic flow on U.S. 6.

The public often perceives that national seashore visitors are the primary contributors to traffic congestion. However, a 1993 survey of visitors indicates that over 75% specified their primary destinations as particular towns or the Outer Cape region, and not specifically the national seashore. While the national seashore is a very important part of the natural landscape and cultural features do bring people to the Outer Cape, there is reason to believe that federal protection of national seashore land has actually precluded a considerable increase in traffic congestion. Projections estimate that if open space had been developed with residential homes rather than being set aside as a national seashore, up to an additional 25,000 homes could have been built, generating up to a quarter million additional daily trips on the existing road system. It is impossible to attribute traffic congestion to any particular attraction on the

Outer Cape, underscoring the need for all parties to recognize the problems and to contribute to their solution.

A "2020" Vision: Long Range Transportation Plan for Cape Cod was released by the Cape Cod Commission in 1995. The plan details current traffic and ridership counts, accidents, trouble spots, and infrastructure facility conditions, and it forecasts future system conditions. The conclusions are that actions must be taken quickly to prevent widespread gridlock in the near future. Alternative solutions are presented. Adding traffic lanes has been rejected as a solution because of cost, capacity, and character issues.

The transportation plan includes 12 transportation control measures as alternatives to be considered to mitigate the congestion and safety concerns, and to reduce vehicle emissions. They include improving public transportation (both regional and local), providing high-occupancy vehicle lanes, encouraging employers to develop trip reduction plans, sponsoring trip reduction ordinances, improving traffic flow, developing fringe and corridor parking lots for high-occupancy vehicles and public transportation users, providing bicycle and pedestrian paths, improving roadways and parking areas for bicyclists, preserving corridors for pedestrian and bicycle use, and encouraging employer-sponsored flexible work hour programs. Transportation measures proposed specifically for air quality improvement are the control of extended idling and the reduction of cold starts.

Air Access

Regional commercial air service is available through airports in Hyannis and Provincetown. General aviation airport use is also available at Chatham, in addition to Hyannis and Provincetown. The Provincetown Municipal Airport occupies approximately 325 acres of federal lands entirely within the national seashore. The "Authorization of Conveyance of Commonwealth Lands" (see appendix A) specifically addresses the lease of land for a public airport

and for additional lands to be considered. Operated by the town of Provincetown, it is one of only two municipal airports in the nation within a national park system unit. The airport is about 2 miles north of the Provincetown center and is within 1/4 mile of several NPS visitor facilities, including the Province Lands visitor center, Race Point Beach, and the Old Harbor Life-saving Station. The use of lands for the airport and runways, lighting, and instrumentation beyond is specified in two separate permits, which authorize operation of the airport. Both permits are valid through the year 2015.

Provincetown Municipal Airport is accessible from an access road off the Race Point Beach road, a two-lane road connecting U.S. 6 and Race Point Beach. The airport access road is used by airline passengers and general aviation users, taxis, airline employees, and airport service vehicles. During 1993 and 1994 about 3%–4% of the vehicles traveling on Race Point Road used the airport access road.

The airport is part of the national plan of integrated airport systems, and it is considered an important transportation facility by Outer Cape communities. It provides access to the national aviation system, in part through scheduled air carrier service. The airport is also part of the Outer Cape's intermodal transportation system.

The airport was established in 1947, and the existing runway was built in 1948. Existing airport facilities include a single 3,500-foot paved runway, which is accessed by a parallel taxiway, a wood-framed terminal building with attached hangar, a small general aviation pilot's shack, fueling facilities, and automobile parking. In general, the airport facilities are in fair to good condition (FAA 1997). The airport is served by a single commuter airline, Cape Air, which also acts as the airport's fixed base operator, providing aircraft fueling, parking, and other services.

One measure of airport activity is enplanements, or the number of passengers originating at the airport in Provincetown. Commercial air service began in 1949, and by 1952 there were 5,044

passenger enplanements. Enplanements peaked in 1984 at 21,397 and declined by 1989 to 5,333. Regularly scheduled service has revived activity, and in 1995 there were about 12,200 enplanements (FAA 1997). There is concern about the continued viability of the airport in light of changing economic conditions and other forces.

The National Park Service has substantial interest in the potential impacts of airport operations and upgrades on the resources and values of the national seashore. Transportation projects that are to cross NPS lands outside the existing rights-of-way or permitted areas must be reviewed. A determination must be made in accordance with the section 4f of the Department of Transportation Act of 1966. The project can be approved "only if (1) there is no prudent or feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park . . . resulting from such use."

For any project proposed at the airport, national seashore managers will evaluate the project's environmental impacts and how they affect the national seashore's resources and values. The Federal Aviation Administration, the Massachusetts Aeronautics Commission, and the Provincetown Airport Commission have prepared a *Preliminary Draft Environmental Impact Statement / Environmental Impact Report* for several airport improvements, including aircraft parking areas, runway safety areas, and a runway extension. A full range of alternatives will be explored, and the National Park Service will take a position on the proposed projects, consistent with its mandates, when the draft report is formally on review. Each party will need to fully understand the other's needs in order to reach a mutually satisfactory solution with regard to airport improvements.

ACCESS WITHIN THE NATIONAL SEASHORE

U.S. 6 is the primary access route for the national seashore. Roads and trails provide public access to national seashore resources, and the

access largely determines the range of public activities and experiences, and there is increasing demand for access to ocean beaches, kettle ponds, historic sites, and other public use attractions, all with limited onsite parking. National seashore managers must protect sensitive resources while providing an appropriate level of access to a variety of settings.

Access to environmentally sensitive areas such as shoreline cliffs, kettle ponds, and dunes is often limited by attempts to protect these resources and concern for public safety. The presence of town-owned and privately owned property in the national seashore also leads to access restrictions. Sand roads are a traditional means of access that link many features in the national seashore, yet ownership and access rights along these corridors are often in dispute, and the mixture of ownerships can confuse visitors. In developed areas in the national seashore and in town commercial areas, access is limited by the capacity of local access roads and the availability of onsite parking.

As access and parking facilities are lost to coastal erosion, the national seashore and surrounding towns are exploring cooperative solutions to public access and transportation problems. The national seashore is working with local, county, and state agencies to identify transportation alternatives, particularly for the peak summer months, and is contributing to the Cape Cod Commission's *Long Range Transportation Plan*.

ACTIVITIES, FACILITIES, AND SERVICES

ANNUAL VISITATION

Cape Cod National Seashore counted more than 5 million visits in 1996, ranking it as the ninth most visited area in the national park system. These statistics include repeat visits and visits by one person to more than one area of the seashore on a single day. The promotion of Cape Cod as a resort and tourist destination began almost a century ago, and it was firmly established in 1961

when the national seashore was authorized. In 1964, 1.8 million visits were counted, and by 1969 that visitation had more than doubled to 4 million plus. Visitation reached over 5 million in the 1970s, and it has fluctuated between 4 million and 5.4 million in the 20 years since.

Figures indicate that over the past two decades, visitation to the national seashore has increased on an average by 0.4% a year, or 4.3% per decade. However, these figures include a period of declining visitation during the recession of the mid-1980s.

Growth in visitation over the last decade (1984–94) has been almost 20%, with a record seven straight years at over 5 million visits, possibly reflecting the increased amount of tourism as the economy has rebounded from the recession.

Cape Cod's increased visitation and the more than doubling of year-round and seasonal residents have had a dramatic impact on public use. While the impact of these additional residents on overall annual visitation at the national seashore has been inconclusive, it has clearly contributed to traffic congestion, site-specific use pressures, and resource degradation. Many visitors have said that they visit less frequently or in alternate seasons as a result of increased traffic and congestion. This trend is supported by increased visitation in the spring and fall, coinciding with a slight drop in peak summer visitation.

A survey of visitors and local residents conducted in 1992–3 indicated that most national seashore visitors come from the northeastern United States, although a total of 39 states and Canada were represented (Manning 1994). The average visitors were in their mid to late 40s, were well educated, and had relatively large incomes. A large percentage of groups were traveling with children, particularly in the summer, reinforcing the tradition of the Cape as a family-oriented destination. Three percent of visitors spoke a foreign language (mostly French). Six percent had some form of disability.

The survey showed that local year-round and seasonal residents who used the national seashore had stayed an average of 27 years on the Cape, and 44% lived on Cape Cod year-round. The average age of residents was 60; 42% were retired, and most were highly educated with annual incomes of \$50,000 or more.

PATTERNS OF USE

Most visitors tend to be frequent, repeat visitors, and more than 85% of the residents reported frequent visits to the national seashore. The pattern of use is mostly day use; however, evening programs have been popular, and requests often exceed the programs available. Frequent visitors generally have a consistent pattern of use, usually engaging in particular activities at favorite sites in the national seashore during the day and leaving in the afternoon or evening to seek overnight accommodations in the local and regional area. The most popular destinations in the Outer Cape region were beaches managed by the National Park Service, visitor centers, headquarters, the Marconi Station site, lighthouses, Nauset Beach, Fort Hill and trails, and the Atlantic white cedar swamp. According to the survey, most visitors do not consider the national seashore their primary destination on Cape Cod. Summer visits last about one week; visits in the shoulder seasons and winter average two to four days.

Public use is highly seasonal, with 50% of the annual visitation occurring in June, July, and August and as little as 10% in the November-March period. Visitation during the spring and fall "shoulder seasons" is becoming more popular.

On-season/summer visitation, roughly from Memorial Day to Labor Day, consists mainly of regional, national, and occasionally international visitors. These visitors are attracted by outdoor activities, principally swimming, sunbathing, and beachcombing. More passive outdoor activities like nature study, photography, picnicking, and camping (at private or state campgrounds) are also quite popular. More than

half of all visitors participate in some road- and trail-related activities, including driving on scenic roads, hiking, and bicycling. More than a third of the summer visitors take advantage of educational displays, ranger-guided programs, and other services offered through the visitor centers. These centers receive about half of their annual visitation of 3/4 million during this 10-week period. The wider configuration of the Outer Beach and the presence of sportfish make summer the peak season for surf-fishing and ORV beach driving.

Winter visitation (November through March) consists primarily of local and regional visitors. Despite frequently harsh weather, winter visitors continue to be attracted to the beaches to walk, beachcomb, and watch nor'easter storms. Most visitors favor scenic driving and hiking, but when the weather permits, cross-country skiing and bicycling are popular. Off-season visitors take advantage of exhibits and services at the visitor centers and historic structures, although these facilities often are closed or run at reduced schedules.

Shoulder seasons (April-May and September-October) are the most popular periods for many local and regional visitors because of the combination of moderate weather and smaller crowds. Weekend attendance during these seasons can be extremely high, sometimes matching peak summer visitation levels. Visitors continue to favor road and trail activities such as scenic driving, hiking, and bicycling. Interest in nature study and visiting park historic buildings increases, and more tour bus and educational groups contribute to an additional demand for services at the visitor centers. In warmer weather, camping is popular at private and state campgrounds. Autumn is a favorite time for activities like scenic driving, hiking, bicycling, and photography. Hunting small game, deer, and waterfowl is also allowed in many areas of the national seashore.

Visitor participation in recreational activities at the national seashore, as indicated by a 1992 visitor survey, are shown in table 11.

TABLE 11: VISITOR ACTIVITIES AT CAPE COD NATIONAL SEASHORE

Activity	Visitor Participation (by Percentage)		Activity	Visitor Participation (by Percentage)	
	Summer	Winter		Summer	Winter
Viewing scenery	72	77	Camping	11	4
Sunbathing	64	22	Boating	9	6
Swimming in the ocean	61	12	Ranger-guided activities	8	8
Beachcombing	55	54	ORV riding	7	1
Driving on scenic roads	54	54	Shellfishing	5	2
Hiking	46	49	Surfing	3	4
Seeing exhibits, presentations	39	40	Freshwater fishing	2	1
Bicycling	32	14	Windsurfing	2	1
Picnicking	31	15	Scuba diving	1	1
Visiting historic sites	30	17	Bus tour	1	none
Photography	29	38	Horseback riding	1	3
Nature study	25	29	Cross-country skiing	6	1
Swimming in ponds	15	1	Hunting	4	0
Saltwater fishing	12	8	Other	9	3

SOURCE: Manning 1994.

PUBLIC USE VALUES

Visitors and residents surveyed in 1992 said they most often associated a quality park experience with animals, sand dunes, vegetation, water quality, aesthetic beauty, and solitude (Manning 1994). The public concerns mentioned most frequently in surveys were the presence of litter, the number of people, traffic, noise, and the adequacy and cleanliness of facilities. Most visitors and almost half of the residents surveyed said that crowding at the national seashore was not a problem, and a majority did not support the idea of placing overall limits on the numbers of visitors to the national seashore at a given time. The majority of visitors and residents said that employees at the national seashore were friendly and helpful. More than 95% of visitors and almost 90% of residents rated the overall quality of their visits as either "good" or "excellent."

USE REGULATIONS

All public use activities at Cape Cod National Seashore are managed to preserve and protect resources, promote public safety and enjoyment, and minimize conflicts between users and

others. All activities are subject to the regulations found in the *Code of Federal Regulations* (CFR) on parks, forests, and public property, as well as various titles of the *United States Code* (USC).

In addition to nationwide regulations, special regulations have been added for the national seashore. These regulations pertain to activities that require special rules or codes to protect public safety or resources or to control ORV use (routes, access periods, equipment, permits), camping (limited to self-contained ORVs on beaches), aircraft use (permitted landing area), motorboating (permitted areas), shellfishing (town regulation), and hunting (species and season). Public nude sunbathing at the seashore is prohibited by regulation.

The national seashore superintendent has discretionary authority to impose additional regulations regarding designations, closures, and limits of certain permitted activities, including hours of operation, campfires, fee collection, pets, fishing, surfing, horseback riding, skating, smoking, consumption of alcoholic beverages, public assembly, special events, speed limits, and bicycle use. The management of personal water-

craft use, a growing activity within the seashore, is a multijurisdictional issue requiring coordination by various land managers. The superintendent currently has authority to limit landing and operation within 500' of a designated swimming area. Some Outer Cape towns have different regulations or are becoming concerned about personal watercraft use.

Some traditional activities like hunting, fishing, and shellfishing predate the establishment of the national seashore and are identified in its enabling legislation. Those activities are allowed under the discretionary authority of the superintendent.

Public Protection

The national seashore maintains cooperative agreements with local police and fire departments. These agreements are critical to managing public uses and protecting resources. In 1995 seashore protection rangers recorded 734 incident reports, 376 courtesy tags (warnings), and 983 violation notices issued. The largest number of offenses were traffic violations, vandalism, natural resource violations (poaching, dumping, etc.), theft, burglary, nudity, drug possession, and drunk and disorderly conduct. There were 170 emergency incidents in 1995. Most were not injury-related: lost children, swimming-related incidents, and bicycle, boating, and motor vehicle accidents. Protection rangers typically arrest 10 to 15 persons annually; usually they are drug, alcohol, or assault cases.

Use / Resource Conflicts

Resource protection priorities, public use, and different uses sometimes conflict. Some sensitive resources that have affected public use management are freshwater ponds and other wetlands, federally protected shorebirds and other species, archeological sites, barrier beaches and dunes, and tidal marshes and flats. In recent years activities associated with these resources, for example ORV driving, surf

fishing, hunting, fishing/shellfishing, and nude sunbathing, have dominated recreation management discussions. ORV use was recently the subject of special management actions and rule-making efforts; hunting is covered by both state and federal regulations, and shellfishing is covered by state regulations.

National seashore managers have tried to balance the continuation of these public use opportunities with rules and management actions designed to protect sensitive resources. However, managers have chosen to specifically prohibit nude sunbathing because seashore resources were being damaged by sunbathers seeking seclusion and by voyeurs. Additionally, nude sunbathing has been and continues to be prohibited in all Outer Cape communities, in accordance with state law and local bylaws. Use regulations are not changed by a general management plan, but through a rule-making process.

Dirt bike use is not allowed in the national seashore because of impacts on vegetation and soil erosion. Growing offroad mountain bicycle use could result in similar impacts if not adequately managed.

Private Land Conflicts

There are almost 600 improved private properties covering more than 1,600 acres within the boundaries of the national seashore. With a few exceptions these private lands are not available for public use. Many of these lands were originally privately acquired and developed because of the vistas or access to resources. Many are concentrated in oceanfront, pond shore, or riverside areas. In the natural settings throughout the national seashore, these areas have no demarcation; therefore, they are not easily identified, and inadvertent trespassing sometimes occurs. In some cases, these private lands include roads that provide the only access to publicly owned ponds, beaches, or other attractive public use areas. The National Park Service is bound by provisions in its legislation to preserve the privacy and property values of these sites, but it

is also obligated to allow public access to publicly owned lands consistent with the preservation of resources.

PUBLIC USE PRIORITIES

The visitor and resident survey identified activities that should be planned for, including bicycling, nature study, and ranger-led activities (Manning 1994). While a majority of respondents supported developing more facilities for hiking, walking, and bicycling, opinions were split about adding or expanding beach facilities and developing primitive camping areas. Additionally, 63% of visitors and 45% of residents supported the provision of more public transportation at the national seashore.

About 28% of visitors wished to see hunting regulated in the national seashore; 69% wanted hunting to be eliminated. At the same time, about 33% of the residents desired hunting regulations and 54% thought it should be eliminated. The use of ORVs within present regulations was supported by 78% of the residents surveyed and 40% of the visitors. A total of 55% of visitors supported eliminating ORV use. Support for allowing nude sunbathing was about 25% among visitors and residents, while 62% of residents and 46% of visitors said it should continue to be prohibited (Manning 1994).

PUBLIC FACILITIES AND SERVICES

Cape Cod National Seashore provides a variety of facilities to support public use. Most facilities were built by the National Park Service or inherited from the state during the first decade after the national seashore was established. All the original facilities built in the 1960s are still in service. In accordance with the 1970 *Master Plan*, trails were built on Great Island, and a small parking lot was developed to serve the cranberry bog. Partial cultural landscape restoration was begun at Fort Hill. No other recommended facilities were built. In the late 1970s the Old Harbor Lifesaving Station was relocated from Chatham to Race Point and is now used as

a museum. Beach parking and facilities were constructed in the 1980s to replace facilities lost to erosion at Nauset and Coast Guard Beaches (Little Creek shuttle parking lot).

Most of the Orleans and Chatham areas of the national seashore are owned by towns, and day-to-day management has been assumed almost totally by the towns. Except for the developed Nauset Town Beach, visitor facilities and services are lacking in the southern part of the national seashore.

Public facilities consist of six ocean beaches with bathhouses, two visitor centers, headquarters, and two environmental education centers. Smaller developments include three picnic areas with comfort stations, more than 10 historic sites and buildings, eight interpretive trails, three bike trails, and three interpretive shelters. Most roads in the national seashore are owned and maintained by towns. Federally owned roads maintained by the national seashore are Doane Road and Cable Road in Eastham, Marconi Area roads in Wellfleet, and Race Point and Province Lands Roads in Provincetown. Ownership of the sand (unsurfaced) roads is a mixture of municipal, federal, and private. The national seashore operates and maintains the following public use facilities:

Roads, trails, and parking — 25 pedestrian trails (24.5 miles), 3 bicycle trails (10.8 miles), 39 roads (22.5 mi), 3 horse trails (10.7 miles), 23 parking lots (2,600 spaces at beaches, 450 at visitor centers, 310 at picnic areas and trailheads, 73 at historic sites), 60 fire roads (35 miles), and 1 auto bridge.

Buildings and developed areas — 12 comfort stations/showers, 2 visitor centers (with amphitheaters), 4 major picnic areas, 2 environmental education centers, 1 oversand station, 1 golf clubhouse and golf course, 1 snack bar, 10 historic structures (with public access).

Most public use opportunities within the national seashore are easily accessible. Parking lots are close to attractions, and most hikes are short and easy. Most visitors recreate together at the

developed sites regardless of their level of ability, available time, or desire for challenge. In the summer destinations are often crowded and sometimes suffer from overuse.

At times visitation meets or exceeds capacity at existing public use facilities, particularly at parking lots at certain beaches, visitor centers, trails, and scenic viewing areas. Some national seashore and town planning documents have recommended expanding or adding parking capacity to many of these facilities, but some national seashore managers and people in the communities have expressed concern about the environmental impacts and congestion that could be caused by additional visitors.

Recreational opportunities for infrequent visitors to the national seashore are very different from the experiences enjoyed by local residents and longtime Cape vacationers. This is because many of the Cape's most wonderful places are not identified on maps as visitor attractions or destinations. There has been resistance to identifying these places on national seashore maps for fear that they would be overrun and "improvements" (roads, parking lots, hardened paths) would be necessary, ruining their current ambience.

Cooperative Partnerships

The National Park Service currently has more than 30 different types of cooperative agreements or partnerships with outside individuals and groups to help preserve resources or serve the public at Cape Cod National Seashore. Independent cooperative partners help perform a variety of services, from operating bookstores in the visitor centers to monitoring underwater shipwrecks. Agreements with local towns cover everything from police and fire services to road maintenance and utilities. Local school districts from Provincetown to Falmouth benefit from cooperative environmental education programs sponsored by the National Park Service.

To better protect cultural resources, the National Park Service works with private lessees to re-

store and maintain federally owned historic structures throughout the national seashore in exchange for a term of private use. Many partnerships have an important impact on tourism and the local economy, such as bicycle rentals, horseback riding, golf, dune tours, and guided nature walks. In a regional context, the Park Service is a leading cooperative partner in linking open space and recreational facilities through Capewide initiatives like Cape Cod Bikeways, the Cape Cod Rail Trail, Cape Cod Heritage Week, and proposals for the Cape Cod Maritime Heritage Trail and Cape Cod Pathways.

The National Park Service receives significant service and financial donations from partners who raise money and supply volunteers to the national seashore. National groups like the Student Conservation Association and the National Park Foundation and local support groups like the Friends of Cape Cod National Seashore play an important role in providing volunteers, underwriting conservation projects, and generally supporting park facilities and services.

The Cape Cod National Seashore Advisory Commission is also a partner that facilitates liaison between the towns and the national seashore.

Capacity and Character of Facilities

The daily capacity of the national seashore was projected in the 1970 *Master Plan* as 48,000 people. This number was based on the maximum use of existing and proposed parking spaces at all locally, federally, or privately owned facilities within the boundaries of the national seashore. In 1995 the National Park Service managed more than 20 public use facilities, including onsite parking for approximately 3,400 vehicles. Towns and private operators provided recreation facilities with more than 5,000 additional onsite vehicle parking spaces. Use levels and access throughout the national seashore have been managed by the capacity and convenience of connecting roads and the size of onsite parking lots. There has been little coordinated federal, state, and local policy. Visitors' percep-

tions of crowding or overuse indicate that they are willing to tolerate many other people at individual sites as long as they do not have to hunt for parking.

The character and standards of road improvements and facilities at the seashore depend more on when they were constructed than on a consistent theme or visual harmony. The Salt Pond and Province Lands visitor centers have a similar modern design typical of architecture from the 1960s. The headquarters building and the bathhouses have a traditional Cape Cod character. Road and parking lot standards, such as curbs and gutters vary throughout the seashore.

Facility Use Survey

The most heavily used facilities and services in and around the national seashore are restrooms, restaurants, parking areas, self-guided nature trails, bookstores, and orientation films at visitor centers. Also heavily used are the Audubon Sanctuary, gift and antique shops, roadside exhibits, and hotels, motels, and inns outside the national seashore. Visitor and resident satisfaction with facilities and services was quite high, according to the survey. However, visitors expressed some dissatisfaction with national seashore restrooms, parking (in general), Herring Cove Snack Bar, and facilities at Spectacle Pond. The most frequently mentioned public concerns were the presence of litter, the number of people, traffic, noise, and the adequacy and cleanliness of facilities (Manning 1994).

CONCESSIONS AND COMMERCIAL SERVICES

The national seashore operates a peak season shuttle service from a remote parking lot at Little Creek to Coast Guard Beach in Eastham, a distance of approximately 1 mile.

Concession facilities in the national seashore are the Herring Cove refreshment stand in Provincetown; the Highland Golf Links in Truro; and the

Nauset Knoll Motor Lodge in Orleans. All these enterprises were in existence when the seashore was established. Some additional historic lease/concession arrangements for lighthouse and dune shack preservation are currently being negotiated. The primary criteria behind continuing existing concessions or granting new ones is that they provide visitor services that would not otherwise be available. Various additional services have been suggested over the years, particularly at beach areas. Emphasis on shuttle and public transportation systems in the future may contribute to a greater need for such services.

There are 10 private commercial operations in the national seashore: three campgrounds, two gas stations, two cottage colonies, a restaurant, a motel, and a nightclub. These facilities were in place before the national seashore was established. The establishing legislation and local zoning prohibit new commercial uses and enterprises within national seashore boundaries.

VISTA MANAGEMENT

Vistas, or distant views overlooking seashore landscapes, are discussed in the enabling legislation as follows:

the Secretary may provide for the public enjoyment and understanding of the unique natural, historic, and scientific features of Cape Cod within the seashore by establishing such trails, observation points, and exhibits and providing such services as he may deem desirable for such public enjoyment and understanding. . . .

[T]he Secretary may develop for appropriate public uses such portions of the seashore as he deems especially adaptable for camping, swimming, boating, sailing, hunting, fishing, the appreciation of historic sites and structures and natural features of Cape Cod, and other activities of similar nature.

When the national seashore was established 35 years ago, views, vistas, and overlooks were common throughout Cape Cod's rolling terrain. Many of the vistas were a direct consequence of centuries of forest removal to create farmlands or to provide fuel and construction materials.

After the national seashore was established, facilities such as the Salt Pond and Province Lands visitor centers and the Province Lands bicycle trail were located to take advantage of these expansive views. However, in the interim many areas of forest cover have regenerated, obscuring the earlier vistas.

Today, opportunities for experiencing vistas are still common throughout the seashore but are being reduced by the recovery of the Cape's forests. Vistas on coastal bluffs like Marconi Station or the Great Island trail do not require active management because vegetation growth is discouraged by the harsh coastal conditions. Vistas along some trails, like the beech forest and white cedar swamp trails, require limited maintenance because the trails are in older forests with open views beneath the tree canopy.

Vistas in other areas, usually more inland like Skiff Hill, the Pilgrim Springs overlook, and both visitor centers, require active management of vegetation to keep the views open. In other instances, facilities and utilities have been placed in the middle of scenic areas, detracting from the character and quality of the vista.

Depending on the location and the rate of vegetation growth, vista management practices range from mowing grass, to removing tree limbs, to clearing trees in front of vista points. These efforts are not carried out consistently throughout the seashore and often depend on the availability of personnel and funding. As described in the seashores's *Resource Management Plan*, many of the vista maintenance efforts were initiated by decisions of the moment in lieu of a long-term management plan.

SOCIOECONOMIC ENVIRONMENT

BARNSTABLE COUNTY

Cape Cod National Seashore includes large areas of six communities on the Outer Cape: Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown, all in Barnstable County, whose jurisdiction covers all of Cape Cod. These communities are directly affected by the national seashore's management policies. The national seashore has the highest visitation of all Cape Cod attractions and therefore has an immediate impact on the entire region embraced by Barnstable County. As one might expect, the impact on the whole county is not nearly so palpable as the relationship Cape Cod National Seashore has with its six immediate neighbors. For the purposes of this document, the whole of Barnstable County must be considered as the socioeconomic impact area, with special attention to the six Outer Cape communities.

Barnstable County is a peninsula approximately 50 miles southeast of Boston. The county is bounded by Cape Cod Bay to the north and Nantucket Sound to the south. The Cape's land area is approximately 396 square miles, with a density of about 472 persons per square mile. The Cape Cod Canal (which was completed in the 1930s) separates the peninsula from the mainland. Two bridges, the Sagamore and the Bourne, link the Cape to the mainland. The county is composed of 15 communities. Barnstable is the county seat.

POPULATION TRENDS

U.S. census data indicate that the 1990 year-round population of Barnstable County was 186,605. The summer population was estimated to be approximately 536,100 — triple the county's total population. According to the Cape Cod Commission, Barnstable County had the second highest growth rate of the 14 Massachusetts counties between 1980 and 1990, when it increased 26%. Only Dukes County (Martha's

Vineyard) achieved a higher percentage increase in population. Population projections generated in 1982 by the Cape Cod Commission's predecessor, the Cape Cod Planning and Economic Development Commission, anticipated that the Cape's population would continue to grow at a similar rate (cited in Cape Cod Commission 1994). The commission projected a 23% increase between 1990 and 2000. The most dramatic growth since 1970 has occurred on the Middle and Upper Cape. Growth on the Outer Cape, while substantial, has not equaled the extremes experienced on the other areas of the peninsula.

The 1990 median age of Cape Codders was 39.5. This is the highest of all Massachusetts counties and considerably higher than the median age statewide, which was 33.6 in 1990. Since 1970 the median age has increased by just over five years. This is probably indicative of a continuing trend as the Cape continues to attract a growing retirement community, and young year-round residents leave to seek broader economic opportunities.

THE CAPE COD ECONOMY

According to the Cape Cod Commission, a special study of the Cape Cod economy valued the economic base in 1992 at \$2.3 billion. The study notes that about two-thirds of the Cape's economic base consists of serving the needs of tourists, seasonal residents, retirees, and commuters who live on or visit the Cape but do not earn their living there.

A study of Cape Cod's economic base indicates that in 1992 various economic sectors constituted the following percentages of the Cape Cod economic base (Cape Cod Commission 1994):

Tourists and seasonals	43.9%
Retirees	15.3%
Business services	11.1%
Commuters	7.3%

Other	7.3%
Manufacturing	5.7%
Marine	4.5%
Defense	0.5%

The retail trade sector continues to provide the greatest source of jobs in Barnstable County, with one-third of the average annual employment in 1992. The next largest employment areas are the service sector (31%) and government (15%). Between 1985 and 1992 employment in the Cape's manufacturing sector declined by 30%, closely following statewide economic trends.

Although the county has shown a decline in the overall rate of unemployment, dropping from 10.5% in 1992 to 8.3% in 1994, the region exceeded the statewide unemployment rate by one or two percentage points in each of those years.

For 1989, according to the 1990 census, the median household income for Barnstable County was \$31,766. The county per capita income was \$16,402, compared with \$17,224 per capita statewide. Just under 6% of Barnstable County families were living below the poverty line.

HOUSING

The majority of housing stock in Barnstable County is composed of single-family homes. According to the 1990 census, about 35% of the county's total housing stock are second homes that are used seasonally. Between 1980 and 1990 the total number of housing units grew by 35%. By comparison, in the same period the total number of housing units statewide expanded by only 12%. Between 1990 and January 1995 the total number of housing units increased by an additional 5%.

In 1994 the median sales price for a single family home in Barnstable County was \$120,000. The median gross rent was \$646. Across Barnstable County the "median year built" was 1971. This is considerably later than the statewide median, which was 1953. This

indicates that a sizable portion of the Cape's housing stock has been constructed in the last 20 years.

THE OUTER CAPE

LAND AREA AND POPULATION DENSITY

For the purposes of this report the Outer Cape is defined as the six towns associated with Cape Cod National Seashore: Chatham, Eastham, Orleans, Provincetown, Truro, and Wellfleet. The Outer Cape's land area is about 95.1 square miles; the average population density is 284 people per square mile. The highest population densities are found in Orleans (414 persons per square mile) and Chatham (401.2). Truro has the lowest population density, 75 people per square mile.

The census has identified places in Chatham, Eastham, Orleans, and Provincetown that are densely settled population centers without legally defined corporate limits. Many of these village centers are at or near central business districts. Their population densities are high, and development is intensive. By far the most densely populated of these is an area in Provincetown where there are 1,874 persons per square mile.

POPULATION CONCENTRATIONS AND TRENDS

The 1990 census placed the total year-round population of the Outer Cape at 24,506, roughly 13% of the total county population. Between 1980 and 1990 the Outer Cape's population expanded by 11%. The towns in the south district of the national seashore (Chatham, Eastham, and Orleans) have considerably larger populations than those in the north district (Provincetown, Truro, and Wellfleet). Of the six communities, Chatham had the largest population (6,579) and Truro had the smallest (1,573).

Between 1980 and 1990 Eastham experienced a 28.5% increase in population, the largest by far on the Outer Cape. Wellfleet grew by 12.9%

during this period, Orleans by 10%, and Provincetown by less than 1%. The Cape Cod Commission prepared projections for summer populations across Cape Cod. The 1990 summer population projection for the Outer Cape was approximately 113,600 — nearly five times the total year-round population.

The highest ratios of summer to year-round residents on the Outer Cape occur in Provincetown, Wellfleet, and especially Truro. In the summer of 1990 it was projected that Truro would host up to 10 summer residents for each year-round resident. On the opposite end of the spectrum, the town of Orleans experienced the lowest ratio of summer residents, hosting only 2.7 summer residents per year-round resident.

The median age on the Outer Cape ranged from 40.6 in Wellfleet to 51.4 in Chatham. This exceeded both the statewide and countywide median ages. With the exception of Orleans, the changes in median age from 1980 to 1990 indicated that the year-round Outer Cape population is aging; it is a growing retiree community. About 27% of the year-round Outer Cape population is over 65 years in age.

In each of the Outer Cape communities there is a small but growing minority population. Provincetown has the largest minority community composing 4% of the town's population. Overall, the Outer Cape population is 98% white.

THE OUTER CAPE ECONOMY

The Outer Cape economy primarily depends on the seasonal vacation industry, but entertainment, the arts, and the local fishing industry also make small but significant contributions. The Outer Cape communities have been working with the Cape Cod Commission to identify strategies for building a year-round, diverse economy.

Similar to Barnstable County, the 1992 distribution of employment by industry on the Outer Cape was concentrated in three major areas: wholesale and retail trade, 42%; services, 25%;

and government, 15%. On a town-by-town basis this holds true for Eastham, Orleans, and Provincetown. In Chatham the service industry is by far the largest employer. Retail trade is the leading employer in both Wellfleet and Truro, followed by government.

Seasonal unemployment rates on the Outer Cape tended to vary radically from the peak summer season to the winter. Unemployment rates for 1994 were at their lowest in all six communities between June and October, when they ranged from 3% to 10%. Winter (December through March) unemployment rates increased considerably, ranging from a low of 7.1% (December, Chatham) to a high of 54% (January, Provincetown). From one year to the next, Provincetown, Wellfleet, and Truro seem to experience the highest average unemployment rates.

The average of the 1989 median household incomes for the Outer Cape was \$27,524. The highest median household income was \$31,339 in Eastham; the lowest was \$20,487 in Provincetown. All fell below the median for Barnstable County. Provincetown and Wellfleet have consistently ranked as the least affluent communities on Cape Cod. All in all it appears that the Outer Cape supports a lower income year-round population than other sections of the Cape. The average 1989 per capita income on the Outer Cape was \$16,442. The highest per capita income was in Orleans; the lowest in Wellfleet.

HOUSING

As of January 1995 there were 26,493 total housing units throughout the six Outer Cape communities. Between 1990 and January 1995 the number of housing units on the Outer Cape increased by about 5%. The rate of change was greatest in Truro, where the number of housing units grew by more than 7%. Most of this housing stock is composed of single family homes. There is little affordable rental housing available. Approximately 47% of the Outer Cape's housing stock is occupied only seasonally. The communities with the highest percentages of

seasonal housing are Truro, Wellfleet, and Eastham.

In 1994 the average median sales price of a single-family home on the Outer Cape was \$150,250. Data from 1992 indicate that median gross rents ranged from a low of \$435 in Provincetown to a high of \$536 in Eastham.

The median year that dwellings were built indicates the overall age of a community's housing stock and provides insight into current development trends. Provincetown, with a median date of 1939, has the oldest housing stock on Cape Cod. In all likelihood, it has experienced the

least amount of new development in the last 30 years. Of the six Outer Cape communities, Orleans has the latest median date of construction (1972), followed by Eastham (1968).

All the communities have experienced a considerable rate of growth over the last 30 years; however, not nearly as much as other Cape Cod communities. By contrast, the communities showing the latest median dates of construction are Mashpee (1982) and Brewster and Sandwich (both 1978). These communities have experienced extreme growth within the last 10 years.

NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE / PROTECTION

The checkerboard landownership patterns in and around the national seashore require land use and protection to be addressed comprehensively within and outside the boundaries of Cape Cod National Seashore. Of the 43,570 acres within national seashore boundaries, the National Park Service owns approximately 27,000 acres of upland and submerged land. Many of the seashore's greatest assets are shared with the Outer Cape: groundwater, the Atlantic beach, river systems, and the rural character of the region. The region's growing population and development pressures put stress on resources on both sides of the boundary lines.

Within its boundaries, the national seashore encompasses significant amounts of land in each of the six Outer Cape communities. In accordance with the Cape Cod formula, not all the land within the boundaries is owned by the National Park Service; a considerable amount continues to be held by private "improved property" owners, local towns, Massachusetts, and other federal agencies. More than 30% of the land within the national seashore boundaries is under the jurisdiction of other public entities, and nearly 4% is privately owned. The amount of upland (nontidal) acreage of each of the six communities that is contained in the national seashore is shown in table 12.

The principal land uses within the national seashore boundaries are conservation, recreation, rural residence, roads, and a small number of nonconforming commercial uses such as commercial campgrounds and gas stations. Also within the boundary are approximately 25 parcels of nonfederal undeveloped land ranging in size from 0.1 to 30 acres. Although these properties are within the national seashore boundary, the seashore has limited mechanisms to regulate their development and use, specifically the threat of condemnation. As a result, the Park Service

TABLE 12: UPLAND TOWN ACREAGES WITHIN CAPE COD NATIONAL SEASHORE

Town	Upland Town Acreage		
	Total Town Acreage	Acreage in National Seashore	Percentage in National Seashore
Provincetown	6,576	5,050	76.79
Truro	14,013	9,400	67.08
Wellfleet	13,584	8,000	58.89
Eastham	10,140	3,000	29.59
Orleans	13,583	1,500	11.04
Chatham	15,660	750	4.79

must rely on local zoning bylaws and health codes, state regulations,¹ and cooperation on the part of local, town, state, and other federal property owners. The only protection mechanism available to the national seashore is the acquisition of development rights or full title to a given property within its boundary.

After the Cape Cod National Seashore zoning standards were developed and approved by the secretary of the interior in 1962, each community within the national seashore developed zoning bylaws that complied with those standards. Each zoning bylaw identifies a Seashore District, within which zoning is meant to support the purposes of the national seashore and to prevent significant development. The Cape Cod National Seashore's zoning standards and the town zoning bylaws need to be amended to ensure consistency among them and to add state-of-the-art planning and zoning techniques.

Under local zoning, use within the Seashore District typically consists of conservation,

1. Massachusetts Environmental Protection Act, Massachusetts Wetland Protection Act, Massachusetts Coastal Zone Management Act, Massachusetts Zoning Standards, FEMA, V, etc.

national seashore facilities, recreation, gardening and traditional agricultural use of cleared land, traditional fishing activities, and the use of existing dwellings as residences and accessory uses customarily incidental to the use of the principal residence. Also included are alteration of existing one-family residential dwellings, public utilities, religious and educational use, detached one-family dwellings and accessory structures (with frontage and setback requirements), and signs.

The only development regulations in local zoning bylaws that appear consistently in all the town codes relate to minimum lot size, frontage, and setback requirements. In the Seashore District of all six towns, the minimum lot size is 3 acres. Most towns require that there be a minimum of 150 feet in frontage and that a structure be set back 50 feet from the road. For side and rear setbacks, towns require anywhere from 25 feet (in Truro and Eastham) to 50 feet (in Chatham and Orleans). Chatham, Wellfleet, and Truro also have area and height regulations. Eastham's zoning bylaws now include development guidelines for improved properties that were prepared by the national seashore.

Areas adjacent to the national seashore boundaries are generally zoned for residential development. The land use pattern reflects the zoning in that the character of the adjacent development is primarily residential, with scattered small-scale commercial development. Residential development outside village centers tends to be low density. In Wellfleet and Provincetown the village centers are densely developed, with shopping, services, and housing. The heaviest commercial and residential development along the U.S. 6 corridor, which bisects the seashore, tends to be in Chatham, Orleans, Eastham, and South Wellfleet.

In Outer Cape communities like Provincetown, Truro, and Wellfleet, where more than 50% of the towns' uplands are within national seashore boundaries, there is increased pressure to develop the remaining lands outside the boundary to broaden the tax base. There also has been pressure to try to develop the municipal holdings

within the seashore to support the Outer Cape's growing resident and visitor populations. Strip commercial development is prevalent along MA 28 between Hyannis and Chatham, and development continues along the parts of U.S. 6 where access is not limited.

In some areas in and adjacent to the seashore, developing areas are affecting sensitive resources. The national seashore has the authority to protect sensitive areas within its boundaries, but it has limited legal authority outside its boundaries. The national seashore has begun to work more closely with land conservation organizations like the Trust for Public Land and the Compact of Cape Cod Conservation Trusts to address these types of issues. In partnership with such organizations, the national seashore will be better able to meet land protection needs both inside and outside its boundaries.

The Cape Cod Commission, a regional planning and land use regulatory agency, was approved by referendum of Barnstable County voters in 1990. The commission is charged with reviewing and regulating developments of regional impact (DRIs), recommending the designation of districts of critical planning concern (DCPCs), and preparing and overseeing the implementation of a regional land use policy plan. The purpose of the regional policy plan is to outline a coherent set of planning policies and objectives to guide development on Cape Cod and to protect its resources

The designation and regulation of developments of regional impact and districts of critical planning concern by the Cape Cod Commission may help resolve some land protection issues. For example, the commission could set stricter DRI review standards for projects on lands in and around the national seashore, or it could designate the national seashore or lands adjacent to it as a district of critical planning concern. Either of these measures would broaden land protection opportunities. To date, the commission has identified several developments of regional impact both inside and outside the seashore boundaries: the Truro transfer station, the Provincetown transfer station, the Provincetown airport, and

two subdivision proposals on lands near or adjacent to the national seashore boundaries.

In its 1996 *Regional Policy Plan* the commission identifies several opportunities for planning coordination among the National Park Service, local communities, and the commission. The commission is working with some seashore communities to develop local comprehensive plans, which must be consistent with the *Regional Policy Plan*. Soon all seashore communities will have completed local comprehensive plans. An Outer Cape capacity analysis to assess the impacts of a range of future development projections on water, natural resources, transportation, and municipal finances was completed for the towns of Provincetown, Truro, Wellfleet, and Eastham. NPS employees are participating in these local planning efforts.

PRIVATE RESIDENTIAL PROPERTIES

Section 4 of the seashore's establishing legislation defines an improved property as

a detached, one-family dwelling the construction of which was begun before September 1, 1959, . . . together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

The act also authorized the sum of \$16 million for the purchase of privately owned lands within the area. Since 1962, an additional \$26.9 million has been appropriated by Congress for land acquisition. All of these funds have been used.

Approximately 600 privately owned properties having "improved property" status remain within the seashore. About half of these properties have been issued certificates of suspension of condemnation, as provided for by the national seashore's authorizing legislation. Some properties may be found not to have improved property

status as certificates are being developed if they are found to have been built after September 1, 1959. The approximate number of improved properties by location is as follows:

<u>Town</u>	<u>Improved Properties</u>
Wellfleet	257
Truro	219
Eastham	115
Chatham	19
Provincetown	1
Orleans	1

Developed property owners having improved property status may remain in residence and freely transfer or sell their property to others. A private property owner has improved property status if construction of his/her residence was begun before September 1, 1959, as established in the legislation. An improved property owner can obtain a certificate of suspension of condemnation if use of the property since that time has been in conformance with zoning. Of the 600 improved properties within the national seashore, approximately 55% of the owners have such certificates. Provisions in the seashore's legislation, commonly referred to as the "Cape Cod formula," guarantee that under certain conditions the National Park Service cannot acquire improved properties by condemnation (eminent domain).

An unknown number of properties without certificates were constructed after September 1, 1959 (also called a post-1959 property); these properties continue to be subject to condemnation but have not yet been purchased.

Sections 4 and 5 of Cape Cod National Seashore's establishing legislation outline the elements of the Cape Cod formula, which is often cited as an important innovation in park management, making Cape Cod National Seashore one of the first partnership units in the national park system. In addition to improved properties, the Cape Cod formula also addresses commercial and industrial properties, town-owned land, and state lands within the boundary of the national seashore.

In summary, the Cape Cod formula suspended the secretary of the interior's authority to

acquire improved properties by condemnation within the seashore boundary for the period of one year following the enactment of the seashore's enabling legislation. During this period each national seashore community was given an opportunity to develop zoning bylaws that complies with zoning standards developed by the secretary of the interior. The law required secretarial approval within one year following the seashore's establishment, which was accomplished. According to this provision of the legislation, once a town had adopted a set of approved zoning bylaws, the improved properties in that town could not be condemned and acquired by the National Park Service.

Section 5 of the authorizing legislation directed the secretary of the interior to develop these zoning standards. By law, the zoning standards were to (1) support the prohibition of commercial and industrial uses, other than those permitted by the secretary, of all property within the boundaries of the seashore, and (2) promote the preservation and development of the area comprising the seashore in accordance with the purposes of the legislation. (The zoning standards for Cape Cod are included in appendix B).

Section 5 also describes the circumstances under which the secretary's authority to acquire improved properties by condemnation may be restored. The secretary may terminate a certificate for suspension of condemnation when (1) a property is made the subject of a variance under a town's zoning bylaw, or (2) a change in use of a property fails to conform with or is inconsistent with the Cape Cod National Seashore zoning standards and when such acquisition supports the purposes of the national seashore.

Many improved properties possess significant historic and aesthetic qualities that contribute to the valued character of the Outer Cape. For instance, more than 70 privately owned structures have been documented by the Historic American Buildings Survey. Many more have been documented by local historical commissions, which have completed surveys of the historic properties in seashore communities.

As the year-round and summer populations grow and change, pressures become greater to develop upon and expand improved properties. Some improved properties have been altered and expanded. Problems associated with redeveloping these properties include the following:

- enlarging structures to a scale that dominates their settings and obscures offsite views
- vegetation and soil disturbance, including vegetation clearing and soil grading associated with construction, which affects offsite natural resources and raises aesthetic concerns
- destroying historic character by modernizing a building exterior
- intensifying the use of a property such as shifting from seasonal to year-round use, which often leads to local parking and traffic impacts, septic system runoff, and other environmental impacts
- making extensive improvements that turn modest residences into larger estates
- marring rural character through property improvements that alter the dispersed, low-density, land use pattern of the Outer Cape

Because there is no legal mechanism in place on the local, state, or federal level to preserve the historic qualities of these structures, there is no way to ensure that they will continue to contribute to the quality of the Outer Cape scene.

During the mid- to late-1970s *The Cape Codder*, a local newspaper, criticized the Park Service's treatment of the improved properties in the seashore, indicating that the spirit and intent of the seashore's legislation was being violated relative to post-1959 structures and the scale and character of redevelopment of improved properties.

To address issues related to the redevelopment of improved properties and to provide more concrete examples of activities that were compatible with the standards, the National Park Service developed and revised a set of guidelines in 1980 and 1985, respectively, as part of the seashore's *Land Protection Plan*. The guidelines,

which provide examples of compatible and incompatible development, are meant to offer guidance to private property owners in the national seashore so that they will be able to remain exempt from acquisition by condemnation.

Since the statutory enforcement tool for non-compliance with the standards is condemnation, the National Park Service lacks any more flexible or less onerous enforcement tools. Therefore, local towns have been encouraged to adopt the guidelines as part of their zoning bylaws. To date, only the town of Eastham has done so. The guidelines and the standards need revision to incorporate current conditions and contemporary approaches to zoning and land use management.

The guidelines apply a simple "50% rule" to the alteration of improved properties, allowing property owners to enlarge their houses by 50% of the enclosed livable floor area and to have accessory space (for example, a guest house or garage) up to 50% of the total livable floor area of the main residence. The 50% rule is based on the square footage of the structure as of September 1, 1959. The guidelines do not address any other considerations such as volume, massing, character of design and environs, lot size, and sensitive resources. Therefore, the possibility for insensitive development remains or conversely the development of large lots that is too tightly restricted.

Because both the NPS use guidelines and town zoning bylaws are out of date due to advancements in the land use regulation field, there is continued concern about inappropriate construction within the national seashore. The legislative authority given to the national seashore to develop regulations specifying minimum town zoning standards also provided for the amendment of those standards due to changed or unforeseen conditions. A public process was also identified by which such amended regulations would be promulgated.

Subdividable properties (both improved and undeveloped parcels of 6 acres or more) present another set of redevelopment concerns. Under local zoning these properties can be developed

for residential purposes. A dwelling built under these circumstances would not meet the criteria as an improved property and would therefore be subject to acquisition. At present, there are just under 20 such parcels in the seashore. The Park Service does not have immediate access to funds for land acquisition and is therefore unable to act independently to prevent such inappropriate development, except on an emergency basis.

For improved properties that are in areas where they either impact resources or are impacted by them, a different set of management issues applies (for example, Nauset Marsh). While the use of an improved property may be thoroughly in compliance with local zoning, the fact that it may be threatening sensitive resources contradicts the purposes of the seashore as defined by its establishing legislation. Again, with limited funds for land acquisition and no local land use authorities, the National Park Service can rarely act independently to protect resources that are threatened by the use and development of private land within the boundaries of the national seashore.

PRIVATE COMMERCIAL PROPERTIES

Ten privately owned commercial businesses operate within the boundary of the national seashore: a night club, a restaurant, a motel, two cottage colonies, three commercial campgrounds, and two gas stations. These businesses, which occupy a total of less than 150 acres, are exclusively in the towns of Wellfleet and Truro. The businesses operate under a certificate of suspension of condemnation of commercial and industrial property. The act that established the national seashore prohibits the establishment of new commercial enterprises within the national seashore, as does local zoning.

Present requirements call for these establishments to renew their certificates of suspension of condemnation every five years. The Cape Cod National Seashore Advisory Commission reviews the requests for certificate renewal and advises the superintendent as to how to proceed.

Although there are no criteria that apply directly to these nonconforming commercial uses, in its most recent deliberations, the advisory commission considered criteria similar to those used to evaluate concessions in the national park system.

The factors influencing certificate renewals for commercial uses are (1) whether there has been a change in use, (2) contribution to public enjoyment of Cape Cod National Seashore, and (3) the effect of the business on protection of resources or visitor facilities. Despite their having been used in the advisory commission's deliberations, these factors have not been formalized. No guidance in the legislation or in NPS standards and guidelines specifically addresses the conditions under which these activities can remain as nonconforming uses in Cape Cod National Seashore. The legislation does indicate that a change in use would trigger a termination of the certificate. However, it offers little guidance relative to the subtle changes in use that have occurred at some locations.

In the past 30 years only one certificate has been terminated, that of a gas station at the corner of Pamet Point Road and U.S. 6. The gas station went out of business and the owner sought to reuse the property for residential purposes, which was found to be unacceptable.

MUNICIPAL AND STATE LANDS

The legislation that authorized Cape Cod National Seashore provided that the National Park Service could not acquire municipal lands within the national seashore's boundaries without the consent of the affected towns. Approximately 2,600 acres of land in the national seashore are town-owned, as shown below:

<u>Town</u>	<u>Acres within the National Seashore</u>
Orleans	860
Wellfleet	670
Chatham	650
Eastham	300
Truro	120
Provincetown	<10

Municipal lands within the seashore boundaries include undeveloped parcels of varying sizes, roads, parking areas, beaches, and other facilities.

Population growth for the Outer Cape has exceeded the average growth rate for Massachusetts over the past decade. Between 1970 and 1980 Eastham grew by 69.9%; Wellfleet, 26.7%; Truro, 19.5%; and Provincetown, 21.4% (Cape Cod Commission 1994). These growth rates have increased the demand for municipal services such as solid waste disposal, sewage disposal, and provision of potable water. Existing facilities are rapidly becoming inadequate to meet the demand. New sites for these local services are not readily available outside the national seashore, or it is thought that outside services would be more costly than using land within the national seashore. Consequently, the towns are under considerable pressure to use undeveloped town-owned land inside the national seashore to provide relief. The National Park Service's mechanisms for influencing and managing the use and development of municipal lands are cumbersome and not uniformly effective.

There are two kinds of state-owned lands in the national seashore: (a) the submerged lands of the "great ponds" (a "great pond" is a naturally occurring body of water larger than 10 acres), and (b) offshore lands extending 0.25 mile offshore from mean low water of the Atlantic Ocean and Cape Cod Bay, including the bottomlands of Nauset Marsh. These submerged, state-owned lands are located in the towns of Chatham, Orleans, Eastham, and Wellfleet.

The submerged lands in Provincetown and Truro were donated to the United States by Massachusetts in 1963, except for 330 acres in Provincetown (offshore of the Pilgrim Lake area) extending northwest of the Truro town line for approximately 2 miles to the easterly property line of the Province Lands area. A total of approximately 11,930 acres of submerged land remain in state ownership. As provided for in the establishing legislation, the National Park Service can acquire these submerged lands only with state

consent. In submerged areas the national seashore's interest is largely the protection of submerged natural and cultural resources. As with municipal lands, NPS influence over the use of the state's great ponds is hampered by the lack of clear standards covering permissible and prohibited activities.

The greatest issues regarding the ocean beaches and great ponds relate to private development, public access, and resource protection. The juxtaposition of town, state, and NPS lands in various areas complicates issue resolution because the public is often unaware of land-ownership or any management inconsistencies.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

Most administrative and maintenance facilities at the national seashore were built or acquired during the first decade after its establishment. References to some of these facilities are found in the 1970 *Master Plan*. That plan proposes the continued use of existing facilities. Virtually all of the original facilities built or acquired in the 1960s are still in service.

The primary locations for administrative offices include the headquarters building at Marconi Station, the Salt Pond and Province Lands visitor centers, and three ranger stations at Race Point in the north district and at Marconi Station and Little Creek on Nauset Road in the south district. The two primary maintenance facilities are the north district maintenance yard on Race Point Road, and the south district maintenance yard at Marconi Station.

The needs for office space change continually, depending on program changes, operational needs, technological advances, and NPS organizational changes. For example, some units of the national park system may share the services of personnel, resulting in a net decrease of staff. However, downsizing regional offices has transferred more administrative duties to the parks, increasing the need for staff help. There is a shortage of appropriate office and maintenance space at the national seashore, and more space will probably be needed in the future.

Operating and administering the national seashore creates development impacts such as parking, utilities, maintenance facilities, and administrative buildings that conflict with the natural setting. In some cases it might be possible to remove such development, relocate the function, or provide onsite amenities to enhance the

setting without adversely affecting operations or visitor experiences.

The landscapes surrounding national seashore facilities can influence neighbors and the visiting public. Past decisions about landscaping were based on assumptions that water was abundant and that the public would expect large lawns and formal planting around public buildings. Now more is known about the limits of groundwater and the possible contaminants that result from fertilizer and lawn maintenance activities; consequently, the seashore staff wants to avoid using these practices. Visitors are also more aware and expect public facilities to reflect sustainable design and management principles. The seashore staff wants national seashore facilities to send a stronger message of environmental concern.

STAFF HOUSING

Government housing at the national seashore is made available to employees and volunteers to ensure the presence of staff necessary to manage and protect resources, provide for appropriate visitor use, and care for public safety. Some permanent positions require individuals to live at the seashore to provide essential services, and the amount of housing required for those necessary employees has been increasing over the past few years. Government housing is currently provided for seasonal employees because they are usually unable to find affordable housing in local towns. Also, housing is used to provide quarters for volunteers and university researchers. In addition, permanent employees who are not required occupants often have trouble finding adequate affordable housing within the Outer Cape towns. In general, there is an urgent need for more affordable housing on the Outer Cape, especially rental housing (Lower Cape Cod Community Development Corporation 1993). Thus, without government housing, NPS

employees would have to compete with local residents for housing outside the seashore.

Approximately 80 housing units are suitable for year-round or seasonal use and are scattered throughout the national seashore. Housing is also concentrated at sites such as the Marconi station near headquarters and at the Province Lands near the maintenance facility. All of these units are structures that were privately owned and acquired after the national seashore was established. Some housing is in or near environmentally sensitive areas, such as ponds and estuaries. In some cases government housing interferes with the setting of the national seashore. For example, houses along Nauset Marsh are considered by some to be intrusive.

The seashore has the capacity to house approximately 24 year-round employees and 138 seasonal employees. Under current maintenance conditions and projected staffing needs there may not be sufficient park housing or an appropriate distribution to satisfy the future needs of both year-round and seasonal residents, since the need for housing will vary with a changing workforce. If there is a significant future increase in staff, especially seasonal, volunteers, or staff for work such as fee collecting or administration, then additional housing may be required. Currently, there is insufficient housing for families of various sizes.

The seashore's current housing program is not financially self-sustaining. This is because the housing was constructed before 1960, and this aging housing stock requires high levels of maintenance. However, the seasonal housing units only generate rent for a few months each year. Housing unit rents are not sufficient to maintain the units in good condition.

Current expenditures for staff housing are significant — approximately \$250,000 to \$300,000 per year. However, this is insufficient to keep pace with annual operational and maintenance costs due to the age of the housing stock. This has resulted in an extensive backlog of deferred maintenance costs. About two-thirds of the

housing stock is in fair, poor, or obsolete condition.

In accordance with Office of Management and Budget guidance, the Park Service is authorized to provide housing for all seasonal employees when necessary and for permanent employees if (1) housing is not available within a reasonable commuting distance, or (2) housing is needed to provide visitor services or to protect government property and resources. Recent legislation authorizes the Park Service to develop innovative alternative means of providing for employee housing needs.

A 1992 *Housing Management Plan* provides more detailed background information and an analysis of needs for staff housing. This plan is periodically revised; an update is pending.

UTILITIES

Throughout most of the national seashore the National Park Service uses water supplied by wells on national seashore property. The Park Service is concerned about the potential effects of groundwater withdrawals, particularly with respect to decreased groundwater discharge to wetland and riparian ecosystems. Municipal requests are anticipated.

The National Park Service is limited by law and policy to permit the sale or lease of seashore water to a non-NPS entity only under the following conditions:

- if that entity provides services of direct or indirect benefit to the park or park visitors
- if there is no reasonable alternative water supply
- if providing water would have no adverse environmental consequence on resources at the seashore
- if the government would be able to recover the full cost of providing the water
- if the use would be for a short time

Water for NPS facilities in the Province Lands is provided by the town of Provincetown on a fee-for-service basis. The town acquires most of its water from four wells outside the national seashore boundary. However, two wells on NPS land at the former North Truro air force station have been used to supplement municipal water supplies for Provincetown during the summer months since 1978 for an administrative fee per gallon. The National Park Service inherited this arrangement from the Defense Department. A long-term approach for water use is needed, especially in light of reusing some former air force station facilities for national seashore programs, facilities, and partners, and Provincetown's continued interest in using this water supply.

Septic systems are the primary means of dealing with liquid waste throughout the national seashore. All systems need to be continuously upgraded as part of routine maintenance and to comply with changing codes. In some cases, waterless systems are used. The Park Service contracts for the pumping and hauling of sewage generated throughout the national seashore, with a treatment plant in Orleans.

Solid waste from most seashore facilities is collected by NPS maintenance staff and taken to local town transfer stations on a fee-for-service basis. Commercial/construction waste and hazardous waste materials are collected by seashore staff and disposed of by private contractors.

Electricity for NPS facilities is provided by the existing utility company, Commonwealth Electric, by way of aboveground powerlines that cross seashore land. At some sites, such as Marconi Station and the former North Truro air force station, the Park Service owns high voltage distribution systems. For emergencies in some locations, the Park Service generates its own power. Owners of improved properties receive electricity through powerlines that cross NPS land, and in most cases the maintenance of these powerlines is the responsibility of the property owner. At issue is the damage to resources and the landscape that can occur when powerlines

and transformers, often in remote locations, have to be repaired or maintained (such as, extensive tree clearing). In addition, many of the powerlines are aboveground and are visual intrusions. Telephone lines and cable television lines are usually on the same poles as electric lines and share the same issues.

The 1996 Telecommunications Act allows federal lands to be used for the buildout of the nation's wireless communications system. Proposals for using national seashore property for such purposes are anticipated.

Fuel oil is used to heat most facilities at the national seashore. Underground fuel tanks for operational facilities are constructed of double-walled fiberglass and meet all requirements for the underground storage of petroleum products.

A natural gas trunk line has been installed along U.S. 6 up to the Wellfleet/Eastham town boundary by the Colonial Gas Company. There may be future requests to cross seashore lands with natural gas distribution lines to private homes or municipal facilities.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

The national seashore users and staff currently benefit from services provided by local towns, including town police; fire and ambulance; potable water provided by Provincetown; waste transfer stations in Eastham, Provincetown, Truro, and Wellfleet; recycling facilities; town road maintenance and snow plowing; and schools. In turn, the Park Service contributes much to the local towns in areas such as law enforcement, fire fighting, search and rescue, emergency medical services, education, and life guarding.

The national seashore pays for many of the above services provided by local communities; police and ambulance services are provided by cooperative agreement. Payments to local towns for services are provided through the following means:

Cooperative agreements — Police services are provided on a mutual aid basis (with no compensation to either party) by a memorandum of understanding. Fire services and emergency medical services are provided on a mutual aid basis, with the national seashore contributing a sum proportionate to town acreage into a fund for presuppression fire expenditures only.

Town fire departments in Eastham, Wellfleet, Truro, and Provincetown receive funds from the National Park Service for presuppression fire services (primarily training and equipment purchases) through cooperative fire protection and emergency medical services agreements. The cooperative agreement outlines responsibilities for wildland and structural fire incidents, and for emergency management service response, for both the towns and NPS incident command. The towns can also bill the national seashore for assistance in catastrophic events within the seashore, in addition to the flat annual fee.

Fee for services — Water service in Provincetown; solid waste disposal in Eastham, Provincetown, Truro and Wellfleet; sewage disposal at the tri-town facility in Orleans; and ambulance (charged to patient) are all paid by the recipient of the service.

Payments in lieu of taxes — The loss of local tax base for all municipal services associated with federal acquisition and ownership of property is addressed by payments in lieu of taxes. Administered by the U.S. Department of the Interior, the program pays local governments a nominal payment each year in September.

Sand roads throughout the national seashore receive both private and public use. They are owned by private landowners, local towns, and the Park Service. The owner, which is in dispute for some roads, is responsible for maintenance.

RESERVATIONS OF USE AND OCCUPANCY

Most of the properties under reservation were constructed after September 1, 1959 (referred to as post-1959 properties), the cut-off date for new residential construction that was established when the legislation was being drafted and filed. This date was widely publicized at the time.

The properties were purchased by the government, but the property owners retained the right to use and occupy the properties for up to 25 years (term estate) or for the rest of their lives (life estate). Terms of sale agreements specified that all property improvements will become federal property when the reserved rights expire. At the end of the time specified in the purchase agreement the occupant must vacate the property and the transfer to the government is complete. At that time, the government may decide whether the structure(s) on the property would be removed or adaptively used.

