STEWARDSHIP Vol IV

THE VIRGINIA COAST RESERVE STUDY

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THE NATURE CONSERVANCY

The Nature Conservancy is a national conservation organization, receiving its support from the public, whose objective is to preserve and protect ecologically and environmentally significant land and the diversity of life it supports.

To achieve this goal, the Conservancy purchases lands using its revolving fund which is then replenished through fund raising; accepts gifts of land, retains and provides stewardship for 60% of all projects; works with local, state and federal governments to identify and protect important natural areas and acquires and manages land in advance of government agencies' ability to do so.

Some 878,678 acres of forests, swamps, marshes, prairies, mountains, beaches, and islands in 1,516 projects throughout the United States have been saved from destruction by the Conservancy since the acquisition of its first preserve in 1954.

A member-governed non-profit organization, The Nature Conservancy was incorporated in 1951 in the District of Columbia for scientific and educational purposes.

REPORT FORMAT

This is one of the volumes of the Virginia Coast Reserve Study, a preserve management feasibility study conducted by The Nature Conservancy. The study consists of four separate volumes. Each incorporates related disciplines. The volumes are titled and designated numerically.

Volume I, The Ecosystem Description

Volume II, Legislative Compendium, Title Search and Acquisition Priorities

Volume III, Social and Economic Analysis

Volume IV, Stewardship

These sections are explained further in the Introduction.

INTRODUCTION

The marshes and islands of the Virginia Coast Reserve are a precious resource. They are the least disturbed remnant of the thin green line of wetlands which once cloaked the Eastern Seaboard. They include beaches, maritime forests and thickets, sand dunes, grasslands, and salt marsh communities and provide a variety of habitats to adapted associations of terrestrial fauna, upland birds, waterfowl and plant species. Simultaneously they serve as a buffer separating the fragile fertile marshes and agricultural land of the Eastern Shore of Virginia from the Atlantic Ocean, support a large sector of the Shore's economy and provide an accessible aesthetic resource. Poorly planned development and wetlands alteration have accounted for the desecration of much of this resource along most of the Eastern United States' coastline. The Virginia Barrier Islands represented the last intact set of islands which faced this plight. Their relative isolation had protected them for years.

STUDY AREA DESCRIPTION

The Virginia Coast Reserve consists of approximately 33,371 acres of barrier islands and marshes owned by The Nature Conservancy on the Eastern Shore of Virginia. It contains thirteen islands (see Eastern Shore of Virginia map, page viii). The barrier islands of the reserve are Metomkin, Cedar, Parramore, Hog, Cobb, Ship Shoal, Myrtle, and Smith. The reserve's Revel and Rogue Islands are upland islands which do not front on the Atlantic Ocean. Sandy, Godwin, and Mink Islands are salt marsh components of the system. The Conservancy owns these islands with the exception of major portions of Cedar Island and small parts of Hog and Smith Islands. All of the Virginia Coast Reserve may be reached from the adjacent peninsula by boat but there are no roads connecting the islands with the mainland. This system stretches along the southern seaward edge of the Delmarva Peninsula, a coastal plain outcrop, for about fifty-one miles. The islands represent the most unaltered barrier island-lagoon complex along the east coast of North America. Latitude-longitude coordinates for the Virginia Coast Reserve are 37° 05', 37° 34'N and 75° 56', 75° 37'W.

The low lying islands' eastern border is the Atlantic Ocean. At intervals along the coast inlets connect the sea with the extensive lagoon system westward of the reserve. These lagoons typically have salinities of 25 to 34 parts per thousand. The tidal range along the ocean front of the islands normally averages 4.2 feet but may reach nine feet or more during excessive storm surges. The expansive marshes behind the barrier islands are much incised and well flushed by tidal action. Brackish and fresh water occurs in the interior of the larger islands at the head of their upland drainages or as small ponds.

Biological communities of the reserve are controlled by the islands' dynamic geology. The sandy soil of the islands is in a constant state of flux, subjected to the influences of wind, tidal currents, temporary stabilization by vegetation and high energy input along the coastal front. The system has a wide diversity of aquatic and terrestrial biota.

Human influence on the system has been persistent but for the most part, it has not altered the Reserve's integrity. The present Virginia Coast Reserve has been traditionally used for pastureland, pirateering, waterfowl and shorebird market hunting, resort development, and homesites. These human impacts have had little long term effect on the structure and function of the islands' natural systems. Their resiliency, isolation, and inaccessability protect them from most direct human influences.

The Eastern Shore of Virginia is a peninsula bordered on the east by the Atlantic Ocean and on the west by the Chesapeake Bay. It is the mainland adjacent to the Virginia Coast Reserve's islands. The landmass is divided into two counties; Northampton, the southern county, and Accomack, the northern county. The region is the southernmost extension of the Delmarva Peninsula, a physiographic unit encompassing Delaware and parts of Maryland and Virginia. The Eastern Shore is 75 miles long. It contains 70% of Virginia's total shoreline and 47% of her salt marshes.

The peninsula supports a rural population dependent primarily on agriculture and fisheries for subsistance. Land use categories of the peninsula include 29.1% agricultural land, 29% woodland, 32.2% tidal marsh, 1.5% coastal beach, and 8.2% miscellaneous. The Shore has been historically isolated. Until 1964, the peninsula was only accessible from the rest of the state by a ferry which crossed the Chesapeake Bay. U.S. Route 13 entered the region from the north through Maryland. Now, the Chesapeake Bay Bridge-Tunnel connects the southern tip of the Eastern Shore to the mainland via a 17 mile span crossing the mouth of the Chesapeake Bay. The area has traditionally been an isolated cul-de-sac. This fact, more than any other, was responsible for the maintenance of a rural life style and the preservation of the Virginia Barrier Islands until the time they were acquired and insured preservation by The Nature Conservancy.

In 1967 the sanctity of the Virginia Barrier Islands was threatened when developers considered building a bridge connecting Smith Island, in the south of the island chain, with the mainland. The ill-suited development typical of other coastal systems had come at last. Convention centers, airports, and second-home subdivisions were planned. The Nature Conservancy purchased the island from developers with funds provided by The Mary Flagler Cary Charitable Trust to insure the preservation of the island. This acquisition triggered the ensuing chain of purchases which ultimately led to the formation of today's Virginia Coast Reserve, a chain of thirteen islands preserving this coastal resource.

STUDY OBJECTIVES