There have been approximately 100 total reservations of use and occupancy since the national seashore was authorized. One-third (about 34) of the reservations have terminated, and the properties have been vacated. Currently, 66 reservations remain, 42 of which will expire in the next two years. About 13 properties are dune shacks where title to the land on which they were built is unclear. Stipulations for settlement of condemnation actions by which several of such properties were acquired provided for a right to a reservation of use and occupancy.

Reserved use-and-occupancy rights were granted for single-family residential purposes. At least one-third of the current occupants are not the original sellers because the reservation of use-and-occupancy right has been sold or inherited, or the properties have been leased. The majority of properties are seasonal housing units, and an unknown number are rented for the summer.

Some occupants of the use-and-occupancy reservations are seeking to retain occupancy past the expiration of the reservation. The National Park Service has no authority to extend a use and occupancy reservation because the period of the reservation was established under the sales contract.

At issue is what should be done with the structures when they become vacant. Future disposition must conform to NPS management mandates. Each structure will be treated individually when it becomes vacant.

TABLE 13: RESERVATIONS OF USE AND OCCUPANCY
BY TOWN

<u>Town</u>	<u>Number of Reservations</u>
Provincetown (including five life reservations)	11
Truro (including three life reservations)	14
Wellfleet	28
Eastham (including one life reservation)	5
Orleans	0
Chatham	8
Total	66

ENVIRONMENTAL CONSEQUENCES

OVERVIEW OF IMPACTS

This environmental impact statement is a programmatic statement, presenting an overview of potential impacts relating to the proposed program for each alternative. For compliance with the National Environmental Policy Act of 1969, an environmental assessment would need to be completed for specific actions in the approved general management plan that require further analysis. Examples of such actions may include development of standards and indicators for management zones, the development of a water

resource management plan, Herring River restoration, or facilities construction. These project-specific environmental assessments will be tiered to this programmatic environmental impact statement.

For comparative purposes, the potential environmental consequences of alternatives 1, 2, and 3 are summarized in the following table. A more extensive, narrative discussion of potential impacts of the alternatives begins on page 201.

TABLE 14: SUMMARY OF IMPACTS

NOTE: Alternative 3 impacts, where presented, are in addition to or modify those presented for alternative 2.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Impacts on Natural Resources			
Air Resources	Little to no improvement in air quality at the seashore is anticipated. Existing air quality impacts would continue, with ongoing degradation of the Cape's air quality likely over time. The extent of these impacts is generally unknown.	Some long-term, beneficial impacts to air quality on Cape Cod would occur through improved monitoring and research, facility and vehicle conversions, regional partnerships, and reductions in vehicle miles traveled. The magnitude of these beneficial impacts is uncertain. Seashore managers would work cooperatively to enhance air quality and visibility at the seashore to improve the public experience and to reduce the impacts of air pollution on natural and cultural resources.	Same as alternative 2.
Coastal Processes	Some areas of natural barrier beach would be sustained for the long term. Intervention to protect town and private property and national seashore facilities would take place to the maximum extent permitted by NPS policy, resulting in beneficial impacts to man-made coastal facilities and development. Artificial beach nourishment and maintenance of seawalls, jetties, and revetments would require consistent funding and labor, competing for limited park operations funding. The Park Service's ability to allow natural processes to continue would be limited primarily to those areas not currently influenced by humans.	If NPS efforts were successful on all coastal land areas in and around the national seashore boundary, this alternative would have a potential beneficial impact to coastal systems in and adjacent to seashore lands by lessening the use of coastal structures, nourishment or dredging programs, and other coastal development impacts that halt or control coastal processes. It is difficult to predict just how much barrier beach would become more natural because this shift would occur only after major storms. Intervention would be minimal and would be carried out only to neutralize human-caused disturbances.	Over time coastal processes would eliminate most developed areas directly along the coast. It is difficult to predict how soon this would take place; however, a completely natural and dynamic barrier beach system would be the result, something rare on the East Coast.

ENVIRONMENTAL CONSEQUENCES

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Soils	Developing strategies to reduce soil erosion at construction sites and around pond shores would minimize or reduce soil impacts. Public use would continue to compact soils in high use areas on a localized basis. Site-specific impacts would be evaluated for future development proposals.	Proposed construction would result in some localized short-term impacts on soil resources. However, long-term impacts would be relatively minor with implementation of appropriate mitigations. Minimizing erosion near kettle ponds would have a positive effect on soils. Site-specific impacts would be evaluated for future development proposals.	Same as alternative 2.
Water Resources (including wetlands and floodplains)	The protection of water resources would be enhanced through comprehensive planning and environmental analysis. However, because of the limited and reactive nature of some programs, beneficial impacts to water resources would not be as extensive as they would be under alternative 2.	Water resource protection would be enhanced through comprehensive planning and environmental analysis. An expanded database and additional studies would allow managers to make informed, resource-based decisions. Increasing cooperation and coordination for all water resource management activities on the Outer Cape would better protect water resources, both inside and outside the national seashore.	As an upland owner, the National Park Service would take a more stringent approach to shellfish aquaculture management, which would likely benefit marine and estuarine environments. Some resistance would be likely from some towns and potential grantees.
• Wetlands	The protection of wetlands would be enhanced as a result of cooperative planning efforts and analyses of the potential impacts of groundwater extraction. The overall long-term impact of the restoration of Hatches Harbor would be beneficial, restoring estuarine nursery habitat and increasing the diversity of native plant and animal species in the area.	Increased wetland restoration efforts would initially restore at least 150 acres of degraded fresh and brackish marsh to a more productive estuarine wetland; up to approximately 690 acres would be restored in the long term. These areas would become some of the most important and productive ecological systems in the seashore. Collectively, they would provide a substantial positive impact to vegetation, wildlife, and fishery resources. Proposals for future development potentially affecting wetlands in the seashore would be evaluated to minimize impacts.	No future airport development outside the currently permitted area would be allowed, thus protecting wetlands in the vicinity from any proposal involving new disturbance outside the permitted area.
• Floodplains	Future development proposals would require an analysis of floodplain impacts.	Same as alternative 1.	Same as alternative 1.
Vegetation	Vegetation would continue to be protected. Allowing natural processes to continue unimpeded, where possible, would have positive effects. However, the lack of scientific data to make the best possible management decisions and the inability to take major actions to protect certain vegetation communities could lead to the loss of resources	A greater understanding of vegetation-related issues would allow vegetative communities to be managed more comprehensively. An expanded database would make management decisions more defensible than under alternative 1. Vistas would no longer be managed as a higher priority than surrounding natural resources. Environmentally sound landscaping	Additional benefits to vegetation at the national seashore would be provided through more intensive resource management. The potential for adverse resource impacts would be further reduced, resulting in a beneficial impact to resources.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Vegetation (cont.)	before it was known they were at risk. In general, actions for vegetation management would primarily be in reaction to human disturbance or the invasion of known exotic plants, or to protect known threatened or endangered species. Even though this alternative would encourage less intensively maintained landscaping, impacts of irrigation and chemical applications would be greater than under alternative 2.	around NPS facilities would set an example for neighbors and the visiting public in implementing sustainable practices.	
Fish and Wildlife	Actions by other agencies such as <i>stocking fish and game</i> (including nonnative species), managing hunting and fishing programs, and using pesticides to treat nuisance insects would continue, even in the absence of good information regarding impacts of these programs on natural systems. Limited inventory and monitoring of wildlife species would not be adequate to provide managers with sufficient information to make defensible decisions.	Fish and wildlife within the national seashore would be managed on a more sustainable basis, supported by a scientific database. Managers would take a very active role in ascertaining how best to manage habitat, and they would make specific changes in management techniques. This would have substantial beneficial impacts for fish and wildlife. In general, seashore managers would be more assertive about protecting sensitive resources with partners (such as towns or private individuals) who were proposing new or different activities.	Additional benefits to fish and wildlife at the national seashore would be provided through more restrictive resource management. Some approaches would likely not be well received by state and local entities. The potential for adverse resource impacts would be further reduced, resulting in a beneficial impact to resources. However, dispersed staff housing would have minor impacts on wildlife populations and habitat.
Threatened or Endangered Species / Communities	Major management actions to protect rare, threatened, or endangered species and communities would <i>not</i> take place. This lack of action could result in adverse impacts, such as a reduction in the total acreage of heathland communities. Due to a lack of scientific data, some resources could be degraded or lost before it was known they were at risk.	Management programs would better protect native biological diversity. More visible, aggressive action would be taken to protect rare, threatened, or endangered species, but on a very selective basis. Where applied, these actions would have positive impacts on habitat and populations of special-concern species.	Same as alternative 2.
Impacts on Cultural Resources			
Cultural Heritage and Ethnographic Resources	Long-term cultural patterns of use, such as hunting, fishing, shellfishing, and harvesting of vegetation, would continue within limits established by the state, local towns, and national seashore managers, respectively. Very limited activity would occur to gather additional ethnographic information except as archeological sites were discovered.	National seashore managers' sensitivity toward ethnographic resources would continue to grow. Long-term cultural patterns of use, such as hunting, fishing, shellfishing, and harvesting of vegetation, would continue within limits established by the state, local towns, and seashore managers. Greater emphasis would be placed on a more inclusive approach to interpretation,	Same as alternative 2.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Cultural Heritage and Ethnographic Resources (cont.)		resource management, and problem solving, which could further enhance the recognition of local cultural heritage and the protection of ethnographic resources.	
Cultural Landscapes	Areas that have not been identified as significant could be altered or lost. Documentation of threatened cultural landscapes prior to loss would be a beneficial impact; however, the work would have lower priority than under alternative 2. Beneficial impacts would be limited because relatively few preservation and interpretive techniques would be applied to a limited number of cultural landscapes.	The emphasis for cultural landscape management would be broader and more comprehensive than under alternative 1. Important cultural landscapes within the national seashore and on the Outer Cape would be identified, preserved, and interpreted, contributing to the perpetuation of Cape Cod's unique historical character and the public's appreciation of these resources.	This alternative would provide the maximum beneficial impact for cultural landscapes by providing a variety of protection methods. Beneficial impacts include the protection of scenic vistas, the maintenance of buffer zones, and the retention of the historical character of the area. Authorization and additional funds would be needed.
Historic Architecture	Without a complete inventory and background data to document historic buildings and structures in public and private ownership, these structures might not be properly maintained and preserved. Resulting adverse impacts could range from the loss of historic integrity to resource destruction. Also, preservation of the historic character of privately owned structures would continue to be at the discretion of the owners. Consequently, adverse effects from resource degradation and a loss of integrity could occur over time.	The protection and preservation of both publicly and privately owned historic structures within the national seashore and on the Outer Cape would be enhanced. A more active approach would be taken to remedy deficiencies, contributing to the perpetuation of Cape Cod's unique historical character. The primary adverse impact would be the continued potential for resource loss from shoreline migration.	Various preservation and protection methods for historic architecture in the national seashore would further maintain the historical character of the Outer Cape. However, potential adverse impacts on historic architecture and seashore operations could occur if maintenance and management needs increased beyond the Park Service's ability to meet them.
Archeological Resources (including submerged resources)	Without adequate protection and inventories, archeological resources would be subject to loss and other adverse impacts. Beneficial effects of resource protection would only be available for a limited number of resources on an emergency basis. Good relations with Native American groups would be maintained by notifying these peoples prior to archeological excavations.	Archeological sites and resources within the national seashore and on the Outer Cape would be better protected through resource inventories, education and interpretation, resource documentation, and easement acquisitions. Submerged archeological resources that moved outside the national seashore boundary because of coastal erosion would be better protected by agreement with the state.	Similar to alternative 2, except more information could potentially be gained by additional archeological research before resources were lost to coastal erosion. The transfer of state-owned bottomlands to the National Park Service to ensure the protection of submerged archeological resources would be difficult to achieve.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Museum Collection	Overall, the condition of the museum collection would be generally improved. However, collection storage and exhibit space would continue to be limited, making museum objects and archival materials inaccessible to the majority of visitors. Minimal additional activity beyond improved storage and protection of museum artifacts would occur.	With the addition of new collections storage and the correction of environmental control problems at existing facilities, a greater proportion of the collection would be protected than under alternative 1. Overall, the condition of the museum collection would be greatly improved.	The scope of collections for the seashore would be expanded, requiring a more aggressive approach to acquiring museum objects, particularly artifacts related to the natural sciences. This would result in a greater need for collections storage and exhibit space. It is not clear that the benefits would outweigh the costs.
Impacts on Public Use and Experience			
Information and Orientation	Basic information would continue to be available to provide directions for visitors coming to Cape Cod National Seashore.	The public would have increased opportunities for getting information at home and at local information centers, as well as at national seashore visitor centers. Coordinating information distribution throughout the Cape and ensuring that up-to-date information was available would reduce confusion among tourists. Improved information signs along U.S. 6 would also reduce confusion and contribute to a better directional system for the public.	Developing a coordinated information distribution system would have positive impacts on visitors through greater availability of information. In addition, such a system would encourage more active participation of agencies and organizations throughout the Cape, and ensure the distribution of consistently accurate information. However, improving information services would potentially increase costs to agencies and organizations on the Cape.
Access and Transportation	Traffic congestion on the Outer Cape would be improved with the implementation of the <i>Long Range Transportation Plan</i> . Access to existing public use sites within the national seashore would continue. Case-by-case review of redevelopment proposals for the Provincetown airport would strive to protect national seashore resources, particularly wetlands. Appreciable effects on public access to the Cape are not anticipated.	Alternative 2 would more effectively reduce traffic congestion, air pollution, and driver frustration than would alternative 1 due to additional traffic management techniques and alternative transportation options. A proposed increase in public use opportunities to draw people from their vehicles would result in relatively minor resource impacts. Efforts to minimize negative environmental impacts of improvements at the Provincetown airport would protect national seashore resources and public experience while not significantly affecting air service to the Cape.	Potential impacts would be similar to alternative 2. However, allowing no Provincetown airport improvements or expansion outside currently permitted areas could result in alternate federal safety standards to meet objectives of FAA requirements. If such standards could not be met, air service at the Provincetown airport could be adversely affected.
Interpretive and Educational Opportunities	Visitors and residents would continue to benefit from a variety of interpretive programs. However, NPS programs would be conducted on a limited basis, and beneficial impacts would be minimal. Interpretive opportunities offered by various entities would not be coordinated, making it difficult for the public to fully appreciate the Cape's character and significance.	Interpretive and educational opportunities would be substantially enhanced for the public. Programs would foster an understanding and appreciation of the aspects of the Cape Cod character that transcend NPS boundaries.	Similar to alternative 2 <i>except</i> this could be a costly alternative due to the possible construction of additional cooperative interpretive facilities and resulting staff needs.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Interpretive and Educational Opportunities (cont.)	Resource protection efforts would be adversely affected, as visitors would not be adequately informed regarding appropriate behaviors and voluntary resource protection strategies.		
Public Uses	Existing public uses would continue, with the likelihood of some use conflicts. Recreational activities such as hunting, fishing, shellfishing, and harvesting of vegetation would continue within limits established by the state, local towns, and national seashore managers. Crowding would continue to adversely affect visitors at some sites. The number of vistas could be reduced, adversely affecting the experiences of some users. Some facilities would probably be damaged or destroyed by natural coastal processes and would have to be repaired or replaced. Overall management of this function would generally be reactive — responding to identified needs and addressing them selectively. This would have an adverse effect on many aspects of public use.	Visitors and residents would have access to a wide range of public uses that would be managed to be mutually compatible. Some uses, such as ORV driving and hunting, would be restricted to specific areas or to specific times to minimize conflicts with other activities. The limited resources of local towns and the national seashore would be maximized by jointly planning and providing visitor information services. Redesigning or removing some visitor facilities could alter or eliminate some uses, adversely affecting visitors accustomed to these opportunities; however, the overall experience would be improved.	Fishing would not be affected by fixing the national seashore boundary by degrees of latitude and longitude. Installing additional signs along visitor routes to protect the privacy of private property owners could adversely affect vista management. More signs could diminish visual quality, particularly in areas of relatively high scenic quality. In addition, administrative expenses could increase for the national seashore in addressing numerous requests for sign installation and maintenance.

Impacts on the Socioeconomic Environment

Regional and Local Economy	Cape Cod National Seashore has a positive effect on the local economy as a result of visitor expenditures for goods and services, subsequent indirect sales, NPS expenditures for salaries and operations, and seashore employee expenditures for food, clothing, and housing. Total direct and indirect visitor expenditures amount to an estimated \$247 million per year. Local and state tax revenues from tourism total an estimated \$19 million. Tourism related to the national seashore creates an estimated 8,600 seasonal jobs. These effects would continue in the future. Additions of about \$4 million to \$5 million annually to the local economy as a result Provincetown airport operations are expected to continue.	There would be minimal additional effects on visitor and NPS expenditures. Existing effects, as described under alternative 1, would continue. Increased NPS staffing would have a modest, positive effect on the local economy. Upgrading visitor facilities and improving services would have short-term effects on construction-related jobs and sales. Supporting public activities and programs in shoulder seasons would strengthen the region's year-round economy. No adverse effects on the economic viability of the Provincetown airport are expected.	There could be an adverse economic impact if commercial air service at the Provincetown airport was discontinued as a result of permit area space constraints. Adverse economic impacts on shellfishing and fishing as a result of changing the national seashore boundary are not anticipated because the change would be minimal and rules and regulations for such activities would remain the same. Local communities would benefit economically from the relocation of NPS facilities outside seashore boundaries.
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TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Private Property Owners and Local Residents	Conditions for private property owners would be unlikely to change. Implementing the <i>Fire Management Plan</i> would reduce the risk of fire damage to private properties. Interpretive and educational programs would seek to protect the privacy of residents. Minimizing public uses near private properties would have to be balanced with the need to provide facilities for the visiting public. Compliance with NPS improved property guidelines would be up to private property owners, and compliance with town zoning bylaws would be up to town building inspectors and zoning boards of appeal.	A greater emphasis would be placed on working proactively with private property owners and local residents to foster resource stewardship and protection and to revise the Cape Cod National Seashore zoning standards and town zoning bylaws. Beneficial impacts of educational programs at the former air force station and other interpretive activities for year-round and seasonal populations could also result. An increased emphasis on cultural heritage and ethnographic resources could also be beneficial to year-round and seasonal residents.	National seashore managers would take a more assertive approach to preserving historically significant, privately owned structures that were threatened by coastal erosion, including those eligible for the National Register of Historic Places; measures would include possible acquisition on a willing-seller basis. Converting existing NPS guidelines into regulations would provide a stronger means of enforcement, helping protect the character of development, and ensure more consistency, but it would not be popular with some owners or towns. The threat of condemnation would be more effective for achieving compliance with the NPS use guidelines once they were codified as regulations.
Property Values	Local property values have probably been beneficially affected by the presence of the national seashore. The actions in this alternative would not adversely affect private property values.	Local property values would not be adversely affected. However, restoration work along the Pamet and Herring Rivers could increase flooding of several dwellings and saltwater intrusion into some private wells if not mitigated, which would adversely affect the property values at these sites.	Same as alternative 2.
Municipal Costs and Services	The National Park Service would continue to pay for services and to contribute payments in lieu of taxes at current rates. The protection of national seashore lands in open space would continue to provide benefits to towns by reducing the service cost burden from potential new residential development. Various aspects of national seashore operations contribute direct and indirect benefits to the towns, reducing some potential municipal costs.	Local communities would be asked to increase their cooperative planning efforts with the national seashore and other communities, possibly resulting in a need for additional staffing and funding. NPS technical assistance could offset some of the additional expenses to communities. There would be no significant adverse impacts on municipal tax revenues if residences currently occupied and providing a tax revenue source were no longer privately used.	Relocating most, if not all, national seashore administrative and maintenance facilities to nearby communities would have the greatest economic benefit to towns. Discontinuing commercial use permits for privately owned businesses and acquiring the businesses would negatively affect local tax bases because of revenue losses.
NPS Concession Operations	Existing NPS concessioners would not be adversely affected.	Existing NPS concessioners could be adversely affected if it was decided that the contract would not be renewed, or if they did not compete successfully for a new contract. The effect of monitoring concessions and commercial licenses would be to provide high-quality, essential services to visitors.	Existing NPS concessioners could be adversely affected if it was decided that a contract would not be renewed, or if they did not compete successfully for a new contract. Additional regulations for commercial licensees operating within the national seashore would help improve public services and environmental practices.

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Impacts on Nonfederal Lands within the National Seashore			
Land Use / Protection	The emphasis would be on information exchange with other public and private land managers to coordinate planning. National seashore managers would not attempt proactive, creative protection strategies, so there would be minimal beneficial impact on preserving the Outer Cape character.	Overall, national seashore managers would likely improve the political environment for land protection by enhancing collaborative planning and problem-solving processes between local municipalities and the National Park Service. In addition, a more informed population would support appropriate development strategies and would have access to more comprehensive information used for decision making.	Same as alternative 2.
Private Residential Properties	Federal and local land use tools now available to control the development of residential properties within the seashore do not provide sufficient guidance for resource protection and the preservation of the Cape Cod character. National seashore managers would emphasize coordination and discussion in response to problem identification, but the overall management strategy would be to react to specific problems as they occurred. Any acquisition of improved properties would require an increase in the seashore's operating budget to ensure an appropriate level of care and maintenance.	Private residential property owners would be encouraged to help protect the natural and cultural resources and to preserve the historical character of the Outer Cape. Improved federal and local land use regulatory tools would offer ample guidance for resource protection and the preservation of the region's character. Identifying mutual goals and values between the communities and the national seashore, along with opportunities for cooperation, would be critical to successfully instituting and applying revised Cape Cod National Seashore zoning standards and town zoning bylaws.	Converting the NPS use guidelines for private property into amended Cape Cod National Seashore zoning standards would have mixed results. As a regulation it would provide a stronger means for enforcement and more consistency, but it would not be popular with private owners or towns. It would restrict some owners from using their properties as they desired. It would also be perceived by some as less flexible and effective than is possible because the guidelines are not consistent with current thinking and practice in the development of zoning standards. However, it would satisfy other owners who are concerned about the potential for excessive expansion and the loss of the original cottages that comprise the Cape Cod character of development in the national seashore. Existing condemnation authority would be enhanced by converting the NPS use guidelines into standards.
Private Commercial Properties	Standards for renewing commercial certificates of suspension of condemnation within the national seashore would continue to be determined on an ad hoc basis. Business owners would be limited in their ability to make long-range plans for their properties. Gradual changes in property uses could be incompatible with the national seashore purpose and adversely affect adjacent properties.	Specific criteria for certificate renewal would apply the same standards to all commercial properties and ensure that uses are consistent with the purpose of the national seashore. Modifications in the performance record and activities on such properties could place additional requirements on property managers.	Impacts would be similar to alternative 2 except that the National Park Service and the advisory commission might not work in an interactive process with property owners to improve performance and achieve compliance with the standards. The monitoring of performance activities on the properties might have to be increased to provide a complete record of how a property was being used. Ultimately, acquiring properties to reduce effects of inappropriate commercial activities would

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Private Commercial Properties (cont.)			need to be a high priority; consequently, this strategy could involve great expense.
Municipal and State Lands	Limited cooperative efforts with other governmental agencies to protect the character of the Outer Cape would continue. However, it is unlikely efforts would be formalized, placing natural and cultural resources at risk of being adversely affected.	Chances for cooperatively resolving Outer Cape issues under this alternative would be better than under alternative 1. The land protection and re-source management goals of the national seashore would likely be achieved.	Increased management of kettle ponds, including improved collaboration with the state and towns, would help further reduce degradation of pond resources. Potential land exchanges between the National Park Service and other agencies would also help improve management efficiency. If actions were successful to get legislative authority to prohibit the construction of revetments and other coastal engineering structures, there would be a greater risk to nonfederal interests.
Impacts on National Seashore Management and Operations			
Staffing	There would be an adverse impact on employee workloads because staffing would not be increased. Staff would have difficulty providing any more than basic services and would be unable to collect adequate technical information for sound inventories to support decision making.	Additional staff and greater workloads would be required to implement new programs and to work cooperatively with local communities. Although the addition of staff would be beneficial to visitor services and resource protection efforts, this would represent a major additional operational funding need. Proposed programs, strategies, and actions, as well as necessary follow-up actions, could be achieved if funding and staffing levels permitted. Lack of staff support in key areas would limit the national seashore's ability to effectively implement this plan.	Similar to alternative 2.
Administrative and Maintenance Facilities and Operations	As the staff continued to assess operational space needs and landscaping practices in terms of more sustainable methods, operations should become somewhat more efficient, and adverse impacts on the environment would be reduced. However, this effort would be slow, pursued as time and funding allowed, and would only result in a visible benefit over the long term.	Taking advantage of structures when use-and-occupancy reservations end would help make operations more efficient and reduce the built environment within the national seashore. Emphasizing sustainable practices in landscaping would help to further reduce adverse impacts on the environment.	Leasing space in local towns outside seashore boundaries, as well as taking advantage of structures when use-and-occupancy reservations end, would help make operations more efficient and result in the greatest reduction in the built environment within the national seashore. The result would be the lowest cost for maintenance and setting the best example in terms of using sustainable practices.
Staff Housing	By continuing current management practices and periodically updating the <i>Housing Management Plan</i> , the national seashore would be able to provide a variety of staff	Concentrating staff housing at fewer sites within the national seashore, as well as assisting and encouraging more employees to find housing in local communities, would help reduce	Dispersing staff housing throughout the national seashore would have a greater adverse impact on the natural resource values of Cape Cod than would

TOPIC	ALTERNATIVE 1	ALTERNATIVE 2 (PROPOSED ACTION)	ALTERNATIVE 3
Staff Housing (cont.)	housing to help attract a diverse group of employees and volunteers. However, housing would continue to be relatively dispersed throughout the seashore, and it would continue to be difficult to meet the costs of maintenance and operations of housing units. Some units would remain in sensitive resource areas.	the number of structures needed within the seashore. Emphasizing alternative ways to repair and maintain housing units would more effectively defray housing costs.	alternative 2, primarily in terms of disrupting wildlife populations. Giving seasonal employees preference for housing would have a beneficial impact on those individuals.
Utilities	Actions such as upgrading septic systems and placing powerlines underground would allow the Park Service to provide safe and relatively cost-effective utilities that would increasingly have minimal impact on sensitive resources. Even though regional cooperation would be actively encouraged by the Park Service, no new mechanisms or policies would be developed to expedite the process.	Emphasizing utilities and related services that would be cooperatively provided by local towns, the county, and the Park Service would have beneficial impacts. In combination with using more sustainable practices, this would improve cost efficiencies of utility services. Also, adverse impacts on sensitive resources would be reduced.	Same as alternative 2.
Services Exchanged with Local Communities	Continuing cooperative efforts between the National Park Service and local communities in providing services should help to enhance a feeling of trust among the parties involved, ensure that required services continue to be provided, and provide for more equitable compensation.	Working cooperatively with local communities to provide services, along with NPS <i>ex officio</i> representation on the Cape Cod Commission, would provide more efficient services, facilitate the understanding of mutual problems, and ensure equitable compensation among all parties. Positive effects would be more than under alternative 1.	The financial burden for fire protection provided by the National Park Service would be borne by the individuals receiving those services.
Reservations of Use and Occupancy	Allowing residential use beyond the expiration of reserved terms of use and occupancy in cases of substantial medical or financial hardship would have a positive effect on disadvantaged individuals. The eventual removal of these properties would substantially reduce the adverse effects of residential development on national seashore resources and values. The likelihood of more vacant buildings would increase due to additional demands on seashore operational funding. Discontinuing residential use in these buildings would not significantly impact the regional supply of affordable housing.	There could be beneficial impacts for some private individual(s) who might be permitted temporary residential occupancy, especially in hardship cases, and there might be other socioeconomic benefits as well. Additionally, fewer vacant buildings within the national seashore as a result of demolition would have beneficial impacts on natural resources, scenic quality, traffic, and public perception.	Same as alternative 2.

ALTERNATIVE 1

IMPACTS ON NATURAL RESOURCES

AIR RESOURCES

Analysis

Air resource management efforts would emphasize air quality monitoring on a cooperative basis with the Massachusetts Department of Environmental Protection and the Environmental Protection Agency. No specific actions would be taken to improve air quality at the national seashore. Consequently, air quality would likely improve little from current conditions.

Ozone concentrations at the seashore routinely exceed federal standards that are established to protect human health. This situation would likely continue, unless actions were taken by other agencies.

The development of shuttle transportation systems would likely result in a net reduction in traffic, which could help improve long-term air quality. Although construction of shuttle facilities could temporarily degrade air quality in localized areas because of heavy equipment emissions and dust, the long-term benefits in reducing automobile emissions would far outweigh the short-term construction effects.

Conclusion

Under alternative 1 little to no improvement in air quality at the seashore is anticipated. Existing air quality impacts would continue, with ongoing degradation of the Cape's air quality likely over time. The extent of these impacts is generally unknown.

COASTAL PROCESSES

Analysis

Coastal processes that are not currently affecting existing human development or other interests would continue unimpeded. Most beaches at the national seashore would continue to erode at the rate of 2 to 3 feet per year. North of High Head, beaches would continue to accrete. Sediment budgets would generally be maintained in a balanced state; eroding areas would continue to provide sediment to accreting areas.

However, actions in other areas to impede natural processes would be allowed. Existing revetments of marine scarps might be maintained; for example, the seawall at Herring Cove would be repaired if damaged by storm surge. Beach nourishment or seawall and revetment construction to protect town and private property would continue, in accordance with guidelines established in the *Massachusetts Coastal Zone Management Program*. NPS developments that conflict with coastal processes would be redesigned to minimize the level of interference with natural processes. Facilities threatened by erosion would be evaluated on a case-by-case basis, and decision making would not benefit from an organized approach.

Under this alternative it is anticipated that numerous private property owners would construct revetments as erosion threatened their properties. These engineering structures interrupt the natural sand transport along the shoreline by preventing erosion and deposition along adjacent coastal beaches. Coastal engineering structures on private or town land could further degrade national seashore resources by reducing or eliminating natural sand sources that renourish adjacent coastal beaches.

Some interventions by towns and private property owners could indirectly impact the recovery of the piping plover by creating barriers to movement between feeding and nesting areas,

creating artificial dunes in inappropriate locations, and preventing some naturally occurring overwash and inlet formation that creates additional habitat.

Under this alternative minimal monitoring activity would not provide a comprehensive understanding of coastal processes and their impacts on plants and wildlife; lack of a research program would also not allow forecasting to understand and predict changes to make informed management decisions by municipalities, landowners, and national seashore managers. Additional information for educational purposes would also be limited by this reactive approach.

From the standpoint of preserving natural systems, allowing natural processes to continue unimpeded would be a positive effect. Under this alternative, however, the ability to do that would often be limited to areas not influenced by humans. No positive long-term impacts would be realized toward enhancing or restoring natural coastal processes within national seashore boundaries under this alternative.

Conclusion

Some areas of natural barrier beach would be sustained for the long term. Intervention activities to protect town and private property and seashore facilities would take place to the maximum extent permitted by NPS policy. This would result in beneficial impacts to man-made coastal facilities and development. However, artificial beach nourishment and maintenance of seawalls, jetties, and revetments would require consistent funding and labor to accomplish, competing for limited park operations funding. Under this alternative, the National Park Service's ability to allow natural processes to continue unimpeded would be limited primarily to those areas not currently influenced by humans.

SOILS

Analysis

Under alternative 1 proposed construction activities, such as building parking areas and operational facilities, might result in vegetation removal and exposure of soils to erosive forces. Thus, there is potential for short-term soil loss during construction activities due to erosion. However, the implementation of an erosion and sediment control plan appropriate to the particular site would minimize soil loss. Future facility development would require assessment of site-specific soil impacts, with the application of appropriate mitigating measures to minimize potential adverse effects.

In addition, concentrated human activity in popular areas at the national seashore would continue to cause soil compaction and ground cover loss. These impacts would ultimately result in increased soil loss over the long term and the potential for localized reductions in biological productivity.

The development and implementation of management plans for kettle ponds would have a positive impact on soils within the national seashore by developing strategies to minimize erosion of soils in these areas.

Conclusion

Developing strategies to reduce soil erosion at construction sites and around pond shores would minimize or reduce soil impacts. Public use would continue to compact soils in high use areas on a localized basis. Site-specific impacts would be evaluated for future development proposals.

PRIME AND UNIQUE FARMLANDS

Analysis and Conclusion

Because this plan does not present site-specific development proposals, impacts to prime and

unique farmlands are not known. However, prime and unique farmlands are relatively limited in extent in the national seashore, and potential impacts are expected to be relatively minor. As site-specific proposals are developed, potential impacts on prime and unique farmlands would be evaluated as necessary as part of the environmental assessment process.

WATER RESOURCES (INCLUDING WETLANDS AND FLOODPLAINS)

Analysis

Implementing a water resource management plan for the national seashore and participating in regional and town planning efforts would have beneficial impacts on the long-term management of water resources in relative to all Outer Cape landowners and land managers. Through regional and town planning efforts, the extent of potential groundwater development that could be allowed on the Outer Cape would be projected, and the balance between resource quality and municipal uses would be clarified. As a result, the amount of water available for human consumption could be limited if negative effects on water resources were demonstrated. This could have adverse impacts to local communities needing additional water for municipal uses. Water service would be provided to water quality-impaired areas only. However, water resources would benefit by ensuring that natural hydrology, water quality, and salinity balance in wetland discharge areas were maintained. Specific impacts would be analyzed as these efforts were undertaken.

Managing wastewater treatment facilities in conformance with public health standards would have beneficial impacts on the overall quality of groundwater supplies near NPS operation and housing areas. Harmful constituents such as coliform bacteria would not be introduced into potable groundwater supplies.

Groundwater extraction on a municipal scale can have detrimental effects on water-dependent resources. The dewatering of adjacent wetland

areas is one potential impact of a lowered water table in the vicinity of pumped wells.

A large extraction and translocation of water between aquifers (such as occurs from Truro to Provincetown) can impact the hydrologic systems in both areas. Surface waters down-gradient from the recharge areas can be affected by an influx of nutrient-laden water when the groundwater system receives an increased recharge of poorer quality water (for example, water with septic leachate). Such an influx also raises the water table.

In an area where groundwater is extracted, the water table can be lowered, resulting in impacts on wetlands, streams, and ponds. Though not fully understood, reductions in freshwater availability can result in changes to wetland and riparian plant communities. Impacts can also include the reduction or elimination of habitats of rare species, changes to sediment and water column salinity, changes in nutrient concentrations and flow paths, and effects of water-borne pollutants.

In long-range planning for additional municipal supplies, towns have identified sites within the boundary of the seashore for wells to be drilled. If wells on town-owned land inside or outside the boundary are near national seashore wetlands, pumping from those wells could adversely affect the wetlands. Impacts might be avoided if wells could be located in a less sensitive area on NPS land.

The ongoing use of limited groundwater supplies to irrigate highly maintained landscaping on private property would continue to deplete supplies essential for domestic consumption. Water quality could also be adversely impacted by runoff containing fertilizers and pesticides used in landscape maintenance.

The continued monitoring of kettle ponds would provide beneficial impacts to these resources by expanding baseline information on which to make management decisions and to respond to problems as they occur. Developing management plans for specific kettle ponds as needed

would give managers a more comprehensive understanding of the actions necessary (in priority order) to protect important pond resources, including water quality and conditions along pond shores. However, no effort would be made to study the impacts of current fishing activities on ponds where fish are stocked.

The potentially adverse effects of acid deposition on surface waters would remain unknown, and the acidification of kettle ponds and vernal pools would occur or continue unchecked.

Construction activities would result in potential short- and long-term adverse impacts to water quality in the vicinity of construction sites. Erosion from the loss of vegetative cover would increase levels of suspended solids in nearby streams and ponds during construction. However, the preparation of erosion and sedimentation control plans that include appropriate site-specific mitigation would minimize these impacts. New construction would result in impermeable conditions at the site, reducing groundwater recharge. In these areas specific designs would be developed if necessary to provide stormwater runoff into detention basins, thereby controlling overland sheet surface flow from stormwater and allowing groundwater supplies near the site to be recharged. Gravel base detention areas adjacent to these impermeable areas would be provided as necessary to remove chemical constituents that might be contained in surface water runoff. The impacts of any new construction activity would be analyzed in more detail, as needed, in an environmental assessment.

The Park Service would react as necessary to offshore activities and incidents to protect resources. Operating in a reactive mode, with little cooperation with others, might not ensure the highest protection possible of these resources.

Wetlands. Under alternative 1 addressing the long-term management of water resources in conjunction with all Outer Cape landowners and land managers would provide a better understanding of how to protect and enhance specific wetland and riparian areas.

Increased cooperation in groundwater management could have substantial beneficial effects on wetlands by improving protection efforts. In an area where groundwater is extracted, the water table can be lowered, resulting in impacts on wetlands, streams, and ponds. Though not fully understood, reductions in freshwater availability can result in changes to wetland and riparian plant communities. Impacts can also include the reduction or elimination of habitats of rare species, changes to sediment and water column salinity, variations in nutrient concentrations and flow paths, and effects of water-borne pollutants.

Analyzing the potential impacts of groundwater extraction on lands adjacent to the seashore would allow managers to make better decisions about how specific wetlands could be affected by wells, thus helping to ensure the long-term protection of these resources. For example, if it was determined that a well on town-owned land was degrading adjacent national seashore wetlands, the Park Service would investigate the possibility of relocating that well to a less sensitive area on NPS land. This scenario would provide the opportunity to cooperatively protect water resources while enabling towns to use water for municipal purposes.

Under alternative 1 five criteria, as defined by law and policy, would be used to evaluate new requests for the temporary sale or lease of seashore water. Using these criteria would provide the Park Service, as well as local municipalities and other landowners, with a consistent process for evaluating new requests for water. Using these criteria would have positive impacts on seashore water and other natural resources by ensuring that temporary water uses would not be allowed if sensitive resources could be affected.

Restoring the natural hydrography and ecology of Hatches Harbor would replace an area of degraded fresh and brackish marsh with salt marsh. Positive effects of this action would include restoring natural tidal flow to 60–90 acres and allowing the area to function as an intertidal saltmarsh nursery area. The restored

wetlands would provide habitat for plants and animals now absent or scarce in the area. Negative short-term impacts would include increased levels of nitrogen and decreased availability of oxygen as the freshwater vegetation decays. An environmental assessment would analyze these impacts in more detail.

The careful evaluation of all proposed Provincetown airport improvements would seek to minimize the potential for significant adverse impacts to wetlands in the airport vicinity. NPS positions on future redevelopment proposals would be formulated during the environmental impact analysis process. Redevelopment proposals currently being considered include alternatives with 0 to 4.35 acres of wetland fill. In addition, salt marsh restoration at Hatches Harbor has been planned in cooperation with Provincetown to avoid potential conflicts with or impacts from any future airport improvements.

Floodplains. There are potential impacts to floodplains from actions under this alternative. Because some NPS facilities could be rebuilt or sited within the coastal bank and other flood-prone areas, some facilities could be at least partially sited in areas of the 100-year floodplain. This determination would be made when site planning and design were done, and impacts to floodplains would be analyzed in more detail at that time.

Conclusion

The protection of water resources would be enhanced through comprehensive planning and environmental analysis. However, because of the limited and reactive nature of some programs, beneficial impacts to water resources would not be as extensive as they would be under alternative 2.

The protection of wetlands would be enhanced as a result of cooperative planning efforts and analyses of the potential impacts of groundwater extraction. The overall long-term impact of the restoration of Hatches Harbor would be beneficial, restoring estuarine nursery habitat

and increasing the diversity of native plant and animal species in the area.

Future development proposals would require an analysis of floodplain impacts.

VEGETATION

Analysis

Natural Resource Management Actions.

Under alternative 1 the overall vegetation management approach would be to allow natural processes to continue unimpeded. Minor actions could be taken to maintain cultural landscapes and developed areas; however, major intervention to alter succession would not take place. The effect of this management approach for most biotic resources within the seashore would be positive.

Restoring or simulating the natural role of fire would primarily occur at research plots and Fort Hill. Currently approximately 3 acres are being burned on research plots, but burning could be expanded up to a total of 50 acres annually. This would be undertaken in accordance with the approved *Fire Management Plan* and would result in a more sustainable Cape Cod ecosystem in the long term. Burning would be done incrementally as much as possible and only in specific areas. Short-term impacts in burn areas would include direct vegetation loss, as well as potential increased erosion that could affect biological productivity until vegetation became reestablished. Following prescribed burning, vegetation would reoccupy the area, and no long-term adverse impacts on species' populations are anticipated.

Nonnative species would be controlled through eradication programs, which might include mechanical or hand control removal methods. This would have beneficial impacts on wildlife as a result of maintaining native habitats that provide forage and protection for wildlife species.

Impacts of air pollution on plants at the national seashore would remain relatively unknown.

Ozone levels much lower than current levels at the seashore have been known to cause foliar damage to plants. Opportunities to obtain additional information through research and to reduce adverse effects, if they exist, would not be available.

Public Use. Present management policies at viewpoints would continue until criteria were developed; the criteria would be compatible with the *Resource Management Plan* and the national seashore's management objectives. Once criteria were in place, viewpoints that did not meet them would be removed and allowed to revegetate. Reducing the number of vistas would have beneficial impacts of reducing NPS intervention in natural successional processes, as well as lowering maintenance costs.

Operations. To maintain landscapes around national seashore facilities, staff could continue to use nonnative vegetation species, chemical applications, and large quantities of water for irrigation in the short term. Staff would work to minimize such practices because high-maintenance landscapes present a poor model of environmentally sound landscaping to neighbors and the visiting public.

Placing overhead utility lines underground would temporarily disturb vegetation along the utility line corridors. This would occur primarily along existing road corridors. Any required revegetation would make use of native species, and no long-term adverse impacts from this disturbance are anticipated. Over the long term vegetation impacts resulting from maintenance operations would be reduced.

Nonnative vegetation would be lost at some previously disturbed sites chosen for additional parking and trails. These vegetation communities are relatively common, and no long-term adverse effects on vegetative diversity or specific communities in the national seashore are anticipated.

Construction. Vegetation near construction areas would be lost as a result of development. However, any new facility construction would

be limited to areas that did not contain sensitive natural resources, and disturbance areas would generally be limited in extent. Therefore, no long-term adverse impacts to specific vegetation communities are expected from these development actions.

Conclusion

Vegetation at the seashore would continue to be protected. Allowing natural processes to continue unimpeded, where possible, would generally have positive effects. However, the lack of scientific data to make the best possible management decisions and the inability to take major actions to protect certain vegetation communities could lead to the loss of resources before it was known they were at risk. In general, actions for vegetation management would primarily be in reaction to human disturbance or the invasion of known exotic plants, or to protect known threatened or endangered species. Even though alternative 1 would encourage less intensively maintained landscaping, impacts of irrigation and chemical applications would be greater than under alternative 2.

FISH AND WILDLIFE

Analysis

Natural Resource Management Actions. Implementing the approved *Fire Management Plan* would have beneficial impacts on fish and wildlife habitat over the long term. The simulation of a more natural role of fire through prescribed burning would facilitate the natural transitions of ecosystems over time. The result would be improved habitat and species diversity and a healthier, more stable ecosystem.

Short-term impacts in burn areas would include wildlife displacement and possible direct loss of some individual animals from the fire. However, following prescribed burning, wildlife species are expected to repopulate affected habitats, and long-term adverse impacts on species' populations are not anticipated. The long-term,

beneficial impacts of prescribed burning far outweigh the short-term effects.

Aquaculture Activities. Impacts from shellfish and finfish aquaculture activities in and around the national seashore would not be specifically addressed under this alternative. Therefore, potential adverse impacts could occur to seashore resources without appropriate studies or management plans in place.

Additional possible impacts of increased shellfish and finfish aquaculture activities include the introduction of cultured varieties and the potential for these varieties to reduce the natural genetic viability of native populations; the introduction of diseases with cultured fish and shellfish, or an increase in disease occurrence due to dense concentrations of fish or shellfish; and the disturbance and displacement of wildlife such as marine mammals and shorebirds from feeding or resting areas.

Hunting, Stocking, and Fishing Programs. The Massachusetts Division of Fish and Wildlife would continue current hunting and stocking programs. Wildlife management actions are based primarily on state policy rather than NPS policy and include "put and take" programs using exotic species. Very little is known about the impacts of stocking exotic species to create hunting opportunities.

Biologists consider the white-tailed deer population on the Outer Cape to be at an appropriate level (NPS 1994a). Deer hunting is generally viewed as an effective way to control population levels. Overpopulation of deer in other areas in the East where deer hunting is prohibited has caused significant impacts on vegetation. There is little scientific data about the impacts of hunting on other species (such as grouse, quail, rabbit, raccoon, crow, coyote, fox, and squirrel).

Live trapping is used infrequently and only for scientific study or as an aversion tool for nuisance wildlife preying on threatened or endangered species. Minimal impact results from this wildlife management technique.

Freshwater fishing would continue to be managed by the state with little or no involvement from the National Park Service. Potential impacts of current fishing activities include the continued introduction of nonnative fish into national seashore waters, primarily trout stocked into freshwater ponds. There are unknown, adverse effects to native fish species from trout predation.

Pest Species Management. Pesticides used to control nuisance vegetation or wildlife species have adverse effects on a variety of species. Under this alternative a step-by-step pest management approach by the National Park Service would strive to reduce the use of artificial chemicals in pest control. This would reduce chemical inputs into biological systems and limit the impacts of chemical control measures on nontarget species. However, other agencies would continue to control mosquito populations with little to no coordination with NPS staff. Such programs could increase pesticide concentrations in species such as birds and fish that are higher in the food chain. Animals high in the food chain eat large quantities of smaller species. If threshold concentrations were reached, higher order animals could fail to thrive and die.

Without efforts to restore Pilgrim Lake to a more balanced state, midge and mosquito outbreaks would probably continue to occur, along with pressure to use chemical sprays to control insects.

Construction. New developments, such as placing overhead powerlines underground and building new facilities, trails, and parking areas, would result in the short-term displacement of small mammals from affected areas. However, there would not be a change in species composition, and population dynamics would remain approximately the same. It is likely that displaced animals would seek similar habitat nearby and potentially repopulate temporarily disturbed areas following habitat restoration.

Conclusion

Actions by other agencies such as stocking fish and game (including nonnative species), managing hunting and fishing programs, and using pesticides to treat nuisance insects would continue, even in the absence of good information regarding impacts of these programs on natural systems. Limited inventory and monitoring of animal species by the national seashore would not be adequate to provide managers with sufficient information to make defensible decisions regarding these or other management actions.

**THREATENED OR ENDANGERED SPECIES /
COMMUNITIES**

Analysis

Under alternative 1 natural processes would be allowed to continue unimpeded, which could adversely affect some rare, threatened, or endangered plants or communities such as heathlands. Heathland communities within the seashore are becoming forested as a result of natural succession. Management actions to protect these communities would be relatively limited under this alternative, potentially resulting in their reduction in extent or loss. These communities support a wide range of plants and animals, including many endemic species, such as broom crowberry (*Corema conradii*), that are becoming increasingly endangered.

Efforts to manage federally listed threatened or endangered species would continue. Currently, these efforts focus on protecting piping plover habitat; the productivity of this species within the seashore and the northeast region is increasing.

Development sites at the seashore would be selected based on resource value, and proposed developments would not affect the biodiversity of the Cape Cod region. Areas containing endangered, threatened, or rare species or habitat would not be selected.

Conclusion

Major management actions to protect certain rare, threatened, or endangered species and communities would not take place. This lack of action could result in adverse impacts, such as a reduction in the total acreage of heathland communities and possibly other resources. Due to a lack of scientific data about many resources in the national seashore, some resources could be degraded or lost before it was known they were at risk.

**IMPACTS ON CULTURAL
RESOURCES**

**CULTURAL HERITAGE AND
ETHNOGRAPHIC RESOURCES**

Analysis

This alternative would maintain customary patterns of use (such as hunting, fishing, shellfishing, and harvesting of vegetation), in accordance with existing regulations. New initiatives for substantially improving cooperative protection of ethnographic resources, along with associated beneficial impacts, are not included.

Notification and consultation with the Wampanoag Tribe of Gay Head (Aquinnah), the Mashpee Wampanoag Tribal Council, and the Assonet Band regarding archeological excavations would continue to take place as required under the Native American Graves Protection and Repatriation Act (NAGPRA).

Conclusion

Long-term cultural patterns of use, such as hunting, fishing, shellfishing, and harvesting of vegetation, would continue within limits established by the state, local towns, and national seashore managers, respectively. Very limited activity would occur to gather additional ethnographic information except as archeological sites were discovered.

CULTURAL LANDSCAPES

Analysis

No comprehensive survey has been done in the national seashore to identify cultural landscapes. Without a determination of cultural landscape significance, attention would continue to be concentrated on certain identified landscapes, to the potential detriment and loss of other areas. Some effort has been made to use concession management to maintain cultural landscapes in the national seashore, as at Highland Golf Links.

Significant cultural landscapes have not been identified throughout the Outer Cape. As a result, landscapes that reflect traditional use could be altered or lost.

Any new development sites would be selected based on resource value. Construction that would adversely affect the character-defining features of significant cultural landscapes would be avoided.

Conclusion

Although some cultural landscapes would be maintained, areas that have not been identified as significant could be altered or lost. Documentation of threatened cultural landscapes prior to loss would be a beneficial impact; however, the work would have lower priority than under alternative 2. In general, beneficial impacts from resource protection would be limited under this alternative because relatively few preservation and interpretive techniques would be applied to a limited number of cultural landscapes.

HISTORIC ARCHITECTURE

Analysis

An evaluation of all federally owned buildings and structures for their eligibility for the National Register of Historic Places is near completion. The list of classified structures, an inventory of NPS-owned structures, is also near-

ing completion. When finished, the inventory would document the structures' significance, allowing national seashore managers to ensure their proper maintenance and preservation.

Several privately owned historic buildings have been identified within the national seashore. The preservation of these buildings' historic character is at the private owner's discretion. In some instances private owners have altered buildings to the point of compromising their historical significance. Under this alternative the potential loss of historical integrity and character of buildings would continue. Historic buildings outside the national seashore would face the same potential loss of integrity.

Any new development sites would be selected based on resource value, and areas containing historic properties would be avoided. Consequently, no adverse impacts to historic properties are anticipated.

In some instances historic structures could be adaptively used for operational needs or for staff housing. Any adverse effects to the historic fabric would be identified through a complete survey of the property before modifications were initiated, minimizing the loss of historic fabric.

The risk of fire damage to historic structures and private property at the seashore would be reduced by removing fuel around structures, as outlined in the seashore's *Fire Management Plan*.

Some historic structures could be lost to coastal processes as the shoreline migrated. While these resources should be documented before their loss, this might not be possible in all cases. Since the information could never be completely recovered, loss of any resources prior to documentation would constitute a long-term, adverse impact on historic architecture.

Conclusion

Without a complete inventory and historical and architectural background data to document

historic buildings and structures in public and private ownership, these structures might not be properly maintained and preserved. Resulting adverse impacts could range from loss of historic integrity to resource destruction. In addition, the preservation of the historic character of privately owned structures would continue to be at the discretion of the owners. Consequently, adverse impacts from resource degradation and loss of historic integrity could occur over time.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

Analysis

The lack of funding and staffing at the national seashore has inhibited adequate protection and inventory work for land-based and submerged archeological resources. Without a comprehensive survey of such resources, resources are subject to loss. Under alternative 1 protection efforts would be taken on an emergency basis for individual sites. Consequently, numerous resources would not be protected, and potentially adverse impacts to these resources might occur from disturbance, loss of site integrity, or removal of objects. Potential beneficial impacts of protecting individual sites (on an emergency basis) include halting resource degradation, using data for expanded interpretation and education programs, and facilitating research efforts.

Some archeological sites include privately owned property within the national seashore boundaries and on adjacent lands. Threats to these archeological sites from development and vandalism could result in the loss of artifacts and a denigration of their value for understanding the Outer Cape's past.

Any construction activity on NPS lands within the national seashore would be preceded by an archeological survey. If any unknown resources were uncovered during construction or any ground-breaking activity, procedures to implement section 106 of the National Historic Preservation Act and, as appropriate, the Native

American Graves Protection and Repatriation Act would be instituted. Native American groups would be notified before any archeological excavations.

Interpretation of archeological resources by staff and volunteers would serve to educate the public about the significance and value of archeological resources, although these efforts are limited by inadequate staffing levels. Heightened awareness relative to these resources would have the beneficial effect of encouraging the public to advocate preservation and protection of these sites.

Some archeological resources could be lost to coastal processes as the shoreline migrated. Efforts would be taken to document resources exposed by storms before they are lost. However, archeological and submerged resources might be lost before documentation could take place.

Conclusion

Without adequate protection and inventories for land-based and submerged archeological resources, resources would be subject to loss and other adverse impacts. Beneficial effects of resource protection would only be available for a limited number of resources on an emergency basis. Good relations with Native American groups would be maintained by notifying these peoples prior to archeological excavations.

MUSEUM COLLECTION

Analysis

The imminent development of a dedicated collections storage facility at the former North Truro air force station would make a considerable contribution to the long-term protection of the seashore's museum collection. Despite this, limitations are likely to continue on storage and display space with environmental controls to ensure the protection of museum collections. Because the current "Scope of Collections

Statement" is outdated and historic furnishing reports for the seashore's historic structures have yet to be prepared, decisions about how to best fill gaps in the collection would be hampered.

The commitment to preserving collections in as stable a condition as possible would ensure that a positive level of protection for the collection would be achieved. However, collection-wide monitoring and recording activities could be hindered by the limited availability of curatorial staff and skilled volunteers. The development of a dedicated collections storage facility would ensure the long-term protection of and access to the seashore's collections.

Conclusion

Overall, the condition of the museum collection would be generally improved under this alternative. However, collection storage and exhibit space would continue to be limited, making museum objects and archival materials inaccessible to the majority of visitors. Minimal additional activity beyond improved storage and protection of museum artifacts would occur.

IMPACTS ON PUBLIC USE AND EXPERIENCE

INFORMATION AND ORIENTATION

Basic information would continue to be available to provide directions for visitors coming to Cape Cod National Seashore.

ACCESS AND TRANSPORTATION

Analysis

The National Park Service would continue to support transportation improvements for the Outer Cape associated with the Cape Cod Commission's *Long Range Transportation Plan*. To the extent that the commission's plan was implemented, traffic congestion should decrease,

along with air pollution and driver frustration on the Outer Cape. If major portions of the transportation plan were not implemented, substantial increases in traffic congestion and safety problems, as well as air and noise pollution are anticipated.

Access to existing public use sites within the national seashore would continue to be available. The provision of shuttle services at selected sites would have several beneficial impacts, including decreasing vehicular congestion at destination points such as beaches, and reducing air pollution and noise. In addition, safety conditions for beach users would be improved.

Resource-related impacts are expected if additional parking or new trail alignments were needed to reduce traffic congestion, or to provide staging areas for new shuttle systems. Once a determination was made regarding the potential need for additional parking and/or new trail alignments, and specific sites were proposed, the environmental consequences of the actions would be analyzed.

As part of the transportation system, Provincetown Municipal Airport allows access to the national seashore and the communities of the Outer Cape, thus somewhat reducing the use of privately owned automobiles. The new terminal is being designed for about 300 passengers per day, which is most likely less than 300 automobile trips; automobile traffic would not be reduced in the immediate area of the airport.

Alternative commercial airport services are available at Hyannis. Some increase in service could be accommodated by existing facilities through runway safety improvements or more scheduled flights.

Airport improvement alternatives would have the potential to adversely affect natural resources and the public experience, such as filling wetlands and reducing opportunities to experience natural quiet. Conversely, if airport improvements were denied, there could be adverse economic impacts on the airport by reducing the viability of commercial air service.

The operations and activities of a municipal airport are somewhat inconsistent with the resource protection and public experience of the national seashore due to visual quality issues, wetland impacts, and noise interrupting natural quiet and interpretive programs. Consequently, it is imperative that any proposals for airport facility upgrade or expansion within the seashore be carefully evaluated to achieve the least impact possible. Although there is a small benefit of the airport as a public transportation option for access to the Outer Cape for residents and visitors who rely on its availability, its location within a national park system unit and in a wetland limits its size and possible benefits to a large degree. Trade-offs of improving air service versus potential impacts to wetlands, dunes, vegetation, scenic and cultural resources, ground transportation systems, and public experience must be weighed. Proposals for airport improvements would be considered and evaluated on a case-by-case basis.

Conclusion

Traffic congestion on the Outer Cape would be improved with the implementation of the *Long Range Transportation Plan*. Access to existing public use sites within the national seashore would continue. Case-by-case review of redevelopment proposals for the Provincetown airport would strive to protect national seashore resources, particularly wetlands. Appreciable effects on public access to the Cape are not anticipated.

INTERPRETIVE AND EDUCATIONAL OPPORTUNITIES

Analysis

Visitors and residents would continue to benefit from a variety of interpretive facilities, media, and personal services programs, including environmental education.

Existing partnerships and cooperative efforts to interpret the aspects of the Cape Cod character

that transcend NPS boundaries would not be fully coordinated. Visitors would need to make numerous agency/institution contacts to understand and appreciate some elements of the Cape's character and significance. Visitors who did not make this effort would likely miss some key opportunities to better understand Cape Cod.

Without adequate funding and staffing, NPS interpretation would continue to be adversely affected. Programs would be conducted on a limited basis, and visitors would continue to be poorly informed about the Outer Cape's natural and cultural resources.

By protecting and interpreting historic structures, cultural landscapes, and some archeological sites, visitors and residents would have opportunities to better understand and appreciate the character of Cape Cod. However, relying on volunteers to interpret historic structures would potentially compromise the overall quality of interpretation because buildings would be closed when volunteers were not available.

There is limited potential under the existing interpretive program to interpret sensitive resource issues. Without an understanding of these issues, the public would be less likely to voluntarily assist in protection efforts.

Visitors would continue to benefit from the interpretive services provided at the Salt Pond and Province Lands visitor centers.

Conclusion

Visitors and residents would continue to benefit from a variety of interpretive programs. However, NPS programs would be conducted on a limited basis, and beneficial impacts would be minimal. Interpretive opportunities on the Outer Cape offered by various entities would not be coordinated, making it difficult for the public to fully appreciate the Cape's character and significance. Resource protection efforts would be adversely affected, as visitors would not be adequately informed regarding appropriate behaviors and voluntary resource protection strategies.

PUBLIC USES

Analysis

Use Conflicts. Even though national seashore managers would seek to prevent conflicts between uses, conflicts would likely continue and would be handled on a case-by-case basis. For example, hunting would continue, as stipulated in the seashore's authorizing legislation and in accordance with state management policies. NPS staff would continue to attempt to minimize hunting conflicts with other activities, conflicts near private land, and potential safety concerns. Proposals for public use and activities on national seashore lands would continue to be decided on a case-by-case basis, which is time-consuming, potentially inconsistent, and could lead to controversy.

This alternative would have no impact on fishing within the seashore.

Recreational Activities. In accordance with its established legislation, the National Park Service would continue to allow hunting, fishing, and shellfishing within national seashore boundaries. These activities would continue to be regulated by the appropriate federal, state, and local authorities. Access for fishing would continue at existing beach access points and along approved ORV corridors. Within certain limits established by the park, harvesting of vegetation such as mushrooms, beach plums, and rosehips would continue to be allowed. The collection of flotsam and jetsam would also continue to be permitted, in consultation with the seashore's staff. These resource-based activities are representative of the long-term cultural patterns of use. These activities would continue at current levels, resulting in limited positive impacts to national seashore resources. However, the seashore could continue limiting such activities if there were indications that resource degradation was occurring at unacceptable levels.

Emphasizing nonmotorized forms of recreation would be more in keeping with the management philosophy of the national seashore, especially in terms of sustainability, by reducing fuel use

and related air pollution. ORV use would continue under current regulations and those guidelines established by the negotiated rule-making process.

Access restrictions associated with the piping plover program would continue to affect the availability of seashore lands to ORV users. Since 1989 ORVs have been prohibited from sections of beach between Race Point and High Head when unfledged plover chicks are present, resulting in substantial adverse effects on ORV users. Occasionally this means that only 0.50 mile of the beach within the 8-mile NPS corridor designated for ORVs is available for use. As the piping plover population within the seashore increases, the chance for closures in these areas increases. However, additional provisions have been proposed identifying alternate areas for ORV use when restrictions related to the piping plover program are in effect. Depending on the locations of nesting plovers, these provisions include seasonally opening beach areas previously closed to ORV use, as well as expanding periods of allowable access for other sites. The availability of these proposed alternate use areas would reduce the level of adverse effects on ORV users from current beach restrictions. Additional ORV use occurs in a 12-mile corridor within the national seashore and managed by the towns of Orleans and Chatham.

Implementing the *Bicycle Trail Plan* would provide greater access to the national seashore, a positive impact for bicyclists.

The public would continue to benefit from the current amenities and attractions at the seashore and from road and trail access to viewpoints along coastal bluffs and cliffs and at dunes. However, users would continue to be adversely affected by crowding at the more visible and well-known sites.

Limiting use levels at specific ponds to help protect a pond or to allow a degraded pond to recover could affect the availability of recreational experiences and adversely impact some visitors. Environmental assessments to analyze

these potential impacts more specifically would be completed as necessary.

Developing criteria for evaluating vistas could reduce the number of vistas available to the public because those that do not meet management objectives could be eliminated over time. However, impacts on the public would be minimal since a wide variety of vistas would continue to be available, including road and trail access to coastal bluffs, cliffs, and dunes.

Communicating with local governments and others to address shared services, such as trail networks and other recreational opportunities, would be accomplished only to resolve specific issues. This would limit the potential beneficial impacts of consistent collaboration and cooperation between local agencies and the National Park Service.

Facilities. Visitors at the Salt Pond visitor center would continue to be inconvenienced by the awkward location of the restrooms and the lack of a designated bus loading/unloading zone. The large projection screens would remain at the seldom-used amphitheaters at the Salt Pond and Province Lands visitor centers. These screens visually intrude on the landscape.

Placing overhead utility lines underground would enhance the natural scene within the national seashore, which would improve the experience of some visitors unless such lines were part of the cultural landscape. Such activities would be preceded by a survey to prevent the degradation or destruction of archeological resources.

Intervention to manage coastal processes that affect visitor facilities might postpone eventual loss or damage. However, it is likely facilities would still be lost or damaged and would have to be repaired or replaced. Under alternative 1 facilities would be repaired or replaced at the existing site, if at all possible.

Conclusion

Existing public uses would continue, with the likelihood of some use conflicts. Recreational activities, such as hunting, fishing, shellfishing, and harvesting of vegetation, would continue within limits established by the state, local towns, and national seashore managers. Crowding would continue to adversely affect visitors at the more visible and well-known sites. The number of vistas could be reduced, adversely affecting the experiences of some users. Some facilities would probably be damaged or destroyed by natural coastal processes and would have to be repaired or replaced. Overall management of this function would generally be reactive — responding to identified needs and addressing them selectively as problems became apparent or partnering opportunities became available. This would have an adverse effect on many aspects of public use at the national seashore.

IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

REGIONAL AND LOCAL ECONOMY

Analysis

Visitor and NPS Expenditures. Cape Cod National Seashore is considered a regional amenity — a visitor attraction that provides significant open space and fosters the stewardship of environmental resources. All of these attributes contribute to the national seashore's value to the regional economy. However, these contributions are hard to measure, making it difficult to estimate the economic benefits derived from Cape Cod National Seashore. In addition, economic interrelationships between the national seashore and the adjacent communities are complex; for example, the 1994 Visitor and Resident Survey found that more than 75% of visitors do not consider the national seashore to be their primary destination on the Outer Cape (Manning 1994). In order to address this, the National Park Service has developed an economic model to help evaluate the benefits of national parks to

local areas. In this case, the model allows an assessment of the economic benefits of the seashore to the six Outer Cape communities.

This model, known as the money generation model, is designed to provide park managers and neighboring communities with a gross estimate of economic benefits that may be attributed to the park — sales, taxes, and jobs. When considering the results of the model, the following points need to be emphasized:

- (1) The money generation model is designed to estimate economic benefits in the local area around the park unit; it is not designed to be used on a regional or statewide basis.
- (2) The money generation model is based on nonresident visitor and park expenditure data; it does not consider economic benefits that are more qualitative in nature, such as enhanced real estate values, improved recreational and cultural opportunities for local residents, or improved community services, that derive from a park unit.

To apply the model more accurately to the Outer Cape, the model was specifically adapted to Cape Cod National Seashore. The model was used to assess the economic benefits associated with both nonresident visitor and NPS expenditures. The application of the model was further enhanced by the results of the 1993 visitor use survey, which allowed the model to be tailored specifically to the visitation patterns of the national seashore. The survey was conducted through all four seasons, and the statistics for mean group size, expenditures per person, and time spent at the seashore were averaged across the full year.

Visitor Expenditures — Total nonresident visitor expenditures under current management, according to the money generation model, were estimated at approximately \$123 million per year (see table 15).

Because business income from sales to visitors is multiplied when those businesses in turn buy

goods and services, a multiplier of 1.95 was applied to the total visitor expenditures to account for indirect sales. The total sales benefit amounts to about \$240 million annually. These expenditures are probably largely directed toward the traditional economic sectors that support tourism — retail, food and entertainment, and lodging.

Local tax revenues (based on hotel/restaurant taxes) were estimated to be approximately \$3 million, and state tax revenues under current conditions were estimated to exceed \$16 million.

The model also applies a job multiplier that under current conditions assumes that for every \$1 million of visitor-related expenditures, 36 jobs are created. Using this multiplier a total sales benefit of about \$240 million created about 8,700 jobs. These jobs would be largely seasonal in nature and almost exclusively related to the tourism industry.

NPS Expenditures — The national seashore's annual operating budget is approximately \$4.5 million — about 80% (\$3.6 million) of which is devoted to salaries and 20% (\$900,000) to operations. Other than wages and salaries paid by large supermarkets and resort hotels in this area, the national seashore has one of the largest payrolls on the Outer Cape. The seashore employs a permanent staff of about 60 people year-round and hires as many as 100 or more seasonal employees during the height of the visitor season (June through August). Less than 40% of the seashore's year-round staff live in NPS housing; most permanent employees choose to live in the Outer Cape communities adjoining the national seashore.

In this model it is assumed that NPS employees spend the majority of their earned income on Cape Cod, primarily on real property, goods, and services. It is also assumed that the national seashore spends about a third of its operating funds on Outer Cape goods and services. Based on these assumptions, the estimated total expenditures by the seashore for salaries and goods and services on the Outer Cape amounted to about \$3.7 million. Applying the same indirect

**TABLE 15: SALES, TAX, AND EMPLOYMENT BENEFITS, CAPE COD NATIONAL SEASHORE
(IN MILLIONS OF DOLLARS)**

VISITOR EXPENDITURES	
Sales Benefits	
Projected Annual Visitors	5,214,000
Visitor Expenditures (\$24/day)	\$123,309
Indirect Sales Multiplier *	1.95
Total	\$239,867
Local/State Tax Benefits**	
Local Hotel/Restaurant Tax (overnight lodging \$15/visitor)	\$2,957
State Retail Sales Tax (5%)	\$11,993
State Income Tax (6%)***	<u>\$4,282</u>
Total	\$19,232
Employment Benefits	
Job Multiplier (# jobs/ \$1 million)	36
Total: New Jobs Created	8,695
NPS EXPENDITURES	
Sales Benefits	
Annual Budget (FY 95)	\$4,500
Wages/Salaries	\$3,600
Operations	\$900
Percentage Spent in the Outer Cape****	
Wages/Salaries (93%)	\$3,360
Operations (35%)	\$320
Indirect Sales Multiplier	1.95
Total: Sales Benefits	\$7,185
Local Tax Benefits	
State Retail Sales Tax (5%)	\$360
State Income Tax (6%)	\$128
Total: Tax Benefits	\$488
Employment Benefits	
Job Multiplier (# Jobs/ \$1 Million)	29
Total: New Jobs Created	206

NOTE: 1995 Dollars.

- * Multiplier estimates come from (Bureau of Economic Analysis, U.S. Department of Commerce 1992)
- ** Data on tax rates are from the Massachusetts Department of Revenue. The local hotel tax is an average over the local area communities: 2.3% in Provincetown, and 4.0% in the other five towns
- *** Taxable income ratio is the percent of sales revenues counted as income. Estimates are based on ratios suggested by the NPS money generation model.
- **** Low and high estimates add $\pm 5\%$ to percent of budget spent locally.

sales multiplier (1.95) to current seashore expenditures results in a total sales benefit of \$7.2 million.

State revenues from sales and income taxes amount to about \$500,000. NPS-related revenues to the Outer Cape communities come in the form of local property taxes paid by NPS-employed homeowners, seashore payments to communities in lieu of taxes for federal properties removed from tax rolls, and federal payments to local school systems attended by children of NPS employees living in seashore housing.

In the case of seashore expenditures, the job multiplier is slightly more modest than the multiplier used for visitor expenditures. Under current conditions it is estimated that for every million dollars in seashore expenditures, 29 jobs are created, resulting in approximately 206 jobs. It should be noted that there is likely to be some overlap with the thousands of jobs attributed to visitor spending, although jobs related to seashore expenditures are more likely to represent year-round jobs. Also, given the age of the seashore and the fact that its budget has not changed too radically in the last few years, this figure may reflect jobs retained due to the continuing presence of the seashore rather than new jobs created.

Provincetown Municipal Airport. The Provincetown Municipal Airport master planning analyses have projected that the airport currently contributes about \$4 million to \$5 million annually to the local economy (FAA 1997). This economic impact would be expected to continue.

Conclusion

Cape Cod National Seashore has a positive effect on the local economy as a result of visitor expenditures for goods and services, subsequent indirect sales, NPS expenditures for salaries and operations, and seashore employee expenditures for food, clothing, and housing. Total direct and indirect visitor expenditures amount to an esti-

mated \$247 million per year. Local and state tax revenues from tourism total an estimated \$19 million. Tourism related to the national seashore also creates an estimated 8,600 seasonal jobs. These effects are expected to continue. Additions of about \$4 million to \$5 million annually to the local economy as a result Provincetown airport operations are expected to continue.

PRIVATE PROPERTY OWNERS AND LOCAL RESIDENTS

Analysis

Under this alternative the National Park Service would continue to discourage the development of seawalls, revetments, or other engineering structures that impede natural coastal processes. Private property owners would need to consider the effects of coastal erosion on their properties, including the potential loss of or damage to their property.

The implementation of the *Fire Management Plan* within the national seashore could reduce the risk of wildfire, thereby reducing risk to private properties located within the seashore boundary. Additionally, local residents would benefit from the reduced risk of fire near their communities.

Private property owners would be encouraged to participate in the stewardship of cultural and natural resources. Property owners within the seashore would be further encouraged to preserve or to sensitively redevelop their own properties.

NPS involvement in seashorewide and regional transportation planning could result in less congested and safer roadways, which would be a year-round benefit to residents within and outside national seashore boundaries.

Interpretive and educational programs would make the public aware of local cultural heritage and the mix of private and public lands within the seashore. Interpretive and educational programs would also aim to make the public more respectful of the privacy of residents within the

seashore and the contribution that improved properties make to the overall ambience of the seashore.

Alternative 1 proposes that the National Park Service consider the privacy of local residents and minimize public uses near residential properties; this would require striking a balance to respect the private property rights of local residents while ensuring that the visiting public had adequate access to seashore resources and facilities, especially due to long-term patterns of public use in some areas.

Private property owners within the national seashore could continue to voluntarily comply with the seashore's improved property guidelines and would comply with current local zoning bylaws. National seashore managers would continue to work with local communities and private property owners to review building permits and plans, construction requiring conservation commission review under the state wetlands act, and septic plans, especially those requiring zoning variances.

Capital costs to underground private utility lines and public utilities serving private residences would be borne by those served by the lines. While the capital cost of upgrading to either private or utility standards might be higher initially than aboveground lines, the long-term maintenance costs would likely be reduced because the lines would be subject to less storm damage, especially hurricane winds. Upgrading to private standards would be less costly than public utility standards. These costs would be justified to reduce natural resource damage during line installation and maintenance.

Conclusion

Under alternative 1 conditions for private property owners would be unlikely to change. Implementing the *Fire Management Plan* would reduce the risk of fire damage to private properties. Interpretive and educational programs would seek to protect the privacy of residents. Minimizing public uses near private properties

would have to be balanced with the need to provide facilities for the visiting public. Compliance with NPS improved property guidelines would be up to private property owners, and ensuring compliance with town zoning bylaws would be up to town building inspectors and zoning boards of appeal.

PROPERTY VALUES

Analysis

Throughout the United States numerous studies have been conducted that correlate the presence and proximity of well-managed open space with increased private property values (Kennedy and Porter 1994). Although there are no known local studies of this relationship, this is also likely to be the case on the Outer Cape. In 1994 the average median sales price for residential property on the Outer Cape was about \$150,000, which is about 25% higher than the median sales price for Barnstable County. Though not conclusive, this may be illustrative of the national seashore's effect on local property values.

Conclusion

Local property values have probably been beneficially affected by the presence of the national seashore. The actions in this alternative would not adversely affect private property values.

MUNICIPAL COSTS AND SERVICES

Analysis

Existing agreements between the towns and the National Park Service for fire, police, and ambulance services, road maintenance and snow plowing, utilities (water from Provincetown), town transfer stations (waste disposal), and local schools would continue. The Park Service pays fees for water, solid waste disposal, and sewage disposal services and has mutual-aid agreements for fire and police protection. The cost of ambulance service is paid directly by the user of the

service. By continuing to work with Outer Cape communities to address issues of equitable reimbursement for such services, the Park Service would alleviate some local concerns.

Cape Cod National Seashore contributes in-kind services to local schools and community groups through the development of curriculum packages, educational outreach programs, and other similar activities.

The establishment of the national seashore essentially halted further residential development so that up to approximately 25,000 additional houses will not be built (based on a typical 1-acre lot size for town zoning). This has resulted in a substantial cost avoidance for municipalities in terms of having to provide open space compared to service demands for other land uses, such as residential use.

Additionally, the annual park operating budget of over \$4 million annually could be viewed as supplementing town budgets in terms of providing amenities and basic services for residents and visitors, such as beach facilities and life-guard services, law enforcement and emergency support, trash collection, and building, road, and trail maintenance. This contributes to reducing some municipal costs significantly, although a breakdown of direct and indirect benefits would be too difficult to accomplish.

While use-and-occupancy reservations have been in place, local towns have collected a possessory use tax, which is similar to a property tax. Ending private occupancy would reduce tax revenues in the affected communities; however, the expected reduction of residential use would also reduce needed municipal services. The town of Wellfleet has the largest number of use-and-occupancy properties (about 28) and estimates the reduction of about \$50,000 annually when these reservations expire, based on their 1997 valuation at \$5.6 million. Total tax revenues for the town amount to about \$50 million, so this loss would be less than 0.01% of revenues and would not represent a major fiscal impact. Decisions about the continuance of private residential use within a national park unit cannot be based

on tax revenues for local communities. Any continued private residential use, including hardship case or other use, would be subject to this tax.

Refer to the section titled "Services Exchanged with Local Communities" (page 224) for additional discussion regarding cooperation between the National Park Service and local communities and agencies.

Conclusion

The National Park Service would continue to pay for services and to contribute payments in lieu of taxes at current rates. The protection of national seashore lands in open space would continue to benefit towns by reducing the service cost burden from potential new residential development. Various aspects of the national seashore operations contribute direct and indirect benefit to the towns, reducing some potential municipal costs.

NPS CONCESSION OPERATIONS

Analysis

Only three concessions within the national seashore provide commercial services to visitors — a refreshment stand at Herring Cove, the Highland Golf Links, and the Nauset Knoll Motor Lodge — all of which predate the authorization of the national seashore. The seashore's policy is not to establish any new concessions that would compete with local businesses. Concession operations would continue to provide services in the current manner, because no change in management is proposed.

Conclusion

Existing NPS concessioners would not be adversely affected.

IMPACTS ON NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE / PROTECTION

Analysis

Under alternative 1 the national seashore staff would continue to build on existing relationships with federal and state agencies and local communities to protect the traditional character and natural systems of the Outer Cape from resource degradation that often results from development.

The Park Service has consulted with Outer Cape communities in developing local comprehensive plans and has communicated with state agencies about coastal zone management; fishing, hunting, and stocking programs; and other resource issues. Land protection goals can only be accomplished with the voluntary participation of nonfederal property owners.

Land acquisition is one of the few tools that the National Park Service has available to use independently for land protection. However, the land acquisition program has been weakened by the limited availability of funds. Land acquisition by the Park Service alone or in cooperation with a land trust has been a key strategy for land protection and has resulted in the acquisition of some important private parcels. These strategies would continue to result in an incremental advance of land protection goals throughout the Outer Cape.

Conclusion

Under alternative 1 the emphasis of land use and protection would be on information exchange with other public and private land managers to coordinate planning. National seashore managers would not attempt proactive, creative protection strategies, so there would be minimal beneficial impact on preserving the Outer Cape character.

PRIVATE RESIDENTIAL PROPERTIES

Analysis

There are nearly 600 residential properties throughout the national seashore. Many of these parcels have been redeveloped within the specifications provided by local bylaws and have retained their basic character. However, a small number of improved properties have been redeveloped in a manner that does not reflect the Cape's regional character. Without local design guidelines and the sensitive interpretation of local bylaws, insensitive redevelopment of improved properties would likely continue.

Under alternative 1 the National Park Service would have limited ability to regulate the redevelopment of improved properties and would rely on the voluntary cooperation of local communities and property owners to protect historically significant properties and the traditional character of Cape Cod by adhering to NPS use guidelines. Property owners would continue to be required to conform to town zoning bylaws. The threat of condemnation would remain an incentive for compliance with local zoning bylaws.

Existing local bylaws prohibit property uses that may conflict with the purposes of the seashore, and they offer some guidance regarding lot coverage, setbacks, and frontages. However, they do not address the aspects of design that influence the character of an area such as scale, massing, and other architectural design elements. In the absence of such design guidelines and with increasing pressure to expand and use these properties year-round, preserving the rural, vernacular quality of this area would become more challenging. Long-term, adverse impacts to the character and aesthetics of the Cape could result.

Increased coordination between the seashore and local communities in the building permit review process would further enable seashore managers to guide the development of improved properties within the seashore. However, the criteria for review are already set by existing local land use and health regulations. The towns would need to

be willing to revise their zoning bylaws to incorporate elements of the NPS use guidelines.

Under alternative 1 conditions for private property owners would be unlikely to change. Technical assistance to property owners seeking guidance on the compatible redevelopment of their properties or resource protection would be constrained. With limited funds for land acquisition and nominal support from local building inspectors, national seashore managers would have little ability to react and respond to the insensitive development of residential properties. This could result in inequities between private property owners who were making every effort to comply with guidelines and local zoning and those who chose to ignore them, including owners of post-1959 properties that have not yet been purchased.

Seeking to acquire available improved properties that hold special resource values or purchasing development rights or easements could protect such parcels from further degradation. This might be accomplished with the assistance of a private land trust. However, limited federal funds could make it difficult to obtain the money for land acquisition in a timely manner, resulting in lost opportunities. The few improved properties that the Park Service would acquire in full fee would be removed from local tax rolls, but federal payments would be made in lieu of taxes to help offset the loss of revenue, and municipal services would not need to be provided. The acquisition of additional improved lands could further deplete the national seashore's maintenance budget.

The capital costs to place private utility lines underground, along with public utilities serving private residences, would be borne by those served by the lines. While the capital cost of upgrading to either private or utility standards might be higher initially than aboveground lines, long-term maintenance costs would likely be reduced because the lines would be subject to less storm damage, especially hurricane winds. Upgrading to private standards would be less costly than to public utility standards. These costs would be justified to reduce natural

resource damage during line installation and maintenance. Property values might increase due to the removal of visual intrusions.

Artificial beach nourishment would not take place on NPS property and would be discouraged on private property. Beach nourishment and revetment construction could continue on private property according to guidelines in the *Massachusetts Coastal Zone Management Program*. Artificial beach nourishment is a short-term solution. Over the long term private owners would continue to lose property to natural coastal processes with or without intervention.

By minimizing public use activities near residences, the privacy of improved property owners would be protected.

Also see the socioeconomic impact discussion for private property owners and local residents (beginning on page 217)

Conclusion

Federal and local land use tools now available to control the development of residential properties within the seashore do not provide sufficient guidance for resource protection and the preservation of the Cape Cod character. National seashore managers would emphasize coordination and discussion in response to problem identification, but the overall management strategy would be to react to specific problems as they occurred. Any acquisition of improved properties would require an increase in the seashore's operating budget to ensure an appropriate level of care and maintenance.

PRIVATE COMMERCIAL PROPERTIES

Analysis

Under alternative 1 standards for renewing commercial certificates of suspension of condemnation could vary as the composition of the Cape Cod National Seashore Advisory Commission changed. This lack of consistency could make

the process seem more arbitrary and thereby less defensible when challenged. Lack of consistent criteria would also make it difficult for business owners to make long-term decisions about their properties. Gradual changes in use could be incompatible with the national seashore purpose and adversely affect adjacent properties.

Conclusion

Standards for renewing commercial certificates of suspension of condemnation within the national seashore would continue to be determined on an ad hoc basis. Business owners would be limited in their ability to make long-range plans for their properties. Gradual changes in property uses could be incompatible with the national seashore purpose and adversely affect adjacent properties.

MUNICIPAL AND STATE LANDS

Analysis

Under this alternative continuing NPS efforts with communities and state agencies to better coordinate land management policies and activities would likely have limited success. No formal relationships or established procedures have been developed to guide intergovernmental decision making or cooperation, often resulting in competing agendas and activities that potentially place natural and cultural resources at risk of being adversely affected.

The use of land exchanges has proven successful in the protection of some sensitive parcels. Even though land exchanges are a useful tool, they can be complex to negotiate and time-consuming to execute.

Municipal coastal property would continue to be lost to natural coastal processes. Intervention to impede these processes in areas with a long-term erosional trend could delay their eventual loss.

Conclusion

Limited cooperative efforts with other governmental agencies to protect the character of the Outer Cape would continue. However, it is unlikely efforts would be formalized, placing natural and cultural resources at risk of being adversely affected.

IMPACTS ON NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

STAFFING

Analysis

The national seashore would continue to operate at current and inadequate employee levels. Because this is a minimum requirements alternative, the emphasis is to use existing staffing, which now includes about 95 staff full-time equivalencies (both year-round and seasonal staff positions). Few, if any, new staff positions would be created. As central support offices continue to be downsized and budgets cut, staff would be inadequate for providing basic services, and operations would be negatively affected. Key information would not be conveyed adequately to the public. Staff workloads would continue to increase. In addition, information would not be collected to build on the national seashore's knowledge base and inventories. Risks of resource degradation or loss would be increased.

Conclusion

There would be an adverse impact on employee workloads because staffing would not be increased. Staff would have difficulty providing any more than basic services and would be unable to collect adequate technical information for sound inventories to support decision making.

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

Analysis

Potentially reducing the number of high-maintenance vistas would reduce time spent by crews on clearing vegetation and would reduce NPS intervention in natural successional processes. Relocating vistas to areas where the need for clearing was minimal would reduce long-term maintenance crew workload and would allow additional areas of the seashore to return to a natural state.

Allowing NPS facilities in coastal areas to remain, such as those at developed beach facilities and parking, would cause the national seashore to continue to incur long-term maintenance costs because of inevitable damage from coastal erosion.

The Salt Pond visitor center would continue to have inadequate work space for the staff.

The ongoing study of operational space needs for the national seashore would result in more efficient operations. The study might identify the need for new structures, which would introduce facilities into areas where none exist, directly impacting natural resources and possibly cultural resources. Designs would incorporate the best management and sustainable practices and would relate to the existing character of NPS structures.

Structures that were not suitable or required for operational uses would be demolished, existing human impacts removed, and the scene allowed to return to a natural setting through landscaping and/or regeneration. This would improve efficiencies of seashore operations, as well as improve visual quality.

As landscaping practices were changed to be more sustainable, the use of nonnative vegetation, chemical applications, and irrigation to maintain a lush and healthy landscape would decrease. A variety of resources would incur long-term, beneficial impacts, including vege-

tation, fish and wildlife, and water quality and availability.

Under alternative 1 anticipated costs for research, planning, and construction would range from a total of approximately \$8.0 million to \$9.3 million. This estimated cost range is the lowest of the three alternatives.

Conclusion

As the staff continued to assess operational space needs and landscaping practices in terms of more sustainable methods, operations should become somewhat more efficient, and adverse impacts on the environment would be reduced. However, this effort would be slow, pursued as time and funding allowed, and would only result in a visible benefit over the long term.

STAFF HOUSING

Analysis

Updating the *Housing Management Plan* for Cape Cod would provide timely information needed by national seashore managers to meet permanent and seasonal housing needs at the national seashore. Dispersing families throughout the seashore in single detached units would provide a private and personal living experience for permanent employees. Conversely, concentrating seasonal employees at existing housing areas would allow short-term Cape Cod residents an opportunity to interact with other staff members in an off-duty situation. Seasonal employees who might otherwise have a difficult time integrating completely within the community due to their short length of service (typically three to four months during the summer) would have a better social situation.

The current practice of limiting the number of national seashore housing units available for permanent employees serves to decrease the number of residential units required for staff within the seashore, but to a limited extent. Further eliminating housing needs for seashore

staff would allow the removal or demolition of existing structures that were no longer needed. Once removed, the affected sites could be returned to a natural condition.

Conclusion

By continuing current management practices and periodically updating the *Housing Management Plan*, the national seashore would be able to meet its goal of providing a variety of adequate staff housing to help attract a diverse group of employees and volunteers. However, housing would continue to be relatively dispersed throughout the seashore, and it would continue to be difficult to meet the costs of maintenance and operations of housing units. Some housing units would remain in sensitive resource areas.

UTILITIES

Analysis

Continuing to work with local towns to resolve regional problems relating to waste disposal and providing potable water would help ensure that all communities on the Outer Cape would benefit equally in maintaining a clean and healthy environment and in having an unpolluted water supply. Ensuring that NPS septic systems meet regulatory standards would further ensure that groundwater remains as free of pollution as possible. Discussions with localities would continue on a case-by-case basis, with regional coordination occurring slowly as mutual issues arose.

As more and more powerlines were placed underground, there would be fewer visual intrusions on the seashore's natural and cultural landscapes. In addition, future damage to the landscape from the maintenance of aboveground powerlines would be gradually reduced.

Conclusion

Actions such as upgrading septic systems and placing powerlines underground would allow

the Park Service to provide safe and relatively cost-effective utilities that would increasingly have minimal impact on sensitive resources. Although regional cooperation would be actively encouraged by the National Park Service, no new mechanisms or policies would be developed to expedite the process.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

Analysis

This alternative would continue cooperative efforts between the National Park Service and local communities on the Outer Cape in providing services to residents and visitors, especially as visitors experience both the national seashore and Outer Cape towns. Fees for services by municipalities would continue to be paid by the National Park Service through cost sharing, or pro-rated arrangements for municipal services would be provided. Also, the National Park Service would continue to provide services that augment municipal services. Functional responsibilities could shift between communities and the National Park Service, resulting in increased financial responsibilities for the appropriate service provider.

The national seashore would continue to pay for services and contribute payments in lieu of taxes at current or prevailing rates.

Many sand roads would not be routinely maintained.

Please refer to the section titled "Municipal Costs and Services" (page 218) for additional discussion regarding cooperation between the National Park Service and local communities and agencies.

Conclusion

Continuing cooperative efforts between the National Park Service and local communities in providing services should help to enhance a feel-

ing of trust among the parties involved, ensure that required services continue to be provided, and provide for more equitable compensation.

RESERVATIONS OF USE AND OCCUPANCY

Analysis

Alternative 1 would allow continued residential use beyond the expiration of the reserved term of use and occupancy in cases of substantial medical or financial hardship. This would give people with limited options the prospect of continuing to have a familiar home, which would be a substantial personal benefit. Fair market rental value would increase housing costs because reserved use for a period of years was essentially a prepaid rent, which reduced the purchase price by 1% of market value for each year of reserved occupancy.

Other former owners or subsequent holders of remaining reserved rights (by inheritance or purchase) would be required to vacate the residential premises upon expiration of the use period. Because this was a contractual agreement by both parties, no unforeseen impacts on those individuals are expected. This would be equitable to those who had already vacated similar properties in accordance with their agreements (about one-third of all reservation holders).

Removing the majority of use-and-occupancy properties, except for the historic Province Lands dune shacks, would carry out the intent of the legislation to maintain levels of residential development present when the legislation was filed. Many of the homes have a more modern appearance than the earlier typical Cape Cod cottages. Demolition or other means of disposition would reduce private residential use and its associated impacts by over 10% within the national seashore.

Because about two-thirds of the approximately 65 residential reservations would expire over the next five years, this could result in numerous vacant properties awaiting disposition as surplus

or salvage, or demolition. Additional funding would be needed to fund disposition, primarily over the next 10 years. Some of the properties could be reused outside national seashore boundaries. Also, the national seashore could benefit by vacating government houses in sensitive resource areas or in marginal condition as a trade for federally owned houses located in less sensitive areas.

The reduction of residential use within the national seashore is not expected to adversely affect the supply of year-round affordable housing because the majority of use is seasonal.

Conclusion

Allowing continued residential use beyond the expiration of the reserved terms of use and occupancy in cases of substantial medical or financial hardship would have a positive effect on disadvantaged individuals. The eventual removal of these properties would substantially reduce the effects of residential development on national seashore resources and values. The likelihood of more vacant buildings would increase due to additional demands on seashore operational funding. Discontinuing residential use in these buildings would not significantly impact the regional supply of affordable housing.

CUMULATIVE IMPACTS

Cumulative impacts are those impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of the entity or individual undertaking such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

NATURAL RESOURCES

There are approximately 4,500 acres² of estuarine wetlands within the national seashore, 35,000 acres on Cape Cod and 50,000 acres in New England. The restoration of Hatches Harbor (up to 90 acres) would have a minor but positive cumulative effect on projects to restore and maintain wetlands in the region. Redevelopment proposals for the Provincetown airport include alternatives with 0 to 4.35 acres of wetland fill before mitigation. This would be a minor adverse cumulative impact.

Capewide, both private and public local development has had an impact on water resources primarily due to outflow from antiquated septic systems. The state has promulgated new title V regulations concerning standards for septic systems. Under these state regulations, a private property owner must comply with the new standards for septic systems prior to the sale of the property. Under alternative 1 the national seashore intends to upgrade all septic systems throughout the seashore in order to be in compliance with the state law. As the national seashore, as well as local property owners, upgrade their septic systems, pollution originating from this particular source should decrease considerably. The Cape Cod Commission is taking steps to address issues relative to groundwater quantity and quality. Although their primary concern is the drinking water supply, the commission is also considering other environmental quality issues. The proposed development of a water resources management plan in collaboration with the Cape Cod Commission would improve prospects for water resource protection regionally.

2. This number was obtained from a GIS analysis of a 1991 vegetation map, which showed approximately 1,560 acres of saltmarsh cordgrass within the national seashore. A study of the Nauset Marsh ecosystem (Roman et al. 1989) revealed that saltmarsh cordgrass makes up 35% of that system. Assuming that the percentage of cordgrass is consistent in other estuarine wetlands within the seashore, then the seashore has an estimated 4,457 acres of estuarine wetland.

Water quality at the beaches and in the harbors and estuaries of Cape Cod Bay is already of concern due to adjacent onshore development and septic system discharge. Additionally, a proposed outfall pipe extending to within 15 to 20 miles of Cape Cod from Boston's secondary wastewater treatment plant in Boston Harbor will contribute significant additional pollutants and nutrients. There is concern for increased adverse impacts on water quality and shellfish beds. Measures proposed by the National Park Service would have a small beneficial cumulative impact on regional water quality in comparison.

The towns of Provincetown and Wellfleet have begun to consider septic treatment facilities for their town centers. The proximity of these centers to Cape Cod Bay and resources of the national seashore is an important water quality issue. Cumulative adverse effects on water quality and associated biota could result from the implementation of municipal septic systems at these towns. Potential impacts would likely be greatest in areas of known existing water quality problems and sensitive resources.

Protected heathlands are rare in North America and uncommon globally. Under this alternative it is probable that heathland communities would gradually be diminished and possibly lost. The impacts of this loss would be significant nationally because most heathlands in the United States are not managed or protected. In fact, they are rapidly disappearing through a combination of natural processes and the impact of recreation and development (Carlson et al. 1992). On a global scale the loss of heathland communities would be less significant because large coastal heathlands occur in Britain and northern Europe, where they are maintained and protected.

Management programs for the piping plover in the national seashore have had a significant impact on the regional population of plovers. The goal of the recovery plan is to have 2,000 breeding pairs throughout the plovers's range, including 625 in the northeast region — Maine, Massachusetts, Rhode Island, and Connecticut (USFWS 1995). In 1989 there were 206

breeding pairs of plovers in the northeast region (33% of the goal), and the regional plover population was 449 (72% of the goal). In the national seashore the number of breeding pairs increased from 23 in 1989 to 83 in 1995 (Melvin et al. 1991; NPS 1994c; pers. comm., NPS, M. Reynolds, 1995). The national seashore contributed 4% toward this regional goal in 1989, increasing to 13% in 1995.

CULTURAL RESOURCES

The lack of complete inventories of ethnographic resources, cultural landscapes, historic structures, and archeological resources could result in the loss of potentially significant resources. Although efforts to identify and protect historic resources across the Cape have been undertaken by the Cape Cod Commission and local historical commissions and societies, many cultural resources are geographically dispersed and are privately owned, making their complete protection much more difficult. In the long term, the historic character and cultural resources of the Outer Cape could be greatly diminished.

PUBLIC USE AND EXPERIENCE

Supporting the goals of the Cape Cod Commission's *Long Range Transportation Plan*, and developing public transportation proposals in collaboration with local communities on the Outer Cape, would help reduce traffic congestion and air pollution on the Cape and enhance the enjoyment for visitors.

Throughout the Cape (including Orleans and Sandy Neck) there are approximately 20 miles of beach open to ORVs. During peak plover season, this may drop to less than 2 miles (during relatively high plover closure years). Consequently, up to a 90% reduction in beach area available on the Cape for recreational driving can occur during piping plover nesting season.

NONFEDERAL LANDS

Since the passage of the Cape Cod Commission Act, numerous planning advancements have been made on the Cape in all areas. The 1991 *Regional Policy Plan* and required local comprehensive development plans have focused people Capewide on natural, cultural, recreational, economic, and other important issues. Implementing alternative 1 and recommendations of the Capewide and local plans would have an increasingly positive cumulative effect on the human environment of the Outer Cape through collaborative planning, partnerships, and increased public participation and awareness.

The regulation of land use on private lands both inside and outside the national seashore would continue to be a local function. Although current local zoning bylaws are consistent with the Cape Cod National Seashore zoning standards, they continue to allow for developments that may not be sensitive to local conditions and character. National seashore managers continue to work closely with improved property owners, local building inspectors, and zoning boards to address these development and resource protection issues. The seashore also continues to participate in local and regional planning efforts that affect land protection both inside and outside the boundary. Local land trusts have also played a significant role in land protection on the Outer Cape and would increasingly do so. The national seashore continues to rely on the voluntary cooperation of local residents and municipalities, and on the activities of local land trusts and the Cape Cod Commission.

The Cape Cod Commission has the authority to designate and regulate developments of regional impact and districts of critical planning concern. A number of developments of regional impact have been identified in and around the seashore, including two transfer stations, the airport, and two subdivisions. The current activities of the seashore and its partners in combination with those of the Cape Cod Commission would improve the prospects for land protection over the long term.

ALTERNATIVE 2 — PROPOSED ACTION

IMPACTS ON NATURAL RESOURCES

AIR RESOURCES

Analysis

Alternative 2 includes several provisions for improving air quality at the national seashore and vicinity, and long-term beneficial impacts are anticipated. Expanding research and monitoring efforts would provide additional data for making informed management decisions regarding air resources. As information relating to the effects of air pollution on park resources became available, recommendations for reducing pollution and managing air quality could be tailored to achieve the greatest benefit.

Increasing NPS participation in air quality partnerships, reclassifying the seashore as a class I airshed, and taking a more active role in reviewing permits in the New England region for the discharge of pollutants would improve the ability of the National Park Service and its partners to reduce threats to seashore resources and human health from air pollution. This provision would increase NPS involvement with regional air quality planning and pollution prevention. The development and coordination of regional strategies and participation in regulatory processes to address air quality issues would likely have beneficial impacts on air quality at the seashore and vicinity over the long term. The management of existing emissions sources and planning for future development would both be improved.

Additional visitation and related automobile traffic could cause slight increases in automobile emissions on or near seashore roads. The national seashore and vicinity would continue to occasionally exceed standards for ozone.

Temporary additional air quality impacts would result from prescribed burning; however, burn-

ing would be accomplished on days when wind direction and climatic conditions would result in the least effects on public health and safety.

If a shuttle transportation system was developed, there could be a net reduction in traffic and associated air pollution. In addition, using alternative forms of energy for both vehicles and facilities within the national seashore would reduce pollution, be cost-effective, and show the value of sustainable practices.

Conclusion

Implementing the proposed action would result in some long-term, beneficial impacts to air quality on the Cape through improved monitoring and research, facility and vehicle conversions, regional partnerships, and reductions in vehicle miles traveled. The magnitude of these beneficial impacts is uncertain. Seashore managers would work cooperatively to enhance air quality and visibility at the seashore, to improve the visitor experience, and to reduce the impacts of air pollution on natural and cultural resources.

COASTAL PROCESSES

Analysis

As described under alternative 1, most beaches at the national seashore would continue to erode at the rate of 2 to 3 feet per year. North of High Head, beaches would continue to accrete. Sediment budgets would generally be maintained in a balanced state; eroding areas would continue to provide sediment to accreting areas. However, allowing coastal processes to take place unimpeded under alternative 2 would result in facilities in progressive erosion areas not being maintained after damage due to coastal processes. The establishment of criteria for responding to issues related to ongoing natural shoreline processes would have beneficial effects by

allowing national seashore staff to consistently address issues as they arose. This would provide the greatest potential for minimizing human interference with natural processes.

The development of consistent criteria to evaluate the relocation of facilities would ensure a comprehensive approach. The criteria would favor relocating or redesigning facilities rather than maintaining them in place. The positive effect of removing or redesigning public use facilities would be that impediments to natural processes would be removed, and natural processes such as dune migration and longshore sediment transport would be unimpeded. In addition, maintenance costs for such facilities would be reduced or eliminated. When facilities were removed, alternatives would be examined, including the use of inland staging areas. New facilities would only be developed in less sensitive inland areas, and an environmental assessment would be completed before new construction was started.

Removing impediments to shoreline processes could result in heavier erosion in these areas in the short term before the area had a chance to stabilize. However, the long-term benefits associated with reestablishing the natural coastal regime would more than offset the short-term adverse effects. A comprehensive long-term monitoring program for shoreline processes would allow managers to make more informed decisions.

Adjacent private development and land use, such as construction, vegetation changes, and the erection of revetments and seawalls, could result in unnatural, detrimental coastal erosion within the national seashore boundary. However, attempts to influence design and manage revetment and beach nourishment projects and their mitigations could help reduce these impacts. It is anticipated that a consulting, collaborative approach could be highly successful in enhancing community understanding and commitment to resource preservation goals and could also achieve a greater level of cooperation than would more restrictive measures.

Interpreting sensitive resource issues, such as natural coastal processes, and educating the public about the value of letting these processes take place unimpeded, would lead to a better understanding of the national seashore's management philosophy and actions.

Actions under this alternative would promote beneficial environmental impacts on a variety of species that use coastal shoreline areas by allowing natural events such as inlet migration, overwashes, and other coastal changes to benefit physical or biological processes.

Conclusion

If NPS efforts were successful on all coastal land areas in and around the national seashore boundary, this alternative would have a potential beneficial impact to coastal systems in and adjacent to seashore lands by lessening the use of coastal structures, nourishment or dredging programs, and other coastal development impacts that halt or control coastal processes. It is difficult to predict just how much barrier beach would become more natural because this shift would occur only after major storms. Intervention would be minimal and would be carried out only to neutralize human-caused disturbances.

SOILS

Analysis

Temporary soil disturbance would occur in association with proposed construction activity, including sign installation, burial of utility lines, Salt Pond visitor center expansion and improvements, septic system upgrades, and development of trails, parking areas, and a group picnic area. Short-term impacts include increased potential for erosion from exposed soils and short-term loss of biological productivity. However, disturbance would generally be limited, and prompt revegetation would occur following construction. Erosion control plans would be developed, and erosion control measures would be implemented during construction to minimize

the potential for long-term soil impacts. Consequently, long-term adverse impacts to soils from proposed construction would likely be minimal. When site-specific proposals and design information were available for these and other future developments, additional analysis of potential impacts and mitigation measures would be conducted.

Similar to alternative 1, the development and implementation of management plans for kettle ponds and other revegetation projects would have a positive impact on soils within the national seashore by developing strategies to reduce erosion of soils in these areas. Concentrated human use causes soil compaction and ground cover loss in popular areas at the seashore, which often ultimately results in increased erosion.

Conclusion

Proposed construction associated with alternative 2 would result in some localized short-term impacts on soil resources. However, long-term impacts would be relatively minor with implementation of appropriate mitigations. Minimizing erosion near kettle ponds would have a positive effect on soils. In the future, impacts for development proposals would be further analyzed on a site-specific basis as detailed information was available.

PRIME AND UNIQUE FARMLANDS

Analysis and Conclusion

Because this plan does not present site-specific development proposals, impacts to prime and unique farmlands are not known. However, prime and unique farmlands are relatively limited in extent in the national seashore, and potential impacts are expected to be minimal when and if development occurs. As site-specific proposals were developed, potential impacts on prime and unique farmlands would be evaluated in detail as part of the environmental assessment process.

WATER RESOURCES (INCLUDING WETLANDS AND FLOODPLAINS)

Analysis

As described under alternative 1, comprehensive planning and environmental analysis, and an analysis of the potential impacts of groundwater extraction on lands adjacent to the seashore, would better protect water resources throughout the seashore. The seashore would upgrade wastewater treatment systems in sensitive resource areas to ensure the greatest protection of those resources with the technology available.

The impacts of any new construction activities on water resources would be the same as those described for alternative 1.

Developing a comprehensive database for water resources and conducting issue-specific studies would give seashore managers baseline information to make better decisions about water resources throughout the seashore. Such a database would also be valuable to other landowners and land managers, thus enhancing the cooperative protection of water resources throughout the Outer Cape. Establishing resource-specific water quality criteria and limits of acceptable change (standards and indicators) on a cooperative basis with local towns, the Cape Cod Commission, the Massachusetts Department of Environmental Protection, and the U.S. Geological Survey would provide a mechanism for quantifying this protection effort and helping to determine whether it was successful. This cooperative effort would help ensure potable water supplies to communities.

The impacts on kettle ponds would be the same as those described under alternative 1. However, NPS understanding of pond functions would be improved because of additional studies called for in this alternative. Developing a management plan for ponds would present an approach to reducing erosion and shoreline degradation from recreational use, which would maintain or possibly improve water quality. Expanding the air quality monitoring program would create a better understanding of the impacts of air

pollution on surface waters, such as kettle ponds and vernal pools. This in turn would lead to a more active program to protect these resources from acid deposition.

Interpreting critical water resource issues, such as groundwater contamination and the effects of groundwater extraction on wetlands, would lead to a better understanding of these issues by the public, helping to improve the cooperative protection of water resources.

Determining existing impacts on water quality from aquaculture would improve the seashore staff's ability to recommend actions to protect water quality.

Working with the state and local towns to cooperatively monitor, respond to, and regulate offshore activities and incidents would allow the Park Service to provide more protection for offshore resources than would occur under alternative 1.

Removing the gates from the sluiceways along the Herring River would initially allow natural tidal flow to return to approximately 60 acres. This increased tidal flow would be expected to improve water quality and allow the area to gradually return to a marsh estuarine system. The complete restoration of the Herring River system, a long-term goal, would require removing the existing control structure and allowing natural tidal flow to be restored to about 600 acres total.

Less is known about the Pamet River system than about the Herring River. However, it is known that U.S. 6 acts as a barrier in two ways: (1) by blocking tidal flow upstream from the western side by reducing tidal flow volumes; and (2) by restricting natural freshwater flushing or flow from the east side downstream from the headwaters. Restoring tidal flows and increasing flushing would have several beneficial impacts on the river, including improvement of water quality, restoration of former salt marsh areas beyond the current culverts, and allowing for better flushing and drainage of the marsh. Both actions would also provide more balance to

sediment loads and marsh dynamics that would improve and maintain water quality and habitat diversity in the Pamet River valley.

Studying alternatives for managing Pilgrim Lake would provide data to decide how to restore this system to a more balanced state. These efforts could limit the need for insect control programs at the seashore. This would reduce degradation of water quality from the spraying of pesticides.

Wetlands. Restoring up to 90 acres of salt marsh at Hatches Harbor, restoring salt marsh along the Herring River, and restoring the natural hydrology and hydrography of the Pamet River would have beneficial effects for shorebirds, tidal and mudflat organisms, invertebrates, and other wildlife using these habitats for food and shelter. Coastal water quality would improve in both the Pamet and Herring River systems through increased dissolved oxygen, sediment balances, and restoration of vegetation species consistent with the hydrologic character of the restored areas.

Careful evaluation of all proposals at Provincetown Municipal Airport would minimize the potential for significant impacts to wetlands in the airport vicinity. Salt marsh restoration at Hatches Harbor has been planned in cooperation with Provincetown to avoid potential wetland impacts from future airport improvements and avoid storm damage to the airport.

Restoring the Pamet River would reduce the impact of overwashes at Ballston Beach because overwashes would be released through the restricted culverts more quickly, thus reducing impacts to the upstream freshwater zone and associated vegetation and wildlife communities. In addition, sediment brought into the system from other washes would help the marsh, which is currently below sea level, regain a state of equilibrium between sea level and wetland elevations in the upper Pamet.

Analyzing and establishing monitoring programs that can assess the impacts of private septic treatment systems on seashore wetlands would help resource managers determine the extent of

pollution entering wetlands and allow the development of methods to reverse or minimize this impact. This alternative also calls for developing additional potable water sources and treatment techniques for seashore facilities. Reducing pollution and moving wells from sensitive areas would have positive effects on wetlands throughout the seashore.

More NPS involvement in insect control programs at the seashore would reduce impacts on wetlands from ditching and draining activities.

Beneficial effects on water and related natural resources are expected from converting Hatches Harbor and Herring River to the marine/intertidal management subzone.

Floodplains. The restoration of the Herring River salt marsh could increase flooding of a golf course and two private residences in the area. An environmental assessment would be prepared in the future to address in detail the potential effects of marsh restoration at the Herring River.

As described under alternative 1, there are potential impacts to floodplains from other proposed actions. Some facilities described could be partially sited in areas that are within the 100-year floodplain. This determination would be made when site planning and design were accomplished, and impacts to floodplains would be analyzed in more detail at that time.

Conclusion

As described for alternative 1, water resource protection would be enhanced through comprehensive planning and environmental analysis. An expanded database and additional studies under this alternative would allow managers to make informed, resource-based decisions. Increasing cooperation and coordination for all water resource management activities on the Outer Cape would better protect water resources both inside and outside the national seashore.

Increased wetland restoration efforts would initially restore at least 150 acres of degraded fresh and brackish marsh to a more productive estuarine wetland; up to approximately 690 acres would be restored in the long term. These areas, though relatively small in acreage, would become some of the most important and productive ecological systems in the seashore. Collectively, they would provide a substantial positive impact to vegetation, wildlife, and fishery resources in the park and region. Proposals for future development potentially affecting wetlands in the seashore would be evaluated to minimize impacts.

Future development proposals would require an analysis of floodplain impacts.

VEGETATION

Analysis

Natural Resource Management Actions. Developing a comprehensive inventory and monitoring program for vegetation within the national seashore would increase the understanding of plants and plant communities, allowing NPS managers to make better decisions and to explain the need for management actions to other landowners and managers on the Outer Cape.

Native vegetation would usually be managed by allowing natural processes to continue unimpeded. However, under alternative 2 biotic resources would be actively manipulated to achieve desired resource goals. These actions would only be taken in unusual situations, where a significant loss of native biological diversity or serious impacts on rare, threatened, or endangered species or communities could result from inaction.

Developing and implementing actions to improve resource health in management plans for pond shores in the coastal plain would have several long-term, beneficial impacts on vegetation. These effects include reducing erosion and shoreline degradation from recreational use,

helping protect rare plants, and maintaining or improving water quality. These plans would provide a beneficial impact by focusing efforts and strategies on areas where human use is impacting or degrading these resources. It would also provide methods for identifying and managing the most critical components of these habitats that might benefit most from management action (such as ponds, where a higher probability of recreational use would destroy rare plants or increase water quality impacts).

Substantial beneficial impacts are expected on heath communities as efforts are made to retain heathlands in selected areas. Some of the species comprising heathland communities are quite rare in the United States; therefore, this would be a positive contribution to the maintenance of global diversity.

The impacts of restoring or simulating the natural role of fire, in accordance with the approved *Fire Management Plan*, would be similar to those described under alternative 1, except that approximately 265 to 300 total acres could be burned on a rotating basis. Beneficial impacts on vegetation could include the maintenance and enhancement of heathland communities at the seashore.

Determining the biological effects of air pollution on seashore vegetation, and identifying which plants could be used as indicator species, would provide data for future air pollution management programs.

Restoring natural tidal flow to approximately 60 acres along the Herring River would improve habitat for plants now absent or scarce in the area, especially saltmarsh vegetation. Negative short-term ecological impacts would include increased nutrient concentrations and potential algal blooms and oxygen stress. An environmental assessment would analyze these impacts in more detail.

Less is known about the Pamet River system than about the Herring River. However, as with the Herring River, restoring this system would improve habitat for saltmarsh vegetation.

If dune grass plantings were reduced in some areas, vegetative cover and productivity could be adversely affected as erosion accelerates and existing vegetation is removed. This impact would likely be greatest in the Province Lands dune formations, where vegetation loss could lead to increased dune instability and movement, potentially threatening roads and visitor facilities. Short-term adverse impacts could occur where dune grass planting is the single management option, thus creating a monoculture (single-species) vegetation community comprised primarily of beach grass. Such a community is less stable than a natural community composed of a variety of species (e.g., beach pea, roses, and poverty grass), and would be more vulnerable to loss through disease, erosion, and other natural occurrences.

In general, impacts of continued dune grass planting would be relatively minor if performed for small-scale restoration activities such as the revegetation of social trails in the Herring Cove area and mitigating disturbance in heavily used areas such as beach access points. However, greater impacts would likely occur in areas or with projects over 2 to 3 acres in size. Such actions would undergo policy review, along with appropriate NEPA documentation.

Public Use. Under alternative 2 vistas that do not occur naturally in open areas would be minimized. As vegetation encroached on vistas, viewpoints would be removed and the area allowed to revegetate. New trails and viewing areas would be developed in areas that would not be subject to forest succession in the future. Reduced intervention in natural successional processes would generally result in more pine forest and associated species within the national seashore. Cleared areas along U.S. 6 at Nauset Marsh and the Pilgrim Heights overlook would be allowed to revegetate. Clearing vegetation for vista management along trails like the white cedar or red maple swamp would be only for safety, operational, and interpretive needs.

The development of small parking areas or pull-offs at viewpoint and picnic access points would result in limited vegetation loss in localized

areas. However, the areas affected would largely consist of disturbed vegetation types, and their loss would be offset by long-term reductions in vegetation disturbance currently resulting from parking in undesignated areas along roadsides.

Operations. The increased use of native species in landscaping around structures would promote water conservation and reduce the risk of groundwater contamination since the need for chemical applications would be reduced.

Developing a comprehensive program to manage nonnative species would allow problems to be addressed before they got out of control. This would include working with landowners to reduce the use of exotic species in landscaping, especially invasive species. Positive effects would include reducing impacts that exotics may be having on native species. Removing large areas of exotic species could negatively affect a few individual native species. Some exotic species are important features in cultural landscapes that the seashore is committed to restoring or preserving. Only exotic species that would not spread to adjacent natural areas would be permitted in cultural landscape preservation efforts.

As described for alternative 1, placing overhead powerlines underground would temporarily disturb vegetation along powerline corridors. This would occur primarily along existing road corridors. Any required revegetation would make use of native species, and no long-term adverse impacts from this disturbance are anticipated. Over the long term vegetation impacts resulting from maintenance operations would be reduced.

Construction. Any new development sites would be selected based on resource values and would minimize impacts to vegetation. An environmental assessment would analyze these impacts in more detail once sites had been selected.

Management Zoning. The effects of shifting lands among management subzones of the natural management zone would primarily be beneficial, despite the reduction of low use subzone acres. For instance, adding approximately 640 more acres to the marine/intertidal

management subzone would be the result of incrementally restoring former, tidally-influenced saltmarsh and estuary habitats, which is not likely to increase public use or cause irreparable harm to native vegetation; some freshwater species would eventually be replaced by saltwater-tolerant species.

A change from the low to dispersed use management subzone in the Camp Wellfleet/Marconi Station area would be due to acknowledging an increase in public use there, which has not had significant detrimental natural resource or traffic impacts; some resource management efforts would be needed to reduce existing social trail development. An increase in the natural concentrated use subzone at High Head would have minor adverse impacts on vegetation if formalized trails were developed or primitive camping was allowed; however, this could offset the adverse effects of present social trails throughout the area if concurrent management efforts were taken.

Changes to the developed management zone would not be expected to have significant adverse impacts on vegetation, primarily because activities and facilities are proposed in existing public use areas.

Conclusion

A greater understanding of vegetation-related issues would allow the national seashore's vegetative communities to be managed more comprehensively. An extensive database would make management decisions more defensible than under alternative 1. Vistas would no longer be managed as a higher priority than surrounding natural resources. Environmentally sound landscaping around NPS facilities would set an example for neighbors and the visiting public in implementing sustainable practices.

FISH AND WILDLIFE

Analysis

Natural Resource Management Actions.

Under this alternative developing a comprehensive inventory and monitoring program for wildlife would allow seashore managers to make better decisions and to explain those decisions to other landowners and managers on the Outer Cape.

The impacts of restoring or simulating the natural role of fire, in accordance with the approved *Fire Management Plan*, would be similar to those described under alternative 1.

Determining the biological effects of air pollution on seashore wildlife, and identifying species that could be used to indicate harmful effects of pollution, would provide data for future air pollution management programs.

Aquaculture Activities. As an upland landowner, national seashore managers would participate in the review of shellfish aquaculture activities to the extent allowed by law, with an increased emphasis on retaining biological diversity of wild shellfish beds and on limiting the loss of genetic integrity by preventing the use of a single species of shellfish from one nursery stock in these wild beds. Also, it would be important to maintain water quality and the integrity of the benthic environment.

Potential adverse effects of shellfish aquaculture include the elimination of natural predators, a reduction in the diversity of the benthic community due to the relative monoculture of the species raised, impacts on predators attracted to finfish, and the introduction of diseases with cultured shellfish, or an increase in disease occurrence due to dense concentrations of shellfish.

In addition, shellfish aquaculture grants could result in long-term impacts to other recreational users unable to use the grant area, including recreational and wild commercial shellfishing interests.

Shellfish aquaculture could have positive impacts on water quality from the need for water and sediments to remain clean for shellfish to survive.

Shellfish aquaculture grants can also increase the numbers of shellfish in estuary areas. Should nonnative stock be grown, however, adverse impacts can result. Natural populations, with current adaptable biological diversity, can be changed to less diverse populations that are more susceptible to disease and predation because of a loss of variable genetic stock.

National seashore managers would strictly limit or prohibit finfish aquaculture projects; commercial finfish aquaculture in waters managed by the national seashore is effectively prevented because of the general congressional restriction on commercial activity in national parks. Finfish aquaculture could cause a net increase in organic and fecal loading in coastal waters, particularly on benthic communities below the floating pens or cages often associated with raising finfish. Organic loading comes from the increased inputs of food and vitamin-oil mixtures, antibiotics and other drug inputs, and the fecal and waste material from the concentrated pens. These pens could also adversely affect adjacent coastal boaters and shoreline users through navigational interference and attracting sightseers. They could also attract predators, such as raptors, that could be caught in the pens or cages and injured. Adverse impacts of finfish escaping from pens into adjacent waters would be minimal with native species or species within their normal habitat range. However, more substantial impacts might occur if escaped species were nonnative or carrying disease.

Restoration Projects. Restoring natural tidal flow to approximately 60 acres along the Herring River would improve fish and wildlife habitat now absent or scarce in the area, especially for estuarine fishes, oysters, and waterfowl. Restoration would also be expected to result in a general decrease in mosquito populations by encouraging fish predation and enhancing tidal circulation. An environmental assessment would analyze these impacts in more detail.

Restoring the Pamet River system would also improve estuarine habitat in this area.

Improving the management of Pilgrim Lake would potentially reduce fish kills and midge outbreaks. During a previous midge outbreak, local business owners pressured the seashore to spray pesticides on the lake to control the midges because of the impact on their guests. Restored tidal flow would increase lake salinity and reduce habitat for small, salt-sensitive midges; for example, unaltered Cape Cod estuaries do not experience large-scale outbreaks of nuisance insects. Potential negative impacts include the disappearance of certain freshwater species. An environmental assessment would analyze these impacts in more detail.

Hunting, Stocking, and Fishing Programs.

The National Park Service would work with the Massachusetts Division of Fish and Wildlife to evaluate wildlife management activities at the seashore, especially those involving stocking and reintroductions of both native and nonnative species. The NPS goal of restoring natural, self-sustaining ecosystems could lead to limiting or eliminating the use of exotic species. As described under alternative 1, studies would be undertaken to determine the impacts of exotics, especially pheasants, on native species.

The impacts of other hunting and fishing programs on animals and their habitat would be similar to those described in alternative 1. In addition, an increased effort would be made to monitor and manage hunted species.

Pest Species Management. Communicating to the public the objectives of an environmentally sensitive pest management program, and emphasizing the value of native insects in a healthy functioning ecosystem, could lead to greater public cooperation in limiting chemical treatments of native insects that are considered nuisance species. Reducing chemical control measures would increase the presence of native species such as mosquitoes as a food source for fish and animals and would limit the concentrations of pesticides in animal populations,

especially those at higher levels in the food chain.

Construction. Any new development sites would be selected based on resource values and would minimize impacts to animals. An environmental assessment would analyze these impacts in more detail once sites had been selected.

Management Zoning. The effects of shifting lands among management subzones of the natural management zone would primarily be beneficial, despite the reduction of low use subzone acres. For instance, adding approximately 640 more acres to the marine/intertidal management subzone would be the result of incrementally restoring former, tidally-influenced saltmarsh and estuary habitats, which is not likely to increase public use or cause irreparable harm to native wildlife.

A change from the low to dispersed use management subzone in the Camp Wellfleet/Marconi Station area would be due to acknowledging an increase in public use there, which has not had significant detrimental natural resource or traffic impacts.

Changes to the developed management zone would not be expected to have significant adverse impacts on wildlife, primarily because activities and facilities are proposed in existing public use areas.

Conclusion

Fish and wildlife within the national seashore would be managed on a more sustainable basis, supported by a scientific database. National seashore managers would take a very active role in ascertaining how best to manage habitat, and they would make specific changes in management techniques. This would have substantial beneficial impacts for fish and wildlife. In general, seashore managers would be more assertive about protecting sensitive resources with partners (such as towns or private individuals) who were proposing new or different activities.

THREATENED OR ENDANGERED SPECIES / COMMUNITIES

Analysis

The active manipulation of biotic resources would only be permitted if serious impacts on rare, threatened, or endangered species or communities could result from inaction. An example of such an action would be intervention to protect heathland communities, which support a wide range of plants and animals, including many endemic species such as broom crowberry (*Corema conradii*), that are becoming increasingly endangered. Potential negative impacts include less pine forest and associated species than might have been expected without intervention.

Programs under this alternative to protect federally listed threatened or endangered species would be similar to those described under alternative 1. However, placing more emphasis on protecting state-listed species, in cooperation with the Massachusetts Natural Heritage Program, would better protect native biological diversity.

Dune grass planting could adversely impact plover habitat if conducted in washovers or blowouts, particularly in barrier dune systems where such natural events might improve plover habitat. Potential effects of dune grass plantings on the piping plover would be an important factor in assessing the dune grass planting program under alternative 2.

Conclusion

Management programs would better protect native biological diversity. More visible, aggressive action would be taken to protect rare, threatened, or endangered species, but on a very selective basis. Where applied, these actions would have positive impacts on habitat and populations of special-concern species.

IMPACTS ON CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

Analysis

This alternative specifically calls for consultation with Outer Cape cultural groups regarding the treatment of cultural landscapes and with the Wampanoag Tribe of Gay Head (Aquinnah), the Mashpee Wampanoag Tribal Council, and the Assonet Band regarding archeological excavations. It also calls for a more inclusive approach to interpreting the history and contributions of a number of cultural groups, including those that have historical and contemporary associations and that have contributed to the Cape's unique character.

The proposed management approach calls for a more collaborative relationship among the seashore, local towns and organizations, and private residents in studying cultural heritage, as well as problem solving and resource management. This would enhance opportunities for particular groups, like those identified in the rapid ethnographic assessment, to participate in resource management and decisions concerning cultural patterns of use. Emerging opportunities for public/private partnerships and the cultivation of a cadre of skilled and interested volunteers would offer new avenues for the public to participate in protecting and interpreting the region's cultural and natural heritage.

Conclusion

National seashore managers' understanding of and sensitivity toward ethnographic resources would continue to grow. Long-term cultural patterns of use, such as hunting, fishing, shellfishing, and harvesting of vegetation, would continue within limits established by the state, local towns, and the seashore. Greater emphasis would be placed on a more inclusive approach to interpretation, resource management, and problem solving, which could further enhance

the recognition of local cultural heritage and the protection of ethnographic resources.

CULTURAL LANDSCAPES

Analysis

Identifying, inventorying, and preserving significant cultural landscapes within the national seashore and on the Lower Cape would have the same benefits as described for historic architecture. The national seashore would have the capability to better protect historically significant cultural landscapes within the boundary through cooperative partnerships, reestablishing historic land uses, and preservation and leasing agreements.

The preservation of the Province Lands dune shack district would have a substantial beneficial impact on cultural landscapes. By encouraging continued use of the shacks, one of the seashore's most significant cultural landscapes would be maintained. In addition to maintaining building integrity, traditional use as an artist and writer's retreat would be perpetuated.

Cooperation would occur with public and private landowners and managers to protect cultural landscapes and to prevent adverse effects from adjacent private development and land use, such as construction, vegetation changes, and the erection of revetments and seawalls.

The management of nonnative vegetation might adversely affect some cultural landscapes because exotic plants may be important features in the landscapes to be preserved. Only exotic species that would not spread to adjacent natural areas would be used in preservation efforts for cultural landscapes.

Conclusion

The emphasis for cultural landscape management under alternative 2 would be broader and more comprehensive than under alternative 1. Important cultural landscapes within the national

seashore and on the Outer Cape would be identified, preserved, and interpreted, contributing to the perpetuation of Cape Cod's unique historical character and the public's appreciation of these resources.

HISTORIC ARCHITECTURE

Analysis

Alternative 2 includes a variety of measures that would have beneficial impacts on historic structures on the Outer Cape. Deficiencies in the national seashore's historic building management program would be rectified by not only identifying and protecting federally owned buildings, but also preserving historically significant buildings on improved properties. Working with local communities to develop and adopt preservation strategies, including preservation standards, guidelines, and easements, would have long-term, positive impacts on historically significant buildings and structures within the seashore by protecting historic structures from inappropriate alteration and other potential threats to their integrity.

Implementing a system of priorities and use/treatment categories for federally owned buildings would have beneficial impacts on both cultural resources and seashore operations and management. This system would provide resource managers with a framework for determining appropriate treatments and uses for buildings. More consistent treatment and use of these buildings could improve the overall historical character of the national seashore. Also, the addition of climate control and security devices would improve preservation prospects over the long term.

This alternative would foster the preservation of historic structures on the Outer Cape by helping identify and inventory historic structures on improved properties, encouraging local towns to more carefully regulate changes to historic structures, and recognizing historic preservation efforts. Together, these actions would help perpetuate the Outer Cape's character. However,

some historic structures could be lost as the Cape Cod shoreline migrated.

To implement several of the goals of the proposed historic architecture program, additional expertise in historic architecture is needed. This professional expertise could be found at the local level of town government, local historical commissions, regional planning commission, or within the National Park Service.

Any new development sites would be selected based on resource values; new construction in areas containing historic properties would be sensitive to these values and character-defining features.

Conclusion

The protection and preservation of both privately and publicly owned historic structures within the national seashore and on the Outer Cape would be enhanced under alternative 2. A more active approach would be taken to remedy deficiencies, contributing to the perpetuation of Cape Cod's unique historical character. The primary adverse impact would be the continued potential for resource loss from shoreline migration.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

Analysis

Identifying and protecting publicly and privately owned archeological sites, surveying and monitoring archeological sites, and contracting an archeologist for assistance would all help preserve significant archeological sites within the national seashore and on the Outer Cape. Protection techniques would include an educational program, cooperative agreements, and preservation agreements and easements. Adding easement acquisition for selected properties with potential archeological resources to the *Land Protection Plan* could result in the acquisition of properties with significant archeological re-

sources. Reaching formal agreement with the state to protect submerged archeological resources both inside and outside the national seashore boundary (through an underwater archeological preserve or a memorandum of agreement) would help ensure the uniform protection of submerged archeological resources from vandalism and undocumented salvage.

Collaborative programs, technical assistance, and interpretation and educational programs would all help protect and preserve the Outer Cape's archeological resources. The positive impact would be to improve the appreciation of the resources by visitors and neighbors. These efforts would serve to educate the public about the significance and value of archeological resources and encourage public assistance in preservation efforts. Heightened awareness relative to these resources would have the beneficial effect of encouraging advocacy of preservation and protection of these sites.

Some archeological resources could be lost as the shoreline migrated. Before this happened, historic resources would be documented; however, some archeological and submerged resources might be lost before documentation. Where coastline resource loss was anticipated and unavoidable, potentially beneficial impacts could occur through the collection of nonrenewable data before the site was lost.

If unknown resources were uncovered during any construction work or ground-breaking activity, procedures implementing section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act, as appropriate, would be instituted.

Removing nonhistoric NPS housing and administrative facilities from archeological sites would better protect these sensitive resources.

Including Fresh Brook Village in the cultural management zone could have a beneficial effect if protection methods were required due to adverse public use.

Conclusion

Archeological sites and resources within the national seashore and on the Outer Cape would be better protected through resource inventories, education and interpretation, resource documentation, and easement acquisitions. Submerged archeological resources that moved outside the national seashore boundary because of coastal erosion would be better protected by agreement with the state.

MUSEUM COLLECTION

Analysis

As described under alternative 1, the imminent development of a dedicated collection storage facility at the former North Truro air force station would make a considerable contribution to the long-term protection of the seashore's museum collection. Updating the national seashore's "Scope of Collections Statement" and preparing historic furnishings reports for selected structures would help managers make informed decisions about accessions to the collection. Additions and improvements to existing exhibit and collection storage space would reinforce the seashore's efforts to protect collections, augment their interpretation, and make them more accessible to both visitors and researchers.

Conclusion

With the addition of new collections storage and the correction of environmental control problems at existing facilities, a greater proportion of the collection would be protected than under alternative 1. Overall, the condition of the museum collection would be greatly improved under this alternative.

IMPACTS ON PUBLIC USE AND EXPERIENCE

INFORMATION AND ORIENTATION

Analysis and Conclusion

The public would have increased opportunities for getting information at home and at local information centers, as well as at national seashore visitor centers. Coordinating information distribution throughout the Cape and ensuring that up-to-date information was available would reduce confusion among tourists. Improved information signs along U.S. 6 would also reduce confusion and contribute to a better directional system for the public.

ACCESS AND TRANSPORTATION

Analysis

Under alternative 2 the National Park Service would participate more closely with local communities in planning to provide or improve various modes of access and transportation, furnishing greater support to the Cape Cod Commission's *Long Range Transportation Plan* than under alternative 1. In addition, more options would be considered for reducing visitors' dependence on automobiles for circulation within the national seashore, such as increased biking and hiking opportunities. These actions would reduce traffic congestion, air pollution, and driver frustration on the Outer Cape more effectively than under alternative 1. Safety improvements and traffic management techniques proposed for U.S. 6 in the *Long Range Transportation Plan* would enhance safety for vehicles and bicyclists. Traffic congestion associated with employees commuting to and from more concentrated residential areas would increase slightly, but impacts would be dispersed and are not anticipated to be significant.

The beneficial impacts on traffic congestion identified above assume the implementation of the majority of the initiatives contained in the *Long Range Transportation Plan*. If significant

portions of the plan were not implemented, substantial increases in traffic congestion, safety problems, and air and noise pollution are anticipated.

With the added emphasis on shuttles, and increased use of mass transportation to and from major seashore visitation sites, more traffic would be concentrated in the vicinity of proposed parking areas for these shuttles. However, vehicular congestion would be greatly reduced at the destination points such as beaches, resulting in reduced air and noise pollution. Pedestrian safety would be enhanced in these areas due to this reduction in vehicular circulation and congestion. The parking areas (either existing or new) would have to be carefully sited so as not to exacerbate already congested community streets during peak visitation periods.

Specifically, if parking and staging could be provided at larger school parking lots during the summer, with shuttle service to both towns and beaches, vehicular congestion would be reduced on local streets, roads, and beaches. Beach shuttle operations might inconvenience visitors but would eliminate additional impacts in sensitive resource areas that would otherwise result from constructing more parking lots.

Extending the Cape Cod Rail Trail from South Wellfleet to Provincetown would decrease bicycle traffic on U.S. 6 and MA 6A, improving bicycle safety on both routes. However, encouraging more bicycle access to the seashore could present a safety problem for those riding on the Cape's major roadways. Design features would need to ensure the safety of bicyclists. Providing safe bicycle access in more locations would enhance recreational experiences for bicyclists.

Implementing alternative 2 would have beneficial impacts for pedestrians within the national seashore. Linkages to regional trail networks envisioned by the Cape Cod Pathways Project would provide pedestrians with additional walking opportunities.

As described under alternative 1, access to existing public use sites within the national seashore

would continue to be available, and resource-related impacts relating to additional parking or new trail alignments associated with reducing traffic congestion or providing staging areas for new shuttle systems would occur. Limited development associated with proposals to draw people from their vehicles to trails and picnic areas at appropriate locations along popular vehicular routes would increase resource-based impacts. Site-specific impacts would be analyzed during the design stages of the projects.

A new public educational facility at the site of Nauset Knoll would potentially increase noise, traffic (particularly buses), and parking impacts. The development of small pulloff parking areas at access points along scenic routes or near picnic areas could reduce potential safety hazards in some areas by concentrating parking in specific areas rather than along extensive road shoulders. In other areas, the construction and use of pulloff parking areas where none have existed could increase safety hazards, particularly during peak use periods.

The NPS position regarding airport improvements would be to provide the most environmental protection possible and not to discontinue airport operations. The National Park Service would seek to ensure that operations and activities at the airport would minimize adverse impacts on park resources and values. It would also consider the viability of the airport, as well as community concerns since some business and pleasure travelers going to and from the surrounding communities rely on airport services. The provision of ferry service to bayside locations might slightly reduce vehicular travel on the Outer Cape.

Conclusion

Alternative 2 would more effectively reduce traffic congestion, air pollution, and driver frustration than would alternative 1 due to additional traffic management techniques and alternative transportation options. A proposed increase in public use opportunities to draw people from their vehicles would result in

relatively minor resource impacts. Efforts to minimize negative environmental impacts of improvements at the Provincetown airport would protect national seashore resources and public experience while not significantly affecting air service to the Cape.

INTERPRETIVE AND EDUCATIONAL OPPORTUNITIES

Analysis

Visitors and residents would benefit from a variety of interpretive facilities and programs that would be extended into previously uninterpreted sections of the national seashore. Expanding the environmental education program would serve additional students and offer the potential to include ecotourism and other adult and family groups. Visitors would have more interpretive opportunities because the interpretive staff would be increased and a volunteer coordinator would be hired to develop and oversee agreements for interpretation with volunteers, universities, and friends groups.

Broader partnerships would give visitors easier and more convenient opportunities to understand and appreciate the aspects of the Cape Cod character that transcend NPS boundaries. Visitors would also benefit from improved interpretive services at the redesigned Salt Pond visitor center, information about the Monomoy National Wildlife Refuge, and consultation with and assistance to the National Oceanic and Atmospheric Administration to improve and expand interpretation of Stellwagen Bank National Marine Sanctuary.

A more comprehensive interpretive program would focus on critical natural and cultural resource issues. As a result, visitors would better understand the issues facing the Cape and the national seashore. This could be an important step toward resolving these issues.

Restoring the interiors of selected federally owned historic buildings would provide a better means to educate the public about the historical

character of Cape Cod. Volunteers would help interpret historic structures, and visitors would benefit from dependable access and increased interpretation of historic structures.

Visitors and local residents would also gain a greater understanding and awareness of the Outer Cape's historic structures, cultural landscapes, and archeological resources. Archeological interpretation, mostly without reference to site locations, would also help protect sites from vandalism.

Redesigning the amphitheaters at the Salt Pond and Province Lands visitor centers would have a beneficial impact by providing increased educational opportunities for more people. Modest increases in visitor and traffic congestion in and near the visitor centers could also occur during periods when programs were being offered, with possible adverse effects on the visitor experience. However, programs often are offered at night, and no additional impacts on visitor or traffic congestion are anticipated during these times.

Relocating the Coast Guard Beach educational program would maintain and potentially expand educational opportunities for schoolchildren. Use of the Nauset Knoll site would have beneficial effects of providing outdoor educational experiences adjacent to the site. Offsite transport of students would not be required to access outdoor classroom experiences, as would be the case if the former North Truro air force station were used for environmental educational programs.

Conclusion

Interpretive and educational opportunities would be substantially enhanced for the public. Programs would foster an understanding and appreciation of the aspects of the Cape Cod character that transcend NPS boundaries.

PUBLIC USES

Analysis

Use Conflicts. National seashore managers would seek to further clarify use expectations regarding public uses at the national seashore, reducing debate about the merits of public activities. The staff would be able to determine the appropriateness of recreational activities and levels of use not envisioned by Congress when the seashore was established.

The impacts of hunting on other public uses would be the same as described for alternative 1. In addition, wildlife management activities at the seashore could affect hunters or fishermen by reducing or eliminating hunting or fishing opportunities for nonnative species that are currently stocked. However, stocking of substitute native species could be increased.

The impacts of piping plover management activities on ORV users would be the same as described for alternative 1.

Visitors to the national seashore would have more choices, and uses would be more dispersed, which would reduce crowding at popular sites. Because the public could choose among recreational attractions with various skill and time requirements, conflicts among dissimilar users could be reduced.

Recreational Activities. As described under alternative 1, hunting, fishing, and shellfishing would continue within seashore boundaries. These activities would continue to be regulated by federal, state, and local authorities, as appropriate. Access for fishing would continue at existing beach access points and along approved ORV corridors. Within certain limits established by the park, harvesting of vegetation such as mushrooms, beech plums, and rosehips would continue to be allowed. The collection of flotsam and jetsam would also continue to be permitted. These resource-based activities are representative of the long-term cultural patterns of use. These activities would generally continue at current levels.

Planning for and providing public recreational facilities and services in a regional context with other public and private providers would give visitors a more diverse experience, help disperse use, and avoid the duplication of services. Visitors would be given clear, informed choices about an expanded menu of activities according to their interests.

The limited resources of local towns and the national seashore would be maximized by jointly planning, developing, and providing visitor information and orientation.

Under alternative 2 a comprehensive trail plan would provide for various kinds of trail use, as compared to alternative 1, which would emphasize access for bicyclists.

Visitors would benefit from information regarding the location of viewing areas and trails that provide access to naturally occurring vistas. The vista management plan would have long-term beneficial impacts by placing criteria and priorities on the maintenance of scenic views. Road and trail access to coastal bluffs, cliffs, and dunes for views would continue to be provided. Some vista points that have been obscured by natural revegetation would be closed.

Better information about beach access and availability on a daily basis would help to more effectively disperse beach users and reduce visitor frustration levels.

Providing new camping opportunities would be a benefit to a public not now served. High Head, Great Island, and the Marconi station area would be the isolated locations considered for this use.

Adjacent private development and land use, such as construction, vegetation changes, and the erection of revetments and seawalls, could adversely affect viewsheds.

Developing small pull-off parking areas at access points to kettle ponds and other scenic points would have the potential for both beneficial and adverse impacts on visitor use and recreation. Visitor management could be improved at some

pond locations by better defining limited available parking areas. Visitor experience could also be improved since access would be limited to fewer people at some pond sites. However, these proposals would also limit the number of visitors who could experience some ponds, thereby negatively affecting the experience for visitors unable to find parking at these sites. Preparing individual pond resource management plans would provide the opportunity for cooperative planning to manage visitors and at the same time protect these sensitive resources on a case-by-case basis.

Impacts of personal watercraft use on natural resources include the disruption of natural quiet, water quality concerns, and potential adverse impacts on shorebird habitat, including rare, threatened, or endangered species, such as the piping plover.

Limiting insect control programs at the seashore could increase the presence of mosquitoes and other species that could become a nuisance to visitors.

Changes to the developed management zone are expected to be beneficial to the public because they would largely improve existing activity and facility use areas, enhancing the public experience.

Facilities. Minor intervention to manage coastal processes that affect visitor use facilities might postpone eventual damage to or loss of these structures. When facilities were lost to coastal processes, replacement facilities would be located away from coastal high hazard areas.

Impacts from moving or redesigning facilities would vary from minor to moderate. Redesigning facilities could adversely affect visitors because some current visitor uses in that area might be eliminated, and the overall capacity of the facility could be reduced. If facilities were removed, visitors would be adversely affected by the loss of popular activities.

Providing facilities in harmony with the character of Cape Cod would help perpetuate the

traditional aesthetic qualities of the Outer Cape. Vending machines are considered by some people to intrude on the aesthetics of the natural scene. Any such installation would be at existing developed beach facility to mitigate such concerns.

Strategies such as providing access to a bayside beach, developing additional group picnic areas (i.e., Pilgrim Heights and/or Marconi area), and establishing both primitive and group campsites would require the construction or alteration of facilities. Precise disturbance areas for these developments are not yet known; however, construction disturbance for picnic areas is likely to total less than 0.5 acre. In general, however, site-specific impacts on areas of proposed development would be evaluated in detail once specific locations and improvements had been determined.

Conclusion

Visitors and residents would have access to a wide range of public uses that would be managed to be mutually compatible. Some uses, such as ORV driving and hunting, would be restricted to specific areas or to specific times to minimize conflicts with other activities. The limited resources of local towns and the national seashore would be maximized by jointly planning and providing visitor information services. Redesigning or removing some visitor facilities could alter or eliminate current uses, thus adversely affecting visitors accustomed to these opportunities; however, the overall experience would be improved.

IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

REGIONAL AND LOCAL ECONOMY

Analysis

As explained under alternative 1, the economic effects of Cape Cod National Seashore on the local economy are related to direct expenditures

for goods and services by visitors and the National Park Service, which in turn generate *indirect sales and tourist-related employment* (see page 215). This alternative would result in minimal to moderate additional changes in the local economy. While use is expected to continually increase, visitation to the national seashore and the seashore's budget are unlikely to change radically over the next 15 to 20 years. This alternative would call for increases in permanent seashore staff, which could have a modest, yet positive, effect on the local economy. Also, under this alternative upgrading facilities to be more environmentally sound and to provide better visitor services (e.g., the Salt Pond visitor center and trail development) would result in short-term jobs and increased sales in construction and related industries.

This alternative could also serve to redistribute visitation from the intensive summer season to shoulder seasons (primarily spring and autumn) as people seek to avoid summer congestion. This could result in a longer tourist season and could help level out employment rates during that extended period of time. Extending public programs into additional seasons would contribute positively to local efforts to strengthen the year-round economy.

Establishing a cooperative interpretive center at Monomoy in Chatham and developing a system of trails linking seashore facilities with local business districts could increase local foot traffic through these areas, potentially increasing local retail sales.

Primitive and group camping activities not now offered to the public could be made available. No adverse impacts on existing commercial campgrounds are anticipated because they do not offer such opportunities. Also, referrals would continue to be made routinely to existing commercial campgrounds.

As an upland owner, the National Park Service would be involved in reviewing shellfish aquaculture proposals, and it would limit the use of NPS lands for finfish aquaculture or other similar commercial activities. This could affect

the growth of the finfish aquaculture industry on the Outer Cape.

Economic impacts related to the Provincetown airport, as described for alternative 1, are expected to continue. When deciding about proposed airport improvements, the National Park Service would seek to ensure the protection of national seashore resources and values, as well as the continued viability of the airport.

Conclusion

Implementing alternative 2 would have minimal additional effects on the regional and local economy. Existing effects, as described under alternative 1, would continue. Increased NPS staffing would have a modest, positive effect on the local economy. Upgrading public facilities and improving services would have short-term effects on construction-related jobs and sales. Supporting public activities and programs in shoulder seasons would strengthen the region's year-round economy. No adverse effects on the economic viability of the Provincetown airport are expected.

PRIVATE PROPERTY OWNERS AND LOCAL RESIDENTS

Analysis

National seashore managers would explore alternatives that could prevent the construction of revetments, groins, and jetties, as well as beach nourishment activities, on all lands within the seashore boundaries, including private property. The costs of such coastal engineering interventions are significant and are only a temporary measure, and structures would eventually be lost due to encroaching coastal erosion. Alternatives to intervention in coastal processes could include technical assistance to private property owners within the seashore about temporary mitigations not involving engineered solutions, education on the effects of interrupting natural processes with major actions, and concurrence on the relocation of threatened structures to safer

private land. Also, sharing information with municipalities and specialists across boundary lines would also benefit local residents.

National seashore managers would undertake an assertive approach to preserving private properties having historic value, such as the possible acquisition on a willing-seller basis of several structures on or eligible for the National Register of Historic Places. It is anticipated that only selected properties would really be of special interest. Preserving such properties would help protect the ambience of residential areas within the national seashore, thus preserving the character of the Outer Cape for other private property owners.

Owners of private residential properties would be affected by proposed revision of federal and local zoning regulations for properties within the national seashore. While some could find regulations adverse because they could restrict the desired use of their property, others could find them beneficial because they are concerned about the potential for excessive expansion and the loss of the original cottages that comprise the Cape Cod character of the Seashore District (see also the discussion of private residential property discussion in "Impacts on Nonfederal Lands within the National Seashore"). In comparison to alternatives 1 and 3, this alternative would allow the most creativity and most ability to apply state-of-the-art thinking about ways to maintain the local Cape Cod character and the environment.

No adverse economic impacts on shellfishing or fishing are anticipated under the proposed plan because the national seashore boundary (and the rules) would not be changed, although the boundary's position one-quarter mile offshore would change with the coastline.

Finfish aquaculture for commercial purposes would be prohibited, potentially affecting local companies and individuals involved in this industry.

Placing additional interpretive signs along roads and trails to inform the public of private proper-

ties would reinforce the need to respect the privacy of local property owners and help reduce intrusions.

The reuse of the former North Truro air force station as a center for learning opportunities in the arts and sciences would create more opportunities for education and activities involving conservation and cultural preservation, such as the Outer Cape's marine, artistic, and literary heritages. Seasonal residents would benefit similarly.

Similar to alternative 1, NPS involvement in parkwide and regional transportation planning and additional interpretive and educational programs regarding private and public land use issues could benefit private property owners within and outside national seashore boundaries.

The affordable housing supply on the Outer Cape could be somewhat enhanced if houses under reservations of use and occupancy were made available for this purpose either within or outside national seashore boundaries. Private individuals or families could benefit from an increased affordable housing supply.

As described for alternative 1, capital costs to underground private utility lines and public utilities serving private residences would be borne by those served by the lines. While the capital cost of upgrading to either private or utility standards might be higher initially than aboveground lines, the long-term maintenance costs would likely be reduced because the lines would be subject to less storm damage, especially hurricane winds. Upgrading to private standards would be less costly than public utility standards. These costs would be justified to reduce natural resource damage during line installation and maintenance.

The implementation of this alternative would have a beneficial impact on the year-round population. Involvement in the definition and celebration of local cultural heritage would benefit year-round and seasonal residents (also see the discussion of cultural heritage beginning on page 237). More substantive consideration of

local concerns in decision-making would be advantageous.

Conclusion

Under this alternative a greater emphasis would be placed on working proactively with private property owners and local residents to foster resource stewardship and protection and to revise the Cape Cod National Seashore zoning standards and town zoning bylaws. Beneficial impacts of educational programs at the former air force station and other interpretive activities for year-round and seasonal populations could also result. An increased emphasis on cultural heritage and ethnographic resources could also be beneficial to year-round and seasonal residents.

PROPERTY VALUES

Analysis

Acquiring limited areas (both in full fee and less than fee) from willing sellers in order to protect sensitive resources, and restoring acquired properties to natural conditions would not adversely affect local property values.

Developing a trail network linking national seashore facilities with local residential areas and business districts would likely have a positive effect on property values (NPS 1995f).

Restoration work at the Herring River could result in increased flooding of portions of a golf course and at two private residences, as well as possible saltwater intrusion into adjacent water supply wells. Along the Pamet River potential impacts of restoring natural tidal flow include saltwater intrusion of private wells in the floodplain and problems caused by increased groundwater elevations. These effects might adversely affect property values in some areas. An environmental assessment would analyze these impacts in more detail, and mitigations would be proposed.

Also see the discussion of impacts on private residential properties under "Impacts on Non-federal Lands within the National Seashore," page 249.

Conclusion

Under alternative 2 local property values would not be adversely affected. However, restoration work along the Pamet and Herring Rivers could increase flooding of several dwellings and salt-water intrusion into some private wells if not mitigated, which would adversely affect the property values at these sites.

MUNICIPAL COSTS AND SERVICES

Analysis

In addition to impacts identified under alternative 1, many proposed actions under alternative 2 call for increased involvement and activity by communities in planning, resource management, land use regulation, and historic preservation. The level of involvement needed could differ from one community to the next, but in all cases local communities might need to hire additional staff and contribute funds to develop a collaborative management relationship on the Outer Cape.

Under this alternative technical assistance to local communities to support the inventory and protection of important resources could offset some of the costs of community participation in new partnerships.

As described for alternative 1, the end of private use-and-occupancy residency would reduce tax revenues in the affected communities; however, the expected reduction of residential use would also reduce needed municipal services. The town of Wellfleet has the largest number of use-and-occupancy properties (about 28) and estimates the reduction of about \$50,000 annually when these reservations expire, based on their 1997 valuation at \$5.6 million. Total tax revenues for the town amount to about \$50 million, so this

loss would be less than 0.01% of revenues and would not represent a significant fiscal impact. Any continued private residential use, including hardship case or other use, would be subject to this tax.

See "Services Exchanged with Local Communities" (page 254) for additional information about impacts of cooperation between the National Park Service and local communities/agencies.

Conclusion

Under alternative 2 local communities would be asked to increase their cooperative planning efforts with the national seashore and other communities, possibly resulting in a need for additional staffing and funding. NPS technical assistance could offset some of the additional expenses to communities. There would be no significant adverse impacts on municipal tax revenues if residences currently occupied and providing a tax revenue source were no longer privately used.

NPS CONCESSIONER OPERATIONS

Analysis

As part of the process to renew concession contracts, the Park Service must review the continued need for the provided service and put each contract out for competitive bidding. This means that existing concessioners are not guaranteed a long-term exclusive right to continue operations. For instance, the discontinuing the Nauset Knoll Motor Lodge, one of the only motels directly on the beach, is being considered because overnight lodging opportunities are abundant nearby. While the loss of this motel would reduce the number of guest rooms on the Outer Beach, impacts to the public would be minimal because of the existing supply.

Minimal vending facilities at some beach locations would provide refreshment that could reduce the number of vehicle trips. Offering concessions or permits for public shuttles or

transportation services to destinations inside the seashore could also benefit local or regional firms as well as municipalities. This alternative would also provide for more review of commercial licensees who operate activities that originate and end outside national seashore boundaries. The effect would be to improve services and environmental practices of those tour operators.

Conclusion

Existing NPS concessioners could be adversely affected if it was decided that a contract would not be renewed, or if they did not compete successfully for a new contract. The result of monitoring concessions and commercial licenses would be to provide high-quality, essential services to visitors.

IMPACTS ON NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

LAND USE / PROTECTION

Analysis

Under alternative 2 new initiatives for fostering land protection and stewardship would require increased community involvement. A database, including information on lands that are critical for resource protection (primarily those inside the national seashore boundaries), would be developed. Data on the impacts of future development across the Outer Cape would improve the national seashore's ability to respond to land protection issues quickly and effectively. Designation of the Outer Cape as a district of critical concern would also provide additional protection and recognition of the value of resources.

With additional funding, NPS land acquisition potential within national seashore boundaries would be expanded and used when other efforts to encourage compatible development practices failed, or if there were willing sellers. Expanding acquisition ability could have adverse effects on

the relationship between the national seashore staff and the local public. The perception may be that this is a change in acquisition policy that constitutes a threat to the rights of local land-owners. This perception could have long-term effects on relationships with the public and the resolution of land use conflicts in the future. However, the National Park Service would work with local residents, businesses, and governments to demonstrate that this option would not adversely impact the potential uses of private property. At the same time, expanding land acquisition ability, as well as establishing a land banking fund, would provide the Park Service with additional flexibility in addressing land use issues. It would also provide additional methods for maintaining appropriate land uses, while respecting the needs of current property owners.

Conclusion

Overall, national seashore management strategies would likely improve the political environment for land protection on the Outer Cape by enhancing collaborative planning and problem-solving processes between local municipalities and the National Park Service. In addition, a more informed population would support appropriate development strategies and would have access to more comprehensive information used for decision making.

PRIVATE RESIDENTIAL PROPERTIES

Analysis

The consensus-oriented public process for revising minimum town zoning standards by amending the Cape Cod National Seashore zoning standards would provide better consistency among town bylaws. This process would primarily pertain to Wellfleet, Truro, and Eastham, where over 96% of the improved properties are located. Local land use regulations proposed under this alternative would encourage historic preservation, the traditional character and scale of private residences, and environmental protection.

With the revision of the Cape Cod National Seashore zoning standards, the towns would also be required to revise their local zoning bylaws. Therefore, identifying mutual goals, values, and opportunities for cooperation would be critical. Simplifying construction permits for improved properties and creating flexible regulations that reflect the variety of traditional development types and land uses on Cape Cod are strategies that would support mutual goals. Existing condemnation authority would be more effective in achieving compliance once revised federal and local zoning regulations were adopted.

Except in cases requiring a variance or where there was some dispute, property owners would no longer need to consult with the national seashore before starting construction projects. Local communities would generally be the sole reviewers of development activities. In addition, the greatly decreased volume of construction proposals requiring review by the national seashore would allow NPS staff to respond more constructively and quickly to those submitted. This increased reliance on town staffs could not occur without amendments to the Cape Cod National Seashore zoning standards and town zoning bylaws and the introduction of design factors. Jointly developing new standards and bylaws for private lands within the national seashore and establishing performance standards, based on a lot's physical and environmental capacity for development, would provide clear criteria for decision making.

Working with local banks and communities to develop financial incentive programs would help support responsible development and the introduction of sustainable practices on improved properties.

As under current management, the Park Service would be able to acquire key parcels as they became available on the market or could purchase conservation easements. However, limited federal funds could result in properties being sold before they could be acquired by the Park Service. Acquiring improved lands could further tax the maintenance budget of the national seashore.

As described under alternative 1, some financial costs would accrue to improved property owners who moved utility lines underground. Capital costs to place private utility lines and public utilities serving private residences underground would be borne by those served by the lines. While the capital cost of upgrading to either private or utility standards might be higher initially than aboveground lines, long-term maintenance costs would likely be reduced because the lines would be subject to less storm damage, especially hurricane winds. Upgrading to private standards would be less costly than public utility standards. These costs would be justified to reduce natural resource damage during line installation and maintenance. Property values might increase with the removal of visual intrusions.

The impacts of the National Park Service discouraging beach nourishment or revetment construction activities would be similar to those described for alternative 1. Cooperative efforts to explore ways to prevent the construction of revetments, groins, and jetties on all land within seashore boundaries could restrict private property owners from building such structures. Private property would be lost to natural coastal processes, demolished, or relocated outside national seashore boundaries in areas experiencing long-term erosional trends. However, building erosion control structures is only a short-term solution, and private property would eventually be lost, regardless of intervention efforts. Forecasting coastal shoreline processes might allow for strategic planning for the protection of private facilities and interests. However, appropriate protective measures would likely involve relocating or restructuring the facilities in question.

As described for alternative 1, minimizing public use activities near private improved properties would help protect the privacy of residents.

Under alternative 2 residential property owners would be more involved in determining strategies to minimize conflicts between visitors and residents. In turn, the privacy of improved property owners would be better protected.

Conclusion

Under alternative 2 private residential property owners would be encouraged to help protect the natural and cultural resources and to preserve the historical character of the Outer Cape. Improved federal and local land use regulatory tools would offer ample guidance for resource protection and the preservation of the region's character. Identifying mutual goals and values between the communities and the national seashore, along with opportunities for cooperation, would be critical to successfully instituting and applying revised Cape Cod National Seashore zoning standards and town zoning bylaws.

PRIVATE COMMERCIAL PROPERTIES

Analysis

Alternative 2 would establish criteria for renewing certificates for commercial properties, which would be linked to the purposes of the seashore. This would allow the criteria to be applied consistently and would ensure that renewal decisions were not made in an arbitrary manner. The five-year interval at which these properties are reviewed for certificate renewal would permit the seashore staff to monitor property uses in a timely manner and to ensure that these uses continued to be consistent with the purposes of Cape Cod National Seashore. The addition of performance standards could improve the activities and services offered on these properties.

Conclusion

Specific criteria for certificate renewal would apply the same standards to all commercial properties and ensure that uses are consistent with the purpose of the national seashore. Modifications in the performance record and activities on such properties could place additional requirements on property managers.

MUNICIPAL AND STATE LANDS

Analysis

Under alternative 2 developing formal relationships between the national seashore, local communities, and state agencies, along with establishing procedures for reviewing projects and policies on state and municipal lands, would foster a more consistent approach to managing municipal and state lands within national seashore boundaries. A more aggressive land exchange program would be instituted to target national seashore properties for divestment, and important state and municipal properties that should be acquired would be identified. The effects of these actions would be to simplify the ownership and management of national seashore resources and to help achieve the seashore's resource management and land protection goals.

Although the strategies proposed in alternative 2 would offer a greater potential for cooperatively resolving complex issues affecting the Outer Cape, the varying agendas and values of the National Park Service, local communities, and state agencies might not be easy to reconcile. The Park Service cannot acquire state and municipal lands without the consent of the owners. To negotiate successfully with state agencies and municipalities, national seashore staff would need to be flexible.

As described for alternative 1, municipal coastal property would continue to be lost to natural coastal processes. However, if cooperative efforts to discourage or limit intervention of such processes were successful, then towns could lose facilities and uses sooner than under alternative 1. It is impossible to predict when this would happen because it would be directly related to storms. Forecasting coastal shoreline processes might allow for strategic planning for the protection of private facilities and interests. However, appropriate protective measures would likely involve relocating or restructuring the facilities in question.

Taxes paid by Nauset Knoll Motor Lodge could be lost to the town of Orleans.

Conclusion

Chances for cooperatively resolving Outer Cape issues under this alternative would be better than under alternative 1. The land protection and resource management goals of the national seashore would likely be achieved.

IMPACTS ON NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

STAFFING

Analysis

Additional staffing would improve the maintenance of NPS facilities and the protection of resources, thus enhancing the visitor experience. In addition, more information services would improve the visitor experience and build the national seashore's knowledge base and inventories. However, increases in annual operational funding would be needed to add staff or to contract for needed expertise. Proposed new programs and studies, along with additional efforts to work cooperatively with local communities to resolve management issues of mutual concern, would increase the amount of time needed by national seashore staff.

Approximately 16 new staff full-time equivalencies would be added over time to accomplish plan goals and strategies. This would represent a substantial increase in annual operating costs. Key additional staff would be hired to provide technical expertise in hydrology due to critical water resource issues, coordinate extensive anticipated partnerships, operate water systems to federal and state standards, provide more interpretation by NPS staff to reduce reliance on volunteers for basic services, coordinate environmental education curriculum with schools, coordinate volunteers for enhanced interpretive services, provide additional seasonal custodial and maintenance services, and provide preservation carpentry experience.

Conclusion

Staffing impacts would be both beneficial and adverse. Additional staff and greater workloads would be required to implement new programs and to work cooperatively with local communities. Although the addition of staff would be beneficial to visitor services and resource protection efforts, this would represent a major additional operational funding need. Proposed programs, strategies, and actions, as well as necessary follow-up actions, could be achieved if funding and staffing levels permitted. Lack of staff support in key areas would limit the National Park Service's ability to effectively implement this plan.

**ADMINISTRATIVE AND MAINTENANCE
FACILITIES AND OPERATIONS**

Analysis

Removing facilities in coastal areas as they were damaged by storms would reduce maintenance costs and would be a more cost-effective strategy over the long term. It would also require a greater level of effort at being involved in forecasting and developing mitigating measures.

Removing high-maintenance vistas and relocating vistas to areas where the need for clearing would be minimal would likewise reduce maintenance costs.

The redesigned Salt Pond visitor center would provide adequate and accessible work/office space, which would improve staff productivity.

More options for using structures when use-and-occupancy reservations expire would be considered than under alternative 1, including using structures for national seashore operations. If property ownership was transferred to towns through land exchanges, the National Park Service would be better able to reach its goals of resource preservation in sensitive areas, and local towns could benefit by acquiring structures to fulfill their needs. The Park Service would have more opportunities to reach its objectives

in programs relating to resource management and visitor services through partnerships or cooperative ventures with nonprofit organizations that might use these structures.

The practice of sustainable landscaping and the use of native species would promote water conservation and reduce the risk of groundwater contamination, since the need for chemical application would be reduced. In addition, a good model for environmentally sound landscaping would be available for neighbors and the visiting public. Maintenance costs would be less than those in alternative 1. Where the need existed for nonnative species such as grasses to be used for landscaping, impacts would be similar to but less extensive than those described for alternative 1.

Under alternative 2 the range of anticipated costs for research, planning, and construction would range from approximately \$11.4 million to \$14.0 million.

Conclusion

Taking advantage of structures when use-and-occupancy reservations end would help make operations more efficient and reduce the built environment within the national seashore. Emphasizing sustainable practices in landscaping would further help to reduce adverse impacts on the environment.

STAFF HOUSING

Analysis

Staff housing impacts associated with this alternative would be similar to those described for alternative 1. However, impacts on natural and cultural resources and to the Cape Cod setting in general would be reduced by concentrating employee housing at existing residential areas, rather than dispersing it throughout the national seashore. Noise and air pollution from vehicles would increase at these concentrated residential

sites. Upgrading wastewater treatment systems would reduce impacts on natural resources.

This alternative would reprioritize the need for staff housing within the national seashore more than alternative 1 in emphasizing new group seasonal housing opportunities and maximizing year-round occupancy. This would optimize NPS housing operations and maintenance costs within the national seashore.

The burden to the seashore's budget in operating and maintaining staff housing would be further relieved if alternative arrangements were made for financial support and maintenance and if options for year-round occupancy by non-NPS staff were pursued.

Conclusion

Concentrating staff housing at fewer sites within the national seashore, as well as assisting and encouraging more employees to find housing in local communities, would help reduce the number of structures needed within the seashore. Emphasizing alternative ways to repair and maintain housing units would more effectively defray housing costs.

UTILITIES

Analysis

Impacts on utilities would be similar to those discussed under alternative 1. However, developing a broader NPS outreach program with local communities and residents would better protect, recycle, and conserve the limited resources that are affected by utility functions within the Cape Cod region. This outreach program would improve relations with the public and other regulatory agencies, helping provide a better understanding of environmental protection goals.

Under alternative 2 the National Park Service would emphasize sustainable practices in all aspects of seashore operations. Potential benefits

would include less consumption of nonrenewable resources, energy-efficient improvements, and improved air quality. Upgrading sewage treatment facilities and using the Salt Pond visitor center as a demonstration model would enhance the public's understanding of this concept. Greater participation by the Park Service through *ex officio* membership on the Cape Cod Commission would facilitate the understanding of mutual problems, concerns, and opportunities on the Cape. Review of proposals for telecommunication facilities and gas lines would have a beneficial impact by allowing resource managers to take active steps to avoid or minimize potential impacts to national seashore resources and values.

The potential for groundwater supplies to be contaminated from leaking underground fuel tanks could be reduced through an NPS outreach program to encourage property owners to bring defective tanks into compliance with codes.

If the National Park Service shared the costs of utilities enhancement, it would be an incentive for owners of improved properties to act. It would also require an increase in the seashores' operating budget. Although permitting gas utilities to cross national seashore lands would require an exception, improved utility service in a high electricity rate area would be a beneficial impact.

Conclusion

Alternative 2 would have beneficial impacts by emphasizing utilities and related services that would be cooperatively provided by local towns, the county, and the National Park Service. In combination with using more sustainable practices, this would improve cost efficiencies of utility services. Also, adverse impacts on sensitive resources, such as the scenic, water table, and saltmarsh environments, would be reduced.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

Analysis

The impacts of this alternative would be similar to those described under alternative 1 except that *ex officio* NPS representation on the Cape Cod Commission would foster greater cooperation among local communities, residents, and the Park Service, helping improve public service functions. In addition, the Park Service and the local communities would have a better understanding of mutual problems, concerns, and opportunities. (Also see the section titled "Municipal Costs and Services," page 247, for additional discussion of impacts of cooperation between the Park Service and local communities and agencies.)

Locating operational facilities in towns outside seashore boundaries could cause visual intrusions and noise from vehicle traffic, parking, and the storage of national seashore vehicles and maintenance equipment. However, local businesses that provided the facilities would benefit economically from leasing arrangements for NPS facilities.

Determining the ownership and maintenance responsibilities of sand roads would improve their maintenance, compared to alternative 1, but could result in additional financial burdens for maintenance. Resources would be further protected through the closure of sand roads on NPS lands where the use could not be justified.

Conclusion

Working cooperatively with local communities to provide services, along with NPS *ex officio* representation on the Cape Cod Commission, would provide more efficient services, facilitate the understanding of mutual problems, and ensure equitable compensation among all parties. These positive effects would be increased compared to alternative 1.

RESERVATIONS OF USE AND OCCUPANCY

Analysis

Relative to alternative 1, there would be the potential under alternative 2 for some continued residential use in cases of hardship and possible additional use by the public under a special use permit program. This could be of substantial personal benefit for some individuals. Equitable criteria for reuse would be necessary because public property is generally not to be used to promote private purposes; additionally, equity needs to be a consideration for other individuals who would like to have access to such a benefit, or who were former owners who left as specified at the end of their terms of use.

The short-term continued use of the residences until such time as funds were available for their removal would be advantageous to the national seashore. This would ensure fewer vacant buildings within the national seashore, which would temporarily affect the aesthetic environment and present a more positive image to the public.

Under this alternative there would be a potential positive impact on the local affordable housing supply if some structures were moved and used for housing outside seashore boundaries. Additionally, some nonprofit partners, such as Eastern National Park and Monument Association, could possibly have access to additional administrative space within the seashore if vacated houses were utilized for such purposes.

There might also be a positive impact if the Park Service could acquire undeveloped municipal lands inside seashore boundaries by exchanging vacant residences with towns for use as affordable housing. Surroundings would be considered in determining locations of least impact for this purpose.

Conclusion

The implementation of alternative 2 would potentially result in beneficial impacts for some private individual(s) who might be permitted

temporary residential occupancy, especially in hardship cases, and there might be other socio-economic benefits as well. Additionally, fewer vacant buildings within the national seashore as a result of demolition would have beneficial impacts on natural resources, scenic quality, traffic, and public perception.

CUMULATIVE IMPACTS

Under this alternative the overall cumulative impact of potential activities related to cooperative management would be positive. Cooperation and coordination of efforts would lead to enhanced protection of natural and cultural resources, as well as to enhanced enjoyment of these resources by the public.

NATURAL RESOURCES

Several aspects of alternative 2 would have a cumulative positive effect on the protection of water resources on the Outer Cape, both inside and outside national seashore boundaries. These would include increased wetland restoration, cooperation and coordination among Outer Cape landowners and managers, the development of a comprehensive database of water resources, and water resource studies on specific issues.

As described under alternative 1, consistency with the state's title V regulations and collaboration with local towns and the Cape Cod Commission in developing a water resources management plan would improve prospects for water resource protection. Under this alternative, the seashore's efforts to pursue state-of-the-art, sustainable solutions to wastewater disposal problems would further inform and enhance local water resource protection efforts.

There are approximately 4,500 acres of estuary wetlands within the national seashore, 35,000 acres on Cape Cod, and 50,000 acres in New England. The restoration of Hatches Harbor would add up to 90 acres more, and the restoration of Herring River would initially create about 60 additional acres, with about 600 acres

total expected over the long term. No estimates are available for the Pamet River. Initially these restoration efforts would have a significant positive cumulative effect on the amount of estuarine wetlands restored and protected within the national seashore, including nursery habitat for many commercially harvested marine species. As some of the first wetlands restoration efforts in the region, these programs would have a minor but positive cumulative effect.

Shellfish aquaculture is currently the fastest growing agricultural industry in the United States and the Northeast. In the Northeast it represents an annual dollar catch of over \$146 million. Massachusetts is the fifth highest income-producing state in the Northeast, with approximately \$8.2 million in sales. Data are unavailable regarding the acres currently under shellfish aquaculture grants within the national seashore, and quantifying potential impacts is not feasible. However, limiting shellfish aquaculture within the national seashore would have an adverse cumulative impact on the growth of aquaculture within the region.

The 1995 *Massachusetts Aquaculture Strategic Plan* is a supportive framework to strongly encourage growth of the inland and marine aquaculture industry. The national seashore expects that some aquaculture would occur in the national seashore if water quality, regulatory, and other environmental parameters were met. This would have a beneficial cumulative effect on the regional aquaculture industry.

Water quality at the beaches and in the harbors and estuaries of Cape Cod Bay is already of concern due to adjacent onshore development and septic system discharge. Additionally, a proposed outfall pipe extending to within 15 to 20 miles of Cape Cod from Boston's secondary wastewater treatment plant in Boston Harbor will contribute significant additional pollutants and nutrients. There is concern for increased adverse impacts on water quality and shellfish beds. In comparison, measures proposed by the National Park Service would have a small beneficial cumulative impact on regional water quality.

The towns of Provincetown and Wellfleet have begun to consider septic treatment facilities for their town centers. The proximity of these centers to Cape Cod Bay and national seashore resources is cause for concern, particularly in areas of known water quality problems and sensitive resources.

Protecting heathlands would have a significant cumulative impact on a national level because most heathlands in the United States are not managed or protected. In fact, they are rapidly disappearing through a combination of natural processes and the impact of recreation and development (Carlson et al. 1992). On a global scale, protection of heathlands in the seashore would be less significant because large coastal heathlands occur in Britain and northern Europe, where they are maintained and protected.

Regional airsheds encompassing the national seashore do not meet air quality standards. Implementing the air resource management program under this alternative would have a minor, but positive cumulative effect on regional air quality. Reclassifying the national seashore as a class I air quality area would give the national seashore a role in reviewing proposals for new large-scale point source emission generators. This could have beneficial cumulative effects on regional air quality through a reduction in point source air pollution in the multistate area.

Cumulative impacts of the piping plover management programs would be the same as alternative 1.

CULTURAL RESOURCES

Proposed measures to increase knowledge of cultural heritage and ethnographic resources; to inventory and protect privately owned historic properties, cultural landscapes, and archeological resources within the national seashore; and to work with local towns in protecting cultural heritage elsewhere on the Outer Cape would all help ensure the long-term protection of these resources. Public education and

technical assistance would be provided to local property owners, making the knowledge and techniques associated with historic preservation more accessible. Cumulatively, preservation efforts both within the national seashore and on the Outer Cape would help ensure the long-term protection of resources and foster a better understanding and appreciation of them among local residents as well as tourists.

Over the long-term more of the national seashore's and Outer Cape's cultural heritage and archeological resources would be preserved, providing future opportunities for learning about the continuum of human occupation on the Cape.

PUBLIC USE AND EXPERIENCE

The cumulative impacts of access and transportation proposals would be similar to those described under alternative 1. However, alternative 2 would have the potential for more extensive beneficial effects on traffic congestion and air quality because the Park Service would take a more active role in helping implement the intermodal transportation proposals of the Cape Cod Commission's *Long Range Transportation Plan*. Anticipated increased walking trail and bicycle opportunities would contribute substantially to regional trails initiatives, such as Cape Cod Pathways. A mutually advantageous process of review of potential future redevelopment activities at the Provincetown airport would minimize adverse impacts on national seashore resources and the potential for appreciable adverse impacts on resources or airport traffic.

Numerous short trail segments now exist throughout the Cape. The addition of new trail experiences and possible long-distance hiking opportunities are proposed in the *Long Range Plan* and the follow-up trail plan. Adding miles of trails would have a positive cumulative impact on walking experiences on the Outer Cape and in the region as other such trail connections now being planned or encouraged are implemented.

Cumulative impacts on ORV driving would be the same as alternative 1.

NONFEDERAL LANDS

With revised local bylaws, the introduction of design guidelines, an improved permitting process, and enhanced communications, residential properties and the Cape's regional character would be better protected from insensitive development. Under this alternative new local regulations could be applied beyond the seashore boundaries, offering additional opportunities to preserve the historical character of the Outer Cape.

The regulation of land use on private lands both inside and outside the seashore would continue to be a local function. Although current local zoning bylaws are consistent with the Cape Cod National Seashore zoning standards, they continue to allow for developments that may not be sensitive to local conditions and character. The seashore would continue to work closely with residential property owners, local building inspectors, and zoning boards to address these development and resource protection issues. The seashore would also continue to participate in local and regional planning efforts that affect land protection both inside and outside the boundaries. Local land trusts have also played a significant role in land protection on the Outer Cape and would increasingly continue to do so. The seashore would continue to rely primarily on the voluntary cooperation of local residents and municipalities, and on the activities of local land trusts and the Cape Cod Commission.

The Cape Cod Commission has the authority to designate and regulate developments of regional impact and districts of critical planning concern. A number of developments of regional impact have been identified in and around the seashore, including two transfer stations, the airport, and two subdivisions. The current activities of the seashore and its partners, in combination with those of the Cape Cod Commission, would improve the prospects for land protection over the long term. Despite potential conflicting

agendas among the national seashore, towns, and state agencies, the development of formal relations would have a cumulative effect that could lead to a common approach for protecting natural and cultural resources on the Outer Cape.

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts for alternative 2 include the following:

- Short- and long-term soil disturbance and vegetation loss from construction activities, including parking areas, pulloffs, trails, underground utility lines, public use facilities, and cultural landscape preservation. Until specific locations for these facilities were determined, it is not possible to precisely quantify impacts. Emphasis would be placed on siting facilities in previously disturbed areas. Implementation of appropriate erosion control and revegetation measures would minimize the magnitude of these effects where they occur.
- Archeological resources could also be adversely impacted by the above development activities. If archeological resources were found before or during construction activities, the facility could be relocated or the archeological resources excavated to salvage artifacts. Some impacts to archeological resources would be unavoidable.
- Adverse impacts to soils, vegetation, wildlife habitat, historic structures, archeological resources, and national seashore facilities would be likely over the long term from allowing coastal processes to take place unimpeded.
- Restoration work at the Herring River could result in increased flooding of a portion of a golf course and two private residences. In addition, saltwater intrusion could occur in local wells from restoration work at the Herring and Panet Rivers. Additional evaluation would be conducted to examine the

extent of potential impacts and possible mitigation measures.

- A reduction in the number and quality of scenic viewpoints and associated vistas would occur as intervention in natural vegetative succession was minimized.
- In the process of resolving conflicts among different uses, restrictions could be placed on particular uses, possibly having an adverse effect on some users. For example, access restrictions associated with the piping plover program would continue to adversely affect the availability of national seashore lands to ORV users.
- Staff increases would require additional operational funding.

RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship of the proposed action to the goals of the National Environmental Policy Act is expressed in terms of the NEPA objective to maintain and enhance the long-term productivity of the environment. The National Park Service and Cape Cod National Seashore are committed to this goal; consequently, the proposed action includes numerous elements that would enhance the long-term productivity of the environment.

Improving the management of natural and cultural resources, along with enhancing research within the national seashore, would contribute to the long-term protection and preservation of all resources considered in the proposed plan. Proposals to work cooperatively with local towns, Barnstable County, and Massachusetts in all facets of resource and public use management should further enhance resource protection and the preservation of the character of Cape Cod.

Over the long term, up to 690 acres of salt marsh would be restored to natural productivity. Restrictions on vegetative succession would be removed in localized areas, and natural coastal processes would be allowed to proceed unimpeded. This would enhance the long-term productivity of the barrier beach environment by allowing it to function naturally.

Input as an upland owner in shellfish aquaculture proposals, and a coordinated management and regulatory effort for finfish aquaculture proposals, would help ensure that long-term resource values were not compromised for short-term economic gains.

Sustainable landscaping and using native species in revegetation would promote water conservation and reduce the risk of groundwater contamination. These practices would also serve as a model for environmentally sound landscaping for residents and visitors.

Limited areas of vegetation and soil would be removed from natural productivity for NPS development projects. However, long-term benefits to public education and interpretation would improve public awareness and support for a sustainable environment.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

An irreversible commitment of resources is one that cannot be changed once it occurs; an irretrievable commitment means that the resource cannot be recovered or reused. The overall production capacity for biological resources would be reduced minimally in localized areas of proposed development. However, the majority of this impact would be short-term in nature, and most of these areas would recover relatively soon. Revegetation programs would further reduce these impacts. However, a long-term loss of an unknown area of vegetation and wildlife habitat would occur from new construction. Residual long-term effects on biological productivity would be relatively minor.

Any loss of cultural resources (undiscovered belowground resources) in developed areas would be an irreversible and irretrievable commitment of resources. Archeological investigations would be accomplished prior to development, so these impacts would be minimized. Avoidance of sites would be considered in choosing development areas.

The proposal to allow coastal processes to proceed unimpeded would result in some loss of land, including both national seashore and private property. In other areas, land would accrete, particularly at the very northern end of the Cape at Provincetown and in the Chatham area at the southern end. Structures and facilities, including cultural resources such as lighthouses or the Marconi site, could be lost. If historic structures were moved to prevent loss by

coastal erosion, then the structure itself would not be lost; however, the context in which it was located would be irreversibly and irretrievably lost. Loss of facilities and structures in the coastal zone would occur over time through natural processes regardless of the proposed action. The proposed action would not seek to postpone the inevitable loss of structures, and it would not in and of itself cause an irretrievable and irreversible commitment of resources.

Providing handicap accessibility to historic buildings could involve a loss of historic fabric.

Limited amounts of nonrenewable resources would be used for construction projects and national seashore operations, including energy and materials. These resources are basically irretrievable once they are committed.

ALTERNATIVE 3

Alternative 3 is similar to alternative 2, except that more formal measures would be undertaken by national seashore managers to protect resources. Consequently, potential impacts presented below are in addition to, or in some cases modify, those previously presented under alternative 2. Otherwise, all impacts identified and discussed in alternative 2 are assumed to apply to alternative 3 as well.

IMPACTS ON NATURAL RESOURCES

COASTAL PROCESSES

Analysis

Under this alternative natural shoreline processes would take precedence; no intervention to control or modify the impact of these processes would take place. Beneficial effects would be the protection of an almost completely natural barrier beach system, something rare on the East Coast. Adverse impacts would be the loss of private property, municipal property, visitor facilities, and cultural resources (especially archeological and submerged resources) over time. These impacts are discussed in more detail in alternative 2.

However, because it is not anticipated that local communities would be supportive of several of the most restrictive strategies, public opinion would probably be strongly adverse to these strategies. Recognizing the patchwork of land-ownership within the national seashore, municipalities might find such actions as an abridgement of their rights, and legal challenges could be anticipated.

When impediments to shoreline processes were removed, there might be heavier erosion in these areas in the short-term until the area had a chance to stabilize into a more balanced state. As described under alternative 2, comprehensive

long-term monitoring would enable managers to make more informed decisions.

Conclusion

Over time coastal processes would eliminate most developed areas directly along the coast. It is difficult to predict how soon this would take place; however, a completely natural and dynamic barrier beach system would be the result, something rare on the East Coast.

WATER RESOURCES (INCLUDING WETLANDS AND FLOODPLAINS)

Analysis and Conclusion

As an upland owner, the National Park Service would take a more stringent approach to shellfish aquaculture management, which would likely benefit marine and estuarine environments. Some resistance would be likely from some towns and potential grantees.

Under alternative 3 no future airport development outside the currently permitted area would be allowed. Therefore, wetlands in the vicinity would be protected from any proposal involving new disturbance outside the permitted area.

VEGETATION

Analysis and Conclusion

Alternative 3 would provide additional benefits to vegetation at the national seashore through more intensive resource management. The potential for adverse resource impacts would be further reduced, resulting in a beneficial impact to resources.

FISH AND WILDLIFE

Analysis

Potential impacts on fish and wildlife would be similar to alternative 2, with the exceptions of aquaculture, stocking of nonnative animals, and pest control.

Under alternative 3 fixing the boundary by degrees of latitude and longitude to ensure the protection of submerged archeological resources would not affect fishing.

Under alternative 3 the National Park Service would more intensively manage aquaculture, allowing no finfish aquaculture and, as an upland landowner, placing species, carrying capacity, and locational restrictions on shellfish aquaculture. These measures would minimize potential impacts from aquaculture on marine ecosystems. There would be potential adverse effects to private growers, and towns would need to agree to scientific data and certain restrictions for this alternative to be feasible. The potential for genetic impacts would be minimized through restrictions in raising exotic species, and potential water quality impacts associated with finfish aquaculture would be avoided by allowing shellfishing grants only. Finfish aquaculture in waters managed by the national seashore is effectively prevented because of the general congressional restriction on commercial activity in national parks. This alternative would not allow potential research that could promote the development of more environmentally sound practices for finfish aquaculture.

Assuming agreements could be reached, memorandums of understanding would be established with local communities and the state for insect control programs and cessation of stocking of nonnative animals for hunting and fishing, respectively. Development of such memoranda would benefit these resources by formalizing agreements between parties and further ensuring the achievement of the desired objectives.

Further dispersing NPS employee housing throughout the national seashore would disrupt wildlife populations and increase habitat fragmentation more so than concentrating housing areas under alternative 2.

Conclusion

Alternative 3 would provide additional benefits to fish, and wildlife at the national seashore through more restrictive resource management. Some approaches would likely not be well received by state and local entities. The potential for adverse resource impacts would be further reduced, resulting in a beneficial impact to resources. However, dispersed staff housing would have minor impacts on wildlife populations and habitat.

IMPACTS ON CULTURAL RESOURCES

CULTURAL HERITAGE AND ETHNOGRAPHIC RESOURCES

Impacts would be the same as those described for alternative 2.

CULTURAL LANDSCAPES

Analysis

This alternative includes strategies for purchasing or acquiring improved property or easements for improved property to protect significant cultural landscapes. These measures would have a beneficial impact by providing the National Park Service with additional means to protect cultural landscapes in the national seashore vicinity. Important cultural landscapes would be further protected through the preservation of key viewsheds and buffer zones in areas of improved properties. Land acquisition, which would require authorization and the appropriation of additional funds, as well as a revision to the national seashore's *Land Protection Plan*, would be on a willing-seller basis only, thereby

minimizing potential adverse effects on local property owners. Areas potentially benefiting from this proposal are Fort Hill and the Highland area.

Conclusion

Alternative 3 would provide the maximum beneficial impact on cultural landscapes by providing a variety of protection methods. Beneficial impacts include the protection of scenic vistas, the maintenance of buffer zones, and the retention of the historical character of the area. Authorization and additional funds would be needed.

HISTORIC ARCHITECTURE

Analysis

Under alternative 3 the National Park Service would have the funds and authority to acquire historic structures whose integrity was being threatened, if no alternative protection means were available. This strategy would have a beneficial impact on historic architecture by allowing the Park Service to take direct measures to halt structural deterioration and restore resource integrity. However, long-term, adverse impacts could occur over time from preservation and maintenance requirements associated with newly acquired historic structures. Additional stress on national seashore staffing and budget could result from these requirements, and resources could deteriorate if the Park Service was unable to properly maintain the structures.

Historic structures in coastal erosion areas could be at a greater risk of loss as a result of allowing coastal processes to take place unimpeded.

Changing the *Land Protection Plan* to include the acquisition of historic buildings on improved properties that were threatened and of structures on or eligible for the National Register of Historic Places (on a willing-seller basis) would further broaden NPS abilities to protect key historic structures. Over time, long-term, beneficial impacts to historic structures would occur

as a result of reduced structural deterioration, and depending on the availability of funding, the rehabilitation of historic structures. However, resource degradation could occur in the long term if funding was not available to maintain newly acquired structures.

Conclusion

Various preservation and protection methods for historic architecture in the national seashore would further maintain the historical character of the Outer Cape. However, potential adverse impacts on both historic architecture and national seashore operations could occur if maintenance and management needs increased beyond the National Park Service's ability to meet them.

ARCHEOLOGICAL RESOURCES (INCLUDING SUBMERGED RESOURCES)

Analysis

Under this alternative the National Park Service would extend authorization to collect archeological materials to parties that have never been authorized to excavate archeological sites under existing procedures. Considering doing so reflects the special case which inevitable destruction by coastal erosion represents. If field schools and amateurs used proper methods, more information could be gathered by additional archeological research before they were lost. The Park Service might need new legislation in order to do this, and it would need a means to positively identify and authenticate artifacts legally collected within the seashore under this new procedure.

Adding easement acquisition for selected properties with potential archeological resources to the *Land Protection Plan* could result in the acquisition of properties with significant archeological resources.

Fixing the offshore boundary of the national seashore by degrees of latitude and longitude, and consequently extending control of the

bottomland into areas not currently protected by the National Park Service, would help ensure the uniform protection of submerged archeological resources from vandalism and undocumented salvage. However, a boundary change would be difficult to achieve due to state and local community concerns about any additional federal control. The state does not support the transfer of the remaining state-owned bottomland in Eastham, Wellfleet, Chatham, and Orleans. Therefore, it would be difficult to achieve this strategy. Ongoing consultation would need to be proactive to avoid potential loss of significant submerged archeological resources.

Conclusion

Similar to alternative 2, except more information could potentially be gained by additional archeological research before resources were lost to coastal erosion. The transfer of state-owned bottomlands to the National Park Service to ensure the protection of submerged archeological resources would be difficult to achieve.

MUSEUM COLLECTION

Analysis and Conclusion

Under this alternative the scope of collections for the seashore would be expanded, requiring a more aggressive approach to acquiring museum objects, particularly artifacts related to the natural sciences. This would result in a greater need for collections storage and exhibit space. While the addition of such objects could support the seashore's research and interpretive objectives, it is not clear that the benefits would outweigh the costs.

IMPACTS ON PUBLIC USE AND EXPERIENCE

INFORMATION AND ORIENTATION

Analysis and Conclusion

Development of a coordinated information distribution system would have positive impacts on visitors through greater availability of information. In addition, such a system would encourage more active participation of agencies and organizations throughout the Cape, and further ensure the distribution of consistently accurate information. However, improving information services for visitors would have tradeoffs in the form of increased costs to agencies and organizations throughout the Cape.

ACCESS AND TRANSPORTATION

Analysis

Potential impacts on access and transportation would be similar to those described under alternative 2, with the exception of issues associated with Provincetown airport improvements and expansion.

Under alternative 3 allowing no airport improvements or expansion outside currently permitted areas could result in FAA safety standards not being met. This could require that an equivalent level of safety be provided through alternative means. If such alternatives were not feasible, air service at the Provincetown airport could be adversely affected. For example, if increased landing fees at commercial airports such as Logan International resulted in the need to use larger planes that require longer runways, these planes could not be accommodated at Provincetown. If this occurred, and other technological solutions or alternatives to the use of commercial airports other than Logan were not available, commercial air service to the Outer Cape would be adversely affected. Small private plane traffic and medical evacuations would not be adversely affected.

Restricting expansion activities to the permitted areas could reduce potential adverse impacts on wetlands, vegetation and wildlife, and other natural resources since the runway could not be extended into the area now permitted for lighting and instrumentation. Restrictions could adversely affect the public experience by requiring more flights by smaller aircraft if demand increased and by limiting one transportation mode, while other aspects could have beneficial effects on public experience and values, such as the reduction of modern intrusions.

Conclusion

Potential impacts would be similar to alternative 2. However, allowing no Provincetown airport improvements or expansion outside currently permitted areas could result in alternate federal safety standards to meet objectives of FAA requirements. If such standards could not be met, air service at the Provincetown airport could be adversely affected.

INTERPRETIVE AND EDUCATIONAL OPPORTUNITIES

Analysis and Conclusion

This could be a costly alternative due to the possible construction of additional cooperative interpretive facilities and resulting staff needs.

PUBLIC USES

Analysis and Conclusion

Fixing the boundary of the national seashore by degrees of latitude and longitude would not affect fishing; the primary intent would be to ensure the protection of submerged archeological resources.

Installing additional signs along visitor routes to protect the privacy of private property owners could have adverse impacts on vista management. More signs could diminish visual quality,

particularly in areas of relatively high scenic quality. In addition, administrative expenses could increase for the national seashore in addressing numerous requests for sign installation and maintenance.

IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

REGIONAL AND LOCAL ECONOMY

The Provincetown Municipal Airport master planning analyses have projected that the airport currently contributes about \$4 million to \$5 million annually to the local economy (FAA 1997). If commercial service was discontinued as a result of permit area constraints, there would be an adverse economic impact.

No adverse economic impacts on shellfishing and fishing are anticipated because the boundary change would be minimal, and the rules and regulations for such activities would not change. The boundary would be fixed at a certain latitude and longitude rather than migrating over time at a distance of one-quarter mile offshore with the changing coastline.

Relocating most, if not all, national seashore administrative and maintenance facilities to nearby communities would provide the greatest economic benefits to nearby communities. There would also be more traffic, air pollution, and noise than under either alternative 1 or 2.

Conclusion

There could be an adverse economic impact if commercial air service at the Provincetown airport was discontinued as a result of permit area space constraints. Adverse economic impacts on shellfishing and fishing as a result of changing the national seashore boundary are not anticipated because the change would be minimal and rules and regulations for such activities would remain the same. Local communities would benefit economically from the relocation of NPS facilities outside seashore boundaries.

PRIVATE PROPERTY OWNERS AND LOCAL RESIDENTS

Analysis

The Park Service would undertake a more assertive approach to preserving historically significant, privately owned structures that were threatened by coastal erosion, including those eligible for the National Register of Historic Places; measures could include acquisition on a willing-seller basis. The national seashore's *Land Protection Plan* would be amended to allow for the acquisition on a willing-seller basis of any structures on or eligible for the National Register of Historic Places.

Converting the NPS use guidelines into regulations through the required amendment process would provide a stronger means for enforcing the guidelines and more consistency. However, this would not be popular with some owners or towns due to the guidelines' perceived inadequacies and the fact that they are out of date. While some could find regulations adverse because they could restrict the desired use of their property, others could find them beneficial because they are concerned about the potential for excessive expansion and the loss of the original cottages that comprise the Cape Cod character of the Seashore District. The threat of condemnation would be more effective at achieving compliance with the NPS use guidelines once they were codified.

Conclusion

National seashore managers would take a more assertive approach to preserving historically significant, privately owned structures that were threatened by coastal erosion, including those eligible for the National Register of Historic Places; measures would include possible acquisition on a willing-seller basis. Converting existing NPS guidelines into regulations would provide a stronger means of enforcement, help protect the character of development, and ensure more consistency, but it would not be popular with some owners or towns. The threat of con-

demnation would be more effective for achieving compliance with the NPS use guidelines once they were codified as regulations.

NPS CONCESSIONERS

Analysis

As concessions contract renewal dates are reached, the National Park Service is required to review the continued need for that service to be provided and to put each contract out for competitive bidding. This means that existing concessioners are not guaranteed a long-term exclusive right to continue operations. For instance, the discontinuance of the Nauset Knoll Motor Lodge, one of the only motels directly on the beach, is being considered because of abundant overnight lodging opportunities nearby. The loss of this operation would reduce the number of guest rooms available on the Outer Beach, but adverse impacts to the public would be minimal because of the current lodging supply.

Additionally, the refreshment concession at Herring Cove would be eliminated because of the availability of many alternative food service sources nearby. With fewer products and services available at Herring Cove, more people might be encouraged to drive their own vehicles rather than walking, biking, or using public transportation so they could transport supplies. More people in private cars would result in more traffic, air pollution, and auto-related accidents on NPS roads. Vending could be provided at some beaches to reduce private vehicle dependency.

This alternative would also provide for more stringent regulation of commercial licensees who operate activities that originate and end outside national seashore boundaries. Additional regulation would impose a greater workload on national seashore staff and potential restrictions or requirements on tour operators. However, the additional regulation would have the beneficial impact of improving services and environmental practices of these tour operators.

Conclusion

Existing NPS concessioners could be adversely affected if it was decided that a contract would not be renewed, or if they did not compete successfully for a new contract. Additional regulations for commercial licensees operating within the national seashore would help improve public services and environmental practices.

MUNICIPAL COSTS AND SERVICES

Analysis and Conclusion

Relocating most, if not all, national seashore administrative and maintenance facilities to nearby communities would result in more impact on the communities in terms of traffic, air pollution, and noise than either alternative 1 or 2. However, this alternative would provide the greatest economic benefits to nearby communities.

Discontinuing commercial use permits for privately owned businesses and acquiring the businesses would negatively affect local tax bases because revenue losses.

IMPACTS ON NONFEDERAL LANDS WITHIN THE NATIONAL SEASHORE

PRIVATE RESIDENTIAL PROPERTIES

Analysis and Conclusion

Converting the NPS use guidelines for private property into amended Cape Cod National Seashore zoning standards would have mixed results. As a regulation it would provide a stronger means for enforcement and more consistency, but it would not be popular with private owners or towns. It would restrict some owners from using their properties as they desired. It would also be perceived by some as less flexible and effective than is possible because the guidelines are not consistent with current thinking and practice in the development of zoning standards. However, it would satisfy other owners who are

concerned about the potential for excessive expansion and the loss of the original cottages that comprise the Cape Cod character of development in the national seashore. Existing condemnation authority would be enhanced by converting the NPS use guidelines into standards.

PRIVATE COMMERCIAL PROPERTIES

Analysis and Conclusion

Impacts on private commercial property owners would be similar to those described for alternative 2 except that the National Park Service and the advisory commission might not work in an interactive process with property owners to improve performance and achieve compliance with the standards. The monitoring of performance activities on the properties might have to be increased to provide a complete record of how a property was being used. Ultimately, the acquisition of the properties to reduce effects of inappropriate commercial activities would need to be a high priority; consequently, this strategy could involve great expense.

MUNICIPAL AND STATE LANDS

Analysis and Conclusion

Increased management of kettle ponds, including improved collaboration with the state and towns for more consistent management, would have a beneficial effect by helping further reduce degradation of pond resources. Potential discussion and implementation of land exchanges between the National Park Service and other jurisdictional agencies would also help consolidate pond ownership and improve management efficiency.

If actions were successful under this alternative to get legislative authority to prohibit the construction of revetments and other coastal engineering structures, there would be a greater risk to nonfederal interests. Currently nonfederal property owners have the right to construct such projects to protect their property.

IMPACTS ON NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

STAFFING

Analysis and Conclusion

Approximately 15 new staff full-time equivalencies would be added over time to accomplish plan goals and strategies under this alternative. In addition to the staff required in alternative 2, an archeologist and a planning technician position would be necessary to implement alternative 3 strategies due to the emphasis on developing more formalized partnerships. There would be no substantial difference in the beneficial and adverse impacts of alternative 3 compared to alternative 2.

ADMINISTRATIVE AND MAINTENANCE FACILITIES AND OPERATIONS

Analysis

This alternative proposes the most costly improvements, such as the development of cooperative interpretive facilities with the National Oceanic and Atmospheric Administration and the U.S. Fish and Wildlife Service. Due to the difficulty of obtaining capital funding for new facility development, it would likely take years to achieve. Additional capital and operating costs to develop and staff new facilities would possibly adversely affect the ability to maintain or rehabilitate and operate existing public facilities.

Moving operational functions outside the seashore, removing vacated facilities that were no longer essential, and returning sites to natural conditions would reduce development within national seashore boundaries.

Locating operational space in towns outside national seashore boundaries would reduce the potential for new facility construction and increase the potential for removing structures

within the seashore, further reducing maintenance costs. Also, taking advantage of structures when use-and-occupancy reservations end would help make operations more efficient.

By not providing artificial landscaping around NPS facilities, alternative 3 would minimize potential impacts on groundwater and wildlife populations and habitat. The landscaping under this alternative would be the least costly to maintain and would set the best example in terms of sustainable practices for neighbors and the visiting public.

This alternative would require additional costs for research, planning, and construction ranging from approximately \$11.6 million to \$14.3 million.

Conclusion

Leasing space in local towns outside seashore boundaries, as well as taking advantage of structures when use-and-occupancy reservations end, would help make operations more efficient and result in the greatest reduction in the built environment within the national seashore. The result would be the lowest cost for maintenance and setting the best example in terms of using sustainable practices.

STAFF HOUSING

Analysis

Implementing alternative 3 would result in a greater impact on the Cape's natural resource values in general than would alternative 2. Further dispersing employee housing would disrupt wildlife populations and increase habitat fragmentation more than would concentrating housing as proposed under alternative 2. Wildlife species composition at these locations would favor those species that prefer disturbed or open areas.

Dispersed housing could tend to isolate employees from the park and local community. This

could affect seasonal employees more than permanent employees. In addition, limiting access to housing by permanent employees could adversely impact these employees. With the shortage of affordable housing, providing seasonal housing would continue to be especially beneficial for seasonal employees and would be essential for national seashore operations.

Conclusion

Dispersing staff housing throughout the national seashore would have a greater adverse impact on the natural resource values of Cape Cod than would alternative 2, primarily in terms of disrupting wildlife populations. Giving seasonal employees preference for housing would have a beneficial impact on those individuals.

SERVICES EXCHANGED WITH LOCAL COMMUNITIES

Analysis and Conclusion

The financial burden for fire protection provided by the National Park Service would be borne by the individuals receiving those services.

CUMULATIVE IMPACTS

Alternative 3 includes a number of goals and strategies that were also proposed and assessed under alternative 2. Unless otherwise specified, the cumulative impacts for alternative 3 would be generally the same as those described under alternative 2.

NATURAL RESOURCES

Allowing coastal processes to continue unimpeded would increase the possibility that this dynamic barrier beach system would function

completely naturally. However, eliminating human development directly along the coast, as coastal processes dictate, would result in direct negative impacts on some cultural resources, visitor uses, and private properties. These impacts would increase over time in direct relation to significant events such as storms. From a visitor use standpoint, the chance to experience a dynamic barrier beach system free of human intervention would be enhanced.

Prohibiting finfish aquaculture under alternative 3 would have an adverse cumulative impact on the growing aquaculture industry in the northeastern United States. Grants would not be issued for finfish aquaculture in waters under national seashore jurisdiction, thereby preventing expansion of this growing industry into the area. However, the prevention of water quality deterioration potentially associated with finfish aquaculture would be a beneficial cumulative impact relative to the various regional initiatives for maintaining and improving coastal water quality.

PUBLIC USE AND EXPERIENCE

Prohibiting runway expansion or any other development outside the currently permitted area at the Provincetown airport would have the potential for beneficial cumulative impacts on local ground transportation and ferry service. By denying expansion outside the permitted areas, which could increase the airport's capacity and lead to increased traffic on Race Point Road and other roads in the vicinity, there is potential for adverse effects on local traffic flows and the airport's economic viability.

CONSULTATION AND COORDINATION

GENERAL MANAGEMENT PLANNING PROCESS FOR CAPE COD NATIONAL SEASHORE

The National Park Service takes an interdisciplinary approach to planning, with planning team members in the fields of natural and cultural resource management, interpretation, landscape architecture, and community planning. The planning team has consulted with professionals in various disciplines, such as partnership development and transportation. An onsite planner was assigned to the national seashore for three years to work directly with NPS staff and local communities.

The specific planning steps included (1) assembling an interdisciplinary project team of national seashore staff and national park service specialists, which included individuals with expertise in natural and cultural resource management, interpretation, landscape architecture, and community planning; (2) researching legislative history, authorities, jurisdictional questions, and other legal and technical documents and developing statements of purpose, significance, management philosophy, and primary interpretive themes; (3) mapping and analyzing the national seashore's important resources and public experience; (4) defining potential management zoning for a range of desired resource and social conditions; and (5) developing goals and alternative strategies or actions.

In anticipation of the planning process, preliminary research was undertaken to evaluate the available information and to identify areas requiring further study. The park's geographic information system (GIS) was expanded to include updated landownership, wetlands, and floodplain information. NPS staff at the seashore commissioned visitor use and resident surveys that were prepared and administered by Dr. Robert Manning of the University of Vermont.

The first year of the planning effort was devoted to advanced data collection and working with seashore staff, local officials, and the general

public to understand their thoughts and concerns about the future of Cape Cod National Seashore.

During the summer of 1992 the first series of public meetings were held in each of the six Outer Cape communities and in Barnstable. The purpose was to introduce the planning process and to invite members of the public to offer their thoughts on the future of the national seashore. The team's first formal newsletter, distributed in winter 1993, reviewed the planning process and summarized public comments. The planning team also held workshops for seashore staff to review the purpose and significance of the national seashore and to identify a vision and management goals for the national seashore.

During 1993 the planning team focused on analyzing issues, resources, programs, and public input, culminating in the development of a framework for preliminary alternatives for the national seashore. A series of technical workshops were held with seashore staff on a variety of topics, including natural resource management, cultural resource management, and interpretation. Also, the on-site planner convened a subcommittee of the Cape Cod National Seashore Advisory Commission to provide ongoing community input in the planning process. Known as the General Management Plan Subcommittee, this group was composed of representatives of the seashore's advisory commission, each of the six communities within the national seashore, the Cape Cod Commission, and Massachusetts Coastal Zone Management Office. Throughout the summer of 1993 the subcommittee met to discuss particular planning issues and to identify a range of possible solutions.

A second newsletter, released in summer 1993, provided an update of ongoing planning activities and introduced the members of the planning team. A third newsletter, released in fall 1993, presented for public review the proposed

purpose and vision statements, the management objectives, and a framework for planning alternatives. The framework for alternatives introduced three preliminary management concepts that would form the basis for developing the alternatives — protecting natural resources, emphasizing Cape Cod's cultural heritage, and emphasizing public use opportunities. Comments made during a series of public meetings in October 1993 indicated that the greatest support was for an approach to management that balanced public use and resource protection.

In spring 1993 graduate students at Harvard's Kennedy School of Government prepared a series of papers addressing planning and management at Cape Cod National Seashore. The course was taught by Charles H. W. Foster, who summarized the student papers in a final document entitled "Strands and Soundings: A Kennedy School Cape Cod Notebook." Also during the spring of that year, the planning team undertook an innovative new approach to analyzing resources and establishing carrying capacity (see appendix D).

During the third year of planning for Cape Cod National Seashore, the planning team modified the planning alternatives based on the results of research and analyses and input from the public and seashore staff. Additional research was completed to evaluate the historic landscapes identified throughout the national seashore. In addition, members of the planning team worked with the U.S. Coast Guard and seashore staff to develop a strategy for relocating Highland Light, which was threatened by coastal erosion. In the spring of 1994 a fourth newsletter was released relating the results of the visitor use and resident surveys, recounting the outcome of the public meetings that had taken place the previous fall, and providing the public with further information on the analysis.

In 1995 management zones and alternative management strategies were refined, and in conjunction with the change in superintendents, the management objectives were revised to be more in keeping with the programmatic style of the general management plan. Presentations on

the updated management objectives, management zones, and goals and management strategies were presented to local town planning boards in the fall of 1995.

The *Draft General Management Plan* and *Draft Environmental Impact Statement* were released for public review and comment from mid-August to December 31, 1996. Between 900 and 1,000 copies of the *Draft General Management Plan* and 700 copies of the *Draft Environmental Impact Statement* were distributed to agencies, organizations, and the general public. Four formal public meetings were held, as well as numerous informal meetings with town boards and other organizations to provide clarifications and to seek input on the content of the plan and its accompanying environmental impact statement. Approximately 365 comment letters were received, plus numerous comments made at public meetings and workshops.

After the formal review period ended, national seashore managers met with each town's board of selectmen and several other organizations to ensure their comments and concerns had been properly understood. Responses to substantive comments received in writing are included in volume 2, *Comments and Responses to the Draft Environmental Impact Statement*. Extensive additional information on the meetings and public input is included beginning on page 277. In preparing the final plan, responses from public agencies, organizations, and individuals were carefully considered. Clarifications and explanations were made throughout the *Final Environmental Impact Statement* as a result of public comment and are documented in volume 2.

The Federal Aviation Administration participated in the environmental impact process as a cooperating agency. They provided technical information, met to review comments on the *Draft Environmental Impact Statement*, and reviewed various products.

A "Revised Draft General Management Plan" was developed in May 1997 and made available to anyone who requested it as an interim

document prior to the release of the *Final Environmental Impact Statement*. About 335 copies were requested, including about 35 copies that were sent to the local towns. About 10 comments in writing or by telephone were received, including an extensive comment package from the town of Provincetown plus feedback from meetings with town boards of selectmen. These comments were used to further refine the plan; comments and responses to this interim review are not documented in this *Final Environmental Impact Statement*.

The General Management Plan Subcommittee met periodically as needed throughout the process as project milestone occurred. The subcommittee issued three written reports to the full Cape Cod National Seashore Advisory Commission, which were discussed with the national seashore superintendent during their meetings. The first report was issued on May 20, 1994, during the development of the draft plan, and the second report was submitted on November 22, 1996, during the public comment period on the *Draft General Management Plan* and *Draft Environmental Impact Statement*.

The subcommittee comments focused on complex topics of mutual concern to the Outer Cape. Advice and comments were wide ranging and varied. These included resource management and public use issues such as groundwater, historic properties, resource protection partner-

ship ventures, recreational and educational opportunities, and transportation planning. Lands and national seashore management issues were also discussed, such as expressions of interest in cooperative revisions to zoning of residential properties, the Provincetown airport, community interests, municipal uses, utilities and services, clarification of jurisdictional authorities, recognition of residents of the constituent towns, intergovernmental cooperation, and expiring reservations of use and occupancy.

The final report of the GMP subcommittee was submitted to the advisory commission on December 5, 1997, prior to completion of the *Final Environmental Impact Statement*. The report, which includes a minority report from the town of Provincetown, provides context for future management and is included in appendix H.

Reading the public comments contained in the two volumes of the *Final Environmental Impact Statement* and additional information available in files at the national seashore headquarters provides valuable background for the context in which the proposed plan has been developed. All comments received on the *Draft Environmental Impact Statement* and the *Draft General Management Plan*, as well as the "Revised Draft General Management Plan," are on file at the national seashore headquarters in South Wellfleet, Massachusetts.

COMPLIANCE WITH FEDERAL AND STATE LAWS AND REGULATIONS

In implementing the Cape Cod National Seashore general management plan, the National Park Service will comply with all applicable laws and executive orders, including those listed below. Consultation and coordination with appropriate federal, state, and local agencies has been conducted during the preparation of this document.

Natural Resources

National Environmental Policy Act of 1969 — The *Draft Environmental Impact Statement* was on public review from August 19 to December 31, 1996. This *Final Environmental Impact Statement* responds to or incorporates the public comments on the draft document. After a 30-day no-action period, a record of decision will be prepared to document the selected alternative and set forth any stipulations for implementation of the selected alternative.

This document is essentially a programmatic statement, presenting an overview of potential impacts relating to the proposed program for each alternative. A more detailed environmental assessment would be completed for any action in the approved plan that requires further analysis. These documents would be tiered to this programmatic statement.

Analysis of Impacts on Prime and Unique Agricultural Lands in Implementing the National Environmental Policy Act (45 FR 59189) — Federal agencies are required to analyze the impacts of federal actions on agricultural lands, in accordance with the National Environmental Policy Act. This policy was developed to minimize the effect of federal programs in converting prime, unique, or locally important farmland to nonagricultural uses. There are both prime and unique farmlands within the national seashore. Any impacts to these farmlands would be more fully analyzed in environmental assessments.

Clean Air Act, as amended (42 USC 7401 et seq.) — Cape Cod National Seashore is designated a class II clean air area. Maximum allowable increases of sulfur dioxide, particulate matter, and nitrogen oxides beyond baseline concentrations established for class II areas cannot be exceeded. Class II increments allow modest industrial activities in the vicinity of a park. Section 118 of the act requires all federal facilities to comply with existing federal, state, and local air pollution control laws and regulations. Cape Cod National Seashore would work with the Massachusetts Department of Environmental Protection to ensure that all activities in the national seashore meet the requirements of the state air quality implementation plan.

Coastal Zone Management Act (1972) and Coastal Barrier Resources Act (1982) both as amended in 1990 — All of Cape Cod, except federal land, lies within the Massachusetts coastal zone; however, all federal activities related to marine resources must be consistent with Massachusetts coastal zone management policies. These policies recognize the ecological significance of coastal waters and strive to protect both the water quality and the integrity of significant resource areas. A consistency determination will be completed to more closely analyze plan actions in relation to these policies and to ensure their consistency.

Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) — Section 7 requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. Consultation with the Fish and Wildlife Service indicates that 17 federally listed endangered or threatened species are found within the national seashore. National seashore staff have worked closely with the U.S. Fish and Wildlife Service on piping plover protection strategies and will continue to do so as needed for other species.

Executive Order 11988, "Floodplain Management" — All federal agencies are required to avoid construction within the 100-year floodplain unless no other practical alternative exists. Some facility development described in this plan may be at least partially sited in areas that are within the 100-year floodplain. This determination would be made when site planning and design were accomplished. The National Park Service has determined that activities of this type are compatible uses of floodplains because the intent of these facilities is to provide access to water recreation activities. These actions are excepted from compliance with the executive order. An environmental assessment would analyze floodplain issues in more detail.

Executive Order 11990, "Protection of Wetlands" — This order requires that all federal agencies must avoid, where possible, impacts on wetlands. An environmental assessment would analyze wetland issues in more detail.

Executive Order 11987, "Exotic Organisms" — This executive order requires federal agencies to restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration and into any natural ecosystem of the United States and to encourage the states, local governments, and private citizens to prevent the introduction of exotics into natural ecosystems of the United States. The proposals in this document conform to the intent of the executive order.

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" — Under this executive order, the National Park Service must consider the impacts of its actions on minority and low-income populations and communities, as well as the equity of the distribution of benefits and risks of those decisions. For all alternatives in the document, based on the equity of benefit and risk distribution, there are no significant impacts on minority or low-income populations.

Federal Water Pollution Control Act, as amended, Clean Water Act of 1977, and Water Quality Act of 1987 (33 USC 1251–1376) — Proposed actions would have little if any negative effect on water quality. Some actions, such as developing a comprehensive water resource management plan and upgrading waste water treatment facilities, would have a positive impact. All construction would comply with the requirements of sections 401 and 404 of the Clean Water Act and other applicable federal, state, and local regulations. Permits to comply with these sections are not anticipated. State and local review of any projects with potential wetland impacts would continue.

Massachusetts Natural Heritage and Endangered Species Program — As a result of consultation with the Massachusetts Natural Heritage and Endangered Species Program and analysis of national seashore inventory records, state-listed plants and animals recorded within the national seashore have been identified. Of these species, four plant species are historic records that have not been confirmed in recent years. As required by *NPS Management Policies*, the National Park Service will cooperate with the state to ensure that state-listed species within the national seashore are protected.

Cultural Resources

The National Park Service is mandated to preserve and protect its resources through the establishing legislation of August 25, 1916 (USC title 16). Cultural resources within the national seashore will be managed in accordance with that act and the Antiquities Act of 1906 (16 USC 431), the National Historic Preservation Act of 1966, as amended (16 USC 470), the National Environmental Policy Act of 1969, as amended (42 USC 4321, 4331, 4332), the Archeological Resources Protection Act of 1979 (16 USC 470), and the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001). In addition, cultural resource management will be guided by chapter 5 of the *National Park Service Management Policies* (1988), the *Cultural Resources Management Guideline* (NPS-28), and other relevant policy directives.

In August 1992 the National Park Service initially informed the state historic preservation officer about the preparation of a new general management plan for Cape Cod National Seashore and initiated the formal consultation process. The team submitted a draft task directive for review and comment in October 1992. At sessions in January 1993 and February 1994, representatives of the state historic preservation officer participated in cultural resource management workshops, during which relevant issues and alternatives were defined and discussed. Representatives of the state historic preservation officer were also involved in site-specific planning efforts that have taken place during the span of the planning process, such as the relocation of Highland Light. A team draft of the "Draft General Management Plan / Environmental Impact Statement" was submitted to the state historic preservation officer for review and comment in April 1996. The office also received and commented on the *Draft General Management Plan* and the *Draft Environmental Impact Statement* (see volume 2).

In implementing the approved general management plan, the National Park Service will work with the Massachusetts state historic preservation officer and the Advisory Council on Historic Preservation to meet the requirements of section 106 of the National Historic Preservation Act, as prescribed in 36 CFR 800.

The October 1995 Servicewide Programmatic Agreement among the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service provides specific stipulations and guidance for the National Park Service to follow in meeting the requirements of section 106 of the National Historic Preservation Act of 1966, as amended (see appendix E). Stipulation V requires that "all undertakings (as defined in 36 CFR Part 800), with the exception of those that meet provisions in stipulation IV, will be reviewed in accordance with 36 CFR Part 800." Stipulation IV.B lists a number of programmatic exclusions for specific actions that are not likely to have adverse effects on cultural resources.

Based on the National Park Service's determination of how undertakings are addressed by the 1995 programmatic agreement, undertakings proposed in this *Final Environmental Impact Statement* are categorized as either (a) programmatic exclusions (undertakings identified in stipulation IV.B of the programmatic agreement and not requiring further review by the state historic preservation officer or the advisory council before implementation), or (b) undertakings requiring consultation with the state historic preservation officer and possibly the advisory council during project design stages. Appendix E lists which actions require further compliance.

Other Federal Acts

Americans with Disabilities Act of 1990 — Federal guidelines published in accordance with the Americans with Disabilities Act define specific requirements for disabled access to parking facilities, pathways, and buildings. The accessibility requirements apply to government facilities (title II) and to private entities that provide public accommodations (title III). Management guidance and cost estimates provided in this document include full compliance with the act.

Department of Transportation Act of 1966 — Section 4(f) of the Department of Transportation Act, as amended, stipulates the conditions under which public park and recreation lands, wildlife and waterfowl refuges, and historic sites may be used for a transportation project. The law requires cooperation and consultation between the secretaries of transportation and interior (and others) for any program or project requiring the use of any lands from public parks or recreation areas, public wildlife or waterfowl refuges, or public or privately owned historic or archeological properties of national, state, or local significance. The secretary may approve such projects only if (1) there is no feasible and prudent alternative, and (2) all possible planning to minimize harm has been done.

COMMENTS AND RESPONSES ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Public input and feedback is a key element of the environmental impact statement process. Public and agency review of the *Draft General Management Plan (GMP)* and the *Draft Environmental Impact Statement (EIS)* helped ensure that relevant issues and alternatives were adequately considered and evaluated, and that all pertinent implications of the alternatives have been analyzed. The purpose of this section is to provide an accurate, comprehensive presentation of the agency and public comments received on the draft documents. (The information presented in the draft GMP was the same as that in the draft EIS; the primary difference was that the EIS was formulated in accordance with the regulations for implementing NEPA). The comments and responses enable interested parties (including NPS decision makers) to review and assess how other agencies, organizations, and individuals have responded to the proposed action, the alternatives, and their potential impacts.

The National Park Service received approximately 365 comment letters, as well as numerous comments and questions presented verbally at public meetings and workshops held in the Cape Cod region. All comments received were reviewed and considered by the Park Service in the preparation of the *Final Environmental Impact Statement*, consistent with the requirements of 40 CFR 1503. Comment letters from all federal, state, and local agencies, private organizations, and individuals (when not redundant) have been reproduced in full in volume 2; written responses have been prepared for all substantive comments.

As defined in *NPS-12: NEPA Compliance Guideline*, comments are considered substantive when they:

(a) question, with reasonable basis, the accuracy of information in the EIS

(b) question, with reasonable basis, the adequacy of environmental analysis

(c) present reasonable alternatives other than those presented in the EIS

(d) cause changes or revisions in the proposal

About a dozen issue topics were the main focus of the comments in both letters and public meetings. These include an array of opinions and concerns regarding the following: aquaculture, Provincetown Municipal Airport, a boundary change, coastal processes and erosion effects, the Herring Cove Beach area, clothing-optional (nude) sunbathing, cultural heritage and residents' way of life, management philosophy, offroad vehicle use, private properties, public uses and activities, trails, transportation, town and state jurisdiction and partnerships, wildlife management, and water resources management. The substantive issues that were raised are summarized and addressed in the following section.

SUMMARY OF COMMENTS FROM PUBLIC MEETINGS

The following summary covers comments received at public meetings on the *Draft General Management Plan* and the *Draft Environmental Impact Statement*, which were sponsored by Cape Cod National Seashore, as well as comments received at meetings of local boards of selectmen, the Cape Cod Commission, the Cape Cod National Seashore Advisory Commission and its General Management Plan Subcommittee, and the Lower Cape Community Development Corporation. All of these meetings took place between August and December 1996. This summary was assembled using notes taken from flip charts, transcripts of NPS-sponsored public meetings, formal minutes provided by town boards of selectmen, and the notes of park staff in attendance at these sessions.

The following meetings are covered in this summary:

- Public Meeting, Province Lands visitor center — Aug. 27, 1996
- Cape Cod Commission Planning Committee — Sept. 30, 1996
- Eastham Board of Selectmen — Oct. 7, 1996
- Orleans Board of Selectmen — Oct. 9, 1996
- Truro Board of Selectmen — Oct. 22, 1996
- Public Meeting, Truro Central School — Oct. 24, 1996
- Lower Cape Community Development Corporation, Eastham — Oct. 24, 1996
- Provincetown Airport Commission — Nov. 4, 1996
- Chatham Board of Selectmen — Nov. 12, 1996
- GMP Subcommittee of the Cape Cod National Seashore Advisory Commission — Nov. 14, 1996; Cape Cod National Seashore Advisory Commission — Nov. 22, 1996
- Public Meeting, Nauset Regional High School — Nov. 21, 1996
- Wellfleet Board of Selectman — Nov. 25, 1996
- Lower Cape Boards of Selectmen and Cape Cod National Seashore, Provincetown — Dec. 5, 1996

The summary is organized by topic. Under each topic area, the comments from each meeting are summarized, followed by a response section.

GENERAL COMMENTS

Relationships with Local Communities

Meeting participants generally called for the plan to distinguish between residents and visitors and to acknowledge the particular needs of local residents. They also considered the economic vitality of the Outer Cape communities to be very important. Participants called for a clearly defined framework for decision making that is open, inclusive, and proactive. Open communication and partnership between the national seashore managers and local town governments was also viewed as essential. Other

key suggestions were to provide a seat for the Cape Cod Commission on the Cape Cod National Seashore Advisory Commission, to define a process for dispute resolution, and to broaden the definition of partnership to include volunteers.

Response — Language has been added to the proposed plan to emphasize the interdependent nature of the relationship between Cape Cod National Seashore and all six towns. The authors of PL 87-126 were quite concerned that the creation of the national seashore not have an adverse effect on residents within the national seashore and that the concerns of local towns be considered. To address those concerns, several specific, unusual provisions were put in the bill, including a fixed boundary and a number of special protections for privately owned residences. In addition, an advisory commission was established whose role was to “serve as a liaison between the federal government on the one hand and the State and local governments on the other.”

As a practical matter, national seashore managers recognize that the priorities and desires of year-round residents, and of nonresident taxpayers, will naturally be somewhat different from those of transient residents or visitors. Language in the plan emphasizes collaboration with local interests during planning and preparation for management action. Direct citizen involvement, including the opportunity to comment at public meetings and in writing, has been integral to the planning process, and the plan states that national seashore managers will be more assertive and proactive in this way than they have been in the past. The range of specific mechanisms and processes that may be used to manage both formal and informal collaborative efforts or disputes has been noted in the “National Seashore Management and Operations” section, such as meetings, workshops, hearings, mediation, negotiated rule making, and arbitration.

As a county agency, the Barnstable County commissioners are already represented on the

Cape Cod National Seashore Advisory Commission by the designated Barnstable County representative.

Cape Cod National Seashore has an active volunteer program that is crucial to its operation. Well over 60 local individuals currently serve as volunteers in a variety of roles from visitor center staff to facility maintenance. Additional partnership language was added regarding volunteers in the "Cooperative Planning and Management" section and elsewhere.

Way of Life

Some strong concerns were raised about the national seashore's need to preserve and maintain the way of life on the Outer Cape. Some commenters suggested that local residents had additional legal rights apart from transient visitors. Comments also asked for more history of the legislation and the history of the Province Lands.

Response: The authors of PL 87-126 were quite concerned that the creation of Cape Cod National Seashore not have an adverse effect on residents within the national seashore and that the concerns of local towns be considered. Numerous references were made to this issue during the hearings on the establishment of the park and in the final committee reports on the actual bill. The report of the Senate Committee on Interior and Insular Affairs noted that sections 4 and 5 of the bill (which relate to private properties)

may be considered as the heart of the bill for purposes of preservation of the way of life of lower Cape Cod as well as the geographic area to be included in the Seashore. Their provisions represent an unprecedented innovation in legislation to accommodate the special circumstances of lower Cape Cod. They are designed to assure that this area will be preserved for the purposes set forth in

the preamble of the bill in such a way as adequately to safeguard the private and municipal interests in the area.

To address those concerns, several specific provisions were put in the bill: the boundary was made detailed and explicit, and was readjusted several times in response to town concerns; special protections for the use, enjoyment, and value of privately owned residences were identified; protections from the authority to acquire private or municipal property through condemnation were added, and for those properties that were acquired, a retained right to use and occupy the property was specified. In addition, an advisory commission was established to "serve as a liaison between the federal government on the one hand and the State and local governments on the other." The record shows that one of the main purposes of the commission was to make sure that the Park Service did not overwhelm local residents with new development and hordes of visitors. Provisions were not made for any specific rights for local residents in relation to broader issues of use and enjoyment.

The proposed plan has been revised to include a new management objective, a new section on cultural heritage and ethnographic resources, more specifics in the "National Seashore Management and Operations: Cooperative Planning and Management" section of the proposed plan, and other refinements throughout the plan.

The proposed plan has been revised to acknowledge that the Province Lands were set aside as public lands over 300 years ago. The provisions of the "Authorization of Conveyance of Commonwealth Lands" have also been referenced in a new section of the proposed plan titled "Legal Requirements for Former Commonwealth and Town Lands"; the 1962 authorization is reprinted in appendix A.

Sustainable Practices

The plan must address the critical question of how the Park Service will define and use sustainable practices so as to allay concerns about expanding NPS influence and authority. Several ideas for sustainable practices were offered.

Response — Due to confusion with the term “sustainability,” this term has been clarified, particularly in “The Context for the Plan” section. The principle of sustainability says that the more in balance human actions are with the environment, the better and the more likely it is that the qualities that characterize the Outer Cape will be preserved and passed on to future generations. Basically, sustainability implies good management practices. Sustainable practices do not preclude change or human activity, nor do they give national seashore managers expanded influence or authority; practices such as energy, technology, and waste were explained and elaborated as appropriate.

Implementation

A number of concerns were raised about how consistently the plan could be implemented given changing local conditions and seashore superintendents. There was also a great deal of interest in developing ways to communicate better and more often to address management at the national seashore. Some meeting participants identified the need to strengthen the science program and place greater emphasis on research. Finally, it was felt that the plan should offer some guidance as to how to convert this plan into an operational plan.

Response — As a programmatic plan, a general management plan must be broadly written to enable future managers to respond to changing conditions with an appropriate level of flexibility. As the plan is implemented, it will be subject to interpretation by future superintendents. However, the plan contains a solid framework for decision making that requires future superintendents to consider set criteria and other parameters

that should ensure that decisions are made objectively and consistently.

The proposed plan outlines a management philosophy for Cape Cod National Seashore that calls for a collaborative approach to decision making that includes local communities, the Cape Cod Commission, interest groups, and other contributors. The best model for this collaborative approach to decision making that actually has been used to date is the negotiated rule making for ORV use within the seashore. The seashore expects to use this model in resolving other complex issues. Other models will be explored, as stated in the “Cooperative Planning and Management” section.

The seashore is one of a limited number of sites in the national park system to be selected to participate in the NPS ecological inventory and monitoring program. As a result, the seashore’s existing science staff has grown, and the plan proposes even further expansion of the program. The proposed plan also calls for additional scientific research to support decision making.

Information on how the plan would be implemented was included in appendix E of the *Draft General Management Plan* and appendix G of this *Final Environmental Impact Statement*. This section of the document outlines a phased strategy for undertaking many aspects of the plan over the next five years. In accordance with the Government Performance and Results Act, national seashore staff are developing a strategic work plan that will identify specific actions to be undertaken on an annual basis. These actions must relate directly to the goals established in the general management plan.

Economic and Local Impacts

Meeting participants urged the National Park Service to acknowledge the people who live and work on the Outer Cape and to consider the social and economic needs of the local communities during any review of regulations and activi-

ties that might be seasonally adjusted. The plan includes some good strategies with positive implications for the year-round economy. Such benefits should be stressed in the EIS.

Response — The proposed plan emphasizes more collaborative problem-solving processes in order to incorporate more and better information regarding local concerns into park operational decisions. The final EIS includes a new section describing the socio-economic impacts on local residents and private property owners, such as the benefits of increasing year-round activity as a result of reusing the former North Truro air force station. Further, the EIS describes additional potential effects of various aspects of the plan.

Funding

Several meeting participants voiced concern about whether the proposed alternatives were cost-effective and wanted to know how the National Park Service intended to fund them. In addition, questions were asked regarding the raising of fees to cover the costs of the plan and the costs associated with expanding the national seashore boundary.

Response — The proposed plan calls for moderate increases in the national seashore's operating budget, specifically in the areas of personnel and maintenance costs. Over the next 5 to 10 years the superintendent would request incremental increases in the seashore's operating budget in order to increase its staff to support the new programs and initiatives proposed in this plan. In addition to paid staff, the national seashore's Volunteers-in-Parks program would continue to be expanded to help meet staffing needs.

Money for capital costs would be sought in various ways. The National Park Service has dedicated funds available to support construction in park system areas. Parks must periodically compete to be placed on the servicewide priority list for construction money. In addition, the national seashore

may seek funding support from other government agencies, as well as the nonprofit and private sectors, as was the case with the relocation of Highland Light in North Truro and Nauset Light in Eastham.

As for using fees to fund park programs, it should be noted that the National Park Service is testing a new system for fee collection and distribution. Cape Cod National Seashore is currently a demonstration site under this new program. Under this program 80% of fees collected in excess of 1994 levels may be spent by the seashore to improve visitor services and resource condition. A proposal to change the national seashore boundary is considered under alternative 3 in the final EIS; this action would not have any operating cost implications.

Use of the Term 'Visitors'

Use of the term "visitor" should be defined or replaced with "public" or some other broad term. "Residents" are not "visitors" when they are in the national seashore.

Response: The text has been revised to use terms that more accurately represent the group that is being discussed. The terms "people" and "public" are generally used, in addition to "visitors" and "residents."

Other Comments

The plan should be revised to include a glossary of terms and an index. Overall, language needs to be cleaned up, particularly technical language.

Response — An index will be added to the final proposed plan; a glossary of terms was included in the draft GMP and draft EIS. A citizen reader was asked to edit the document to help make the language clearer and less bureaucratic.

NATURAL RESOURCE MANAGEMENT

Coastal Processes

Many comments focused on the impacts of not intervening in coastal processes and the need of national seashore managers to work with towns and others to address site-specific areas like Herring Cove, the Gut, and private properties. What would be the impacts of shoreline changes on park boundaries and landownership in Chatham?

Response — The natural coastal environments of Cape Cod National Seashore are difficult areas for maintaining facilities or structures due to the dynamic and sometimes destructive forces of nature. National seashore managers have developed guidance that generally promotes non-intervention in coastal processes. This is based on the understanding that intervention in any specific area could have wider and potentially damaging impacts on other areas; it also recognizes that there are clear implications of this policy on national seashore lands, and it provides alternative recommendations for towns and private property owners. National seashore managers would work with private property owners to identify their options within this policy guideline. The proposed plan outlines general criteria for responding to inlet formation, overwash, and dune migration and formation, as well as a process for responding on a case-by-case basis to coastal erosion that threatens structures. This would include discussion and participation with the towns and affected property owners.

In accordance with this policy, the National Park Service would continue to provide routine maintenance to coastal parking lots and beach facilities. In stable coastal areas where progressive erosion is not occurring, such as Herring Cove, the National Park Service would expect to continue the maintenance of support facilities for the foreseeable future. However, the long-range effects of progressive coastal erosion will eventually necessitate the relocation of all but essential structures for beach access and the reestablishment of more

sustainable parking and support facilities in more environmentally protected areas behind primary dunes. The proposed plan now includes differentiating actions for stable and progressive erosion areas.

New seashore boundaries have not been specifically redefined since the substantial coastal changes to the North and South Beach areas of Chatham since the boundary migrates with coastal changes. Deed descriptions (of metes and bounds) for lands will determine the ownership of accreting and eroding shoreline. The general principle is that the owner loses eroded coastal lands and gains any accreted lands. This principle applies whether the loss or gain occurs to a public or private owner.

Aquaculture

There was general concern about the intent and implications of NPS policy on existing and future aquaculture practice, including shellfish and finfish aquaculture. There were questions about town jurisdiction over local shellfishing and NPS legal authority over lands subject to aquacultural uses within the national seashore boundary. Pollution and disease associated with finfish aquaculture were also noted.

Response — The Outer Cape towns, by means of regulations developed in conjunction with the state, decide whether or not to issue a permit (license) for shellfish aquaculture. Under *Pazolt v. Director of the Division of Marine Fisheries*, the towns require the person who will be working the shellfish aquaculture grant to obtain permission of the upland property owner before engaging in any shellfish aquaculture activities. The National Park Service has a responsibility as an upland owner. As stated in the proposed plan, the Park Service would research and monitor the potential effects of shellfish aquaculture activities on the health of native species, marine systems, and genetic diversity. The Park Service would also provide technical input to town shellfish officers regarding the issuance of grants

within national seashore boundaries. When asked to evaluate shellfish aquaculture activities, national seashore managers would consider the species proposed, potential impacts, and density of aquaculture uses in balance with other values of the tidal flats and coastal areas. The national seashore will not institute any regulations with regard to the taking and propagating of shellfish.

Within seashore boundaries, commercial activities are not allowed except those that currently exist or are a visitor concession. This prevents the establishment of private businesses, such as private finfish aquaculture grants, within national seashore boundaries.

The "Vegetation and Wildlife" section of the proposed plan has been revised to more clearly distinguish strategies for dealing with shellfish and finfish aquaculture, which are based to a large extent on PL 87-126. To help clear up any confusion over jurisdiction of the state and the Park Service, the specific language of the "Authorization of Conveyance of Commonwealth Lands" in Provincetown and Truro, and the 1984 state act that ceded concurrent jurisdiction of all lands within the boundaries of the seashore in the towns of Chatham, Orleans, Eastham, Wellfleet, Truro and Provincetown to the Park Service are included.

Groundwater Resources

In addition to highlighting the issues related to groundwater quality and quantity on the Outer Cape, many comments addressed the export of potable water supplies from the national seashore to Provincetown and inquired about the future of such transfers. The work of the Lower Cape Groundwater Task Force was noted, as well as the authority of the Massachusetts Department of Environmental Protection in managing groundwater resources. Is the national seashore practicing water conservation as Provincetown has been compelled to do, and how will the seashore work with towns to

protect sensitive water resource areas like the Wellfleet ponds?

Response — The proposed plan notes the commitment of the National Park Service to work with the town, county, state, and federal agencies in establishing water quality and quantity standards. The plan also emphasizes the desire of national seashore managers to coordinate with towns and private owners in areas of pollution control and water conservation and to implement new water supply, conservation, and wastewater technologies in its own facilities. The "Water Resources" section has been revised to more clearly reflect the Park Service's desire to continue working as a member of a regional water management group, such as the Lower Cape Water Management Task Force. It also states more clearly the intent to explore all options relating to accessing water for Outer Cape communities from within national seashore boundaries. In addition, the proposed plan indicates that specific resource management plans would be developed for all ponds in the national seashore, in cooperation with landowners, towns, the county, and the state.

Herring/Pamet Rivers

Restoration projects for the rivers spurred a discussion of the impacts of reintroducing saltwater tidal flows into currently diked freshwater marsh areas. What would be the impacts on local wells, streamside vegetation, and aesthetic attributes, and who has the authority to take such an action?

Response — Past human intervention and actions along the Herring and Pamet Rivers have caused substantial impacts to natural processes and the overall health of these significant estuarine systems. Today, consistent management of these rivers is difficult because of the variety of landowners in the area, including the National Park Service and private, state, and local town interests — all with a voice in future management.

The proposed plan has been revised to clarify the intent and goals. The restoration of tidal flow in these river/estuarine systems by modifying dikes and drainage structures would be focused only in areas historically influenced by tidal waters. These projects would require extensive study, public meetings, and the protection of private property rights and well water quality. Any such plans would also require the concurrence of all federal, state, and local entities with jurisdiction and could not be undertaken unilaterally by the National Park Service. The proposed plan now includes provisions to minimize or eliminate impacts to surrounding uses and private lands by implementing solutions based on thorough hydrologic and biological investigation and substantial community involvement.

In the case of the Pamet River, changes in the proposed plan include a clear statement that the intent is not to flood the entire valley, and most of the Pamet River from U.S. 6 east to the headwaters would remain freshwater, as it is today. The Corps of Engineers hydrology study (begun in 1996) is a cooperative project between the town of Truro, the Park Service, the Cape Cod Commission, and the Corps of Engineers to provide a scientific foundation of how the Pamet River's hydrologic system operates and how it has been impacted by past human activities. This study, in addition to the considerations noted above, will help guide future decisions regarding management or restoration needs of the river. For the Herring River, some tidal flow already exists upstream of the dike because of a two-way culvert, but as now stated in the proposed plan, any changes to the existing hydrologic system would be preceded by thorough study and consultation and coordination with all affected owners and interest groups. The protection of the golf course facilities and private properties upstream will be a key part of any overall strategy for restoration and/or management of the Herring River.

Wildlife Management

There are perceived species imbalances, including the spread of exotic (nonnative) species and the loss of native species. The proposed plan should specifically call for management planning for threatened species and clearly define what constitutes a "pest." What management actions are appropriate in the context of ecosystem management?

Response —The National Park Service has an extensive, integrated pest management (IPM) program to address problems within the national seashore, using the minimal actions necessary to protect resources, facilities, and visitors. A pest is considered anything that is affecting public health and safety, or that is injuring or negatively affecting resources within the national seashore. Pests are often nonnative species, such as the brown-tailed moth; however, they can also include native plants or animals if they are negatively affecting visitors, facilities, or resource management programs. National seashore staff, in cooperation with experts in academic institutions and local health or county agencies (such as Cape Cod Mosquito Control) make decisions regarding pests. The use of chemical or lethal means to eradicate pests must be approved by the central IPM coordinators and the Washington, D.C., staff. Pest-control methods are always to be the least toxic, use the minimal amount needed, and must be targeted at a specific pest without harming a variety of other plant or animal species. Pest-control policies are generally broader than the process for developing a general management plan, and no specific actions are listed in the proposed plan, other than acknowledging that servicewide standards for pest management would be followed.

The recovery of threatened or endangered species, especially in the case of the piping plover, is routinely given a high priority in management plans as well as in actual management. The National Park Service prefers to incorporate threatened or endangered species management objectives into more holistic systems management approaches; however, as

a federal agency, the National Park Service fully accepts its responsibility to protect these species under the Endangered Species Act, as well as its own organic act.

CULTURAL RESOURCE MANAGEMENT

Cultural Heritage

People requested that more of the history of people on the Outer Cape be included in interpretive programs. Also, there was confusion about whether beachcombing, berry picking, and other activities were prohibited within the national seashore.

Response: The proposed plan has been revised to include a new "Cultural Heritage and Ethnographic Resources" section, which affirms that customary activities (beachcombing, berry picking, mushroom harvesting, shellfishing, fishing, and contemplative activities) would continue to be allowed, subject to applicable federal, state, or local regulations. This section includes two new goals and numerous strategies that would ensure that cultural heritage is considered in national seashore management and operations. Also, see comments about "Way of Life" on page 279.

Cultural Landscapes

There needs to be a clarification of how cultural landscapes are defined and managed. Some commenters questioned how a historic period could be determined for a historic landscape, and others pointed to the loss of contemporary landscape opportunities if historic preservation or restoration were to occur. The contribution of cooperative groups in landscape preservation needs to be acknowledged and encouraged in the future.

Response — A definition of cultural landscapes as they are most often found on Cape Cod is included in the proposed plan. Cultural landscapes with particularly significant historic attributes may be eligible for the

National Register of Historic Places. To be eligible for the national register, a defined historic landscape must possess the quality of significance in American history, architecture, archeology, engineering, and culture and integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, the landscape must be associated with a significant event or person in history or embody a distinctive type, period, or method of construction, or be likely to yield important information on history or prehistory. The significant characteristics or human events associated with the landscape originate from a specific historic period that is identified as the "period of significance." This period acts as a guide to the preservation or restoration of the landscape.

All cultural landscapes, particularly those found to be eligible for the national register, should be managed to preserve their significant historic characteristics or features. The preservation of these characteristics does not require "freezing" a landscape in time, nor does it preclude aspects of its use or appearance being changed. Just as historic buildings can be adapted for contemporary uses while retaining their historic character, so can cultural landscapes.

As with the management of historic structures, national seashore managers would rely on a variety of partnerships to help preserve cultural landscapes within the seashore. The proposed plan notes a variety of partnership methods that could be used to preserve and maintain the character of the Cape's cultural landscapes, as well as potential partners.

Historic Architecture

National seashore managers should actively seek cooperative relationships with more organizations to improve the condition of historic buildings, particularly at Fort Hill. Will more technical assistance be offered to private owners of historic structures? Also, the contributions of

volunteer staffers at historic structures are very important to the national seashore.

Response — The national seashore has more historic buildings under its ownership than it can reasonably protect using available appropriations. Increasingly, national seashore managers will rely on partnerships to help meet preservation needs. The proposed plan has noted a number of methods and potential partners that could be used to maintain historic buildings. One such preservation method is the historic property leasing program; currently six historic houses are included in this program, some of which are used by private individuals for housing in exchange for capital improvements and ongoing maintenance. Another method is a program to provide more technical preservation guidance to the private owners of historic structures. The proposed plan includes a strategy to develop partnerships and cooperative programs for the care of historic properties.

The role of volunteers is crucial to the success of a wide variety of programs at the national seashore. There is an active volunteer program, with individuals currently assisting in the upkeep and interpretation of historic structures. The volunteer program has made and will continue to make an important contribution to preserving historic architecture within the national seashore, and it is included as one of the key strategies in that section.

Archeological Resource Protection and National Seashore Boundary Changes

What is the intent of altering or extending the existing seashore boundary, and where would the boundary ultimately be fixed? There was also concern about the implications of this boundary change on the Provincetown Harbor.

Response — The sole purpose for a proposed change in the seashore boundary seaward was to protect submerged archeological resources. However, this strategy has been

dropped from the proposed plan in favor of working with the Massachusetts Board of Underwater Archeological Resources to cooperatively develop programs to protect such resources. The plan does not propose any increase in jurisdiction over the Provincetown Harbor. It acknowledges the seashore's existing boundary, which extends one-quarter mile from the mean low tide line off seashore-owned lands and which includes both the water and submerged lands; these offshore areas are owned by either the state or the National Park Service (please refer to the "Landownership" map).

PUBLIC USE

Information and Orientation

Valuable public use information could be delivered by radio or variable message signs along U.S. Route 6. National seashore managers could also improve their communication of partnership needs and volunteer opportunities to the public.

Response — The plan identifies a number of ways that the public can access information about Cape Cod National Seashore before leaving their homes, while en route, and once they have arrived. For those en route, various media would be considered to inform the public of beach parking conditions and other pertinent information on park use. Options include changeable message signs and low-watt radio advisory systems. Text about outreach for volunteer opportunities at the national seashore was also added to this section of the plan.

Access and Transportation

Beach Access — Vehicle congestion and high levels of use at seashore facilities were noted, but there was no consensus on the merits of shuttle transit options and additional improvements for bicycles and pedestrians. Providing improved access to bay beach areas also drew a conflicting response, highlighting issues of scale of development and local impacts. Opportunities

to use existing offsite parking lots and to encourage bicycle use were suggested, as were establishing close working relationships with officials in each town to address beach access issues.

Response — Automobile congestion and the lack of adequate parking is a problem at peak times at a number of the most popular national seashore beach facilities. The final plan notes opportunities for diverting some of this public use to less crowded beach areas by better information and orientation systems. The plan also recommends implementing alternative parking strategies, such as using offsite parking lots (for example, school lots in the summer) and providing alternative means of access, like shuttle systems and bicycle and pedestrian paths. Shuttle systems operate successfully at Coast Guard Beach and could be appropriate elsewhere within the national seashore. Bicycle and pedestrian access should be encouraged with reduced entrance fees, which is also recommended by the plan. While a regional approach to transportation planning will be needed, national seashore managers would work closely with towns in devising transportation and access solutions appropriate to each site and acceptable to each local community.

The proposed plan calls for the exploration of a possible walk-in bayside beach in Wellfleet (see the "Public Use: Activities, Facilities, and Services" section). NPS staff would continue to evaluate interest in and possible locations for providing such an opportunity due to the lack of nonresident public bayside beach facilities south of Provincetown. Issues of scale of development, road access, sensitive resources, property ownership, local character, and community interests would be considered if this proposal was pursued.

Provincetown Airport — A number of commenters wanted a clarification of the national seashore's policy toward the airport and the underlying policy rationale. The importance of the airport to the local economy and to public

safety were noted, as well as its role in providing access to the seashore. While there were conflicting responses to the issue of airport expansion, there was consensus that the proposed plan should reference the prior work of the airport planning committee and continue to work cooperatively with the Provincetown Airport Commission.

Response — The proposed plan regarding the Provincetown airport has been revised to avoid drawing any specific conclusion regarding future redevelopment proposals; instead it states that national seashore managers would continue to work with the Provincetown Airport Commission, as well as state and federal agencies, to ensure that airport operations and redevelopment are compatible with national seashore resources and values. These resources and values include opportunities for quiet contemplation, reasonable access to NPS facilities, and the preservation of vegetation, wildlife, wetlands, dunes, views, and cultural resources. Under the proposed plan a range of airport development and operation options would be considered. Amendments have also been made to the text clarifying the National Park Service's obligation to provide space for this purpose as defined in the "Authorization of Conveyance of Commonwealth Lands" (see appendix A).

The final EIS has been revised to include the importance of the airport as an Outer Cape transportation facility and service provider. Airport connections are noted in the plan as an alternative way to access the national seashore. Additional discussion of general economic impacts of airport operations were added to the final EIS.

Interpretation and Education

Most comments supported the national seashore's interpretive and education program, with suggestions for increasing the diversity of program offerings, developing programs with cooperative groups, and expanding interpretive trails. Conversely, it was noted that the seashore

is not a theme park, and no interpretation of the history and people here is needed. Opportunities were also identified for addressing resource damage with educational programs and signs.

Response — NPS policy states that interpretive programs will be conducted in all parks “to instill an understanding and appreciation of the value of parks and their resources; to develop public support for preserving park resources; to provide the information necessary to ensure the successful adaptation of visitors to park environments; and to encourage and facilitate appropriate, safe, minimum-impact use of park resources.” Public education and interpretation are available in various forms at the national seashore, including visitor center exhibits and films, interpretive signs and exhibits, interpretive trails, regulatory signs, ranger interpretive programs, school outreach programs, brochures, and volunteer programs. Unfortunately, due to limited facilities, staff, and funding, as well as increasing public demand, only a small percentage of the millions of people who visit the national seashore annually participate in any form of interpretive or educational programs. For those seashore users who are interested, the proposed plan sets a goal of providing a wide variety of programs for a diverse audience. The plan also recommends more cooperative partnerships with outside organizations, like local schools, as an example of providing interpretive and educational programs in ways that stretch the limited budget for this very important mission. It also includes a greater emphasis interpreting local Cape Cod cultural heritage.

Activities, Facilities, and Services

Comments on this topic touched on a wide range of concerns, including questions about how trails would be designated and improved and the need for dog-leash regulations. A suggestion was made to remove dunes to provide ocean views. Comments took opposing views of providing opportunities for and addressing impacts of primitive camping within the national

seashore. It was also suggested that managers consider promotion and incentives to target certain user groups or favor certain use seasons.

Response — The proposed plan calls for the development of a comprehensive trail plan for the national seashore as a separate document from the final plan. This trail plan would evaluate and specify trail locations, alignments, and construction specifications for the full range of trail types; it would also designate trails as an alternative means of access to areas, as well as to interpretive or recreational facilities. Trail use, particularly by bicyclists, is growing in popularity within the national seashore. While bike trails have been specifically designated within the seashore, bike use is expanding to fire roads and other trails. The trail plan would evaluate whether particular trails and sand roads are suitable for either pedestrians, bicyclists, or multiple use based on a variety of resource, land use, and public use criteria. The potential extension of the Cape Cod Rail Trail, which is supported by the proposed plan, would be one of the trail corridors discussed in this future trail plan. Due to its regional significance and multiple ownerships, development of this extension would require participation and cooperation from a variety of individuals and organizations outside the national seashore.

With regard to dogs on leashes, all Outer Cape towns, the Massachusetts State Parks and Forests, as well as all national park system areas, have regulations requiring dogs to be leashed. This is because of the need to protect wildlife and avoid public use conflicts. Within the national seashore pets are excluded from designated nature trails to reduce user conflicts, improve sanitation, and increase the potential for wildlife observation. Pet owners are asked to use the remaining areas of the park for pet exercise. As a point of clarification, general management plans are not intended to be the means for evaluating existing regulations; changes in rules or regulations are normally made through a rule-making process.

The suggestion to remove primary dunes at Herring Cove and Race Point to open views to the ocean would be in direct conflict with NPS natural resource protection mandates.

The proposal relating to primitive campgrounds has been revised to state that "appropriate areas for limited walk-in camping would be designated; this activity would be allowed by permit only." When determining appropriate areas and level of use, a primary consideration would be that this activity not compete with or have an adverse impact on local commercial campgrounds. The issue of competition with commercial campgrounds is discussed in the final EIS. It is anticipated that a limited number of permits would be available, and that they would require specific conditions for sanitation and cooking fires.

Many external factors already influence the levels and distribution of public use throughout the national seashore and the Outer Cape, such as fee schedules, facility siting, interpretive programs, and rates and availability of lodging and services. The visitor experience and resource protection process described in the final EIS would help identify appropriate levels of public use in particular areas of the seashore.

Nude Recreation — Comments urged further consideration of nude sunbathing, including a clarification of existing law and park regulation and discussion of the issue in the plan as well as the EIS.

Response — The regulation on nude recreation at Cape Cod National Seashore is set out in title 36 of the *Code of Federal Regulations*, section 7.67(e). The proposed plan does not suggest a change to the regulation. This is because, after considerable review during the GMP/EIS public comment process in 1996 and extensive consultation with several groups (including many groups in Provincetown), national seashore managers determined that concerns and problems that led to the original regulation were still valid.

Evidence strongly indicates that establishing a clothing-optional beach would result in a significant chance for negative impacts on seashore resources. As long as present state and local ordinances and regulations continue to effectively prohibit nude recreation on public lands in Massachusetts, the permitting of such activity in the seashore would likely result in the creation of a magnet area and levels of use well beyond those consistent with the protection of the seashore's very fragile natural resources.

However, nothing in the current proposed plan would prohibit the removal or modification of the relevant language in the *Code of Federal Regulations* if existing management concerns were eliminated. Changes to current federal regulations in the national seashore, or the development of new regulations, can occur at any time through a rule-making process.

Fort Hill — There is intense local interest in the preservation of Fort Hill. Comments highlighted the access, parking, and vehicle congestion problems, and the need for more intensive management to address these problems. New parking should not be located at Fort Hill but instead to the north at Hemenway Landing.

Response — Specific issues at the Fort Hill area are being addressed in a separate site planning effort that is consistent with the proposed general management plan's broad goals and policies. NPS staff, town officials, private residents, and other local organizations have been participating on a continuing basis in the formation of this plan; wider public comment will be sought during review of the draft plan. The final EIS summarizes the key concepts for Fort Hill, which are to improve access opportunities and the public experience while reducing the impact of high public use and parking on the historic scene. Parking concerns will be a major component of the draft site plan and the accompanying environmental assessment. The modification or removal of existing parking lots and alternative locations for a new parking lot in the

Fort Hill area will be further evaluated. Offsite supplemental parking along Hemenway Road will also be explored in cooperation with the town of Eastham.

North Truro Air Force Station — There was local interest in new uses of the former North Truro air force station, and a number of alternatives were suggested, including partnerships with colleges or universities, cultural and environmental programs, and affordable housing. One comment was critical of the use of water from the site that eventually is supplied to Herring Cove.

Response — Specific issues at the former North Truro air force station are being addressed in a site planning effort separate from the final general management plan, but consistent with its broad goals and policies. National seashore staff, town officials, private residents, and other local organizations have been participating on a continuing basis in the formation of this site plan; public comment will be sought. The final EIS summarizes key concepts for this site, including a community vision of the facility as a new Highlands center for the arts and environment, which would incorporate partnership organizations from academic institutions, local artisans, and cultural and environmental groups and association.

Herring Cove — Herring Cove is a prized destination for Provincetown residents and long-time visiting RV owners. The majority of comments reflected the desire for continuing year-round vehicular access to the north lot, which directly abuts the beach and provides popular ocean views. There was no interest among most commenters for moving development back from the water's edge and resistance to the use of public transit. Some also wondered about the Park Service's commitment to maintaining the facility.

Response — The National Park Service will continue to provide routine maintenance to the present parking lot and beach facilities at

Herring Cove to maintain the beauty of this unique area and an ocean vista. Part of this routine maintenance will involve the movement of sand to protect the beach and facilities. Parking will continue to be provided at Herring Cove. The long-range effects of any severe coastal erosion may necessitate protecting beach areas by reestablishing sustainable facilities in more environmentally safe areas behind primary dunes. Continued routine maintenance would keep the present parking lots as long as the coastline remains stable. If major portions of facilities were undermined or destroyed by coastal erosion, the relocation of facilities behind the primary dune would need to be considered, in consultation with the community. These relocated facilities would be developed in conjunction with improvements for parking, bicycles, pedestrians, shuttles, and access for people with disabilities; the aesthetics or visual setting would also be considered in the development of new facilities.

The plan also recommends reducing fees charged for pedestrian and bicycle access to encourage these alternate means of beach access. However, the Park Service does not have the authority to alter fees. Congress must enact new fee legislation. A demonstration fee program to that effect is now underway, and the national seashore was permitted to set up a fee schedule for the 1997 season that encouraged the use of bicycles and pedestrian access (see the "Public Use: Access and Transportation" section).

Concessions and Commercial Services

Some support was expressed for concessions at the beaches, but others opposed increasing concession services for fear that the scale of such services would grow too large.

Response — There are very few concession enterprises within the national seashore, all predating its establishment. These enterprises have been allowed to continue by permit because they have been determined to have no negative impact on seashore resources

while providing a needed service to the public. The seashore's legislative history shows that Congress was very concerned that business within the seashore not compete with business in nearby towns. Proposals to develop new concession operations in the seashore are occasionally received and are evaluated based on the need for such a service, the availability of such services in nearby towns, and potential impacts on resources and the public. Using these criteria, no new proposals for concession services have been approved. The proposed plan calls for the expansion of concession services to preserve historic buildings under the historic property lease / concession authority.

NONFEDERAL LANDS

Private Commercial Uses

National seashore staff should have a means to ensure that private commercial uses within the park do not cause problems.

Response — Commercial certificates of suspension of condemnation for 10 pre-existing, privately owned commercial properties are renewed every five years, in consultation with the Cape Cod National Seashore Advisory Commission. However, these operations are reviewed periodically to ensure that all appropriate regulations and policies are being complied with, and corrections are made as needed, regardless of when the permit is due for renewal. The proposed plan calls for consistent criteria when determining whether to reissue permits.

Land Protection

The plan must be made clearer on a number of counts, including the seashore's authority relative to land use, the possible designation of the seashore as a district of critical planning concern, and the proposed use and content of revised zoning and design guidelines. In addition, the plan should identify the other agencies and organizations that may be included in coopera-

tive planning efforts and the creation of development standards. Finally, questions were raised about whether or not land exchanges would continue with private property owners whose land was subject to erosion.

Response — Through local zoning and site plan review, the towns have primary authority over land use on private lands within the boundary. Local towns would be consulted should national seashore managers consider pursuing the designation of a district of critical planning concern. In addition, a definition of a district of critical planning concern is included in the plan's glossary. The proposed plan provides for a collaborative approach to management that involves local residents, town and other local agencies, the Cape Cod Commission, and various state and federal agencies. Land exchanges with private property owners who want to relocate houses subject to erosion would not be pursued because the public land was not purchased to benefit private property owners.

Municipal Lands

Meeting participants noted that municipal lands within the national seashore were needed to support public facility development. If the National Park Service wants to see any of the municipal lands protected from development, these lands should be acquired. In the case of town beach parking, some municipal parking lots have been subject to erosion. Towns want to work with the Park Service to identify federally held parcels that may be suitable for new parking lots in exchange for other municipal lands that may possess resource values of importance to the national seashore. Meeting participants further expressed an interest in expediting the land exchange process. The development of remote parking with shuttles was not considered an option by some meeting participants because of the amount of belongings people frequently take to the beach.

Response — The proposed plan calls for no real change in how towns manage their own

properties within the national seashore. As the draft plan suggests, a mutual process for guiding future uses of these properties is encouraged, with a multidisciplinary process consistent with the resource-based values identified in local comprehensive plans, the Cape Cod Commission's *Regional Policy Plan*, and the national seashore's approved general management plan. National seashore managers would encourage discussion with various owners and affected communities about the use and maintenance of sand and fire roads.

A collaborative approach to potential land exchanges would also be pursued. National seashore managers would continue to consider exchanges of land with towns to support beach parking when a mutually beneficial exchange is proposed, and when other options (e.g., remote parking with shuttles) have been reviewed and determined unacceptable. Land exchanges with municipalities would continue, and expediting them was added as a plan strategy.

Private Property

Several meeting participants noted their desire for technical assistance in a number of areas, including appropriate landscape treatments that made use of native plants and sustainable design of private septic systems on properties within and around the national seashore.

Meeting participants expressed concerns that existing NPS use guidelines regarding redevelopment of properties were not stringent enough and were not evenly applied. Many stated a preference for the institution of clear rules and regulations rather than just guidelines. However, others requested that the National Park Service reconsider the 50% expansion rule, which does not acknowledge any significant differences among properties and is perceived as being arbitrarily enforced. Also, it was noted that the current guidelines may not comply with state zoning laws. Further, the Park Service must make clear its legal authority to revoke certificates of suspension of condemnation.

In the development of new rules or guidelines, meeting participants noted the importance of collaboration among the seashore and the towns. The new rules or guidelines should be based on actual impacts and take into account conditions such as lot size, environmental impacts, and the character of adjacent development. Further, the Park Service should work with the towns to develop a simpler permitting process.

Other points raised during public sessions included the need to clarify NPS policy relative to the acquisition of subdividable lands within the national seashore. It was noted that the towns offered to work with national seashore managers to address the issue of subdividable lands. Some concerns were raised about the federal taking of subdividable lands.

Response — The proposed plan recommends that local banks develop low-interest loan programs to support the sensitive redevelopment of private properties within the seashore. Such loan programs could also fund the development of more environmentally sound wastewater and septic treatment methods. In cooperation with other entities, such as the Cape Cod Commission, technical assistance in support of sensitive redevelopment of private properties would be made available. NPS demonstration projects would illustrate innovative, sustainable technology relevant to private property redevelopment, such as energy generation, water conservation, and waste management practices.

Modifications to the Cape Cod National Seashore zoning standards and to town zoning bylaws that improve on the existing use guideline and zoning in each community would be examined to develop a more harmonious and effective development regulation for the Seashore District in each town. National seashore managers would like to cooperatively develop updated town zoning bylaws to retain the traditional character of development. This effort would focus on revised building parameters, such as zoning lot coverage, health standards, and design character.

Sections 459b-4(d)(1) and(2) of the national seashore's authorizing legislation (sections 5(d)(1) and (2) of PL 87-126) give the secretary of the interior the authority to acquire through condemnation any privately owned improved property on which a variance has been granted or a use has been commenced that is incompatible or inconsistent with any standard contained in the applicable approved town zoning bylaw.

The "NPS Use Guidelines for Private Property" were developed through a public process for the *Land Protection Plan* in 1980 and 1985; they are guidelines and not a federal regulation. They are used to guide the expansion of private properties as an addition to the protections afforded by town zoning bylaws, which are somewhat out-of-date and inadequate. The 50% expansion guideline also has deficiencies. Most property owners in the national seashore attempt to work within the guidelines, as well as the current town zoning bylaws. National seashore managers use town zoning bylaws to determine whether development is consistent with the issuance of a certificate of suspension from condemnation.

No specific zoning specifications were adopted in the proposed plan because each town should develop town zoning requirements that would best meet their needs and would be based on the collaboratively developed minimum standards contained in the revised Cape Cod National Seashore zoning standards. National seashore managers would like to begin reworking the standards with the towns upon approval of the final general management plan.

The National Park Service would actively seek to acquire subdividable lands either by donation or by purchase from a willing seller. The acquisition of subdividable lands and easements has been hampered by a lack of land acquisition funding. The proposed plan calls for additional legislative authorization and appropriation of land acquisition funds.

MANAGEMENT AND OPERATIONS

Cooperative Planning and Management

See "General Comments: Replationships with Local Communities," page 278.

Visitors/Residents and Use Regulations

Review regulations for those that might be adjusted on a seasonal basis.

Response — As a practical matter, national seashore managers recognize that the priorities and desires of year-round residents, and of nonresident taxpayers, will naturally be somewhat different than those of transient residents. Part of the National Park Service's responsibility is to try to address those needs. Language in the proposed plan emphasizes collaboration with local interests during planning and decision making. It states clearly that national seashore managers would be more assertive and proactive in this way than they may have been in the past. The proposed plan also identifies various criteria and other tools for decision making that offer guidance to managers, along with flexibility to make determinations case by case.

Staff Housing

Could more staff housing be developed at Marconi? Subsidized housing should be eliminated, freeing money for underfunded operations.

Response — Funding for new construction would be unlikely. The proposed plan would consider locating any newly built employee housing in existing NPS residential areas, such as the Marconi station area. The former North Truro air force station might also be considered for the development of additional seasonal staff housing.

Eliminating the staff housing program would have little effect on the availability of funds

for other purposes, since the housing program is mostly self-funded from rental income. Park operating funds currently contribute only about \$30,000 per year to the housing program.

Utilities

Telecommunications — Guidelines are needed for telecommunication towers in the seashore.

Response — An interim NPS guideline for allowing mobile telecommunications antennas was issued in May 1996, as required by the Telecommunications Act of 1996 (PL 104-104); it is now being revised. The present guideline identifies procedures for making fair, reasonable, and nondiscriminatory decisions about the use of federal lands for such facilities. The proposed plan characterizes the concerns that will be raised in evaluating any telecommunications proposals. Towns will be contacted when formal proposals are received in their communities.

Wastewater Management — Wastewater management for municipalities is not addressed in plan. The need for land for a Provincetown facility needs to be addressed.

Response — National seashore managers, ideally in cooperation with the Cape Cod Commission, would be willing to work with the towns to explore alternative solutions to this emerging public facilities need, subject to applicable federal and state regulations. The National Park Service would not support any proposal that would result in the degradation of resource values or adversely affect the public use and enjoyment of the area.

An environmental analysis for a wastewater treatment facility for the town of Provincetown is underway. Options include sites within the boundaries of the national seashore. Current federal regulations prohibit the siting of such a facility or functions inside the national seashore boundary.

Services Exchanged with Local Communities

Recycling services provided by towns should be acknowledged. Other municipal services, such as police and fire response, and their costs, should also be acknowledged.

Response — The national seashore, like other community members on the Outer Cape, uses recycling facilities operated by the towns. Municipal services are discussed in the "Services Exchanged with Local Communities" section.

The National Park Service is authorized to provide many services within the national seashore boundaries, including law enforcement and fire suppression, emergency medical services, facility maintenance, waste collection, road maintenance and snow removal. The Park Service does not have authority to provide these services outside the boundary except when responding to an emergency, mutual aid situation. Some mutual aid agreements are in place for emergency response, and some fees for services are charged by the towns. Agreements for services exchanged between the towns and the seashore, which are renewed every year, are subject to mutual review and agreement.

Reservations of Use and Occupancy

Meeting participants urged that present use-and-occupancy reservation holders be included in the decision-making process. It was noted that the EIS considers the potential benefits of the proposal to current reservation holders, but it was not clear about exactly what those benefits were. Many questions about the future of the use-and-occupancy reservations were raised, including whether they could be used to raise revenues for the seashore or be converted to staff housing. The town of Wellfleet expressed concerns about the loss of tax revenue collected from use-and-occupancy reservation holders; income from the possessory use tax has been important to the town.

Response — The proposed plan identifies criteria for determining the future of each use-and-occupancy unit on a case-by-case basis. These criteria were reviewed in consultation with the Use and Occupancy Subcommittee of the Cape Cod National Seashore Advisory Commission. The subcommittee was composed of members of the commission and staff; other local community representatives also provided input during public meetings. The range of possible disposition options includes salvage, demolition and removal, use for staff housing or national seashore administration, and removal for use as affordable housing. There is provision for current reservation holders to remain if a bona fide medical or financial hardship exists. If the appropriate disposition is delayed, short-term permitting to the public for residential use would be considered as a backup option.

Current use-and-occupancy reservation holders are now facing the end of the term of their contracts. The potential benefit to these reservation holders is that they would automatically be considered as potential lessees should the Park Service determine that continued short-term private residential use would be the best use of the property on which they are the current reservation holders. If a hardship is determined to exist for an individual reserver, that person would benefit from remaining on the property.

With regard to possessory use taxes for these properties, the towns should have been aware of the fact that each use-and-occupancy reservation had a negotiated termination date that was set by legal contract, making such taxes only a temporary revenue source. While the loss of this tax revenue does represent a fiscal impact, it is not a result of the proposed plan, but of contracts agreed to 25 years ago. This tax revenue loss would be offset to some extent by a reduction in services provided to these properties by the towns.

MANAGEMENT ZONING

Carrying Capacity — Key concerns were how limits on the amount of public use would be defined and where the park would attempt to manage levels of users. The need to manage use in some areas to preserve resources was also noted.

Response — The proposed management zoning scheme is designed to enable seashore managers to make decisions by applying specific standards and criteria to different areas of the seashore. For instance, the standards and criteria for ocean beaches would be quite different from those applied at the kettle ponds because each resource has very different management requirements and are experienced in different ways by the public.

The proposed management zoning plan is geared toward protecting the most sensitive resources from degradation while also identifying those areas that can withstand the most use. While absolute numbers of people as a capacity limit would not be established, public use management strategies would be identified, as needed, to preserve resources and experiences at the national seashore.

AGENCIES, ORGANIZATIONS, AND INDIVIDUALS COMMENTING ON THE DRAFT GMP OR EIS

Between 900 and 1,000 copies of the *Draft General Management Plan* and 700 copies of the *Draft Environmental Impact Statement* were distributed to agencies, organizations, and individuals who requested a review copy. Approximately 365 comment letters were received, as identified below. A number of letters were from individuals who did not actually receive a copy of either document but who sent a comment letter, usually focusing on a single issue. In the following list, a single asterisk indicates that a letter of comment was received and is included in volume 2; a double asterisk indicates that the letter received was similar to one from another

organization or individual and is not reprinted in volume 2.

CONGRESSIONAL DELEGATION

Congressman Gerry E. Studds

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Department of Agriculture
 Natural Resources Conservation Service*
Department of Commerce
 National Oceanic and Atmospheric Administration*
Department of the Interior
 Fish and Wildlife Service
 Monomoy National Wildlife Refuge
 New England Field Offices
 National Park Service
 Cape Cod National Seashore Advisory Commission
Department of Transportation
 Federal Aviation Administration*
 U.S. Coast Guard*
Environmental Protection Agency*

MASSACHUSETTS AGENCIES

Aeronautics Commission*
Executive Office of Environmental Affairs
 Department of Environmental Management
 Boston Office
 Nickerson State Park
 Department of Environmental Protection
 Bureau of Resource Protection
 Department of Fisheries, Wildlife and Environmental Law Enforcement
 Division of Fisheries and Wildlife*
 Division of Marine Fisheries*
 Office of Coastal Zone Management, Cape Cod Regional Office*
Highway Department
Massachusetts Historical Commission*

NATIVE AMERICAN TRIBES

Mashpee Wampanoag Tribal Council
Wampanoag Tribe of Gay Head (Aquinnah)

REGIONAL AGENCIES

Cape Cod Commission*

LOCAL AGENCIES

Barnstable County Commissioners
Nauset Regional School District
Town of Chatham
 Town Manager
 Chairman of Selectmen
Town of Eastham*
 Town Administrator
 Chairman of Selectmen
Town of Orleans*
 Town Administrator
 Chairman of Selectmen
Town of Provincetown*
 Town Manager
 Chairman of Selectmen
Town of Truro
 Town Administrator
 Chairman of Selectmen
Town of Wellfleet*
 Town Administrator
 Chairman of Selectmen

ORGANIZATIONS

American Association for Nude Recreation*
American Association for Nude Recreation, Sunchasers Travel Club**
Association for the Preservation of Cape Cod, Inc.*
Cape Cod Center for the Environment and Sustainable Economy
Cape Cod Chamber of Commerce
Cape Cod National Seashore Use and Occupancy Association
Cape Cod Salties
Center for Coastal Studies
Chequessett Yacht and Country Club, Inc.*
Citizens Concerned for Seacoast Management
The Compact of Cape Cod Conservation Trusts
Conservation Law Foundation*
Eastern National Parks and Monuments Association
Eastham Forum, Inc.*
Friends of Cape Cod National Seashore
GUPACA: Gull Pond Preservation and Conservation Association
Highland Fish and Game Club, Inc.*
Lower Cape Community Development Corporation*
Massachusetts Audubon Society*
Massachusetts Beach Buggy Association*

Massachusetts Sportsmen's Council, Inc.*
Maurice's Campground, Inc.*
Meeting House Pond Association
National Parks Conservation Association,
Northeast Representative*
National Seashore Taxpayers Association
The Naturist Society**
NEED Collaborative
North Truro Partnership
Pacific Northwest Naturist Action Committee**
Paine's Campground*
Peaked Hill Trust*
Provincetown Community Compact, Inc.*
Sierra Club, Cape Cod Group*
United Mobile Sportfishermen, Inc.*
We the People of Provincetown*
Wellfleet National Seashore Taxpayers
Association*
Wellfleet Riverways Program*
Wildlife Management Institute*

INDIVIDUALS

Andrew M. Adams*
John David Adamski**
Carl R. Anderson**
John and Laurie Ariagno*
Carolyn Ashbaugh*
David Atkinson*
Kevin and Linda Audibert*
Mary-Jo Avellar*
Susan Avellar*
Gordon and Jean Avery*
William H. Avery*
Frederick Bartsch**
Gerherd T. Beck**
Armand E. Behringer**
Richard B. Bellisle**
Richard Bergman**
Henry and Barbara Bishop**
David L. Bitters**
Howard T. Blanchard**
Harriet A. Bloomberg*
Boris Bode**
Brenda J. Boleyn*
Dave Bordenkircher**
John E. Bowen**
Steven W. Brennan and K. Heather Davis**
Carl Breivogel*
Barbara Brennessel*

Paul F. Brody**
Stephen P. Broker*
Bryden C. Brown*
George D. Bryant*
Morton Bryant*
James Buckingham*
Sue Buhl**
Sally Burrill*
Mrs. Owen (Constance) Calderwood*
James Carlaw*
Francis Carlson**
Roger and Susan Carroll*
Pamela S. and Charles W. Carter*
Robert Cavanagh**
Mary Chatham**
John David Cist*
Gary Clough*
Arthur B. Cohen**
Gail Cohen*
Roderic J. Collins**
Miriam Collinson*
Richard W. Constable**
James M. Cook**
Robert and Mary Costello**
Trevor N. F. Crick**
Patricia Cudworth*
David J. Costa and Cheryl Costa*
Charles R. Cutler and Margaret H. Cutler*
Ralph W. Dagenais**
Deborah Davis**
Jeff Davis**
Mary Dean and Curtis Hoffman**
Mike Delaney**
Jeffrey W. Demoura**
David E. Dennis**
Charles B. Dieterich**
Mr. and Mrs. George Doakmajian*
James G. Dodge**
Hugh Carter Donahue*
David Dow*
Alix Driscoll*
Ira Dubin**
Jerry and Grace Dufour**
Roger P. Dugas**
Gary and Corinne Duncan**
Mimi and Alan Edgar**
Kenneth Edgar and Sharon Edgar**
Norman Edinberg*
A. T. Ehringer**
Robert K. Elliott**

* Letter is printed in volume 2.

** Letter is not printed in volume 2 because it is about a single issue and is similar to another letter printed on the same topic.

Robert Enos*
 Alfred K. Eugenio*
 Robin Q. Evans*
 Sarah Faldetta*
 Andy Feeney**
 William L. Fishman**
 William S. Fitts*
 Kenneth I. Flick**
 Daniel J. Foley**
 Marvin Frandsen**
 Daniel A. Freeman**
 Manuel and Vivian Furer*
 Celine D. F. Gandolfo*
 Kathleen M. Garrett**
 Ann Gastrich**
 Cheryl S. Geerdes*
 Arthur and Younghee Geltzer*
 Marsha L. Getter**
 Dick Giampietro*
 Alan, Wendy, Allison, Laura Gladstone**
 Eugene H. Glass**
 Kathleen Golden*
 Bernard Gostovich**
 Keith Graham**
 John R. Grindon**
 Todd and Carol Guenther**
 George Guevara, Jr.**
 Charles A. Guidot**
 Charles B. Hall**
 Bruce A. Hamilton**
 Gordon Hammerle**
 Will Hapgood*
 Kenneth Hardy**
 B. P. Harris, Sr.**
 Charles B. Harris**
 Barry Hart**
 Rowan Haven**
 Richard and Eleanor Hawkesworth**
 Stephen Heacock**
 Ron Hebb*
 Ted and Madeline Helguson**
 Steven J. Henry**
 James J. Hickey*
 Joseph A. Higgins, Jr.**
 Kathleen M. Hodson**
 William and Alicia Hof**
 Matthew and Patricia Hood**
 Edwin M. Hoopes*
 Harlan Howe, Jr.**
 Roger K. Howe**
 Roger Howlett**
 Mike Hreschuk**
 Howard L. Hunt**
 Howard S. Irwin*
 Milton Iwen**
 A. David James*
 Dave and Helen James*
 Bari and Ted Jarrett**
 A. Stephen Johnson**
 Mary Cutts Jones*
 John Kane**
 H & M Kassler*
 Daniel Katz*
 Kevin P. Kavanagh**
 Bud Keeler**
 Jack Kelley**
 Scott Kemper*
 William T. Kennaugh**
 Matthew Kerwin**
 Thomas A. King**
 Barbara M. Kislak*
 Jay Ward Kislak*
 Shannon Knight**
 Jeffrey C. Kopelson**
 Robert W. and Sheila A. Krempa*
 Lawrence J. and Beverly Lacerte**
 Richard Langerman*
 Ross Alan Layman**
 Natale A. Lee, Peter J. Lee, Brian C. Webster*
 Ginger, Glenn, and Cece Lefurgy**
 George E. Lehto**
 Audrey Lenk*
 Jerry C. Lester**
 Bill Lewis**
 Ron Linderman**
 Harvey R. Lindstrom**
 Thomas A. Linell*
 Deborah Luikey**
 Claude, Gladys, and Donna Lumpkin*
 Carl N. Lundgren**
 Doris Lynch and Stephen Ducharme**
 Jesse Mahan and others *
 Gail Marks*
 Ronald Marsh**
 Walter Marten**
 Ronald Elroy Martin**
 C. T. May**
 Elias J. Martinez Jr. *
 James S. McKay*
 Kathie Meads*

* Letter is printed in volume 2.

** Letter is not printed in volume 2 because it is about a single issue and is similar to another letter printed on the same topic.

John Mighill**
Robert R. Mishol**
David Mitchell**
David K. Mitchell**
William J. Mitchell**
Mark Montgomery**
Charles and Dorothy Morgan**
George and Carol Morin*
Robert Morton and Christine Morton**
Wayne Mosman*
James C. Munro**
K. C. Myers*
Fred C. Nachtigal*
Christopher Neill*
Robert A. Neinast**
Mary T. and James P. Nicholson *
John K. Noe**
William J. Norris*
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** Letter is not printed in volume 2 because it is about a single issue and is similar to another letter printed on the same topic.

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APPENDIXES
SELECTED BIBLIOGRAPHY
PLANNING TEAM
INDEX

APPENDIX A: LEGISLATION AND THE TRANSFER OF FORMER STATE AND TOWN LANDS

UNITED STATES CODE, TITLE 16 — CONSERVATION

§ 459b. Cape Cod National Seashore; description of area

(a) The area comprising that portion of the land and waters located in the towns of Provincetown, Truro, Wellfleet, Eastham, Orleans, and Chatham in the Commonwealth of Massachusetts, and described in subsection (b) of this section, is designated for establishment as Cape Cod National Seashore (hereinafter referred to as "the seashore").

(b) The area referred to in subsection (a) of this section is described as follows:

Beginning at a point in the Atlantic Ocean one-quarter of a mile due west of the mean low-water line of the Atlantic Ocean on Cape Cod at the westernmost extremity of Race Point, Provincetown, Massachusetts;

thence from the point of beginning along a line a quarter of a mile offshore of and parallel to the mean low-water line of the Atlantic Ocean, Cape Cod Bay, and Provincetown Harbor in generally southerly, easterly, and northerly directions rounding Long Point and then southwesterly to a point a quarter of a mile offshore of the mean low-water line on the harbor side of the dike depicted on the United States Geological Survey Provincetown quadrangle sheet (1949) crossing an arm of the Provincetown Harbor;

thence northerly, along a line a quarter of a mile offshore of and parallel to the low-water line at the dike to a point easterly of the point of intersection of the said dike with the boundary of the Province Lands Reservation as depicted on the said Provincetown quadrangle sheet;

thence westerly to the said point of intersection of the dike and the Province Lands Reservation boundary;

thence along the boundaries of the Province Lands Reservation northwesterly, northeasterly, northerly, and easterly to the easternmost corner of the reservation being near United States Route 6;

thence leaving the said easternmost corner along an extension of the southerly reservation boundary line easterly to the northerly right-of-way line of United States Route 6;

thence along the northerly right-of-way line of United States Route 6 in a general easterly direction crossing the Truro-Provincetown line and continuing in the town of Truro in a generally southeasterly direction to a point four-tenths of a mile southeasterly of the southerly right-of-way line of Highland Road;

thence easterly five-tenths of a mile to a point;

thence turning and running in a southeasterly direction paralleling the general alignment of United States Route 6 and generally distant therefrom five-tenths of a mile to a point approximately 700 feet northwesterly of Long Nook Road;

thence southwesterly along a ridge generally paralleling the alignment of Long Nook Road and distant approximately 700 feet therefrom to a point two-tenths of a mile northeasterly of the northerly right-of-way line of United States Route 6;

thence southeasterly paralleling the general alignment of United States Route 6 and generally distant two-tenths of a mile northeasterly thereof to a point 300 feet south of the southerly right-of-way line of Higgins Hollow Road;

thence in a general easterly direction paralleling the southerly alignment of Higgins Hollow Road and 300 feet distant southerly therefrom to a point five-tenths of a mile east of the easterly right-of-way line of said Route 6;

thence turning and running in a southeasterly and southerly direction paralleling the general alignment of United States Route 6 and distant five-tenths of a mile easterly therefrom to a point 300 feet north of the northerly right-of-way line of North Pamet Road;

thence in a generally southwesterly direction paralleling the general alignment of North Pamet Road and generally distant 300 feet northerly therefrom to a point approximately two-tenths of a mile east of the easterly right-of-way line of United States Route 6;

thence in a southerly direction paralleling the alignment of United States Route 6 and generally distant two-tenths of a mile easterly therefrom to a point three-tenths of a mile south of South Pamet Road;

thence west to the intersection of Old County Road and Mill Pond Road;

thence following the easterly right-of-way line of Old County Road southward to a point opposite the southerly right-of-way line of Ryder Beach Road at its intersection with Old County Road;

thence eastward to a point 300 feet east of the easterly right-of-way line of said Old County Road;

thence in a southerly direction paralleling Old County Road at a distance of 300 feet to the east of the easterly right-of-way line of said road to a point 600 feet south of the southerly right-of-way line of Prince Valley Road;

thence in a generally westerly direction, crossing Old County Road and the New York, New Haven, and Hartford Railroad right-of-way to the southern extremity of the town landing and beach in the Ryder Beach area, and continuing to a point in Cape Cod Bay a quarter of a mile offshore from the mean low-water line of Cape Cod Bay;

thence turning and running along a line a quarter of a mile offshore of and parallel to the mean low-water line of Cape Cod Bay in a general southerly and easterly direction rounding Jeremy Point and thence in a general northerly direction along a line a quarter

of a mile offshore of and parallel to the mean low-water line on the westerly side of Wellfleet Harbor, to a point one quarter of a mile due north of the mean low-water line at the eastern tip of Great Island as depicted on the United States Geological Survey Wellfleet quadrangle sheet (1958);

thence north to the mean high-water line on the north shore of the Herring River estuary in the vicinity of its confluence with Wellfleet Harbor;

thence following the mean, high-water line southwesterly, northwesterly, and northeasterly to the easterly right-of-way line of Chequesset Neck Road at its crossing of Herring River;

thence following the course of Herring River along the 20-foot contour line of the southeasterly shore thereof to a point near Mill Creek;

thence crossing Mill Creek in a northeasterly direction to the 20-foot contour level near to and northeast of the confluence of Mill Creek and Herring River;

thence following generally northerly and easterly along the easterly edge of the Herring River marshes on the 20-foot contour to a point north of which the easterly right-of-way line of a medium duty road, as depicted on said Wellfleet quadrangle sheet, crosses northward across a marshy stream near the juncture of said medium duty road with Bound Brook Island Road;

thence crossing said marshy stream along said easterly right-of-way line of said medium duty road and continuing in a northerly direction to the 20-foot contour level on the north side of said marshy stream;

thence following the 20-foot contour line westward approximately 1,000 feet to its intersection with an unimproved dirt road, as depicted on said Wellfleet quadrangle sheet, leading from a point near the juncture of Bound Brook Island Road and the said medium duty road;

thence following said unimproved dirt road northwesterly for approximately 1,600 feet to the 20-foot contour line bordering the southerly edge of the Herring River marshes;

thence following said 20-foot contour line in an easterly direction to Route 6;

thence crossing Route 6 and continuing to a point on the easterly right-of-way line of a power transmission line as depicted on said Wellfleet quadrangle sheet;

thence in a general southerly direction along the said easterly right-of-way line of a power transmission line to the Eastham-Wellfleet town line;

thence southeasterly for a distance of approximately 5,200 feet to a point due north of the intersection of the easterly right-of-way line of Nauset Road with the northerly right-of-way line of Cable Road;

thence due south to the intersection of the said easterly right-of-way line of Nauset Road and the said northerly right-of-way line of Cable Road;

thence in a general southerly direction crossing Cable Road and along said easterly right-of-way line of Nauset Road to a point

500 feet north of the northerly right-of-way line of Doane Road and its intersection with Nauset Road;

thence west to a point 500 feet west of the westerly right-of-way line of Nauset Road;

thence southerly and westerly 500 feet from and parallel to the said right-of-way line of Nauset Road to the easterly right-of-way line of Salt Pond Road;

thence southerly along the easterly right-of-way line of said Salt Pond Road to its intersection with the southerly right-of-way line of Nauset Road;

thence westerly along the southerly right-of-way line of Nauset Road to its intersection with the easterly right-of-way line of United States Route 6;

thence southerly along the easterly right-of-way line of said Route 6 a distance of about four-tenths of a mile to the northerly boundary of the Eastham town hall property;

thence easterly to a point one-tenth of a mile from United States Route 6;

thence turning and running in a generally southerly direction paralleling the general alignment of United States Route 6 and generally distant therefrom one-tenth of a mile to a small stream approximately one-tenth of a mile beyond Governor Frence Road extended;

thence southeasterly along the said stream to the Orleans-Eastham town line;

thence along the Orleans-Eastham town line to the southerly tip of Stony Island;

thence generally southeasterly in the town of Orleans by Nauset Harbor Channel to a point due north of the northerly tip of Nauset Heights as depicted on United States Geological Survey Orleans quadrangle sheet (1946);

thence due south to the 20-foot contour line in Nauset Heights as delineated on the said Orleans quadrangle sheet;

thence generally southerly along the said 20-foot contour to a point about one-tenth of a mile northerly of Beach Road;

thence southwesterly along a line intersecting Beach Road at a point two-tenths of a mile easterly of the so-called Nauset Road leading northerly to Nauset Heights;

thence southerly to a head of a tributary to Little Pleasant Bay at the northerly tip of Pochet Neck as depicted on the said Orleans quadrangle sheet;

thence generally southerly along the thread of channel of the said tributary passing westerly and southwesterly around Pochet Island and thence southwesterly into Little Pleasant Bay passing to westerly of the northerly tip of Sampson Island, the westerly tip of Money Head, and the southwesterly tip of Hog Island following in general the centerline of Little Pleasant Bay to Pleasant Bay;

thence generally southeasterly in Pleasant Bay along a line passing midway between Sipson Island and Nauset Beach to a point on the Chatham-Orleans town line one-quarter of a mile westerly of the mean low-water line of Pleasant Bay on the westerly shore of Nauset Beach;

thence generally southerly in Pleasant Bay in the town of Chatham along a line a quarter of a mile offshore of and parallel to the said mean low-water line of Pleasant Bay on the westerly shore of Nauset Beach to a point a quarter of a mile south of the mean low-water line of the southern tip of Nauset Beach;

thence easterly rounding the southern tip of Nauset Beach along a line a quarter of a mile offshore of and parallel thereto;

thence generally northerly and northwesterly, and westerly along a line a quarter of a mile offshore of and parallel to the mean low-water line of the Atlantic Ocean on the easterly shore of Nauset Beach and on to the outer cape to the point of beginning.

(Pub. L. 87-126, § 1, Aug. 7, 1961, 75 Stat. 284.)

SEPARABILITY OF PROVISIONS

Section 10 of Pub. L. 87-126 provided that: "If any provision of this Act [sections 459b to 459b-8 of this title] or the application of such provision to any person or circumstance is held invalid, the remainder of this Act [such sections] or the application of such provision to persons or circumstances other than those to which it is held invalid shall not be affected thereby."

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-8 of this title.

§ 459b-1. Acquisition of property

(a) Authority of Secretary; manner and place; concurrence of State owner; transfer from Federal agency to administrative jurisdiction of Secretary

The Secretary of the Interior (hereinafter referred to as "Secretary") is authorized to acquire by purchase, gift, condemnation, transfer from any Federal agency, exchange, or otherwise, the land, waters, and other property, and improvements thereon and any interest therein, within the area which is described in section 459b of this title or which lies within the boundaries of the seashore as described pursuant to section 459b-2 of this title (both together hereinafter in sections 459b to 459b-8 of this title referred to as "such area"). Any property, or interest therein, owned by the Commonwealth of Massachusetts, by any of the towns referred to in section 459b of this title, or by any other political subdivision of said Commonwealth may be acquired only with the concurrence of such owner. Notwithstanding any other provision of law, any Federal property located within such area may, with the concurrence of the agency having custody thereof, be transferred without consideration to the administrative jurisdiction of the Secretary for use by him in carrying out the provisions of sections 459b to 459b-8 of this title.

(b) Use of funds; fair market value

The Secretary is authorized (1) to use donated and appropriated funds in making acquisitions under sections 459b to 459b-8 of this title, and (2) to pay therefor not more than the fair market value of any acquisitions which he makes by purchase under sections 459b to 459b-8 of this title.

(c) Exchange of property; cash equalization payments; reports to Congress

In exercising his authority to acquire property by exchange, the Secretary may accept title to any non-Federal property located within such area and convey to the grantor of such property any federally owned property under the jurisdiction of the Secretary within such area. The properties so exchanged shall be approximately equal in fair market value: *Provided*, That the Secretary may accept cash from or pay cash to the grantor in such an exchange in order to equalize the values of the properties exchanged.

The Secretary shall report to the Congress on every exchange carried out under authority of sections 459b to 459b-8 of this title within thirty days from its consummation, and each such report shall include a statement of the fair market values of the properties involved and of any cash equalization payment made or received.

(d) "Fair market value" defined; appraisal

As used in sections 459b to 459b-8 of this title the term "fair market value" shall mean the fair market value as determined by the Secretary, who may in his discretion base his determination on an independent appraisal obtained by him.

(Pub. L. 87-126, § 2, Aug. 7, 1961, 75 Stat. 287.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-2 to 459b-8 of this title.

§ 459b-2. Establishment

(a) Notice in Federal Register

As soon as practicable after August 7, 1961, and following the acquisition by the Secretary of an acreage in the area described in section 459b of this title that is in the opinion of the Secretary efficiently administrable to carry out the purposes of sections 459b to 459b-8 of this title, the Secretary shall establish Cape Cod National Seashore by the publication of notice thereof in the Federal Register.

(b) Distribution of notice and map

Such notice referred to in subsection (a) of this section shall contain a detailed description of the boundaries of the seashore which shall encompass an area as nearly as practicable identical to the area described in section 459b of this title. The Secretary shall forthwith after the date of publication of such notice in the Federal Register (1) send a copy of such notice, together with a map showing such boundaries, by registered or certified mail to the Governor of the Commonwealth of Massachusetts and to the board of selectmen of each of the towns referred to in section 459b of this title; (2) cause a copy of such notice and map to be published in one or more newspapers which circulate in each of such towns; and (3) cause a certified copy of such notice, a copy of such map, and a copy of sections 459b to 459b-8 of this title to be recorded at the registry of deeds for Barnstable County, Massachusetts.

(Pub. L. 87-126, § 3, Aug. 7, 1961, 75 Stat. 288.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1, 459b-3 to 459b-8 of this title.

§ 459b-3. Acquisition by condemnation

(a) Right of use and occupancy for residential purposes for life or fixed term of years; exercise of right of election; impairment of interests of lienholders, etc.; right as running with land; transfer, assignment and termination of right; computation of compensation

(1) The beneficial owner or owners, not being a corporation, of a freehold interest in improved property which the Secretary acquires by condemnation may elect, as a condition to such acquisition, to retain the right of use and occupancy of the said property for noncommercial residential purposes for a term of twenty-five years, or for such lesser time as the said owner or owners may elect at the time of such acquisition.

(2) The beneficial owner or owners, not being a corporation, of a freehold estate in improved property which the Secretary acquires by condemnation, who held, on September 1, 1959, with respect to such property, an estate of the same nature and quality, may elect, as an alternative and not in addition to whatever right of election he or they might have under paragraph (1) of this subsection, to retain the right of use and occupancy of the said property for noncommercial residential purposes (i) for a term limited by the nature and quality of his or their said estate, if his or their said estate is a life estate or an estate *pur autre vie*, or (ii) for a term ending at the death of such owner or owners, or at the death of the survivor of them, if his or their said estate is an estate of fee simple.

(3) Where such property is held by a natural person or persons for his or their own life or lives or for the life or lives of another or others (such person or persons being hereinafter called "the life tenant"), with remainder in another or others, any right of election provided for in paragraph (2) of this subsection shall be exercised by the life tenant, and any right of election provided for in paragraph (1) of this subsection shall be exercised by the concurrence of the life tenant and the remainderman or remaindermen.

(4) The beneficial owner or owners of a term of years in improved property which the Secretary acquires by condemnation may elect, as a condition to such acquisition, to retain the right of use and occupancy of the said property for noncommercial residential purposes for a term not to exceed the remainder of his or their said term of years, or a term of twenty-five years, whichever shall be the lesser. The owner or owners of the freehold estate or estates in such property may, subject to the right provided for in the preceding sentence, exercise such right or rights of election as remain to them under paragraphs (1) and (2) of this subsection.

(5) No right of election accorded by paragraphs (1), (2), or (4) of this subsection shall be exercised to impair substantially the interests

of holders of encumbrances, liens, assessments, or other charges upon or against the property.

(6) Any right or rights of use and occupancy retained pursuant to paragraphs (1), (2), and (4) of this subsection shall be held to run with the land, and may be freely transferred and assigned.

(7) In any case where a right of use and occupancy for life or for a fixed term of years is retained as provided in paragraph (1), (2), or (4) of this subsection, the compensation paid by the Secretary for the property shall not exceed the fair market value of the property on the date of its acquisition by the Secretary, less the fair market value on such date of the said right retained.

(8) The Secretary shall have authority to terminate any right of use and occupancy of property, retained as provided in paragraph (1), (2), or (4) of this subsection, at any time after the date when any use occurs with respect to such property which fails to conform or is in any manner opposed to or inconsistent with any applicable standard contained in regulations issued pursuant to section 459b-4 of this title and in effect on said date: *Provided*, That no use which is in conformity with the provisions of a zoning bylaw approved in accordance with said section 459b-4 which is in force and applicable to such property shall be held to fail to conform or be opposed to or inconsistent with any such standard. In the event that the Secretary exercises the authority conferred by this paragraph, he shall pay to the owner of the right so terminated an amount equal to the fair market value of the portion of said right which remained on the date of termination.

(b) Suspension of authority for one year and during existence of zoning regulations

(1) The Secretary's authority to acquire property by condemnation shall be suspended with respect to all improved property located within such area in all of the towns referred to in section 459b of this title for one year following August 7, 1961.

(2) Thereafter such authority shall be suspended with respect to all improved property located within such area in any one of such towns during all times when such town shall have in force and applicable to such property a duly adopted, valid zoning bylaw approved by the Secretary in accordance with the provisions of section 459b-4 of this title.

(c) Suspension of authority respecting property used for commercial or industrial purposes

The Secretary's authority to acquire property by condemnation shall be suspended with respect to any particular property which is used for commercial or industrial purposes during any periods when such use is permitted by the Secretary and during the pendency of the first application for such permission made to the Secretary after August 7, 1961 provided such application is made not later than the date of establishment of the seashore.

(d) "Improved property" defined

The term "improved property," wherever used in sections 459b to 459b-8 of this title,

shall mean a detached, one-family dwelling the construction of which was begun before September 1, 1959 (hereinafter referred to as "dwelling"), together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated. The amount of the land so designated shall in every case be at least three acres in area, or all of such lesser amount as may be held in the same ownership as the dwelling, and in making such designation the Secretary shall take into account the manner of noncommercial residential use in which the dwelling and land have customarily been enjoyed: *Provided, however,* That the Secretary may exclude from the land so designated any beach or waters, together with so much of the land adjoining such beach or waters as the Secretary may deem necessary for public access thereto.

(e) Acquisition of clear, marketable and encumbrance-free title

Nothing in this section or elsewhere in sections 459b to 459b-8 of this title shall be construed to prohibit the use of condemnation as a means of acquiring a clear and marketable title, free of any and all encumbrances.

(Pub. L. 87-126, § 4, Aug. 7, 1961, 75 Stat. 288.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1, 459b-2, 459b-4 to 459b-8 of this title.

§ 459b-1. Zoning regulations

(a) Standards for approval; submission to Congress and municipalities; publication in Federal Register; approval of local bylaws; revocation of approval

As soon after August 7, 1961, as may be practicable, the Secretary shall issue regulations specifying standards for approval by him of zoning bylaws for purposes of section 459b-3 of this title. The Secretary may issue amended regulations specifying standards for approval by him of zoning bylaws whenever he shall consider such amended regulations to be desirable due to changed or unforeseen conditions.

All regulations and amended regulations proposed to be issued under authority of the two preceding sentences of this subsection shall be submitted to the Congress and to the towns named in section 459b of this title at least ninety calendar days (which ninety days, however, shall not include days on which either the House of Representatives or the Senate is not in session because of an adjournment of more than three calendar days to a day certain) before they become effective and the Secretary shall, before promulgating any such proposed regulations or amended regulations in final form, take due account of any suggestions for their modification which he may receive during said ninety-day period. All such regulations and amended regulations shall, both in their proposed form and in their final form, be published in the Federal Register.

The Secretary shall approve any zoning bylaw and any amendment to any approved zoning bylaws submitted to him which conforms to the standards contained in the regulations in effect at the time of the adoption by the town of such bylaw or such amendment unless before the time of adoption he has submitted to the Congress and the towns and published in the Federal Register as aforesaid proposed amended regulations with which the bylaw or amendment would not be in conformity, in which case he may withhold his approval pending completion of the review and final publication provided for in this subsection and shall thereafter approve the bylaw or amendment only if it is in conformity with the amended regulations in their final form. Such approval shall not be withdrawn or revoked, nor shall its effect be altered for purposes of section 459b-3 of this title by issuance of any such amended regulations after the date of such approval, so long as such bylaw or such amendment remains in effect as approved.

(b) Commercial and industrial use prohibition; acreage, frontage, setback and miscellaneous requirements

The standards specified in such regulations and amended regulations for approval of any zoning bylaw or zoning bylaw amendment shall contribute to the effect of (1) prohibiting the commercial and industrial use, other than any commercial or industrial use which is permitted by the Secretary, of all property within the boundaries of the seashore which is situated within the town adopting such bylaw; and (2) promoting the preservation and development, in accordance with the purposes of sections 459b to 459b-8 of this title, of the area comprising the seashore, by means of acreage, frontage, and setback requirements and other provisions which may be required by such regulations to be included in a zoning bylaw consistent with the laws of Massachusetts.

(c) Adverse provisions and absence of notice for variance as requiring disapproval of local bylaws

No zoning bylaw or amendment of a zoning bylaw shall be approved by the Secretary which (1) contains any provision which he may consider adverse to the preservation and development, in accordance with the purposes of sections 459b to 459b-8 of this title, of the area comprising the seashore, or (2) fails to have the effect of providing that the Secretary shall receive notice of any variance granted under and any exception made to the application of such bylaw or amendment.

(d) Termination of suspension of authority for acquisition by condemnation because of nonconforming variances and uses; agreements concerning exercise of authority

If any improved property with respect to which the Secretary's authority to acquire by condemnation has been suspended by reason of the adoption and approval, in accordance with the foregoing provisions of this section, of a zoning bylaw applicable to such property (hereinafter referred to as "such bylaw")—

(1) is made the subject of a variance under or an exception to such bylaw, which variance or exception fails to conform or is in any manner opposed to or inconsistent with any applicable standard contained in the regulations issued pursuant to this section and in effect at the time of the passage of such bylaw, or

(2) is property upon or with respect to which there occurs any use, commencing after the date of the publication by the Secretary of such regulations, which fails to conform or is in any manner opposed to or inconsistent with any applicable standard contained in such regulations (but no use which is in conformity with the provisions of such bylaw shall be held to fail to conform or be opposed to or inconsistent with any such standard),

the Secretary may, at any time and in his discretion, terminate the suspension of his authority to acquire such improved property by condemnation: *Provided, however,* That the Secretary may agree with the owner or owners of such property to refrain from the exercise of the said authority during such time and upon such terms and conditions as the Secretary may deem to be in the best interests of the development and preservation of the seashore.

(Pub. L. 87-126, § 5, Aug. 7, 1961, 75 Stat. 290.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-3, 459b-5 to 459b-8 of this title.

§ 459b-5. Certificate of suspension of authority for acquisition by condemnation

The Secretary shall furnish to any party in interest requesting the same, a certificate indicating, with respect to any property located within the seashore as to which the Secretary's authority to acquire such property by condemnation has been suspended in accordance with the provisions of sections 459b to 459b-8 of this title, that such authority has been so suspended and the reasons therefor.

(Pub. L. 87-126, § 6, Aug. 7, 1961, 75 Stat. 291.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-4, 459b-6 to 459b-8 of this title.

§ 459b-6. Administration of acquired property

(a) Utilization of authority for conservation and management of natural resources

Except as otherwise provided in sections 459b to 459b-8 of this title, the property acquired by the Secretary under such sections shall be administered by the Secretary subject to the provisions of sections 1 and 2 to 4 of this title, as amended and supplemented, and in accordance with laws of general application relating to the national park system as defined by sections 1b to 1d of this title; except that authority otherwise available to the Secretary for the conservation and management of natural resources may be utilized to the extent he finds such authority will further the purposes of sections 459b to 459b-8 of this title.

(b) Preservation of seashore; incompatible visitor conveniences restricted; provisions for public enjoyment and understanding; developments for recreational activities; public use areas

(1) In order that the seashore shall be permanently preserved in its present state, no development or plan for the convenience of visitors shall be undertaken therein which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing or with the preservation of such historic sites and structures as the Secretary may designate: *Provided,* That the Secretary may provide for the public enjoyment and understanding of the unique natural, historic, and scientific features of Cape Cod within the seashore by establishing such trails, observation points, and exhibits and providing such services as he may deem desirable for such public enjoyment and understanding: *Provided further,* That the Secretary may develop for appropriate public uses such portions of the seashore as he deems especially adaptable for camping, swimming, boating, sailing, hunting, fishing, the appreciation of historic sites and structures and natural features of Cape Cod, and other activities of similar nature.

(2) In developing the seashore the Secretary shall provide public use areas in such places and manner as he determines will not diminish for its owners or occupants the value or enjoyment of any improved property located within the seashore.

(c) Hunting and fishing regulations; navigation

The Secretary may permit hunting and fishing, including shellfishing, on lands and waters under his jurisdiction within the seashore in such areas and under such regulations as he may prescribe during open seasons prescribed by applicable local, State and Federal law. The Secretary shall consult with officials of the Commonwealth of Massachusetts and any political subdivision thereof who have jurisdiction of hunting and fishing, including shellfishing, prior to the issuance of any such regulations, and the Secretary is authorized to enter into cooperative arrangements with such officials regarding such hunting and fishing, including shellfishing, as he may deem desirable, except that the Secretary shall leave all aspects of the propagation and taking of shellfish to the towns referred to in section 459b of this title.

The Secretary shall not interfere with navigation of waters within the boundaries of the Cape Cod National Seashore by such means and in such areas as is now customary.

(Pub. L. 87-126, § 7, Aug. 7, 1961, 75 Stat. 291.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-5, 459b-7, 459b-8 of this title.

§ 459b-7. Cape Cod National Seashore Advisory Commission

(a) Establishment; termination

There is established a Cape Cod National Seashore Advisory Commission (hereinafter referred to as the "Commission"). Said Commis-

sion shall terminate 30 years after the date the seashore is established under section 459b-2 of this title.

(b) Membership; term

The Commission shall be composed of ten members each appointed for a term of two years by the Secretary as follows:

(1) Six members to be appointed from recommendations made by each of the boards of selectmen of the towns referred to in section 459b of this title, one member from the recommendations made by each such board;

(2) One member to be appointed from recommendations of the county commissioners of Barnstable County, Commonwealth of Massachusetts;

(3) Two members to be appointed from recommendations of the Governor of the Commonwealth of Massachusetts; and

(4) One member to be designated by the Secretary.

(c) Chairman; vacancies

The Secretary shall designate one member to be Chairman. Any vacancy in the Commission shall be filled in the same manner in which the original appointment was made.

(d) Compensation and expenses

A member of the Commission shall serve without compensation as such. The Secretary is authorized to pay the expenses reasonably incurred by the Commission in carrying out its responsibilities under sections 459b to 459b-8 of this title upon vouchers signed by the Chairman.

(e) Majority vote

The Commission established by this section shall act and advise by affirmative vote of a majority of the members thereof.

(f) Consultation of Secretary with Commission

The Secretary or his designee shall, from time to time, consult with the members of the Commission with respect to matters relating to the development of Cape Cod National Seashore and shall consult with the members with respect to carrying out the provisions of sections 459b-3 and 459b-4 of this title.

(g) Advice of Commission for commercial or industrial use permits and establishment of public use areas for recreational activities

No permit for the commercial or industrial use of property located within the seashore shall be issued by the Secretary, nor shall any public use area for recreational activity be established by the Secretary within the seashore, without the advice of the Commission, if such advice is submitted within a reasonable time after it is sought.

(h) Exemption from other provisions of law

(1) Any member of the Advisory Commission appointed under sections 459b to 459b-8 of this title shall be exempted, with respect to such appointment, from the operation of sections 281, 283, 284, and 1914 of title 18 and section 190 of the Revised Statutes (5 U.S.C. 99)¹ except as

¹ See References in Text note below.

otherwise specified in paragraph (2) of this subsection.

(2) The exemption granted by paragraph (1) of this subsection shall not extend—

(i) to the receipt or payment of salary in connection with the appointee's Government service from any sources other than the private employer of the appointee at the time of his appointment; or

(ii) during the period of such appointment, and the further period of two years after the termination thereof, to the prosecution or participation in the prosecution, by any person so appointed, of any claim against the Government involving any matter concerning which the appointee had any responsibility arising out of his appointment during the period of such appointment.

(Pub. L. 87-126, § 8, Aug. 7, 1961, 75 Stat. 292; Pub. L. 99-420, title II, § 201, Sept. 25, 1986, 100 Stat. 966.)

REFERENCES IN TEXT

Sections 281, 283, 284, and 1914 of title 18, referred to in subsec. (h)(1), were repealed by Pub. L. 87-849, § 2, Oct. 23, 1962, 76 Stat. 1126, "except as they [sections 281 and 283] may apply to retired officers of the armed forces of the United States", and were supplanted by sections 203, 205, 207, and 209, respectively, of Title 18, Crimes and Criminal Procedure. For further details, see Exemptions note set out under section 281 of Title 18.

Section 190 of the Revised Statutes (5 U.S.C. 99), referred to in subsec. (h)(1), was repealed by Pub. L. 87-849, § 3, Oct. 23, 1962, 76 Stat. 1126. See section 207 of Title 18.

AMENDMENTS

1986—Subsec. (a). Pub. L. 99-420 substituted "30 years" for "ten years".

REESTABLISHMENT AND EXTENSION OF COMMISSION

Pub. L. 99-349, title I, July 2, 1986, 100 Stat. 731, provided: "That the Cape Cod National Seashore Advisory Commission established under section 8(a) of the Act of August 7, 1961 (Public Law 87-126; 75 Stat. 292) [16 U.S.C. 459b-7(a)] is reestablished and extended through February 28, 1996".

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-8, 459b-8 of this title.

§ 459b-8. Authorization of appropriations

There are authorized to be appropriated such sums as may be necessary to carry out the provisions of sections 459b to 459b-8 of this title; except that no more than \$42,917,575 shall be appropriated for the acquisition of land and waters and improvements thereon, and interests therein, and incidental costs relating thereto, in accordance with the provisions of such sections.

(Pub. L. 87-126, § 9, Aug. 7, 1961, 75 Stat. 293; Pub. L. 91-252, May 14, 1970, 84 Stat. 216; Pub. L. 98-141, § 3, Oct. 31, 1983, 97 Stat. 909.)

AMENDMENTS

1983—Pub. L. 98-141 substituted "\$42,917,575" for "\$33,500,000".

1970—Pub. L. 91-252 substituted "\$33,500,000" for "\$16,000,000".

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 459b-1 to 459b-7 of this title.

AUTHORIZATION OF CONVEYANCE OF COMMONWEALTH LANDS**Chapter 777
THE COMMONWEALTH OF MASSACHUSETTS****IN THE YEAR ONE THOUSAND NINE HUNDRED AND SIXTY-TWO, AN ACT
authorizing and directing conveyance of certain lands to the United States of America.**

WHEREAS, the deferred operation of this Act would tend to defeat its purposes, which is to provide forthwith for the Commonwealth to convey to the United States of America certain lands to effectuate the establishment of the Cape Cod National Seashore, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public health and convenience.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same as follows:

SECTION 1. The Commissioner of Public Works, acting in the name and on behalf of the Commonwealth, is hereby authorized and directed to convey, without consideration, to the United States of America, all the right, title and interest of the Commonwealth in and to so much of the Province Lands in the Town of Provincetown, except that part thereof which is described in Chapter Seven Hundred and One of the Acts of Nineteen Hundred and Sixty-two, and to so much of any other lands under the jurisdiction or control of the Department of Public Works in the Town of Truro, including, in each instance, buildings thereon and lands covered by water, as is situated within the boundaries of the Cape Cod National Seashore, as described in Section One of Public Law 87-126.

SECTION 2. The Commissioner of Natural Resources, acting in the name and on behalf of the Commonwealth, is hereby authorized and directed to convey without consideration to the United States of America, all the right, title and interest of the Commonwealth and to so much of the Pilgrim Spring State Park and, in and to so much of any other land under the jurisdiction or control of the Department of Natural Resources in the town of Truro, including in each instance buildings thereon and lands covered by water, as is situated within the boundaries of the Cape Cod National Seashore as described in Section One of Public Law 87-126.

SECTION 3. The Deed of Conveyance under Section One shall provide

(1) That a portion of the lands so conveyed is subject to a lease between the Commonwealth and the Town of Provincetown, dated January second, Nineteen Hundred and Sixty-one, for public airport and access purposes;

(2) That such additional area as shall be agreed upon between the Secretary of the Interior, or his designee, and the Town of Provincetown, acting through its Airport Commission, shall be made available by lease or otherwise to said Town for public airport and access purposes;

(3) That such area as may be agreed upon between the Secretary of the Interior, or his designee, and the said Town acting through its duly authorized representative, shall be made available to said Town for dumping purposes;

(4) That in the case of disagreement under sub-paragraphs (2) or (3) of this section, the matter shall be submitted to arbitration, each party to select one arbitrator, and said arbitrators so chosen, to select a third arbitrator, and that the decisions of such arbitrators shall be binding on both parties.

SECTION 4. The Deeds of Conveyance under Sections One and Two shall provide

(1) That the jurisdiction of the United States of America over and within the lands so conveyed shall be proprietary only; that the Commonwealth shall continue to exercise all of the jurisdiction, power and authority possessed by it on or before the effective date of this Act over and within the land so conveyed, including the right to serve criminal or civil process, and the right to tax persons and corporations, their franchises and property; and that persons residing on such lands shall have the right to vote at all primaries and elections within the town and county in which said lands are located.

(2) That the Secretary of the Interior may permit hunting and fishing, including shellfishing, on lands and waters under his jurisdiction within the Cape Cod National Seashore in such areas and under such regulations as he may prescribe during open seasons prescribed by applicable local, state and federal law; that said Secretary shall consult with officials of the Commonwealth and any political subdivision thereof who have jurisdiction of hunting and fishing, including shellfishing, prior to the issuance of any such regulations; that said Secretary is authorized to enter into cooperative arrangements with such officials regarding such hunting and fishing, including shellfishing, as he may deem desirable, except that he shall leave all aspects of the propagation and taking of shellfish to the towns referred to in Section One of Public Law 87-126; and that the fishing rights of the public shall be the same in the coastal waters within the Cape Cod National Seashore as prior to such conveyances.

(3) That the Commonwealth, through the State Reclamation Board and the Cape Cod Mosquito Control Project, or its successor, shall continue to provide for the control of mosquitoes and greenhead flies in the lands so conveyed, and shall have the right to construct and maintain such ditches, culverts, dams and any other installations on the lands so conveyed as may be necessary for the proper control of mosquitoes and greenhead flies.

(4) That if at any time the United States of America fails to use the lands so conveyed for the purposes in said Public Law 87-126, the title to such lands shall revert to and revest in the Commonwealth.

APPROVED July 26, 1962

**TOWN OF EASTHAM
TO
UNITED STATES OF AMERICA
QUITCLAIM DEED
COAST GUARD BEACH AREA**

TOWN OF EASTHAM, a municipal corporation duly organized and existing by law in the County of Barnstable and Commonwealth of Massachusetts, acting by and through its Board of Selectmen, in consideration of these premises, grants to the UNITED STATES OF AMERICA and its assigns with quitclaim covenants that parcel of land and beach known as "Coast Guard Beach" located in Eastham, Barnstable County, Commonwealth of Massachusetts shown as Parcels No. 25, No. 26, No. 27 and No. 31, Block 17, Sheet 4A on the Eastham Assessor's Map bounded and described as follows:

[descriptions of parcels not included]

All of said boundaries, except the water lines, are determined by the Court to be located as shown on subdivision plan 8939-D dated March 5, 1929. . . .

Said land is conveyed subject to the express condition that the Taxpayers of the Town of Eastham and their families shall have the right to use the above described beach and other beaches developed by the National Park Service within the Town of Eastham together with the adjacent parking areas without charge, and reserving to the property owners the right to pass and repass over the same by existing or future ways between the Town Road and the property lying Southerly of the above described premises, and to use said ways as ways are commonly used in the Town of Eastham; and whenever the Cape Cod National Seashore Park Service does not use the same for the purposes as stated, said beach and land are to revert to the Inhabitants of the Town of Eastham.

After transferring all rights of way and easements in the Town ways, described below, reserving full rights of way to the taxpayers of the Town of Eastham, and their families and/or tenants, the right to use the same as now located and as they may hereafter be relocated by the National Park Service, as ways are commonly used in the Town of Eastham viz: Nauset Road from its intersection with Route 6 running thence Easterly and Northerly a distance of about eight-tenths (.8) mile to the intersection of Doane Road; and Doane Road from the intersection of Nauset Road running thence Easterly and Southerly a distance of about one and one-tenth (1.1) mile to Coast Guard Beach, so called, said roads to be maintained, policed, and kept in good repair by the National Park Service; and whenever the Cape Cod National Seashore Park Service does not use for the purposes as stated, the said Town ways are to revert to the Inhabitants of the Town of Eastham.

The Vote of the Inhabitants of the Town of Eastham in meeting assembled February 18, 1963 authorizing this conveyance is attached hereto.

Intending hereby to convey with quitclaim covenants to the United States of America and its assigns, all right, title or interest which the grantors may have in the banks, beds and waters of any streams or ponds adjacent to or fronting upon said land in any alleys, roads, streets, ways, strips, gores, or railroad rights of way abutting or adjoining said land, and in any means of ingress or egress appurtenant thereto.

This conveyance is subject to existing easements for public roads and highways, for public utilities, for railroads and pipelines.

Excepting, however, to the Town all aspects of the propagation and taking of shellfish in connection with the above described land and beach. The consideration being nominal, no revenue stamps are required.

In witness whereof the Town of Eastham has caused its seal to be affixed hereto and these presents to be executed for and in its behalf by the undersigned the Board of Selectmen hereunto duly authorized this 3rd day of June 1963.

TOWN OF EASTHAM
BY:
/s/ Maurice W. Wiley
/s/ Luther P. Smith
/s/ Maurice A. Moore

TOWN OF EASTHAM
TO
UNITED STATES OF AMERICA
QUITCLAIM DEED
NAUSET LIGHT BEACH AREA

TOWN OF EASTHAM, a municipal corporation duly organized and existing by law in the County of Barnstable and Commonwealth of Massachusetts, acting by and through its Board of Selectmen, for consideration paid, grants to the UNITED STATES OF AMERICA and its assigns all its right, title and interest in and to certain parcels of land situate in Eastham, Barnstable County, Commonwealth of Massachusetts more particularly described as follows:

* * * * *

PARCEL THREE

That parcel of land and beach known as "Nauset Light Beach" comprised of the following Lots:

[lot description not included]

All of said boundaries are determined by the Court to be located as shown on subdivision plan 17649-B dated Sept. 15, 1943. . . .

Containing one acre of land more or less.

Reserving to the taxpayers of Eastham, and their families, the right to use the above described beach and adjacent waters for swimming, the adjacent parking area, and without charge. Provided however, that whenever the Cape Cod National Seashore Park Service does not use the same for purposes as above stated, the said beach and land are to revert to the Inhabitants of the Town of Eastham.

* * * * *

PARCEL FOUR

Rights of way and easements in the below described Town way: viz: Cable Road from its' [sic] intersection with Nauset Road and running East to its' [sic] termination at the Atlantic Ocean.

Reserving full rights of way to those persons legally entitled thereto and to the taxpayers of the Town of Eastham and their families and/or tenants the right to use the same as ways are commonly used in the Town of Eastham both now and hereafter over the same.

Provided, however, that said road be maintained, policed and kept in good repair by the National Park Service as a free point of access for the taxpayers of the Town of Eastham and their families and/or tenants to the bathing beaches; and provided further that whenever the Cape Cod National Seashore Park Service does not use the same for the purposes as stated, the Town ways are to revert to the Inhabitants of the Town of Eastham.

* * * * *

In witness whereof the Town of Eastham has caused its seal to be affixed hereto and these presents to be executed for and in its behalf by the undersigned the Board of Selectmen hereunto duly authorized this 25th day of January 1965.

TOWN OF EASTHAM
BY:
/s/ Fred G. LaPiana, Jr.
/s/ Luther P. Smith
/s/ Maurice A. Moore

Chapter 360

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Eighty-four

AN ACT CEDING TO THE UNITED STATES OF AMERICA CONCURRENT JURISDICTION OVER UNITS OF THE NATIONAL PARK SERVICE IN THE COMMONWEALTH.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. The commonwealth hereby cedes concurrent jurisdiction over those lands and buildings hereinafter provided and administered by the National Park Service of the United State Department of the Interior.

The lands and buildings so included are as follows:

* * * * *

(d) Cape Cod National Seashore, in the towns of Chatham, Orleans, Eastham, Truro, Provincetown and Wellfleet, as described in a plan of land titled "Boundary Map, Cape Cod National Seashore", dated February, 1978.

* * * * *

SECTION 2. Said concurrent jurisdiction shall be vested upon acceptance by the United States of America when the Director of the National Park Service files a notice of such acceptance with the governor and the state secretary.

SECTION 3. Exclusive jurisdiction in and over such tracts shall revert to and revest in the commonwealth whenever such tracts shall cease to be used for the purpose set forth in section one.

House of Representatives, December 11, 1984.

Passed to be enacted,

/s/ Thomas W. McGee,

Speaker

In Senate, December 12, 1984.

Passed to be enacted

/s/ William M. Bulger,

President

December 18, 1984

Approved,

/s/ Michael J. Dukakis, Governor

APPENDIX B: CAPE COD NATIONAL SEASHORE ZONING STANDARDS

CODE OF FEDERAL REGULATIONS, TITLE 36, PART 27

Sec.

- 27.1 General objectives.
- 27.2 Commercial and industrial activities.
- 27.3 Seashore District.
- 27.4 Variances and exceptions.

AUTHORITY: Secs. 1, 5, 75 Stat. 284, 290; 16 U.S.C. 459b, 459b-4.

SOURCE: 27 FR 6714, July 14, 1962, unless otherwise noted.

§27.1 General objectives.

(a) Consistent with the objectives set out in section 5 of the Act of August 7, 1961 (75 Stat. 284), development and management of the Cape Cod National Seashore will be conducted in a manner which will assure the widest possible public use, understanding and enjoyment of its natural, cultural and scientific features. The regulations in this part are designed and promulgated to establish minimum standards which local zoning bylaws must meet in furtherance of those purposes.

(b) The standards hereby established for approval of zoning bylaws or amendments of zoning bylaws—are intended: (1) To contribute to the effect of prohibiting the commercial and industrial use, other than existing commercial or industrial use not inconsistent with the purposes of the Act of August 7, 1961 (75 Stat. 284, 291), of all property within the boundaries of the Cape Cod National Seashore and situated in the towns of Provincetown, Truro, Wellfleet, Eastham, Orleans and Chatham; and (2) to promote preservation and development, in accordance with the purposes of the said Act, of the area comprising the seashore, by means of acreage, frontage and setback requirements and other provisions which may be required to be included in zoning bylaws consistent with the laws of Massachusetts. Zoning bylaws or amendments of zoning bylaws applicable to the area within Cape Cod National Seashore, in order that they may be approved, shall conform to the standards herein set forth relating to preservation and development of the seashore in accordance with the purposes of the said Act. The Secretary shall be given notice of any amendments to approved zoning bylaws that affect the Seashore District. Nothing in these standards or in the zoning bylaws adopted pursuant thereto for the area within Cape Cod National Seashore shall preclude the Secretary of the Interior from fulfilling the responsibilities vested in him by the Act of August 7, 1961, or by the Act of August

25, 1916 (39 Stat. 535), as amended and supplemented.

(c) Wherever the term "improved property" is used in this part it shall mean a detached, one-family dwelling, the land on which it is situated, and accessory structures, and as further defined in section 4(d) of the Act of August 7, 1961 (75 Stat. 284).

§27.2 Commercial and industrial activities.

No commercial or industrial districts may be established within the Cape Cod National Seashore.

§27.3 Seashore District.

(a) *Description.* The Seashore District shall include all those portions of the towns of Provincetown, Truro, Wellfleet, Eastham, Orleans and Chatham lying within the exterior boundaries of the Cape Cod National Seashore.

(b) Zoning bylaws for the Seashore District shall be consistent with the objectives and purposes of the Act of August 7, 1961, so that—to the extent possible under Massachusetts law—the scenic, scientific and cultural values of the area will be protected, undeveloped areas will be preserved in a natural condition, and the distinctive Cape Cod character of existing residential structures will be maintained.

(c)(1) No moving, alteration, or enlargement of existing one-family residential dwellings or structures accessory thereto situated within this District shall be permitted if such would afford less than a 50-foot setback from all streets measured at a right angle with the street line, and a 25-foot distance from the abutters' property lines (or less than such lesser setback or distance requirements already in existence for such dwellings or accessory structures).

(2) If through natural phenomena or causes a lot or lots are so diminished in size that an owner would be unable to comply with the setback or sideline requirements herein prescribed, such owner or the zoning authorities may, as provided in §27.4(b), request the Secretary of the Interior to determine whether a proposed move, reconstruction, alteration or enlargement of an existing residential dwelling or acces-

sory structure would subject the property to acquisition by condemnation.

(d) Zoning bylaws adopted pursuant to this regulation shall contain provisions designed to preserve the seashore character of the area by appropriate restrictions or prohibitions upon the burning of cover, cutting of timber, filling of land, removal of soil, loam, sand or gravel and dumping, storage, or piling of refuse and other unsightly objects or other uses which would detract from the natural or traditional seashore scene.

(e) Zoning bylaws for the Seashore District may permit residential uses of "improved property" and other uses of such dwellings and their accessory structures: *Provided*, Such other uses are traditional to these seashore communities, are customarily incidental to the principal residential use and do not alter the essential character of the dwelling and premises as a private residence. Subject to those conditions such uses may include, but are not limited to: (1) Partial use of dwellings by residents for a professional office (as for the practice of theology, law or medicine), as an artists' studio, for appropriate small scale home occupations as the making and selling of traditional Cape Cod products produced on the premises, and for the rental of rooms and serving of meals by residents of the premises to overnight guests; (2) the existence of structures, such as a garage, barn or boathouse accessory to the dwelling; (3) display of a sign which may be indirectly but not directly illuminated and not to exceed two square feet in area, referring to the occupancy, sale, or rental of the premises; (4) traditional agricultural uses of cleared land, but not including such objectionable uses as a piggery or the raising of livestock, poultry or fur-bearing animals for commercial purposes; and (5) the opening of shellfish, the storage and use of fishing equipment, and other traditional fishing activities. No commercial or industrial ventures (other than of the types described above), may be established within the Seashore District.

§27.4 Variances and exceptions.

(a) Zoning bylaws may provide for variances and exceptions.

(b) Bylaws adopted pursuant to these standards shall contain provisions which constitute notice to applicants for variances and exceptions that, under section 5(d) of the Act of August 7, 1961, the Secretary of the Interior is authorized to withdraw the suspension of his authority to acquire, by condemnation, "improved property" that is made the subject of a variance or exception which, in his opinion, fails to conform or is in any manner opposed to or inconsistent with preservation and development of the seashore as contemplated in the said Act. The Secretary may be consulted at any time by zoning authorities or by the owner of "improved property" regarding the effect of a proposed variance or exception upon the status of the affected property with regard to the suspension of the Secretary's authority to condemn. The Secretary, within 60 days of the receipt of a request for such determination, or as soon thereafter as is reasonably possible, shall advise the owner or zoning authorities whether or not the intended use will subject the property to acquisition by condemnation.

(c) The Secretary shall be promptly notified of the granting of any variance or exception.

APPENDIX C: INTERPRETIVE THEMES FOR CAPE COD NATIONAL SEASHORE

The interpretive focus for Cape Cod National Seashore would be broadened to link the national seashore with the region and to present a more holistic picture of the Cape Cod character. The themes cover those ideas that are critical to understanding the national seashore's significance. All interpretive programs (both media and personal services) should relate to one or more of the themes, and each theme should be addressed by some part of the overall interpretive program.

- *Cape Cod's natural systems and processes have produced distinctive landforms and habitats.*

Cape Cod's soil and rocks were initially deposited by continental glaciation. The Cape is a vast accumulation of glacial drift. Except for dunes and windblown sediments, its landforms — kettle ponds, erratics, kames, and paments — all derive from glaciation.

Cape Cod's biota, climate, and geomorphology express its seasonal diversity. The violent action of winter storms on Cape Cod's easily eroded sand changes landforms with the seasons. Migration is part of the annual cycle of many animal species, from waterfowl and other birds to whales and seals.

Salt marshes occur in the protected bays and inlets behind the barrier beaches and islands and constitute one of the Cape's most characteristic and important ecosystems.

The range of temperature in surrounding waters, combined with numerous estuaries of varying salinity, has produced some of the richest marine habitat on the East Coast.

Of all the creatures nourished by the sea, none has been more important to the history of Cape Cod than the Atlantic cod.

- *The elements of natural change, primarily through the effects of the sea on the land, embrace and permeate all of the Cape's resources.*

The configuration of Cape Cod is the result of the actions of rising sea level, winds, waves, and ocean currents. Rising sea level is eroding Cape Cod. Ocean waves and beach processes are eroding the Great Beach and building land at both ends.

Rising sea level established Cape Cod's most important ecosystems — bays, tidal flats, and protective barrier beaches — which provide habitat for a greater abundance and variety of aquatic life.

As the sea erodes the Great Beach escarpment, it exposes evidence for thousands of years of geological and human history.

- *The people of Cape Cod have intensely affected the land, and they continue to interact with the land and surrounding waters. Cape Cod is the continuing saga of human events etched onto the landscape.*

Nomadic Paleo-Indian people — hunters and gatherers — arrived on Cape Cod about 12,000 years ago. Succeeding populations developed a more sedentary, agricultural way of life, notable for a more permanent occupation and a sophisticated social structure and economy.

By 1600 the Wampanoag Indians had established six villages along the creeks and bays from Chatham to Wellfleet, relying on a combination of hunting, fishing, and farming for sustenance.

In 1620 Cape Cod was 97% forested. English settlers began wood cutting and stock grazing. By 1750 the Outer Cape was virtually stripped of its extensive forests. Sheep grazing and cranberry cultivation continued to affect the forests.

In 1654 the Province Lands were set aside by the Plymouth Colony as public lands, never to be privately owned or developed, making these the earliest lands ever set aside as a public trust in the United States.

Henry David Thoreau visited Cape Cod in 1849 and 1850 to partake of the isolation, solitude, and vastness. He wrote of his journey, the people he encountered, and the desolation resulting from overfarming and overgrazing.

The cranberry has been commercially raised on the Cape's bogs since the early 1800s. The cranberry, as much as the cod, has become a symbol of Cape Cod.

The coming of the railroad, which initially contributed to the decline of the packet boat and merchant marine, helped revive the Cape's economy by linking Cape Cod towns to the rest of New England — especially the region's urban populations.

- *The waters around Cape Cod have profoundly affected and continue to affect human activities here.*

While taking advantage of many of the marine resources around them, the first English settlers on Cape Cod were farmers, not fishermen. They did not truly become seafarers until forced to by the land's limitations and by their own unintentional mismanagement of it.

Cape Cod occupied a significant place throughout the period of European/American Indian contact. It was charted, documented, or explored by Verrazano, Gosnold, Champlain, Smith, and others.

On November 9, 1620, the *Mayflower* Pilgrims sighted the Cape, the first land they had seen in the two months since leaving England. While anchored off what became known as Provincetown, they explored areas of the Cape, encountered the Native Americans living there, and signed the Mayflower Compact.

After the American Revolution, the manufacture of salt from seawater helped support Cape Cod's fishing industry and provided a cash crop. Before railroads were built, travel by sea provided faster and cheaper transportation than by land. Ships were the primary means of transportation on Cape Cod before the Civil War.

Provincetown, with its unrivaled harbor for fishing and whaling, became the Cape's most important port. Invigorated by the arrival of the railroad and the influx of Portuguese fishermen, Provincetown remained an important port until the end of the 19th century.

From packet boats to clipper ships, Cape Codders attained seafaring eminence as shipmasters in the merchant marine and brought home cosmopolitan perspectives unusual among mid-19th century New England towns.

The Outer Cape is a graveyard for about 3,000 ships wrecked within the past 300 years. To aid navigation, prevent shipwrecks, and assist the survivors of shipwrecks, the federal government provided lighthouses, lifesaving stations, and Coast Guard stations.

From the invention of Marconi's wireless telegraph until the introduction of satellites, Cape Cod was an ideal location for ship-to-shore and transatlantic communications systems.

In the 20th century the popularity of ocean recreation has made Cape Cod one of the nation's leading summer playgrounds. Outer Cape residents' activities and livelihoods are integrally bound with the waters.

- *As both a haven and a subject, Cape Cod has drawn artists and authors for more than a*

century. In addition, its environment has encouraged the development of structures and tools that have come to be appreciated for their beauty as well as their utility.

Artists and writers made their homes on Cape Cod, painting and writing of seascapes and landscapes. Few, if any, rural areas of comparable size have inspired such a rich and varied creative response.

Cape Cod houses, which illustrate how settlers adapted to nature, rather than confronting it, are of national architectural significance. Windmills and lighthouses are other characteristic architectural features that capture the imagination of visitors.

Cape Cod is the home of utilitarian art objects, such as the Cape Cod catboat, the quahog bullrake, and the first commercial cranberry scoops and crates. Cape Cod is also a place to find lobster traps, quarterboards, and carved waterfowling decoys.

Henry Beston lived for a full year on the Great Beach and wrote *The Outermost House*, a personal and a natural history of Cape Cod. Thoreau preceded him, and other nature essayists (Hay, Finch) have followed, as have many other writers.

As a result of World War I, writers and artists, who had previously traveled to Europe, discovered the charm of fishing villages and the extraordinary light on the Cape. This tradition has enriched cultural life on the Cape and is fostered today by local organizations and individuals.

- *Cape Cod National Seashore is a place where people enjoy a variety of recreational, educational, and inspirational activities in various settings. It is a place for people to enjoy spectacular natural settings and to experience a sense of continuity linking past, present, and future.*

Cape Cod offers unpolluted waters and beaches, the harvest of the sea, vistas, reminders of our maritime past, and the opportunity for discovery and self-discovery.

Cape Cod National Seashore is a place for spiritual replenishment, where nature and cultural heritage are highly valued and protected.

The national seashore offers a living demonstration of how current and future generations may interact responsibly with the environment, both on Cape Cod and elsewhere.

The national seashore provides many opportunities to relate the challenges of resource stewardship. There is a need to convey complex, often controversial, resource management issues to the public to broaden their understanding of the myriad factors affecting decisions.

APPENDIX D: MANAGEMENT ZONING AND CARRYING CAPACITY MONITORING

NATIONAL SEASHORE MANAGEMENT ZONING

In accordance with NPS *Management Policies*, all lands and waters within Cape Cod National Seashore's boundary are zoned to provide for user experience and resource protection. Management zoning is a required component of a management plan. The more specific management zoning actions would not override, but would be consistent with, the remaining elements of this plan.

Management zones have been delineated based on the national seashore's purpose, significance, management philosophy and objectives, and natural and cultural resources. Zoning assists managers in focusing on protecting natural processes and cultural heritage while accommodating compatible human uses. Research is appropriate in any management zone as an important component of managing resources.

Management zoning applies directly to NPS lands. Properties owned by other agencies or private landowners are not subject to NPS management zoning. Adjacent landowners may wish to work with the Park Service to protect resources in a similar manner. The Proposed Management Zones map shows approximate management boundaries, but *should not be viewed as a specific boundary document.*

PRINCIPAL MANAGEMENT ZONES

Management zoning is based on designating areas in one of the following four zones:

- ◆ *Natural zone* — This zone includes most of the national seashore where the primary experience is one of being in natural surroundings, such as in the woods or along a beach. *This zone extends along the entire coast. Where natural coastal processes erode or accrete the coastline, the natural zone would continue to occupy the coastal area within national seashore boundaries.*
- ◆ *Historic zone* — This zone includes areas with archeological remains, historically significant districts, sites, and cultural landscapes.

- ◆ *Developed zone* — This zone includes highly developed areas for public use or information dispersal, such as visitor centers, roads, bicycle trails, staging areas, parking lots, and changing rooms or comfort stations.
- ◆ *Special use zone* — This zone includes areas that are used primarily for residential, administrative, or operational purposes. While not all houses in the rural settlement subzone are shown on maps, the structures themselves are considered to be part of this zone, while adjacent land would be considered part of the surrounding zone.

Subzones within each of these zones further define desired experiences and management strategies, including the setting, examples of areas or sites within that subzone, and the desired experience and management practices.

The zones help guide intervention in problem areas. User conflicts, safety needs, or resource protection requirements could result in areas being closed. *Unless public safety concerns are immediate, affected stakeholders would normally be consulted regarding potential long-term closures. If operational/nonhistoric facilities in any zone were destroyed, severely damaged, required excessive capital reinvestment, or for any other reason went beyond the point of reasonable repair, then development in those areas would not automatically be replaced. Relocated facilities would be placed in areas away from sensitive areas or areas subject to rapidly changing coastal processes. Decisions not to repair or relocate facilities would be made in consultation with the affected towns.*

Walking trails would be acceptable development in all zones, except where there would be a notable conflict with private property. Important vistas may also occur in any subzone, and would be managed appropriately.

NATURAL SUBZONES

Concentrated Use Subzone

The concentrated use subzone is characterized by natural areas that are easily accessible, including recreational beaches, ponds, forested areas, and areas that may require designated access to ensure resource protection, like the white cedar and red maple swamps. Facilities providing comforts and conveniences are usually nearby. Opportunities to interact with the natural environment are offered along trail corridors or at beaches. Infrastructure includes hardened trails, boardwalks, staging areas, and parking lots.

Examples of this subzone include the beech forest, the white cedar swamp, Pilgrim Heights, and recreation beaches.

Desired Experience: Travel would often be restricted to hardened trails, beaches, or boardwalks to protect adjacent resources. Vehicles would be evident only in parking lots, self-contained camping areas, and along nearby roadways. Minimal to moderate physical exertion would be required. The probability of encountering individuals or groups would be moderate to high, and NPS staff presence would be low to moderate. Because of seasonal variations, experiences might be solitary during the off-season or crowded during the peak use season. The need for outdoor skills would be minimal.

Interpretive information would be provided at trailheads and wayside exhibits and through brochures and bulletin cases. Personal services could be offered.

Management: Resources could be manipulated or modified to control or correct problems resulting from public use, as long as changes did not unduly affect the setting, protected species, or other sensitive resources. A moderate to high level of trail management could be required to protect resources and ensure public safety (for example, trail hardening, boardwalks, trail delineators). Maintenance would be performed more frequently than in other natural subzones; the purpose would be to leave the setting as natural as possible. Resources within the trail corridor (defined as the trail and a 5' buffer area on either side) could be mowed, cleared, planted, or otherwise altered for public safety or viewing of adjacent resources, or to eliminate social trails. Monitoring to identify resource standards and indicators (see pages 325–329) would occur outside trail corridors.

Dispersed Use Subzone

The dispersed use subzone is characterized by primarily undeveloped areas, which are natural settings in remote locations. Some areas may have no facilities or improvements. Trails may lead to specific destinations or may pass through a variety of resource settings. Resource modifications other than sand roads, rural homes, utility corridors, and trails are not evident.

Examples of this subzone include Griffin and Bound Brook Islands, land south of the Marconi area, and Race Point.

Desired Experience: This subzone would provide people a sense of being immersed in a natural landscape, where they may feel distant from most comforts and conveniences. Uses could include hiking, fishing, swimming, mountain biking, horseback riding, ORV driving, and picnicking, with numerous opportunities to interact with the natural environment. Private residential neighborhoods would be seldom seen.

The probability of encountering individuals, groups, and NPS staff would be low to high, depending on the season and the time of day. At times, experiences might be solitary. Challenge and opportunities for adventure would be moderate to high. Physical exertion could be required, depending on whether one was hiking, riding, or driving. The need for some outdoor skills would be important.

Trails, boardwalks, ungated sand roads, and beaches would be the primary ways of access. Vehicle use would only be permitted along ungated sand roads or within designated corridors.

Information, regulations, and interpretive media within this subzone would be provided at visitor contact points and trailheads; however, some onsite information or regulatory signs might be provided for vehicle use. Some site-specific media or personal programs could be provided.

Management: The management intent within this subzone would be to minimize resource damage within moderated use limits. Hiking areas would be managed primarily for resource protection and visitor safety. Designated horseback-riding trails would be moderately to intensively managed to protect resources and minimize user conflicts. Sand roads and beaches open to ORVs would be intensively managed

to protect resources, minimize user conflicts, and promote safety.

Onsite controls and restrictions would be subtle (for example, sand fences) and would be used only to protect resources or ensure safety. Areas could be closed as resource protection measures or because of inclement weather or high tides. Long-term decisions regarding changes in management or the regulation of public or designated ways recognized for a long period of time would be discussed with the affected stakeholders.

Low Use Subzone

The low use subzone is characterized by remote natural areas with little evidence of settlements or people. Trails, gated sand roads, utility corridors, and isolated houses/structures are the only facilities present. Backcountry camping and equestrian use may be permitted in designated areas. Access is only by trail, gated sand road, or along beaches. No recreational mechanized or motorized use is permitted. Vehicle access is restricted to permit holders, dune tour taxi operators, and NPS staff for public safety, law enforcement, resource protection, and other administrative purposes. Efforts would be made to avoid intruding on the core experience of solitude and isolation in this subzone.

Examples of this subzone include Great Island, the inner dunes of the Province Lands, and the south beach at Chatham.

Desired Experience: The experience in this subzone would be one of being completely immersed in a natural landscape. Opportunities for independence, closeness to nature, and tranquillity would be moderate to high. The need for some outdoor skills would be important. People encountered would primarily be hikers, or those fishing, swimming, or picnicking; there would be a low probability of meeting other groups or NPS staff. Private residences would rarely be seen.

Information, regulations, and interpretive media would be provided at initial contact points and trailheads. Interpretive programs would be infrequent.

Management: Management actions would be primarily to protect resources and ensure public safety. Needed controls and restrictions would be subtle. Resource modification would be minimal. Few facilities would be provided.

Marine / Intertidal Subzone

The marine / intertidal subzone includes all estuarine, open ocean, and bay waters and the land under the ocean, bays, estuaries, and portions of rivers that are tidally influenced. These areas include submerged historic resources such as shipwrecks along the coast. Physical access and viewpoints are usually along stretches of land-based subzones like beaches, dunes, and cliffs or by boat. The ownership of submerged lands within the national seashore boundary varies. Where ownership is not federal, management would be addressed with partners.

Examples of this subzone include Cape Cod Bay, Nauset Marsh, Hatches Harbor, the Atlantic Ocean, and the Herring River estuary.

Desired Experience: The primary recreational experiences within this subzone would include boating, swimming, shellfishing, fishing, and combing the tidal flats. Swimming would primarily be from designated beaches and close to shore. Boating activities, including fishing and recreational boating, often depend on the time of year and weather conditions. Close contact with other boats/groups would vary from site to site, with experiences ranging from large gatherings to opportunities for solitude. Specialized outdoor skills and abilities would often be necessary and could involve specialized equipment.

Information, state and federal regulations, and interpretive media within this subzone would be provided mainly at visitor contact stations, beach parking lots, and viewpoints.

Management: Generally, management actions would be of low intensity except where designated areas were closed to protect nursery habitat, to allow ecological restoration, or to reduce user conflicts. Actions would focus on protecting marine and tidal resources, including fish and shellfish habitat and shipwrecks, as well as providing a wide spectrum of recreational opportunities. Fishing and shellfishing activities would be managed by the appropriate agency or agencies in accordance with applicable federal, state, or local regulations. Where land is not federally owned, management would be addressed with nonfederal landowners, as necessary.

The management of swimming would vary, depending on beach ownership and season. NPS beaches would be moderately to intensively managed during summer, while some expanses of beach would not be

managed at all or patrolled infrequently. Motorized activities such as boating and use of personal watercraft would not be permitted in designated lifeguard-protected areas where conflicts with swimmers could occur, or in other areas where prohibited. New mechanized activities that could increase safety hazards or impact resources would be less compatible with desired experiences in this subzone and might need to be regulated.

Resource modifications (groins, jetties, seawalls, and revetments) for coastal protection would not be permitted in this subzone. Previous modifications such as groins or armoring would either be removed or left subject to coastal processes.

HISTORIC SUBZONES

Structures and Landscape Subzone

Within the structures and landscape subzone are historic buildings and structures, cleared fields, and agricultural lands. Settings are primarily formal and involve housing patterns and manipulated landscapes. The character is often defined by groupings of historic elements such as buildings or districts that are surrounded by cultural or natural landscapes. Many sites are completely manipulated landscapes, with boundaries defined by historic and other cultural resources. Parking and other visitor services are available at often visited sites.

All sites/districts are listed on or are eligible for listing on the National Register of Historic Places. Individual historic sites may also be included under other subzones and would be managed consistently with surrounding lands. Zone boundaries may change as nominations for protection are further refined.

Examples of this subzone include the Fort Hill/Penniman house, Highland Historic District, and the Pamet cranberry bog.

Desired Experience: This subzone would provide a sense of being in a historical area and seeing something that adds to the historical and cultural character of Cape Cod. Areas would range widely in terms of visitation; how people get to support facilities; the number of contacts with other individuals, groups, or NPS staff; and commitments of time and physical exertion.

Interpretive programs would be provided both at visitor contact points and at individual sites, often at scheduled times.

Management: Intensive management would often be required to protect the resources and to ensure public safety. Examples include designating paths, building fences, and restricting sizes of groups. Cultural landscapes would be managed to perpetuate a particular historical, cultural, or agricultural scene. Modifications in these areas would have to be in harmony with the period of significance and would be confined to those necessary to protect the historic resources and manage the appropriate levels of public use at each site. Some historic structures could be leased by the National Park Service. Management strategies would be consistent with the reason for historic designation.

Natural Settings Subzone

The natural settings subzone includes historical areas surrounded primarily by a natural setting, such as isolated dune shacks or archeological remains in a forest. Access to parking and other visitor facilities is infrequent or unavailable.

The zoning boundaries for such areas are often defined by the natural resources within the viewshed (see glossary) of the structures, which may change over time. Boundaries may also change as nominations for the National Register of Historic Places are refined. All of the sites/districts are either national landmarks or are listed on or are eligible for nomination to the national register. Individual historic sites may also be included under other subzones and would be managed consistently with surrounding lands.

Examples include the dune shacks of the Peaked Hill Bars Historic District, Long Point, Fresh Brook Village, and the Nauset Marsh National Historic Landmark District.

Desired Experience: Like the structures and landscape subzone, this subzone would provide the opportunity to be reminded of both the historic and prehistoric activities that shaped the character and local culture of the Cape. The experience would depend primarily on the character of the natural resources surrounding each site and the character of the site itself, such as the structural remains of Civil War batteries at Long Point. Such areas are often isolated and generally have low visitation, with limited access to support facilities or contact with other individuals,

groups, or NPS staff. Visiting these areas would require varying amounts of time and physical exertion.

A variety of interpretive programs could be provided both at visitor contact points and at the individual sites, often at scheduled times.

Management: Management actions would be primarily to protect natural and cultural resources. Access could be limited by physical means or restricted to certain times. Modifications would be confined to those needed to protect the resource from human impacts, manage the level of use, and provide for public safety. Modifications would have to harmonize with historic and natural surroundings. Some historic structures, such as the dune shacks, could be leased by the National Park Service for continued use.

DEVELOPED SUBZONES

Visitor Facility Subzone

The visitor facility subzone is characterized by a developed environment, although the surrounding setting may be natural or historic. Facilities within the subzone include visitor centers, comfort stations, bathhouses, educational centers, utilities, vistas, paved areas, mowed areas, and associated infrastructure. A large number of users can be expected, both onsite and in nearby areas.

Examples include the Salt Pond and Province Lands visitor centers, the Coast Guard Beach complex, and privately managed campgrounds.

Desired Experience: This subzone would primarily offer a facility-dependent experience directed to orienting the public, interpreting resources, or providing other public services. Sites would be easily accessible and safe. Users would not need special outdoor skills or abilities. Sights and sounds of people and vehicles would be very evident.

Numerous orientation and interpretive programs would be concentrated at visitor centers.

Management: Intensive maintenance would be required. The placement of fences, walkways, vegetative barriers, and boardwalks, as well as the active management of recreation, would help ensure resource protection and public safety. Resources would be modified for public use and operational

needs. The cost-effectiveness of repairing facilities or developing new facilities in areas subject to coastal storms and erosion would need to be evaluated carefully.

Motorized Corridor Subzone

In the motorized corridor subzone roads typically pass through natural settings and offer views of forests, marshes, ponds, dunes, and other natural areas within the national seashore. Many roads lead to residential areas, as well as historic resources such as lighthouses and beaches. The roads are paved, signed, striped, and often have pullouts and vista points.

Consistent with public safety and resource protection measures in adjacent zones, short trails may provide easy access to viewpoints, small picnic areas, and nearby attractions that are convenient and easily accessible. Parking areas for trailhead access may be provided for access to other zones.

Examples of routes in this subzone include U.S. 6, Race Point Road, Province Lands Road, Chequesset Neck Road, and Ocean View Drive.

Desired Experience: Scenic driving opportunities would be the primary experience, as well as bicycling and walking. Observing the natural setting and historic elements would be important, and while there might be a sense of adventure, there would be little need for special outdoor skills or abilities. Large numbers of people could be present.

Interpretive information would primarily be offered at wayside exhibits and viewpoints.

Management: Corridors within the national seashore would be intensively managed by the Park Service, as well as by state and local jurisdictions, for public safety and resource protection purposes (e.g., erection of guardrails, active enforcement, restrictions on activities), depending on ownership. Resources would be modified for essential public use and operational needs.

Along primary routes (such as a state or U.S. highway) and secondary roads, the area of management would be within the road right-of-way.

Nonmotorized Corridor Subzone

The nonmotorized corridor subzone includes paved or improved trails and sand roads for bicycling and walking. Trails typically pass through natural settings such as dunes, forests, and marshes and often provide access to specific natural or historic areas within the seashore. Public attractions are easily accessible and usually close to the trails. Parking areas are available. Limited support facilities such as comfort stations may be provided at trailheads. Resource modifications are evident but harmonize with the natural environment.

Examples of this subzone include bicycle trails in the Province Lands, Nauset, and Head of the Meadow (National Park Service), and the Cape Cod Rail Trail (Massachusetts Department of Environmental Management).

Desired Experience: Observing the natural setting along trails would be important. There could be a sense of adventure, but little need for special outdoor skills or abilities. Signs would blend with the natural environment. The probability of encountering individuals, groups, and NPS staff would be low to moderate.

Interpretive information would be provided through brochures, bulletin cases, and wayside exhibits, primarily at trailheads. Personal services would be infrequent.

Management: Trails would be managed and maintained by the Massachusetts Department of Environmental Management and the National Park Service. NPS management for resource protection, trail function, education, and safety would be moderate to high. Vegetation within 5' of either side of the paved trail would be intensively managed, including mowing and selective removal of nonnative or hazardous vegetation. The removal of vegetation would be judicious and would be subject to standard environmental review practices, including consultations with others, where necessary.

SPECIAL USE SUBZONES***Rural Settlement Subzone***

Residential settlements within the national seashore contribute to the richness and diversity of experiences. Homes within the rural settlement subzone, often with maintained landscapes, are surrounded by

natural areas. Building density is moderate, with clusters of houses and outbuildings separated by open spaces. Privacy is important, and limited access is by private roads/drives that vary from well-maintained paved surfaces to narrow, unpaved surfaces periodically graded for two-wheel-drive vehicles. No visitor support facilities are provided.

Included in this subzone are historic houses recorded by the Historic American Buildings Survey, such as those along Pamet Point Road, that are considered eligible for the National Register of Historic Places.

Examples of areas in this subzone are Wellfleet by the Sea, the vicinity of Gull Pond, settlements along the Pamet River, Pamet Point, Long Nook, and Higgins Hollow Roads.

Desired Experience: The experience would usually be in a vehicle, from a bicycle, or on foot on the way to another feature or attraction. Interaction among visitors and residents would be low. Sights and sounds of people, houses, and vehicles would be common, although large numbers of people would usually not be encountered.

Public services or interpretive information would be rarely provided.

Management: NPS areas would be managed to protect natural and cultural resources, to help provide privacy for residents, and to ensure safety. Active enforcement of regulations to protect the rights of residents by the Park Service and local authorities would occur. Private properties would be subject to town zoning bylaws and NPS oversight. When structures or landscapes must be modified, private homeowners would be encouraged to make changes that were architecturally compatible with the original structure and sensitive to adjacent natural processes and resources. Some nonhistoric structures would be removed, where appropriate. The existing NPS use-and-occupancy policy could continue. Nonhistoric houses that were built after 1959 and that have been subsequently acquired by the Park Service could be considered for adaptive use or demolished.

Administration / Operations Subzone

The administration/operations subzone contains a wide spectrum of utilitarian buildings, uses, and ownership. Resources have been modified for federal agency or municipal operational needs. Access may be controlled because of operational and safety

concerns and would be subject to consultation if local communities were affected.

Examples of this subzone include NPS maintenance areas and research facilities, Federal Aviation Administration communication towers, town solid waste management areas, Nauset Regional High School, and Provincetown Municipal Airport. Another example of this subzone is the former North Truro air force station, which is being considered for adaptive reuse for both national seashore operations and public educational functions. All isolated properties that are under use-and-occupancy reservations and that are located in other zones would be considered part of this subzone for consistent treatment.

Desired Experience: No desired experience would be defined. These areas would not be interpreted.

Management: Management would be according to agency and operational needs and constraints, including NPS and other entities having jurisdiction. NPS operational areas would be managed to minimize impacts on the surrounding natural resources. Landscaping within the operational areas would include screening with native vegetation where appropriate. Security and protection for national seashore facilities would be provided concurrently by the Park Service and local jurisdictions, under memoranda of understanding.

PUBLIC EXPERIENCE AND RESOURCE PROTECTION PROCESS (CARRYING CAPACITY)

ANALYSIS

One of the requirements of a general management plan is the identification and implementation of commitments for carrying capacity, which is required by federal law (PL 95-625). To comply with this mandate, a process has been developed within the National Park Service to look at carrying capacity as it relates to desired ecological and social conditions, not to the maximum number of people that can be accommodated in a particular area.

The resource mapping and management solutions are directly linked to the management zones for the national seashore. Standards were defined for each zone in consultation with the public to give seashore managers an indication when a problem must be addressed before it becomes a major concern. The qual-

itative standards that have been developed for each subzone as part of the public experience and resource protection process are shown in table D-1. The desired experience and standards would be applied throughout the national seashore gradually over time as funding and time permit or as issues arise.

With this information as a base, indicators and standards for resource conditions and the experience of the public would be tailored for specific areas, such as beaches and kettle ponds, and would be continually monitored by NPS staff over the life of the approved general management plan. The following steps would allow seashore managers to determine when desired conditions were not being achieved and to take corrective action:

- *Select quality indicators and specify associated standards for each zone/subzone* — Measurable physical, social, and ecological variables would be identified for each zone and subzone to indicate whether or not a desired condition was being met. Monitoring techniques for each subzone would also be selected.
- *Compare desired conditions to existing conditions* — A monitoring program would be established for each subzone to identify any discrepancies with the desired resource and social conditions.
- *Identify the probable causes of discrepancies*
- *Identify management strategies to address discrepancies* — Public use or resource management prescriptions would likely start with the least restrictive measures that would accomplish the objective and move toward more restrictive measures if needed, subject to discussion with stakeholders. For example, use patterns could be changed, or infrastructure (e.g., roads, parking areas, trails) could be provided to remedy the problem.

Long-term monitoring is essential for providing periodic, systematic feedback to seashore managers to ensure that desired resource and public experience conditions continue to be achieved over the long term. It is a way of objectively evaluating the effectiveness of individual management actions and the overall effectiveness of the seashore's program.

This analysis process helped determine that improved visitor distribution and more careful management of natural and cultural resources and understanding the

concerns of local communities and residents, rather than overall limits on numbers of visitors, should accomplish the seashore's management needs during the life of this plan.

A MONITORING PROGRAM FOR RESOURCE CONDITIONS AND PUBLIC EXPERIENCE

Cape Cod National Seashore is now engaged in an intensive inventory and monitoring program that has been developed jointly between the National Park Service and the U.S. Geological Survey's Biological Resources Division. This program is part of an ongoing process of scientific data gathering and evaluation that will further the ongoing application of monitoring for resource conditions and public experience within the national seashore.

Resource conditions and the public experience can be continually monitored by national seashore staff based on the seashore's important resources and public experiences, proposed management zones and subzones, and the associated range of desired resource and social conditions. Resource indicators measure impacts on the biological or physical resources of a park unit, while social indicators measure impacts on park users that are caused by interactions with other users or with NPS or concession employees. Standards are quantitative or highly specific measures that provide a base for judging if conditions are acceptable. Standards are triggers for management actions when conditions become unacceptable.

Example Resource Indicators and Standards

Previous research has identified several consistent resource indicators that can be monitored in parks, including the following:

- **Relative soil compaction levels** — This indicator measures the degree to which trampling affects soil density and permeability. Increased compaction is detrimental to ecosystems because it disrupts nutrient and hydrologic cycles. Soil compaction is easily and accurately measured, sensitive to visitor use, and responds to reductions in trampling.
- **Soil characteristics (percentage clay/sand/silt, acidity, amount of organic matter, and macro- and micronutrients)** — Soil characteristics are greatly altered by use and trampling, in turn

affecting nutrient and hydrologic cycles. Over time this will affect plant and animal communities. Measuring these soil characteristics will tell managers if visitors are adversely affecting the soil's physical or biological functions.

- **Cover and frequency of vascular plants (by species)** — Measuring plant cover and frequency will establish the effects of visitor use on vegetative communities, which in turn affect animal communities. Specifically, this indicator can be monitored to determine if use or trampling is resulting in at least three adverse effects: introduction of exotics, reduction in vegetative cover, and conversion of vegetation from perennials to annuals.
- **Elemental tissue content of dominant plants** — Research has shown that trampling affects the nutrient levels in plants and plant growth. Plants in trampled areas become less nutritious for wildlife.
- **Ground cover (percentage cover and frequency of litter, mosses and lichens)** — Trampling affects the ground cover, which is important for soil stability and properly functioning nutrient cycles.
- **Density of social (unofficial) trails** — This indicator is an effective measure of off-trail use and shows how much of an area away from designated trails is being used or trampled by people.
- **Road widenings** — This indicator measures impacts resulting from widening road tracks caused by visitors driving their vehicles around obstacles, passing each other, or driving cross-country.

As an example, a resource indicator and standard for the low use natural subzone might be:

Indicator: Density of social trails.

Standard: The standard is exceeded when 10% or more additional linear feet of social trail per square mile are created than were present in 1996.

The selection of appropriate standards for the resource indicators in each subzone would be based on the relative tolerance for resource impacts and would be based on the judgment of park planners and

resource managers about the minimum degree of "naturalness" needed to maintain the desired experience.

Example Social Indicators and Standards

The National Park Service has not traditionally emphasized the use of the social sciences as a means of determining the quality of a user's experiences. Additional research is needed to determine what user expectations are in parks. Research done in other park units is useful for helping to organize what will be needed for Cape Cod National Seashore. The social research compiled in the 1994 "Cape Cod National Seashore Visitor and Resident Study" (Manning) is extremely helpful as a starting point and can be used for framing additional research that might be needed. Sociologists and local communities would be consulted as necessary in determining standards.

Indicators could include:

- **The number of people at one time at major attractions or on trail segments** — This indicator is an important factor in the user's experience at high use areas and can be easily and accurately monitored.
- **The number of different parties seen while traveling on or off trails or roads** — This indicator is an important factor in the user experience at low use areas and can be monitored fairly easily through observation and public surveys.
- **Traffic congestion on major paved roads within the seashore** — Traffic congestion can be easily measured, and depending on the type of road, ownership and level of use, various actions can be taken to let the public know about alternative routes or attractions such as beaches.
- **The numbers and density of people using designated beaches** — The social expectations on beaches are different from backcountry experiences because in certain instances the experience is enhanced, not diminished, for some users by the presence of others, until a certain threshold is reached.

For example, a social indicator and standard for the low use natural subzone might be:

Indicator: Number of different parties seen on a trail or from a trail per hour during peak hours of peak months.

Standard: The standard is exceeded when five or more parties per hour are seen during 10% or more of the time during peak hours of peak months.

Standards would need to be selected based on the point where the level of service would no longer be consistent with the desired user experience described for each subzone.

Interim Carrying Capacities for Beach Facilities

The 1994 "Visitor and Resident Study" (Manning) surveyed selected aspects of Cape Cod National Seashore carrying capacity by evaluating indicators (variables that reflect the quality of the public experience) and standards (that define the quantitative and measurable condition of indicator variables). The six national seashore ocean beaches are well used and enjoyed. Due to their popularity and potential for crowding at this time, a carrying capacity analysis was undertaken.

Indicators of the quality of natural and historical resources included (1) wildlife, (2) sand dunes, (3) vegetation, (4) water quality, (5) litter, (6) general quality of the environment, (7) natural beauty, (8) number of people, and (9) quiet/solitude. Indicators of the quality of the visitor experience included (1) litter, (2) number of people, (3) traffic, (4) general quality of the environment, (5) adequate visitor facilities, and (6) cleanliness of visitor facilities. Survey respondents reported on the maximum number of visitors seen at beaches, their perceived level of crowding, and the maximum number of visitors and most intense spacing pattern they felt could be accommodated without feeling too crowded.

The following carrying capacities were determined for the protected (or lifeguarded) portions of those beaches.

- Herring Cove, Race Point, and Marconi Beach — 500 people
- Head of the Meadow Beach — 300 people
- Nauset Light Beach — 400 people
- Coast Guard Beach — 900 people

Monitoring of the efficacy of establishing such carrying capacities would be performed once a

routine inventory and monitoring process was established.

Capacity problems at town beach facilities within the seashore are not known. Managers of these town beaches are expected to address any management issues of concern.

Most other locations or facilities, including the Salt Pond visitor center, may occasionally have parking problems, such as full parking lots during special events or tours. The Province Lands visitor center parking lot is oversized to meet demand and does not have capacity problems. Parking areas at Great Island, the Highland Historic District, and the Marconi site do not experience overuse problems.

There are some capacity problems at Fort Hill in Eastham, which is the third most popular nonbeach site in the national seashore, with over 300,000 visits per year. The estimated peak public use capacity for Fort Hill is limited by existing parking and is

approximately 65 people at one time or about 700 people per day. If parking were not the limiting factor, 165 people or about 1,200 people per day could be accommodated. It is estimated that parking capacity is exceeded 40–60 times per year. Efforts to improve the situation include exploring alternative transportation options and some additional parking, and revising the scheduling of special tours.

Intersections along U.S. 6 both inside and outside the national seashore boundary are congested between July 4th and Labor Day. Road volumes are monitored, and road capacities are established by the Cape Cod Commission and other agencies; the National Park Service also monitors volumes at some high public use locations within the seashore. Regional transportation planning initiatives, with the National Park Service as a partner, are expected to address any resultant public safety concerns from road capacity problems; due to traffic capacity concerns, a key component of long-range planning will continue to be regional growth management.

TABLE D-1: QUALITATIVE CHARACTERISTICS FOR MANAGEMENT ZONES
CAPE COD NATIONAL SEASHORE

ZONE CHARACTERISTICS	NATURAL ZONE				HISTORIC ZONE		DEVELOPED ZONE			SPECIAL USE ZONE	
	Concentrated Use Subzone	Dispersed Use Subzone	Low Use Subzone	Marine/Intertidal Subzone	Structures and Landscape Subzone	Natural Setting Subzone	Visitor Facility Subzone	Motorized Corridor Subzone	Nonmotorized Corridor Subzone	Rural Settlement Subzone	Administration/Operations Subzone
Challenge and Adventure of Experience	Low	Moderate to high	Moderate to high	Moderate to high	Low	Low to high	Low	Low	Low to moderate	N/A	N/A
Dependence on Roads, Trails, or Other Facilities	Moderate	Low	Low	Low	High	Low to moderate	High	High	High	High	N/A
Visitor Encounter Expectations	Moderate	Low to high	Low	Low to high	Low to high	Low	High	High	Low to moderate	Low	N/A
NPS Staff Encounter Expectations	Moderate	Low to high	Low	Low	Low to high	Low	High	Low	Low to moderate	Low	N/A
Highest Standard for Road Corridor	Paved	Unsurfaced up to 10' wide	N/A	N/A	Paved	Unsurfaced up to 10' wide	Paved	Paved	N/A	Paved	Paved
Highest Standard for Trail Corridor	Surfaced up to 6' wide	Unsurfaced up to 3' wide	Unsurfaced up to 2' wide	N/A	Surfaced up to 6' wide	Unsurfaced up to 2' wide	Surfaced up to 10' wide	Surfaced up to 6' wide	Paved up to 10' wide	N/A	Surfaced up to 6' wide
Management Action for Resource Protection and Safety	Moderate to high	Moderate	Low	Low to high	High	Low to moderate	High	High	Moderate to high	Moderate (at NPS sites only)	High
Tolerance for Resource Degradation	Low	Low	Low	Low	Low	Low	High	Moderate	Low	Moderate	High
Opportunity for Solitude	Low to moderate	Moderate to high	High	Low to high	Low to moderate	High	Low	Low	Moderate	Low	N/A
Noise Level	Moderate	Low	Low	Low to high	Low	Low	High	Moderate to high	Moderate	Moderate	Moderate

N/A — not applicable.

APPENDIX E: CULTURAL RESOURCE CONSULTATION REQUIREMENTS

The following consultation requirements are subject to section 106 of the National Historic Preservation Act of 1966, as amended.

ALTERNATIVE ACTIONS	CONSULTATION REQUIREMENTS
ALTERNATIVE 1	
1. Preserve and maintain all historic buildings and structures within the national seashore boundaries.	Programmatic exclusion IVa (1)
2. Continue maintenance agreements and short-term leasing of historic structures for adaptive uses such as historical society museums, educational programs, and housing.	Programmatic exclusion IVa (13)
3. Focus cultural landscape protection on five areas: the rehabilitation of Fort Hill, the Highland area, the Pamet cranberry bog, the Atwood-Higgins house and grounds, and the preservation of the dune shacks district.	SHPO/ACHP review required for development concept plan
4. Salvage land-based archeological sites exposed by storm erosion on an emergency basis.	SHPO/ACHP review required
5. Selectively acquire nonfederal lands within the seashore boundary that are important for their natural and cultural values.	Programmatic exclusion IVb (5)
6. Place all NPS-owned utility lines underground, and encourage the power company and property owners to place all locally owned utility lines underground.	SHPO/ACHP review required
7. Maintain sand roads as one of the characteristic features of the Outer Cape scene in partnership with local towns and private property owners.	Programmatic exclusion IVa (1)
ALTERNATIVE 2	
1. Restore the salt marsh at Herring River.	SHPO/ACHP review required
2. Restore the natural drainage and water flow of the Pamet River.	SHPO/ACHP review required
3. Preserve and maintain all historic buildings and structures within the national seashore boundaries.	Programmatic exclusion IVb (1)
4. Rehabilitate the following buildings, as appropriate, for interpretive purposes: Atwood-Higgins complex; bog house; Cohen dune shack; Highland house; Highland Light; Old Harbor Life-saving Station; Margo dune shack; Nauset Light; Edward Penniman house and barn; and Three Sisters Lights.	SHPO/ACHP review required for development concept plans

ALTERNATIVE ACTIONS	CONSULTATION REQUIREMENTS
5. Preserve and adaptively use the following buildings, as appropriate, for administrative purposes: Adams house; Beacon cottage; French cable hut; Henry Gray house and garage; Nauset Coast Guard Station; Race Point Coast Guard Station.	Programmatic exclusion IVb (1)
6. Lease the following historic properties for adaptive use/preservation maintenance: Ahearn house; Fleurant dune shack; Jeddediah Higgins house; Jones dune shack; Samuel Rider house and outbuildings; Dyer barn; and Schmid dune shack.	Programmatic exclusion IVb (13), only if limited to preservation maintenance
7. Acquire historic preservation easements (e.g. facade easements, viewsheds) when feasible for the protection of historic buildings and structures, cultural landscapes, and archeological resources.	Programmatic exclusion IVb (5)
8. Develop historic preservation agreements (including deed restrictions where appropriate) with individual owners of historic buildings on improved properties to support historic preservation and limit inappropriate development.	Programmatic exclusion IVb (1)
9. Rehabilitate the interiors (not furnishings) of selected historic buildings to provide a better means of interpretation.	SHPO/ACHP review required
10. Maintain and/or reintroduce agricultural and other traditional uses of selected historic cultural landscapes.	SHPO/ACHP review required
11. Complete terrestrial and submerged archeological surveys.	Programmatic exclusion IVb (4)
12. Extend the national seashore boundary farther to sea, fixing it by degrees of latitude and longitude, depending on results of submerged archeological resource survey.	Programmatic exclusion IVb (5)
13. Phase out and remove nonhistoric housing and administrative facilities from locations where there are known or discovered archeological sites (including Nauset Marsh) to protect archeological remains from further impacts.	SHPO/ACHP review required
14. Complete an inventory of all archeological resources on the Outer Cape in partnership with historical commissions, local groups, and communities.	Programmatic exclusion IVb (4)
15. Introduce a system of signs that would be compatible with the character of the seashore to help visitors find seashore sites and learn about current conditions about beach access.	Programmatic exclusion IVb (12)
16. Make public use improvements at Fort Hill, and Pamet cranberry bog, such as development of additional parking, trails, etc.	SHPO/ACHP review required for development concept plans
17. Lease Highland Golf Links through historic leasing program or continuc concession.	Programmatic exclusion IVb (13), provided that work is limited to preservation maintenance.

ALTERNATIVE ACTIONS	CONSULTATION REQUIREMENTS
18. Maintain vistas to meet cultural landscape objectives, removing vegetation only in prescribed areas.	Programmatic exclusion IVb (1,2)
19. Allow nonresidential activities that are not encompassed under existing zoning, including bed and breakfast establishments or home offices, to occur on historic improved properties.	Programmatic exclusion IV to be developed in accord with stipulation IVc.
20. Eliminate visual intrusions caused by overhead utility lines: place all NPS-owned utility lines underground, while accommodating concerns relating to archeological remains and cultural landscapes.	SHPO/ACHP review required
21. Require property owners and local power company to meet standards minimizing disruption to natural and cultural resources when maintaining aboveground utility lines on NPS land.	Programmatic exclusion IVb (8)
ALTERNATIVE 3	
1. Document and remove cultural resources seriously threatened by coastal erosion.	SHPO/ACHP review required
2. Restore the salt marsh at Herring River.	SHPO/ACHP review required
3. Reestablish the natural drainage and water flow of the Pamet River.	SHPO/ACHP review required
4. Preserve and maintain all historic buildings and structures within the national seashore boundaries.	Programmatic exclusion IVb (1)
5. Preserve federally owned and their associated landscapes historic buildings through long-term leases.	Programmatic exclusion IVb (13) only if limited to preservation maintenance.
6. Acquire historic preservation easements (e.g., facade easements, viewsheds) when feasible for the protection of historic buildings and structures, cultural landscapes, and archeological resources.	Programmatic exclusion IVb (5)
7. Develop historic preservation agreements (including deed restrictions, where appropriate) with individual owners of historic buildings on improved properties to support historic preservation and limit inappropriate development.	Programmatic exclusion IVb (1)
8. Rehabilitate the interiors (not furnishings) of selected historic buildings to provide a better means of interpretation.	SHPO/ACHP review required
9. Maintain and/or reintroduce agricultural and other traditional uses of selected historic cultural landscapes.	SHPO/ACHP review required
10. Complete terrestrial and submerged archeological surveys.	Programmatic exclusion IVb (4)
11. Extend the national seashore boundary farther to sea, fixing it by degrees of latitude and longitude, depending on results of submerged archeological resource survey.	Programmatic exclusion IVb (5)

ALTERNATIVE ACTIONS	CONSULTATION REQUIREMENTS
12. Phase out and remove nonhistoric housing and administrative facilities from locations where there are known or discovered archeological sites (including Nauset Marsh) to protect archeological remains from further impacts.	SHPO/ACHP review required
13. Introduce a system of signs that are compatible with the character of the national seashore to help visitors to find seashore sites and learn about current conditions about beach access.	Programmatic exclusion IVb (12)
14. Restore and interpret the house at Pamet cranberry bog in context with the associated cultural landscape.	SHPO/ACHP review required for development concept plan
15. Make public use improvements at Fort Hill, and Pamet cranberry bog, such as development of additional parking and trails.	SHPO/ACHP review required for development concept plan
16. Lease and preserve the Highland Golf Links.	Programmatic exclusion IVb (13), provided that work is limited to preservation maintenance.
17. Maintain vistas to meet cultural landscape objectives, removing vegetation only in prescribed areas.	Programmatic exclusion IVb (1,2)
18. Allow nonresidential activities that are not encompassed under existing zoning, including bed and breakfast establishments or home offices, to occur on historic improved properties.	Programmatic exclusion IV to be developed in accord with stipulation IVc.
19. Eliminate visual intrusions caused by overhead utility lines: place all NPS-owned utility lines underground, while accommodating concerns relating to archeological remains and cultural landscapes.	SHPO/ACHP review required
20. Require property owners and local power company to meet standards minimizing disruption to natural and cultural resources when maintaining aboveground utility lines on NPS land.	Programmatic exclusion IVb (8)

APPENDIX F: COMPLIANCE CORRESPONDENCE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Region
Habitat and Protected
Resources Division
One Blackburn Drive
Gloucester, MA 01930-2298

June 8, 1993

Robert J. Shelley
Manager, Eastern Team
National Park Service
Denver Service Center
12795 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

Dear Mr. Shelley:

In response to your inquiry about protected species near the Cape Cod National Seashore (CCNS), I am enclosing an updated list of endangered and threatened species under the jurisdiction of the National Marine Fisheries Service (NMFS). Recently, the coastal population of Atlantic bottlenose dolphins was listed as depleted under the Marine Mammal Protection Act and NMFS proposed a critical habitat designation for northern right whales and a threatened species listing for the Gulf of Maine harbor porpoise population (see enclosed federal register notices).

I am also enclosing a copy of the NMFS' comments submitted to the National Park Service's Wellfleet office in response to the Environmental Assessment for off-road vehicle activity on the Cape Cod National Seashore (CCNS). Although there are no endangered or threatened species, under NMFS' jurisdiction, that occur on CCNS, harbor seals regularly haulout on CCNS property and may be harassed by off-road vehicle activity. Our recommendations concerning harbor seal impacts are contained in the enclosed letter. Please contact me at (508) 281-9388 if you have any questions about the enclosed information.

Sincerely,

Nancy J. Haley
Protected Species Program

Enclosures (3)

cc: w/out enclosures
David Mansky, CCNS, Wellfleet, MA





United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Offices
400 Ralph Hill Marketplace
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4901

June 30, 1993

Robert J. Shelley
National Park Service
12795 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

ATTN: Carol McNulty-Huffman

Dear Mr. Shelley:

This responds to your letter dated May 28, 1993 requesting updated information on the presence of Federally listed and proposed endangered or threatened species, candidate species and critical habitat with respect to the Cape Cod National Seashore (CCNS). Our information is relatively complete regarding Federally listed species, however, our information regarding candidate species is lacking in some cases. We recommend that you contact Jay Copeland of the Massachusetts Natural Heritage and Endangered Species Program, MDFW, 100 Cambridge St., Boston, Ma 02202, 508-792-7270 for more complete data on state listed and Federal candidate species. CCNS staff should also have more site-specific information on the Federally listed species than this office does.

We have reviewed the list of species you enclosed and offer the following comments. There are no proposed or designated critical habitats within CCNS boundaries. With respect to the Federally listed species, it appears that your list is complete; however, you may wish to add *Cicindela dorsalis dorsalis* since efforts are being made to reestablish a population on Coast Guard Beach. You should contact Dave Manski or Kyle Jones at CCNS for more information regarding this species.

A number of state listed species are also Federal candidate, Category 2 (C2) species:

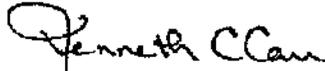
Henslow's sparrow *Ammodramus henslowii*
Loggerhead shrike *Lanius ludovicianus*
Diamondback terrapin *Malaclemys terrapin*
Decodon stem borer moth *Papaipema sulphurata*
Bushy rock-rose *Helianthemum dumosum*

There are two candidate C2 species that might be found within the park boundaries; the northern goshawk (*Accipiter gentilis*) and wintering populations of the harlequin duck (*Histrionicus histrionicus*). The Massachusetts Natural Heritage Program should be able to provide specific information about these two species.

-2-

A list of Federally designated endangered and threatened species in Massachusetts is enclosed for your information. Please contact Susi von Oettingen of this office at 603-225-1411 if we can be of further assistance.

Sincerely yours,


for Gordon Beckett
Supervisor
New England Field Offices

Enclosure

Commonwealth of Massachusetts



Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

18 July 1994

Holly Kirchner
United States Department of the Interior
National Park Service
12795 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

Dear Holly,

Thank you for contacting the Massachusetts Natural Heritage and Endangered Species Program regarding the preparation of a general management plan for the Cape Cod National Seashore. I have enclosed a copy of the state's rare species list for the Cape Cod National Seashore that has been sorted by town and taxonomically. This list also includes watch listed, historical and unlisted species. A single species may be listed multiple times if it has more than one element occurrence. We have a site list that contains more information on each element occurrence if you are interested in that type of data. I have also included those fact sheets that we have available for endangered, threatened or special concern species on the National Seashore list.

If you have any questions please feel free to call me at (617) 727-9194.

Sincerely,

A handwritten signature in cursive script, appearing to read "Hanni Dinkeloo".

Hanni Dinkeloo
Environmental Reviewer



Natural Heritage & Endangered Species Program
100 Cambridge Street, Boston, MA 02202 (617) 727-9194, (617) 727-3151
An Agency of the Department of Fisheries, Wildlife & Environmental Law Enforcement

APPENDIX G: PHASING AND ESTIMATED COSTS

PHASING

To ensure that proposed strategies would be implemented in a coordinated fashion, priorities have been set. To the extent that the alternatives articulate a new management philosophy or new habits and practices not requiring additional staff and funding, this approach would be adopted immediately as staff began to address management concerns. Training or consultant assistance could be needed to aid in the development of new skills or techniques to resolve controversial subjects. Feedback would be solicited from the Cape Cod National Seashore Advisory Commission and other partners on the progress made in implementing the plan. The implementation of plan proposals that require additional staff or funding would depend on those elements being provided.

The phasing of the work identified is general in nature. Phase 1 consists of preliminary actions that need to be initiated before undertaking actions in phase 2. Funding realities would likely result in some phase 2 actions for one category being undertaken before phase 1 actions in another category. Additional implementation information follows in the description of additional plans and studies called for in or anticipated as a result of this plan, and in the cost estimates.

An asterisk indicates an action that would only be taken under alternative 1. All actions would be taken under alternative 3, with changes or additions as noted below.

Phase 1

Undertake necessary monitoring or research programs to establish a firm baseline of natural and cultural resource conditions as a basis for decisions on a multitude of complex issues.*

Define standards and indicators to identify problem areas and opportunities for improving resource protection and visitor experience.

Develop environmental and cultural compliance documentation to assess alternative implementation actions for site- and issue-specific planning and design.*

Complete ongoing site development concept plans and environmental assessments (Fort Hill, the Atwood-Higgins complex, the Pamet cranberry bog, and the former North Truro air force station) and interpretive planning documents.

Initiate consensus-based revisions of the Cape Cod National Seashore zoning standards and town zoning bylaws to simplify the private development proposal review process and to make regulations more effective and up to date. [Alternative 3: Convert existing use guidelines to zoning standards for the national seashore to provide a stronger means for enforcement.]

Examine new or improved visitor opportunities through documents such as a trail plan or regional transportation plan.

Inventory national seashore facilities and infrastructure, examine national seashore operations to streamline and improve operational costs and services, and develop an approach to implementing sustainable practices.*

Identify potential partnerships to carry out cooperative programs or to evaluate regional issues.*

Develop cooperative management mechanisms with the state, towns, and nongovernmental organizations to resolve issues.

Develop legislative proposals for Congress to enable implementation of land protection and other resource management strategies.

Based on the criteria articulated in the plan, evaluate facilities threatened by coastal erosion and residences now under reservations of use and occupancy to prepare for future removal, relocation, or disposition.

Continue to initiate requests for NPS nationwide funding to undertake studies and to maintain, improve, or demolish facilities, as needed.*

Phase 2

In cooperation with local towns, chambers of commerce, and other entities, develop coordinated trip planning and information systems.

Use the results of resource monitoring and research programs conducted in phase 1 to support sound scientific information to guide decision making regarding park activities, uses, and management practices.*

Improve and disseminate interpretive and educational brochures, audiovisual media, and displays.*

Undertake site improvements specified in development concept plans, including natural and cultural resource preservation, parking and circulation, and visitor amenities.

Engage in cooperative implementation efforts for transportation improvements in the Outer Cape towns.

Undertake rehabilitation and restoration activities of natural and cultural resources, such as the rehabilitation of the Pamet cranberry bog house and the restoration of salt marshes.

Rehabilitate historic structures, including the Penniman house and carriage barn, the Old Harbor Life-saving Station, and the Atwood-Higgins house.*

Work with town boards to get new town zoning bylaws enacted for private development review within the national seashore, based on new, jointly developed minimum Cape Cod National Seashore zoning standards.

Engage in cooperative partnerships with nongovernmental organizations to foster resource stewardship and to supplement national seashore educational programs.

Seek new partnerships to provide programs at national seashore facilities such as the former North Truro air force station.

Upgrade national seashore facilities and infrastructure and adjust operations to make them more sustainable.*

Remove, reuse, relocate, or dispose of selected facilities threatened by coastal erosion or vacated after occupancy ends.*

Alternative 3: Work cooperatively to locate and construct information kiosks at key village centers and several Capewide transportation hubs.

ESTIMATED COSTS

The proposed general management plan (alternative 2) is programmatic in that it gives guidance for future decision making regarding resource protection, interpretation, public use, and development. However, the plan does outline a number of specific activities that would probably take place throughout the life of the plan. In many cases the plan specifies that further planning and research would be necessary before an action could take place. In other cases an action might be undertaken within the one to five years following the completion of the plan. Because projecting costs over very long periods of time (15–20 years) often results in distorted and unreliable figures, cost estimates have been focused on a limited period of time. The cost estimates that follow are for planning and construction projects that are likely to take place within the next one to five years. The cost estimates for proposed activities requiring further planning and research will be prepared upon completion of the study, plan, or environmental assessment for a given project.

It should be noted that the national seashore is currently operating with an annual maintenance shortfall of about \$375,000. Current budget conditions for operations and maintenance should be acknowledged in reporting the national seashore's fiscal situation. This annual operating budget shortfall includes materials, equipment, and maintenance of vehicles, buildings, landscape, and facilities (e.g., an estimated \$50,000 annual shortfall for needed historic structure maintenance).

On a comparative basis, in general, it would be more expensive to implement alternative 2 (the proposed action) than alternative 1 (continuation of existing conditions) due primarily to an increase in staffing, programs, and studies being proposed for resource management, and improvements and additions to public use facilities, such as the Salt Pond visitor center and the trail system. However, in some cases, such as in *administrative and maintenance facilities and staff housing*, there could be a net decrease in costs, depending on decisions made to more effectively operate the national seashore.

The major costs associated with the proposals in alternative 3 would be similar to alternative 2 plus the removal of structures (such as those threatened by or conflicting with coastal erosion) and the relocation of administrative and maintenance functions outside national seashore boundaries. This would incur the initial costs of structure removal and site reclamation, but should result in a long-term savings in annual operating and maintenance costs. Additional cooperative

agreements or memorandums of understanding might not require funding or could result in cost-sharing arrangements. More money would be needed for land acquisition.

Due to the emphasis in alternative 2 on working cooperatively with local towns, agencies, and friends-

of-the-park groups to resolve issues of mutual concern, it is anticipated that some costs would be shared for programs, such as interpretation and resource management. Estimates costs for the alternatives are summarized in tables G-1 through G-3. Staffing costs for each alternative are shown in tables G-4 through G-6.

TABLE G-1: COST ESTIMATES — ALTERNATIVE 1

NOTE: Construction costs are class 1997 conceptual C estimates, which are considered by NPS construction and cost estimating specialists to be accurate within 15% to 20% of actual costs. They are based on square footage costs of similar construction or identifiable unit costs of similar construction items; they have been prepared without construction drawings or specifications. Construction costs are estimated to increase by 3% per year, based on *Engineering News Record* cost indexes.

PHASE/PROJECT	GROSS CONSTRUCTION COST		PLANNING COST		TOTAL PROJECT COST	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Phase 1: Research / Management Planning						
Kettle pond management plans			75,000	100,000	75,000	100,000
Submerged archeological survey			50,000	100,000	50,000	100,000
Phase 1: Construction						
Interpretive waysides for cultural landscapes	65,500	131,000	12,500	25,000	78,000	156,000
Upgrade five beach facilities	1,282,500	1,282,500	244,800	244,800	1,527,300	1,527,300
Salt Pond visitor center: Visitor access and health improvements	2,452,300	2,452,300	468,000	468,000	2,920,300	2,920,300
Former North Truro air force station: Demolish unneeded/unstable buildings	144,100	327,500	27,500	62,500	171,600	390,000
Upgrade septic treatment facilities throughout the seashore	812,200	1,506,500	155,000	287,500	967,200	1,794,000
Subtotal: Phase 1	4,691,100	5,568,800	1,032,800	1,287,800	5,789,400	6,987,600
Phase 2: Research / Management Planning						
Cultural Landscape Reports:						
• Cranberry bog house			25,000	40,000	25,000	40,000
• Atwood-Higgins complex			25,000	40,000	25,000	40,000
• Peaked Hill Bar district			30,000	60,000	30,000	60,000
Phase 2: Construction						
Former North Truro air force station: Rehabilitate selected buildings and restore grounds	989,100	989,100	188,800	188,800	1,177,900	1,177,900
Bury NPS-owned utility lines	796,500	796,500	152,000	152,000	948,500	948,500
Subtotal: Phase 2	1,785,600	1,785,600	420,800	480,800	2,206,400	2,266,400
Total	6,476,700	7,354,400	1,453,600	1,768,600	7,995,800	9,254,000

TABLE G-2: COST ESTIMATES — ALTERNATIVE 2 (PROPOSED ACTION)

PROJECT	GROSS CONSTRUCTION COST		PLANNING COST		TOTAL PROJECT COST	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Phase 1: Research / Management Planning						
Kettle pond management plan			75,000	100,000	75,000	100,000
Heathlands management plan			30,000	50,000	30,000	50,000
Pilgrim Lake ecological assessment			50,000	75,000	50,000	75,000
Ethnographic study			40,000	65,000	40,000	65,000
Submerged archeological survey			50,000	100,000	50,000	100,000
Historic structures maintenance plan			60,000	60,000	60,000	60,000
Regional transportation plan (with Cape Cod Commission)			50,000	75,000	50,000	75,000
Comprehensive trail plan			50,000	75,000	50,000	75,000
Phase 1: Construction						
Changeable message sign program	65,500	327,500	12,500	62,500	78,000	390,000
Develop kiosk at Monomoy	2,400	3,300	500	600	2,900	3,900
Interpretive waysides for cultural landscape	65,500	131,000	12,500	25,000	78,000	156,000
Upgrade five beach facilities	1,282,500	1,282,500	244,800	244,800	1,527,300	1,527,300
Salt Pond visitor center: Visitor access and health improvements	2,452,300	2,452,300	468,000	468,000	2,920,300	2,920,300
Former North Truro air force station: Demolish unneeded/unstable buildings	144,100	327,500	27,500	62,500	171,600	390,000
Upgrade septic treatment facilities parkwide	812,200	1,506,500	155,000	287,500	967,200	1,794,000
Subtotal: Phase 1	4,824,500	6,030,600	1,325,800	1,750,900	6,150,300	7,781,500
Phase 2: Research / Management Planning						
Cultural landscape reports:						
• Cranberry bog house			25,000	40,000	25,000	40,000
• Atwood-Higgins complex			25,000	40,000	25,000	40,000
• Dune shacks district			30,000	60,000	30,000	60,000
Historic furnishings reports:						
• Penniman house			35,000	55,000	35,000	55,000
• Old Harbor Life-saving Station			35,000	55,000	35,000	55,000

APPENDIXES

PROJECT	GROSS CONSTRUCTION COST		PLANNING COST		TOTAL PROJECT COST	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Phase 2: Construction						
Former North Truro air force station: Rehabilitate a portion of the Highlands center as NPS seasonal housing	989,100	989,100	188,800	188,800	1,177,900	1,177,900
Rehabilitate historic structures:						
• Atwood-Higgins house	299,100	299,100	57,100	57,100	356,200	356,200
• Old Harbor Life-saving Station	577,800	577,800	110,300	110,300	688,100	688,100
• Penniman house and carriage barn	820,600	820,600	156,600	156,600	977,200	977,200
Develop formalized dune access in the Province Lands	399,600	685,100	76,300	130,800	475,900	815,900
Develop small parking areas along scenic routes	74,700	149,300	14,300	28,500	89,000	177,800
Develop heathlands loop trail	22,300	72,100	4,300	13,800	26,600	85,900
Develop a group picnic area	131,000	393,000	25,000	75,000	156,000	468,000
Demolish and remove selected nonhistoric buildings	147,400	221,100	28,100	42,200	175,500	263,300
Bury NPS-owned utility lines	796,500	796,500	152,000	152,000	948,500	948,500
Subtotal: Phase 2	4,258,100	5,003,700	962,800	1,205,100	5,220,900	6,208,800
Total	9,082,600	11,034,300	2,288,600	2,956,000	11,371,200	13,990,300

TABLE G-3: COST ESTIMATES — ALTERNATIVE 3

PHASE/PROJECT	GROSS CONSTRUCTION COST		PLANNING COST		TOTAL PROJECT COST	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Phase 1: Research / Management Planning						
Kettle pond management plan			75,000	100,000	75,000	100,000
Heathlands management plan			30,000	50,000	30,000	50,000
Pilgrim Lake ecological assessment			50,000	75,000	50,000	75,000
Ethnographic study			40,000	65,000	40,000	65,000
Submerged archeological survey			50,000	100,000	50,000	100,000
Historic structures maintenance plan			60,000	60,000	60,000	60,000
Regional transportation plan (with Cape Cod Commission)			50,000	75,000	50,000	75,000
Comprehensive trail plan			50,000	75,000	50,000	75,000
Phase 1: Construction						
Changeable message sign program with expanded conventional signs	98,300	393,000	18,800	75,000	117,100	468,000
Locate NPS information kiosks Capewide	28,800	39,600	5,500	7,500	34,300	47,100
Interpretive waysides for cultural landscape	65,500	131,000	12,500	25,000	78,000	156,000
Upgrade five beach facilities	1,282,500	1,282,500	244,800	244,800	1,527,300	1,527,300
Salt Pond visitor center: Visitor access and health improvements	2,452,300	2,452,300	468,000	468,000	2,920,300	2,920,300
Former North Truro air force station: Demolish unneeded/unstable buildings	144,100	327,500	27,500	62,500	171,600	390,000
Upgrade septic treatment facilities throughout the seashore	812,200	1,506,500	155,000	287,500	967,200	1,794,000
Subtotal: Phase 1	4,883,700	6,132,400	1,337,100	1,770,300	6,220,800	7,902,700
Phase 2: Research / Management Planning						
Cultural landscape reports:						
• Cranberry bog house			25,000	40,000	25,000	40,000
• Atwood-Higgins complex			25,000	40,000	25,000	40,000
• Peaked Hill Bar district			30,000	60,000	30,000	60,000
Historic furnishings reports:						
• Penniman house			35,000	55,000	35,000	55,000
• Old Harbor Life-saving Station			35,000	55,000	35,000	55,000
Phase 2: Construction						
Remove unused, nonhistoric, administrative facilities	132,700	132,700	25,300	25,300	158,000	158,000
Former North Truro air force station: Rehabilitate a portion of the Highlands center as NPS seasonal housing	989,100	989,100	188,800	188,800	1,177,900	1,177,900

APPENDIXES

PHASE/PROJECT	GROSS CONSTRUCTION COST		PLANNING COST		TOTAL PROJECT COST	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Rehabilitate historic structures:						
• Atwood-Higgins house	299,100	299,100	57,100	57,100	356,200	356,200
• Old Harbor Life-saving Station	577,800	577,800	110,300	110,300	688,100	688,100
• Penniman house and carriage barn	820,600	820,600	156,600	156,600	977,200	977,200
Develop formalized dune access at Province Lands visitor center area	399,600	685,100	76,300	130,800	475,900	815,900
Develop small parking areas along scenic routes	74,700	149,300	14,300	28,500	89,000	177,800
Develop heathlands loop trail	22,300	72,100	4,300	13,800	26,600	85,900
Develop a group picnic area	131,000	393,000	25,000	75,000	156,000	468,000
Demolish and remove selected nonhistoric buildings	147,400	221,100	28,100	42,200	175,500	263,300
Bury NPS-owned utility lines	796,500	796,500	152,000	152,000	948,500	948,500
Subtotal: Phase 2	4,390,800	5,136,400	988,100	1,230,400	5,378,900	6,366,800
Total	9,274,500	11,268,800	2,325,200	3,000,700	11,599,700	14,269,500

TABLE G -4: EXISTING OPERATIONS AND MAINTENANCE COSTS — ALTERNATIVE 1

<u>OPERATIONS (STAFFING)</u>	<u>FTE</u>	<u>SALARY OR ANNUAL COST</u>
Permanent Full-Time by Division		
Management	4.0	
Resources and Visitor Protection	22.0	
Natural Resources Management	4.0	
Administration	7.0	
Maintenance	22.0	
Interpretation/Cultural Resources Management	<u>15.0</u>	
Subtotal	<u>74.0</u>	
Seasonal/Temporary by Division*		
Resources and Visitor Protection	25.6	
Maintenance	2.6	
Interpretation/Cultural Resources Management	<u>1.3</u>	
Subtotal	<u>29.5</u>	
Total Operations (Staffing; approx.)	103.5	3,500,000
MAINTENANCE		
Annual cost (approx.)		1,000,000
Annual maintenance budget backlog		375,000
Total Maintenance (including backlog)		1,375,000
Total†		4,875,000

* Seasonal employee = 0.3 FTE (4 months).

† This is the actual funding required to fulfill annual operational and maintenance needs at Cape Cod National Seashore.

TABLE G-5: OPERATIONS AND MAINTENANCE COSTS — ALTERNATIVE 2

ADDITIONAL OPERATIONS (STAFFING)	FTE	SALARY OR ANNUAL COST
Additional Permanent Full-Time Staff		
Partnership Coordinator (GS-13)	1.0	74,200
Database Management Specialist (GS-11/12)	1.0	52,100
Hydrologist (GS-12)	1.0	62,400
Volunteer Coordinator (GS-09)	1.0	43,100
Education Outreach Coordinator (GS-09)	1.0	43,100
Park Ranger (Resource Management Outreach) (GS-09)	1.0	43,100
Park Ranger (Cultural Resource Interpreter) (GS-09)	1.0	43,100
Park Ranger (Morris Island/Monomoy) (GS-09)	1.0	43,100
Clerk Typist (GS-04)	1.0	25,400
Licensed Water and Wastewater Plant Operator (WG-10)	1.0	42,200
Woodcrafter (WG-10)	<u>1.0</u>	<u>42,200</u>
Subtotal	11.0	514,000
Additional Seasonal/Temporary Staff*		
Park Rangers (Interpreters) (GS-5/7)	1.2	26,200
Custodians (WG-05)	1.8	45,700
Maintenance Workers (WG-05)	1.2	30,500
Fire Technician (Ecological Monitoring) (GS-9)	<u>0.8</u>	<u>22,100</u>
Subtotal	5.0	124,500
Total Additional Personnel	16.0	638,500
ADDITIONAL OPERATIONS AND MAINTENANCE		615,000
(including \$375,000 annual backlog)		615,000
Total Additional Costs		1,253,500
EXISTING OPERATIONS AND MAINTENANCE COSTS		
Staffing	103.5	3,500,000
Maintenance		<u>1,000,000</u>
Subtotal — Existing costs		<u>4,500,000</u>
Total Operations and Maintenance Costs		5,753,500

NOTE: The annual salary cost includes all employee benefits.

* Seasonal employee = 0.3 FTE (4 months).

TABLE G-6: PROJECTED OPERATIONS AND MAINTENANCE COSTS — ALTERNATIVE 3

ADDITIONAL OPERATIONS (STAFFING)	FTE	SALARY OR ANNUAL COST*
Additional Permanent/Full Time Staff		
Partnership Coordinator (GS-13)	1.0	74,200
Archeologist (GS-12)	1.0	62,400
Volunteer Coordinator (GS-9)	1.0	43,000
Planning Technician (GS-9)	1.0	43,000
Hydrologist (GS-12)	1.0	62,400
Database Management Specialist (GS-12)	1.0	62,400
Park Ranger (Resources Management Outreach) (GS-09)	1.0	43,000
Park Ranger (Cultural Resources Interpreter) (GS-09)	1.0	43,000
Park Ranger (Morris Island/Monomoy) (GS-09)	2.0	86,000
Clerk Typist (GS-04)	1.0	25,400
Licensed Water and Wastewater Plant Operator (WG-10)	1.0	42,100
Woodcrafter (WG-10)	<u>1.0</u>	<u>42,100</u>
Subtotal	13.0	629,000
Additional Seasonal/Temporary Staff*		
Park Rangers (Interpreters) (GS-5/7)	1.5	52,800
Custodians (WG-05)	2.1	69,300
Maintenance Workers (WG-05)	1.5	49,500
Fire technician	<u>0.8</u>	<u>22,100</u>
Subtotal	5.9	193,700
Total Additional Personnel	18.9	822,700
ADDITIONAL OPERATIONS AND MAINTENANCE (including \$375,000 annual backlog)		615,000
Total Additional Costs		1,437,700
EXISTING OPERATIONS AND MAINTENANCE COSTS		
Staffing	103.5	3,500,000
Maintenance		<u>1,000,000</u>
Existing Costs		<u>4,500,000</u>
Total Operations and Maintenance Costs		5,937,700

NOTE: The annual cost includes all employee benefits.

* Seasonal employee = 0.3 FTE (4 months).

APPENDIX H: CAPE COD NATIONAL SEASHORE ADVISORY COMMISSION REPORT ON THE GENERAL MANAGEMENT PLANNING PROCESS

Approved by CCNS Advisory Commission
May 20, 1994

General Management Plan Subcommittee to CCNS Advisory Commission

Subject: Recommendations to GMP Planning Team via CCNS Advisory Commission

The GMP Subcommittee recommends that the Planning Team include the following suggestions in the GMP:

That the Cape Cod National Seashore - - -

- Groundwater**
- continue to actively participate in and contribute to the development of a coordinated regional groundwater management plan for the Seashore communities.
 - study the merits of providing groundwater to towns and work with towns in development of water conservation measures and growth controls.
- Improved Properties**
- tighten its land protection program and examine possibility of converting guidelines into regulations.
In cooperation with towns, determine where flexibility is needed in order to develop incentives which would encourage towns to adopt more protective criteria (amend/upgrade zoning standards).
 - find a way to secure acquisition funds for properties which do not meet compliance criteria.
 - explore the merits of proposing a District of Critical Planning Concern (DCPC) for the Seashore district.
 - clarify existing guidelines and regulations for towns and property-owners.
- Use and Occupancy Permits**
- when occupancy permits expire, permit properties to be utilized where destruction/removal not essential to Seashore purposes (perhaps leased in partnership with non-profit organizations).
 - consider allowing occupants to move house outside of Park, or donate house to town for affordable housing outside of Park.
 - examine possibility of retaining leasing moneys (via dedicated fund or foundation) so that moneys could be put to Seashore use.
- Transportation, Parking, Access**
- explore opportunities for partnerships to develop regional or town public transit services, including beach access, perhaps with profit-sharing incentives.
 - encourage public transportation, bicycles, and pedestrians by lowering admission fees to beaches for those not using automobiles.
- Municipal Uses**
- find ways to permit and simplify land swaps where land needed for municipal uses, e.g., land needed for lost beach parking.
 - explore possibility of granting special permits (cooperative agreements for longer periods, thereby promoting incentives for greater commitment on part of permit-holder.
 - continue town management of beaches within the Park in Orleans and Chatham.

- | | |
|---|---|
| Utilities & Services provided by Communities | <ul style="list-style-type: none">• explore means of more fairly compensating towns for services and infrastructure (e.g., roads) provided to the Park.• explore merits of establishing a mechanism for intertown-Seashore cooperation: council of gov'ts? roundtable? |
| Cultural Resources | <ul style="list-style-type: none">• develop partnerships with local historical commissions and societies for cooperative programs and care of historic properties.• offer incentives and technical assistance to occupants of historic homes for preservation/restoration of their character.• obtain staff support for increased use of volunteer services. |
| Natural Resources | <ul style="list-style-type: none">• develop good communications, agreements of mutual support with conservation commissions and land trusts.• look for opportunities to share ventures with other organizations: teaching, cooperative research, surveys. |
| Recreation | <ul style="list-style-type: none">• investigate opportunities for mediation and negotiated rule-making when conflicts (e.g., ORV, hunting, fishing camping) cannot be resolved locally.• have a person in Provincetown serve as "ombudsman" to facilitate communication with Wellfleet headquarters.• consider local and regional input in decision-making regarding recreational activities. |
| Education and Interpretation | <ul style="list-style-type: none">• investigate possibility of using former Air Force facilities for educational/municipal purposes.• promote day-to-day examples of responsible environmental practices, e.g. recycling, energy-saving light bulbs, water-conservation devices.• expand environmental education offerings to public schools and local boards via cooperative programs and speakers bureau. |

**Cape Cod National Seashore
Advisory Commission
99 Marconi Site Road
Wellfleet, MA 02667**

November 18, 1996

To: Members CCNS Advisory Commission

From: The General Management Plan Subcommittee

Subject: Agenda item for Advisory Commission Mtg. Nov. 22, 1996
Recommendations to the revision team for the draft GMP
(Vote will be requested)

*Following revision —
Recommendations
adopted by
CCNS Advisory Commission
DJB 11/22/96*

The GMP Subcommittee is pleased to see the work of the past 3+ years culminating in this new management plan, which should guide the Seashore well into the next century. We believe that the management philosophy, which emphasizes cooperative efforts with the six towns of the CCNS, will serve the lower Cape community very well. And we applaud the responsiveness of the Superintendent and the staff to the community concerns expressed as the draft is being revised for final printing.

There is no doubt that this document is very comprehensive, that the issues are complex, and that it represents an enormous effort on the part of all who prepared it. The members of this subcommittee wish to especially acknowledge the work and good spirit of Mark Tabor, who guided us through the initial awkward introduction to "frameworks" and other mysteries of the planning professionals and without whom this plan would have fallen flat long ago. Also, there was the successful effort of Maria Burks, who refocused the work at a critical time and saved the whole project from what might have become bureaucratic oblivion. We do not think this an exaggeration.

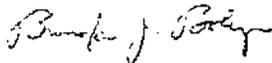
In May 1994 we submitted a number of recommendations, endorsed by the Advisory Commission; most of them have found their way into the script. The suggestions that follow are based upon recent public comment and other concerns brought to our attention. We recommend them to the Advisory Commission for endorsement:

1. That the final script be written by CCNS staff with back-up support from other NPS professionals.
2. That the glossary be significantly expanded and that an index be provided for the GMP.
3. That the groundwater section be expanded so as to make crystal clear the position of the CCNS. (We recognize that this position is consistent with the work of the Lower Cape Water Management Task Force.)

(2)

4. That revisions to the guidelines for expansion, zoning and management practices of 'improved properties' be made in cooperation with each town.
5. That the GMP acknowledge the interests of residents of the constituent towns in as many places (in the script) as possible. That when reviewing regulations for those that might be seasonally adjusted, the social and economic needs of a community be considered.
6. That the script re the Provincetown Airport be expanded to develop the Seashore rationale and to acknowledge the joint committee work that preceded the draft. Important to let the reader know how decisions are made, including criteria and concerns of the Seashore.
7. In working out solutions to beach access, traffic and parking, it will be important to examine possible options with the Selectmen in each town.
8. Clarify that nude sunbathing is an activity controlled by a regulation that cannot be changed via the GMP process.
9. In the sections that address shellfishing and aquaculture, the language needs to be revised to clarify the jurisdictions of the towns and the Seashore.
10. That the CCNS state its desire/intent to expedite negotiations regarding land exchanges when such exchanges are of mutual benefit to Town and Seashore.
11. That the CCNS create partnerships in collaboration with the Towns wherever possible. (The Advisory Commission further notes that each partner needs to be mindful of the concerns and interests of the other.)

Respectfully submitted,



For the GMP Subcommittee:

Keith Bergman - Provincetown
Brenda Boleyn - CCNS Advisory Commission
Kenneth Brock - Truro
Bill Hammatt - Chatham
John Ryerson - Wellfleet
Don Sparrow - Eastham
Larry Spaulding - Orleans

CAPE COD NATIONAL SEASHORE ADVISORY COMMISSION

On December 5, 1997, the CCNS Advisory Commission unanimously accepted the following report (with amendments) from its General Management Plan Subcommittee.

Final Report of General Management Plan Subcommittee

Ladies & Gentlemen:

During the spring of 1992 at the start of the GMP planning process, the CCNS Advisory Commission, under the leadership of then-chairman, Henry Foster, agreed to assist in the important effort of assuring good public input into the preparation of the document.

As a mechanism for carrying out this responsibility, the Commission (5/1/92) established this subcommittee with membership to be appointed from the 6 Seashore towns, the County (CC Commission), the Commonwealth (Office of Coastal Zone Mgt.), and the Advisory Commission.

In advising the NPS planning team, the subcommittee was to pursue a dual purpose:

1. To offer each Seashore town a direct link to the planning team throughout the development of the draft GMP and a forum for representatives to communicate with one another.
2. To encourage public involvement to the greatest extent possible.

Early on, the Subcommittee was able to make a number of recommendations re subject content, i.e. issues that ought to be addressed and then to comment on how those issues might best be addressed (report to CCNS Adv. Comm. 5/20/94). The Subcommittee also made recommendations about format/presentation, and reviewed the content of the newsletters sent by the planning team during the first 2-3 years.

Each town, of course, had different areas of greater or lesser interest. And, as might be expected, some towns participated more in the work of the Subcommittee than others.

A second written report, with suggested revisions, was approved by the Adv. Comm. 11/22/96, and sent on to the reviewers.

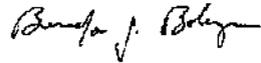
From the start, public involvement was a high priority for the NPS planners and the Superintendent(s). Participation was sought via many public meetings, from the early scoping sessions to regional meetings, to meetings with selectmen, and other groups. Members of the Subcommittee were pleased to assist and facilitate in many of these meetings, both before and after release of the Draft GMP/EIS, August 1996. In addition to the many comments taken at these meetings and the recommendations from this subcommittee, the Seashore received comments from the Boards of Selectmen from the six towns and more than 360 letters before the comment period closed on December 31, 1996. Copies of letters received from individual residents of the six towns were also sent to their representatives on the Subcommittee. All comments have by now been addressed by the reviewers and editors.

As suggested by the Subcommittee 10/7/97, the Town of Provincetown has submitted a minority report, received by the Advisory Commission 11/21/97. On 11/21/97, the Advisory Commission recommended that the minority report be published together with this report in the final document. On 12/05/97, the Commission recommended that they appear in the GMP section of the document.

On November 25, 1997, the Selectmen of the Town of Truro unanimously voted to endorse Provincetown's minority report.

The work has been, at times, confusing and frustrating, but certainly worthwhile. We thank all who contributed to the successful completion of the document, especially those who provided guidance to us: Mark Tabor (Onsite Planner), Lauren McKean (Mgt. Asst.), and Superintendent, Maria Burks, who really made the whole thing come together.

With this, our third and final written report to the Advisory Commission, we believe that our work is completed, and hope that you will find our efforts to have been helpful.



Brenda J. Boleyn
Chairman
CCNS Advisory Commission

Membership of the General Mgt. Plan Subcommittee of the CCNS Advisory Commission, 1992 - 1997:

Chatham	William Harunatt
Eastham	Don Sparrow/Edward Sabin
Orleans	Larry Spaulding
Provincetown	Keith Bergman (minority report)
Truro	Ken Brock
Wellfleet	John Ryerson
CC Comm.	Kathy Sferra
CZM	Pam Rubinoff/Truman Henson
CCNSAC	Brenda Boleyn (ch.)

Town of Provincetown, Massachusetts

Board of Selectmen Town of Provincetown
 Provincetown Town Hall, 260 Commercial St.
 Provincetown, Massachusetts 02657
 Phone 508/487-7003 FAX 508/487-9650

A report submitted to the Cape Cod National Seashore Advisory Commission, through its General Management Plan Subcommittee *November 21, 1997*

The Town of Provincetown Responds to the General Management Plan for Cape Cod National Seashore

The Town of Provincetown and its people are glad that Cape Cod National Seashore exists. Provincetown's greatest concern, however, is that resource management decisions made by the Seashore will affect the quality of the Town's existence and survivability as a community. The General Management Plan must provide long-term assurance that Provincetown's existence is not at risk, and provide for institutionalized cooperation between our two levels of government. This report to the Cape Cod National Seashore Advisory Commission is offered for inclusion in the General Management Plan document. The complete written comments of the Provincetown Board of Selectmen dated December 31, 1996 and August 29, 1997 are incorporated herein by reference.

The Nature of the Relationship

The Town of Provincetown holds that the nature of the relationship between the Town and Cape Cod National Seashore should be a truly collaborative one, which recognizes that we are two units of government occupying the same geographic area. Fundamentally, we have a shared legal responsibility for solving problems and making decisions, which the General Management Plan should reflect. From the Town of Provincetown's perspective, that relationship includes a recognition of all of the following:

- ⇒ that the existence of the Town of Provincetown as a community and the interaction of its people with the Province Lands both predate the establishment of Cape Cod National Seashore;
- ⇒ that the Cape Cod National Seashore Act not only recognizes as one of its founding principles the maintaining of the way of life enjoyed by Provincetown residents in the Province Lands, but also granted specific rights to the Town of Provincetown and its people found in the 1963 deed of conveyance of the Province Lands from the Commonwealth of Massachusetts to the United States of America;
- ⇒ that an active community of people which lies almost entirely within a unit of the National Park Service is a circumstance which requires collaboration and intergovernmental cooperation between the Town, its people, and the Seashore in ways which may be unique or even without precedent for the National Park Service;
- ⇒ that the Town of Provincetown, all of the Towns on the Outer Cape, and Cape Cod National Seashore have shared responsibilities for stewardship of this portion of Cape Cod, its resources, and its people, which require that decisions be made in the best interests of those resources and its people; and
- ⇒ that, in order to preserve the rights of our citizens under our democratic forms of government, the process by which decisions are made by Cape Cod National Seashore is as important as the decisions themselves; and that the Town and the Seashore shall both commit to open and inclusive decision-making processes in matters which are of common concern.

Institutionalized Intergovernmental Cooperation

The Town of Provincetown and Cape Cod National Seashore are committed to identifying models for institutionalized intergovernmental cooperation, which might be adapted for our use on Cape Cod. In this process we should not rule out crafting some new model that might even need congressional authorization. The Town of Provincetown proposes that the General Management Plan reflect a two-tier system of intergovernmental relations between the Town and Cape Cod National Seashore. The first tier would pertain to those circumstances where deed restrictions or other specific legal parameters exist. In the first tier for Provincetown should be the 1963 deed of conveyance of the Province Lands from the Commonwealth to the Secretary of the Interior, which contained several deed restrictions, including ones making land available to the town for public airport and access purposes and for dumping purposes, as well as hunting, fishing, and shellfishing rights for the public. The second tier would seek to describe a more general relationship between the Town and the Seashore, seeking to describe what factors or guiding principles affect decisions on an issue-by-issue basis.

Legislative History and the Way of Life

Legislative History. The Town takes exception to the version of the legislative history included in the General Management Plan, which does not present as accurate an interpretation as ours did on the Seashore's three-fold purpose to balance preservation of the environment, allowing reasonable public access, and preservation of local ways of life.

Preserving a way of life. The community's expectation— as gleaned from *our* review of the legislative history, in particular— was that special consideration would be given to residents over visitors in matters affecting our cultural heritage and traditional uses. This special status was part of the original deal. We are not just another stakeholder; the GMP should reflect that.

Resource Management Issues

Fulfilling Restrictions in the 1963 Deed of Conveyance

The restrictions contained in the 1963 deed of conveyance of the Province Lands from the Commonwealth to the Secretary of the Interior included ones making land available to the town for public airport and access purposes and for dumping purposes, as well as hunting, fishing, and shellfishing rights for the public. Of those, we wish to highlight the following:

○ **Dumping Purposes.** Provincetown and the Park Service have come to a solution on solid waste disposal, with the land exchange proposed in H.R. 2411. This deal needs to be implemented. Solving the Town's needs for wastewater disposal must also be part of a collaborative decision-making process involving the Seashore.

○ **Airport.** The deed recognizes the right of the airport to be located within Cape Cod National Seashore, and a reasonableness standard should be applied to how compatible the airport is with Seashore uses. The GMP should also recognize the collaborative decision-making contained in the Memorandum of Understanding between the Town and the Seashore on the Hatches Harbor Saltmarsh Restoration Project and Provincetown Municipal Airport. The airport is also part of the broader issue of transportation, which includes use of roadways.

○ **Aquaculture.** The Seashore needs to be clearer about specifying where they have authority and responsibility for aquaculture and where they do not. The National Park Service is an upland owner, and has rights as such, but the Commonwealth of Massachusetts is preeminent in this area; and state statute devolves responsibility to local communities for shellfishing and aquaculture.

Managing Resources

Water. This most critical resource management issue affecting Provincetown should be managed in the best interests of that resource, irrespective of political boundaries. We have appreciated the Seashore's collaboration in the Lower Cape Water Study, and look forward to developing a long-term plan for withdrawal of water from wells at the former North Truro Air Force Station property.

Public Safety. Public safety and impact on how access is regulated to facilities, and traditional places of use are important concerns for the Town of Provincetown. We commend to Cape Cod National Seashore the problem-solving approaches of Community-Oriented Policing, which the Town of Provincetown adopted in 1992. The Town stands ready to work with the Seashore to implement this philosophy, both in its management of its own personnel as well as through its public safety agreements with Towns on the Outer Cape.

Historic Preservation. The park service should be obliged to preserve historical structures including but not limited to the dune shacks. In our view, using pre-existing structures for NPS administrative purposes (including employee quarters) is contrary to preservation of local ways of life.

Final Environmental Impact Statement. The Town of Provincetown restates its dissatisfaction with the inability for the public to review and comment on the revised draft Environmental Impact Statement regarding the GMP prior to publication of its final version, since the FEIS will significantly impact the resource management issues of greatest concern to the Town.

APPENDIX I: HIGHLIGHTS OF THE PROPOSED PLAN

A VIEW OF THE FUTURE

The proposed plan for Cape Cod National Seashore would make new NPS commitments to stronger partnerships to solve mutual problems. All interested parties — private landowners, local residents, and local, regional, and national groups, organizations, and governmental entities — would be encouraged to come together to help address both routine and fundamental concerns that are important to the national seashore and the Outer Cape communities, as well as to the whole of Cape Cod. Decisions would be made on the basis of what would be best for all, not on what would be best for any single entity. This would result in some redistribution of responsibilities through a process of mutual agreement to engage in cooperative stewardship, such as relying on towns to review private development proposals within the seashore rather than both the town and the national seashore conducting reviews; national seashore managers would take a greater role in providing assistance and technical expertise to towns and neighbors in fields like resource management. The role of partnership coordinator would be assigned to a staff position within the national seashore in order to bring people together, to help build agreement among various entities, and to create partnerships that would benefit all.

National seashore managers would also develop a more holistic and integrated management approach. For example, environmentally sound, or sustainable, practices would be used as a model for conserving resources, thereby encouraging people to use similar practices in their daily lives. These practices would strive to balance human use with the protection of sensitive natural and cultural resources, while minimizing environmental impacts. The Park Service would also improve monitoring systems and collect information about the differences between natural processes and human-caused changes in the environment. This would allow national seashore managers to be better informed by scientific information before making decisions.

The diversity of activities and unique uses that have historically occurred within the national seashore would continue. For example, individuals would still be able to find a retreat in a secluded natural environment, walk along the beach, or join in more social activities. There would continue to be private

residential properties, and individuals would still be able to hunt and drive off-road vehicles (ORVs) in designated areas. NPS management efforts within the national seashore would continue to focus on protecting natural and cultural resources, carefully managing sensitive resources, providing facilities and services for the public, and offering interpretive and educational programs.

People who visit the national seashore would be asked to take greater responsibility in helping conserve the environment. For example, visitors would be encouraged to leave their cars at home, share rides, take shuttles, walk, bike; conserve water; and minimize disturbance to natural and cultural resources. For its part, the national seashore would seek to increase its own sensitivity and understanding of the interrelationships between the natural and human environment and to encourage greater caring by all who come to the Outer Cape or live here. To achieve more of an ecological balance, the Park Service would reduce artificially maintained landscapes where they are not needed for interpretive purposes, historical accuracy, or visitor needs. People would be directed away from sensitive areas. Damage from natural processes would be reduced through education and thoughtful decisions about construction and managing levels, locations, and types of use.

With this plan visitors could look forward to better information and higher quality experiences. Travel information would be provided to visitors in their homes, while on their way to the Cape, and once they have entered the national seashore boundaries. Using means such as the national seashore's home page on the Internet, tourist brochures and packets, and broadcast media, visitors would be able to make more informed decisions about when to visit, what travel options and services are available, and how to find specific areas. On the Cape information would be readily available to let people know which beach parking lots are crowded and where other recreational opportunities could be found.

Visitors and residents alike would also be able to look forward to improved travel conditions on the Outer Cape. Transportation systems would be improved so visitors and residents can move around more easily and conveniently. The National Park Service would support the Cape Cod Commission's *Long Range Transportation Plan* and community transportation initiatives, working with regional and local entities to

upgrade various modes of access to the seashore. Public transit schedules, the locations of park-and-ride lots, and overall transit availability would all be well publicized so visitors feel comfortable with using alternatives to private vehicles. Cape Codders would benefit from improved biking and walking trails that link the towns, points within the seashore, and other important destinations. Shuttles would be equipped with bike racks.

Visitors' experiences would be improved by offering better and more diversified interpretive and educational programs. These programs would give visitors and residents more opportunities to learn about the history of the Cape, the sensitivity of natural and cultural resources, concerns about the future health of resources, and the interrelationships of natural systems and the human environment. To provide more tangible links with the past, permanent exhibits and personal programs would be provided or enhanced at key historic sites and cultural landscape areas within the seashore.

More opportunities would be explored to cooperate with regional and local entities in jointly developing new interpretive and educational programs. In particular, national seashore staff would offer greater assistance to local schools in broadening environmental education programs so students have more interesting opportunities to understand the Cape's unique and fragile resources and to encourage their help in protecting them.

The proposed plan for Cape Cod National Seashore would not advocate any dramatic changes or shifts in policy; many current policies and operating procedures are functioning well. Since the beginning of the current planning effort in 1992, management concepts that were generally agreed to and that could still be defined within the goals of the 1970 *Master Plan* have been started. This plan would establish a framework for the future management of Cape Cod National Seashore that would allow NPS staff and other land managers to respond to specific concerns and problems in partnership with local bodies, without jeopardizing the intent to protect and preserve the Cape Cod character.

REQUIRED PLANS AND STUDIES

Following is a summary of the major plans and studies proposed for alternative 2. Costs for each plan or study would depend on the scope of the project, which in turn would be affected by available funding

at the time the project is initiated. Plans and studies done by national seashore staff would have a minimal cost and could be covered by annual operating funds. Contracted studies would be more expensive; for example, costs could range from \$50,000 for a survey to identify additional historic buildings to \$100,000 or more for a survey to identify submerged cultural resources. (Note: Because some plans could be done by national seashore staff, not all plans and studies are included in the cost estimate table.)

NATURAL RESOURCES

Studies

- The impacts from municipal supply wells, adjacent to seashore property
- The impacts of groundwater withdrawal on estuarine salt balance
- The impacts of aquaculture on water quality
- The biological effects of air pollution
- The abundance, distribution and potential impacts of exotic species on native biota and physical processes

Plans/Environmental Assessments

- Hatches Harbor restoration
- Herring River restoration
- Pamet River restoration
- Pilgrim Lake restoration
- Pond management plans
- Heathlands management plan
- Threatened/endangered species conservation plan
- Exotic species control plan
- Pest management plan

CULTURAL RESOURCES

- Ethnographic study
- Historic structures preservation guide
- Survey to identify additional historic buildings
- Survey to identify additional cultural landscapes
- Survey to identify historic archeological sites
- Survey to identify submerged cultural resources

PUBLIC USE

- Comprehensive trail plan
- Research to establish indicators and standards, leading to a monitoring program and proposals for specific management actions within each management zone and to address carrying

- capacity associated with human experience and resource protection
- Herring Cove site plan / environmental assessment
- Fort Hill site plan/environmental assessment
- North Truro air force station site plan / environmental assessment
- Pamet cranberry bog site plan / environmental assessment

LAND USE / PROTECTION

- Revised zoning bylaws jointly developed with local communities to update existing bylaws and NPS guidelines for the redevelopment of improved properties

- Agreement with local communities to develop a joint process for site plan development and review for municipal land within the national seashore

NATIONAL SEASHORE OPERATIONS

- Comprehensive action plan to incorporate sustainable practices into national seashore operations
- Study of administrative and maintenance space needs
- Study of staff housing needs in conjunction with periodically updating the *Housing Management Plan*

GLOSSARY

Adaptive use: A use for a structure or landscape other than its historic use, normally entailing some modification of the structure or landscape.

Area of critical environmental concern (ACEC): A designation of significance from the Massachusetts Executive Office of Environmental Affairs, Coastal Zone Management Office, for areas with important resources. An ACEC designation carries no restrictions of its own; however, it does trigger a higher level of environmental review by state agencies for projects within the area.

Cape Cod formula: Sections 4 and 5 of the 1961 legislation creating Cape Cod National Seashore (PL 87-126; 16 USC 459b-3 and 4) address land acquisition authorities pertaining to private property within the national seashore boundary, and give the conditions under which property is allowed to remain in private ownership.

Cumulative impacts: Those impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes them. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

District of critical planning concern (DCPC): Resources of regional importance to Barnstable County as designated by the Cape Cod Commission. These resources may include one or more of the following factors: the presence of significant natural, coastal, scientific, cultural, architectural, archeological, historic, economic, or recreational resources; values of regional, statewide, or national significance; the presence of substantial areas of sensitive ecological conditions that render the area unsuitable for development; or the presence or proposed establishment of a major capital public facility or area of public investment. Designation allows for the creation and adoption of special rules and regulations to govern development within the district.

Development of regional impact (DRI): A development that because of its magnitude or the magnitude of its impact on the natural or built environment is likely to present development issues significant to or affecting more than one municipality and that conforms to the criteria established in the Cape Cod Commission Act of 1990. The Cape Cod Commission

is charged with reviewing and regulating DRIs in Barnstable County in a way that protects critical resources.

Ecosystem management: Ecosystem management recognizes the interdependence of natural and cultural systems, integrating scientific knowledge of ecological relationships with resource stewardship practices. The goal is to create sustainable ecological, cultural, and socioeconomic systems. It is an approach that recognizes change as integral to ecosystems, in which people and their traditions are important stakeholders.

Parks cannot be viewed as separate from society, rather they are integral to its social, economic, and political fabric. An ecosystem management approach will assist the National Park Service in addressing new issues and problems and in improving its stewardship on an evolving basis. This does not mean that the Park Service would seek directly to control more resources, but rather it would work with partners to help manage resources for the entire Cape. This management approach encourages innovation and replaces single-issue management.

Environmental assessment (EA): A concise public document prepared by a federal agency to satisfy the requirements of the National Environmental Policy Act of 1969, as amended. The document contains sufficient analysis to determine whether the proposed action (1) constitutes a major action significantly affecting the quality of the human environment, thereby requiring the preparation of an environmental impact statement, or (2) does not constitute such an action, resulting in a finding of no significant impact being issued by the agency.

Environmental impact statement (EIS): The detailed public statement required by the National Environmental Policy Act when an agency proposes a major action significantly affecting the quality of the human environment. The statement includes a detailed description of the proposed action and alternatives, as well as the identification and evaluation of potential impacts that would occur from implementing the proposed action or alternatives.

Finding of no significant impact (FONSI): A public document that briefly presents the reasons why an action will not have a significant impact on the

human environment, and therefore, will not require preparation of an environmental impact statement.

Improved property: Defined in section 4(8)(d) of PL 87-126 (16 USC 459b-3(d)) as

a detached, one-family dwelling the construction of which was begun before September 1, 1959, . . . together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

There are approximately 600 privately owned properties having "improved property" status within the national seashore.

Intermodal: Transportation systems that integrate numerous modes of transportation that allow people to move throughout the Outer Cape, and between destinations inside and outside of the national seashore. These systems include road networks, bus shuttles, bicycle paths, hiking trails, and ferries.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): An act of Congress "to develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner." The act provides authorizations and funding in fiscal years 1992-97 for roads and highways, highway safety, mass transportation, recreation trails, and ferry boats and associated facilities.

Outer Cape: That part of Cape Cod stretching from Chatham to Provincetown, and including the towns of Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown.

Pest: A pest is considered anything that is affecting public health and safety or that is injuring or adversely affecting resources within the national seashore. Pests are often nonnative species, such as the brown-tailed moth; however, they can also include native plants or animals if they are adversely affecting the public, facilities, or resource management programs. Pest-control methods are always to be the

least toxic, use the minimal amount needed, and must be targeted at a specific pest without harming other plant or animal species.

"Preserved in its present state": A phrase in section 7(b)(1) of PL 87-126 (16 USC 459b-6(b)(1)) relating to development ("In order that the seashore shall be permanently preserved in its present state . . ."), and interpreted by the National Park Service as generally limiting property development to the level that existed at the time of the legislation's enactment, but not as restricting the restoration of cultural landscapes or natural conditions where disturbed, or precluding natural changes in the environment.

Preservation: The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape, or object. Work may include preliminary measures to protect and stabilize the property, but generally focuses on the ongoing preservation maintenance and repair of historic materials and features rather than extensive replacement and new work. For historic structures exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Rehabilitation: The act or process of making possible an efficient, compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values.

Restoration: The act or process of accurately depicting the form, features, and character of a historic structure, landscape, or object as it appeared at a particular period of time by means of removing features from other periods in its history and reconstructing missing features from the restoration period.

Social trail: An unplanned trail resulting from persistent use and resulting in soil compaction and vegetation trampling.

Stabilization: An action to render an unsafe, damaged, or deteriorated property stable while retaining its present form.

Sustainability: A process that integrates economic, environmental, and equity (health and well-being of society) activities in decisions without compromising the ability of present and future generations to meet

their needs. In implementing the principles of sustainability, the National Park Service will consistently protect and perpetuate nature while acknowledging that human civilization is an integral part of the natural world. In executing this policy, the Park Service will strive for continuity and balance in all natural, recreational, and cultural systems as park resources are protected, visitor services provided, management priorities established, and supplies and materials procured.

Technical assistance: Advice and/or assistance given to individuals or agencies in matters of natural and cultural resource protection, interpretation and public use, and facility development, generally on a non-reimbursable, cooperative basis, as time and budget allow. For example, advice could be given to private property owners regarding requirements for the eligibility of buildings for the National Register of Historic Places, and possible sources of money to help maintain buildings and preserve historical integrity.

Viewshed: The area that can be seen from a particular location, including near and distant views.

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- fire management, xiv, 18, 37, 47, 65, 72, 151, 197, 205, 206, 209, 217, 218, 233, 235, 366, 369
- fish, v, vi, viii, x, xiv-xvi, 9-11, 22, 40, 47, 53, 71, 72, 74, 88, 90, 119, 134, 135, 140, 151-154, 167, 193, 204, 206-208, 213, 223, 235, 236, 260, 261, 267, 274, 296, 318, 321, 365-367
- floodplains, xiv-xvi, 54, 55, 105, 107, 133, 142, 192, 203, 205, 230, 232, 260, 275
- Fort Hill, v, 18, 19, 27, 37, 48, 76, 91, 92, 103, 142, 146, 157, 159, 166, 169, 205, 262, 285, 289, 290, 322, 328, 330, 331, 333, 338, 358, 366
- geology, xiv, 68, 128, 362
- Hatches Harbor, vi, 18, 36, 47, 71, 87, 111, 134-137, 141, 192, 204, 205, 226, 231, 232, 255, 321, 357
- heathlands, vi, 22, 37, 40, 72, 91, 96, 145, 146, 151, 155, 193, 208, 226, 233, 237, 256, 341-344, 357
- Herring Cove, 18, 27, 41, 66, 90, 91, 93, 112, 116, 119, 128, 171, 201, 219, 233, 265, 277, 282, 289, 290, 327, 358
- Herring River, viii, 36, 71, 111, 132, 135-137, 141, 191, 231-233, 235, 247, 255, 257, 284, 321, 330, 332, 357, 367
- Highland Light, 77, 88, 90, 95, 103, 128, 158, 272, 276, 281, 330
- historic architecture, xiii-xvi, 24, 38, 48, 77, 117, 157, 194, 209, 238, 239, 262, 285, 286
- historic preservation, 24, 27, 48, 52-54, 75, 77-80, 97, 103, 117, 158, 238, 239, 247, 249, 256, 275, 276, 285, 296, 330-332
 easements, 38, 42, 53, 79, 81, 99, 117, 221, 238, 239, 249, 261, 293, 312, 313, 331, 332
- historic resources, iv, 16, 48, 67, 78, 227, 239, 321-323
- historic structures, 18, 23, 24, 26, 38, 40, 48, 49, 51, 53, 77-80, 83, 88, 103, 118, 128, 157-159, 166, 169, 170, 194, 209, 211, 212, 227, 238, 239, 242, 257, 259, 262, 285, 286, 322, 323, 330, 339, 341-344, 357, 360
- hunting, ix, xiv, 6, 7, 9-11, 23, 27, 37, 47, 54, 74, 89, 103, 117, 152, 166-169, 171, 193, 196, 207, 208, 213, 214, 236, 237, 243, 244, 261, 311, 317
- improved property/properties, 9, 29, 31, 38, 39, 41, 42, 48, 52, 53, 73, 76, 79, 81, 94, 96, 99, 100, 107, 108, 117, 118, 120, 151, 159, 178-181, 186, 197, 198, 218, 220, 221, 227, 238, 249, 250, 253, 261, 262, 293, 331-333, 358, 360
- information/orientation, 84
- interpretation, v, vii, viii, xiii-xv, 19, 25, 26, 40, 48-50, 75, 77, 80, 82, 83, 87, 88, 95, 119, 158, 160, 162, 193, 194, 210, 212, 220, 237, 239, 240, 242, 251, 258, 271, 280, 286-288, 331, 332, 339, 340, 345, 361, 369, 370
- interpretive themes, xiii, xvii, 14, 87, 88, 271, 317
- kettle ponds, vi, xi, 6, 21, 22, 26, 27, 42, 46, 53, 70, 91, 101, 120, 127, 137, 138, 139, 140, 165, 192, 199, 202-204, 230, 231, 243, 266, 295, 317, 325, 340, 341, 343, 366
- legislation, xvii, 7-9, 12, 27, 29, 31, 32, 36, 38, 42, 53, 57, 97, 101, 109, 116, 118, 137, 152, 168, 171, 179-182, 185, 187, 213, 225, 275, 279, 290, 293, 303, 359, 369
- local communities, v, ix, x, xiii, xiv, xvi, xvii, 3, 13, 27, 28, 30, 32, 35, 38, 39, 41, 44, 46, 52, 56, 65, 68, 69, 74, 75, 80, 81, 85, 91, 95-98, 102, 104-109, 117, 119, 121, 158, 179, 186, 196, 197, 199, 200, 203, 218-220, 224, 227, 238, 247-249, 251, 253, 254, 260, 261, 264, 268, 271, 278, 293, 294, 325-327, 358
- management zoning, xvii, 57, 90, 96, 129, 234, 236, 295, 319
- museum collections, vi, 83, 210
- Native Americans, 37, 48, 49, 74, 76, 81, 87, 142, 159, 318
- Nauset Light, 11, 77, 103, 128, 281, 313, 327, 330
- Nauset Marsh, 16, 24, 31, 81, 91, 101, 129, 132-137, 159, 181, 182, 185, 226, 233, 321, 322, 331, 333, 367
- nonnative species, viii, xiv, 6, 37, 72, 73, 146, 152, 193, 205, 208, 234, 236, 243, 252, 284, 360
- North Truro air force station, former, 22, 25, 27, 31, 40, 43, 50, 55, 75, 91, 92, 102, 105, 106, 108, 112, 160, 186, 210, 240, 242, 246, 281, 290, 293, 325, 338-343, 358, 366
- nude recreation, 289, 296
- nude sunbathing, 167-169, 289
- offroad vehicle (ORV) use, 7, 27, 277
- offroad vehicles (ORVs), ix, 30, 40, 51, 89, 90, 122, 129, 153, 166-169, 196, 213, 227, 243, 244, 257, 258, 280, 320, 356
- Old Harbor Life-saving Station, 40, 77, 83, 88, 158, 330, 341-344
- Orleans, iii, 3, 9, 16, 26, 27, 95, 97, 100, 131, 132, 135-137, 162, 163, 169, 171, 173-179, 182, 186-188, 213, 227, 251, 263, 278, 283, 296, 314, 360, 362, 364, 370
- Pamet cranberry bog, 18, 27, 37, 40, 48, 76, 88, 91, 92, 103, 146, 157, 158, 322, 330, 331, 333, 338, 339, 358, 366
- Pamet River, viii, 18, 36, 71, 133, 135, 137, 141, 142, 231, 233, 236, 247, 255, 284, 324, 330, 332, 357

INDEX

- access, v, vii, xiii-xvii, 6, 8, 10, 13, 15, 16, 18-20, 25-27, 30, 39-41, 44, 46, 49-51, 67, 70, 72, 79, 83-96, 103, 106, 109, 110, 112, 118, 119, 122, 129, 159, 162-165, 167-170, 178, 181, 183, 195, 196, 198, 211-214, 218, 233, 240-244, 249, 254, 256, 258, 263, 268, 275, 276, 282, 286-290, 310, 313, 320-324, 331, 333, 340-344, 357, 365
- accessibility, 90, 92, 107, 259
- administrative facilities, 81, 331, 333, 343
- air quality, vi, viii, ix, 18, 21, 26, 35, 45, 50, 65, 125, 126, 128, 163, 191, 201, 228, 230, 253, 256, 274, 365
- air resources, xiii-xvi, 21, 35, 45, 54, 65, 89, 103, 125, 128, 191, 201, 228, 365, 370
- alternative 1, iv-vii, ix, x, xiii, xv, 35-38, 42-45, 65, 112, 191, 192, 194-196, 199-202, 204-206, 208, 210, 214, 218, 220, 221, 223, 225-228, 230-238, 240, 241, 243-247, 250-257, 264, 266, 330, 338-340, 345
- alternative 2, iii-v, viii-xi, xiii, xvi, 4, 35-44, 57, 65, 112, 116-121, 191-195, 197-200, 205, 206, 209, 228, 232, 233, 237-241, 243, 245, 247, 248, 250-257, 260, 261, 263, 264, 267, 268, 330, 339-341, 346, 357
- alternative 3, iv, v, x, xi, xiv, xvi, 35, 116, 191, 260-263, 267, 268, 281, 332, 338, 339, 343, 347
- aquaculture, viii, x, 15, 30, 36, 37, 70, 73, 117, 137, 152, 207, 231, 235, 245, 246, 255, 258, 260, 261, 268, 277, 282, 283, 357, 364
- finfish aquaculture, viii, x, 36, 37, 73, 117, 207, 235, 245, 246, 261, 268, 282, 283
- shellfish aquaculture, 36, 37, 73, 117, 137, 152, 192, 235, 245, 255, 261, 282, 283
- archeological resources, vi, xiii-xvi, 18, 24, 38, 39, 49, 55, 56, 80-82, 92, 108, 118, 157, 159, 194, 210, 214, 227, 239, 240, 242, 256, 257, 261-263, 275, 286, 331, 332
- area of critical environmental concern, 359
- Atwood-Higgins complex, 18, 37, 40, 48, 51, 77, 88, 91, 157, 158, 330, 338, 342, 344, 364, 366
- beaches, x, 4, 11, 15, 16, 18, 21, 25-27, 36, 37, 39-42, 45, 50, 51, 66, 67, 84-88, 90-95, 100, 101, 112, 116, 119, 122, 128, 129, 131, 134-137, 141, 145, 151, 152, 154, 155, 159, 162, 164, 166, 169, 171, 177, 191, 201, 202, 211, 213, 219, 221, 223, 227, 229, 231, 233, 241-245, 248, 250, 258, 260, 265, 268, 277, 282, 286, 287, 289-292, 296, 312, 313, 317-319, 321, 323, 327, 328, 331, 333, 340, 341, 343, 356, 363, 365, 367
- boundary change, 97, 118, 263, 264, 277, 286
- Cape Cod formula, 177, 179, 359
- carrying capacity, xvii, 117, 261, 272, 295, 319, 325, 327, 358, 370
- Chatham, iii, 3, 9, 16, 26, 97, 129, 131, 163, 169, 173-175, 177-179, 182, 188, 213, 245, 259, 263, 278, 282, 283, 296, 297, 314, 317, 321, 360, 370
- clothing-optional sunbathing, 27
- coastal processes, 1, v, vi, viii, xiii-xvi, 6, 18, 21, 24, 36, 45, 49, 66, 67, 79, 86, 88, 89, 94, 116, 118, 128, 129, 136, 142, 158, 191, 196, 201, 202, 209, 210, 214, 217, 221, 222, 228, 229, 244, 245, 250, 251, 257-260, 262, 268, 277, 282, 319, 322
- commercial services, xiii-xv, 27, 41, 52, 94, 119, 171, 219, 290
- concessions, xiii-xv, 27, 41, 52, 94, 95, 103, 119, 171, 182, 197, 219, 248, 265, 290
- cost estimates, 276, 338-341, 343
- cultural heritage, v, viii, xiii-xvi, 2, 13, 23, 37, 47, 48, 74, 75, 87, 89, 103, 117, 122, 157, 193, 194, 197, 208, 217, 237, 238, 246, 247, 256, 261, 272, 277, 279, 285, 288, 318, 319
- cultural landscapes, 1, vi, x, xiii-xvi, 3, 9, 18, 19, 23, 24, 37, 38, 41, 47, 48, 56, 72, 74-77, 88, 89, 92, 95, 96, 98, 103, 105, 108, 117, 146, 157, 158, 169, 194, 205, 209, 212, 214, 224, 227, 234, 237, 238, 242, 256, 257, 261, 262, 285, 319, 322, 330, 331-333, 340, 341, 343, 357, 360, 366
- development of regional impact, 359
- district of critical planning concern, 41, 97, 178, 291, 359
- dune shacks, 38, 48, 76, 78, 95, 157, 158, 187, 225, 322, 323, 330, 341, 366
- Eastham, 9, 11, 16, 17, 26, 32, 46, 68, 85, 91, 92, 97, 99, 103, 128, 131, 132, 135, 137, 142, 157, 162, 163, 169, 171, 173-179, 181, 182, 186-188, 263, 278, 281, 283, 290, 296, 312-314, 328, 360, 364, 367, 368, 370
- ecosystem management, 3, 12, 284, 359, 363
- endangered species. *See* Threatened or endangered species
- ethnographic resources, vi, xiii-xvi, 23, 37, 47, 74, 75, 117, 157, 193, 194, 208, 237, 238, 247, 256, 261, 279
- ethnographic study, 23, 37, 74, 341, 343, 357
- exotic species, 73, 117, 146, 207, 234, 236, 238, 261, 275, 357
- finfish aquaculture, viii, x, 36, 37, 73, 117, 207, 235, 245, 246, 261, 268, 282, 283

- parking, iv, viii, 11, 17, 18, 26, 29, 30, 39, 40, 50, 51, 66, 67, 70, 84-86, 88, 90-95, 99, 100, 112, 122, 129, 163-165, 169-171, 180, 182, 202, 206, 207, 211, 223, 229, 233, 234, 241, 243, 244, 254, 257, 276, 282, 286, 287, 289-292, 312, 313, 319-325, 328, 331, 333, 339, 342, 344, 356
- partnerships, 1, v, viii, ix, 2, 3, 12, 20, 26, 28, 35, 38, 39, 40, 42, 50, 65, 76-80, 82-84, 87, 88, 102, 104, 118, 170, 178, 179, 191, 212, 227, 228, 237, 238, 242, 247, 251, 252, 267, 271, 273, 277, 278, 279, 285, 286, 288, 290, 297, 330, 331, 338, 339, 346, 347, 356, 357, 363
- Penniman house, v, 18, 77, 83, 92, 158, 322, 330, 341-344
- pest, 18, 37, 47, 74, 146, 153, 207, 236, 261, 284, 357, 360
- pest management, 37, 47, 74, 146, 153, 236, 284, 357
- Pilgrim Lake, 36, 71, 131, 132, 134, 137, 140, 141, 182, 207, 231, 236, 341, 343, 357
- private property, vi, ix, x, xv-xvii, 19, 41, 43, 56, 67, 71, 74, 94, 98, 116, 119, 122, 129, 179, 181, 196-198, 201-203, 209, 217, 218, 221, 226, 245-247, 249, 250, 259, 260, 264-266, 281, 282, 284, 291, 292, 319, 330, 359, 361
- private residential properties, xiii-xvii, 27, 28, 41, 42, 52, 98, 120, 179, 198, 220, 246, 247, 249, 266, 356
- private residential property, 198, 246, 250
- Province Lands, 10, 16, 25, 26, 28, 30, 31, 39, 49, 50, 76, 84, 88, 90, 91, 97, 111, 112, 128, 129, 132, 133, 135, 139, 140, 142, 145, 152, 153, 158, 162, 164, 169, 171, 172, 182, 184-186, 212, 214, 225, 233, 238, 242, 278, 279, 310, 317, 321, 323, 324, 328, 342, 344, 366
- Provincetown, iii, vii, ix, x, 3, 9-12, 16, 17, 22, 26, 27, 30-32, 39, 46, 47, 50, 68, 71, 78, 84, 85, 87, 93, 97, 103, 109, 112, 119, 131, 135-137, 145, 157, 159, 162-164, 169, 170, 173-179, 182, 186-188, 195, 203, 205, 212, 216-218, 226, 231, 241, 242, 245, 256, 259, 263, 264, 268, 273, 277, 278, 283, 286, 287, 289, 290, 294, 296, 297, 310, 314, 318, 325, 360, 362, 363, 367, 370
- Provincetown Municipal Airport, vii, ix-10, 17, 26, 39, 47, 50, 71, 87, 119, 163, 164, 178, 195, 212, 217, 226, 242, 245, 256, 263, 264, 268, 277, 278, 287, 325, 367
- public safety, vii, 14, 26, 27, 31, 47, 66, 67, 74, 85, 94, 96, 101, 102, 165, 167, 184, 287, 319-323, 328
- Race Point Coast Guard Station, 78, 158, 331
- salt marsh, 36, 47, 71, 135, 136, 204, 205, 231, 232, 258, 330, 332
- shellfish aquaculture, 36, 37, 73, 117, 137, 152, 192, 235, 245, 255, 261, 282, 283
- species of special concern, 146, 149, 155
- staff housing, iv, v, vii, ix, xi, xiii-xvii, 31, 43, 44, 55, 57, 105-107, 111, 121, 184, 185, 193, 199, 200, 209, 223, 224, 252, 253, 261, 267, 268, 293-295, 339, 358
- state, iv, v, vii, viii, xiii-xvii, 9-11, 13, 15-17, 21-24, 28-30, 36-39, 42, 46-54, 65, 67-74, 78, 81, 84-87, 90, 91, 97, 99-101, 103, 104, 107, 109, 117, 118, 120, 122, 125, 127-129, 131, 134-137, 139, 140, 146, 149, 151-155, 159, 160, 164-166, 168-170, 177, 179, 180, 182, 183, 193, 194, 196, 199, 201, 207, 208, 213-218, 220, 222, 223, 226, 228, 231, 237, 239, 240, 243, 246, 251, 255, 257, 260, 261, 263, 266, 274-279, 282-289, 291, 292, 294, 296, 310, 311, 314, 321, 323, 338, 359, 360, 362, 364, 367
- Stellwagen Bank National Marine Sanctuary, v, 40, 88, 104, 119, 134, 242
- sustainable practices, x, 3, 14, 19, 42, 43, 54, 55, 70, 98, 104, 105, 108, 193, 199, 200, 223, 228, 234, 249, 252, 253, 267, 280, 338, 358
- telecommunications, 43, 186, 294
- threatened, iv, vi, viii, x, xiv-xvi, 6, 18, 22-24, 36-38, 41, 45, 47, 49, 54, 67, 71, 72, 79, 82, 94, 99, 104, 116-118, 128, 129, 135, 139, 140, 146, 149, 152-155, 159, 181, 193, 194, 197, 201, 206-209, 232, 237, 244, 245, 262, 265, 272, 274, 284, 332, 338, 339, 357, 362
- threatened or endangered species, vi, viii, xiv-xvi, 18, 22, 23, 37, 47, 54, 67, 72, 104, 116, 146, 149, 153-155, 193, 206, 208, 237, 244, 274, 275, 284, 285, 357
- Three Sisters Lights, 40, 77, 88, 105, 158, 330
- town services, 17
- trails, 9, 19, 26-28, 40, 51, 84-86, 90, 91, 94, 96, 97, 132, 162, 164, 166, 169-172, 206, 207, 229, 233, 234, 241, 243, 245, 246, 256, 257, 277, 287, 288, 319-321, 323-327, 329, 331, 333, 357, 360, 366
- transportation, vii, xiii-xvii, 3, 16, 25, 26, 39, 41, 50, 52, 65, 84-87, 90, 95, 97, 98, 102, 106, 119, 122, 125, 162-165, 171, 179, 195, 201, 211, 212, 217, 227, 228, 240, 241, 246, 248, 256, 263-265, 268, 271, 273, 276, 277, 286, 287, 296, 318, 328, 338, 339, 341, 343, 356, 360, 362, 370
- Truro, iii, 3, 9, 10, 16, 17, 22, 25, 27, 30-32, 40, 43, 46, 50, 55, 68, 75, 85, 86, 91-93, 97, 99, 100, 102, 103, 105, 106, 108, 109, 112, 128, 129, 131, 135, 137, 142, 157-160, 163, 171, 173-179, 181, 182, 186-188, 203, 210, 240, 242, 246, 249, 278, 281, 283, 284, 290, 293,

- 296, 297, 310, 314, 325, 338-343, 358, 360, 362, 363, 366, 370
- use and occupancy, vii, xiii-xvi, 32, 44, 56, 110, 187, 188, 200, 225, 246, 254, 273, 294-296, 338
- use-and-occupancy reservations, xi, 32, 43, 55, 56, 78, 105, 106, 110, 158, 219, 267, 294, 325
- utilities, x, xiii-xvi, 30, 31, 43, 55, 102, 107, 170, 172, 178, 184, 185, 200, 218, 221, 224, 250, 253, 273, 294, 312, 323
- vegetation, vi, viii, x, xiii-xvi, 21-23, 36, 37, 39, 41, 47, 50, 55, 56, 67, 69, 71-73, 87, 89, 94, 96, 107, 117, 128, 132, 135, 142, 145-147, 151, 167, 168, 172, 180, 192, 193, 196, 202, 205-208, 212-214, 223, 226, 229, 231-234, 237, 238, 243, 257, 258, 260, 264, 283, 287, 324-327, 332, 333, 360, 365, 368
- vistas, 28, 41, 52, 93, 95, 96, 146, 168, 171, 172, 192, 194, 196, 206, 214, 223, 233, 234, 243, 252, 258, 262, 264, 290, 318, 319, 323, 332, 333
- volunteers, viii, 26, 31, 35, 49, 55, 76-78, 80, 82, 87, 103, 105, 121, 162, 170, 184, 185, 199, 210-212, 224, 237, 242, 251, 278, 279, 286
- water resource management, viii, 36, 45, 68, 135, 192, 203, 232, 275, 364
- water resources, vi, viii, xiii-xvi, 13, 22, 29, 36, 45, 52, 55, 68, 70, 104, 107, 116, 117, 133, 135, 136, 142, 143, 192, 203-205, 226, 230-232, 255, 260, 277, 362, 363, 366, 368, 370
- way of life, 7, 8, 277, 279, 317
- Wellfleet, 1, 9, 16-18, 26, 32, 40, 46, 68, 71, 85, 91, 94, 97, 99, 100, 112, 131, 135, 137, 140-142, 157, 163, 169, 173-179, 181, 182, 186-188, 219, 226, 234, 236, 241, 247, 249, 256, 263, 273, 278, 283, 287, 294, 296, 297, 314, 317, 324, 360, 364-366, 368, 370
- wetlands, iii, vi-viii, x, xiv-xvi, 3, 6, 18, 22, 27, 36, 39, 45, 50, 54, 68-70, 86, 87, 103, 116, 129, 133, 134, 137, 140, 141, 145, 153, 168, 192, 195, 203-205, 211, 212, 218, 226, 230-232, 255, 260, 264, 271, 275
- wildlife, v, vi, viii, x, xi, xiii-xvi, 6, 15, 22, 37, 39, 40, 47, 53, 69-74, 87-89, 104, 117, 119, 151-154, 156, 192, 193, 199, 202, 205-207, 223, 231, 232, 235, 236, 242, 243, 257, 258, 261, 264, 267, 268, 274, 276, 277, 284, 287, 288, 296, 297, 326, 327, 367
- wildlife management, 73, 207, 236, 243, 277, 284, 297
- zoning, xvii, 7-10, 17, 19, 28, 29, 41, 42, 52, 57, 80, 90, 96, 99, 108, 120, 129, 171, 177-181, 197, 198, 218-221, 227, 234, 236, 246, 247, 249, 250, 257, 266, 271, 273, 291-293, 295, 315, 319, 322, 324, 332, 333, 338, 339, 358



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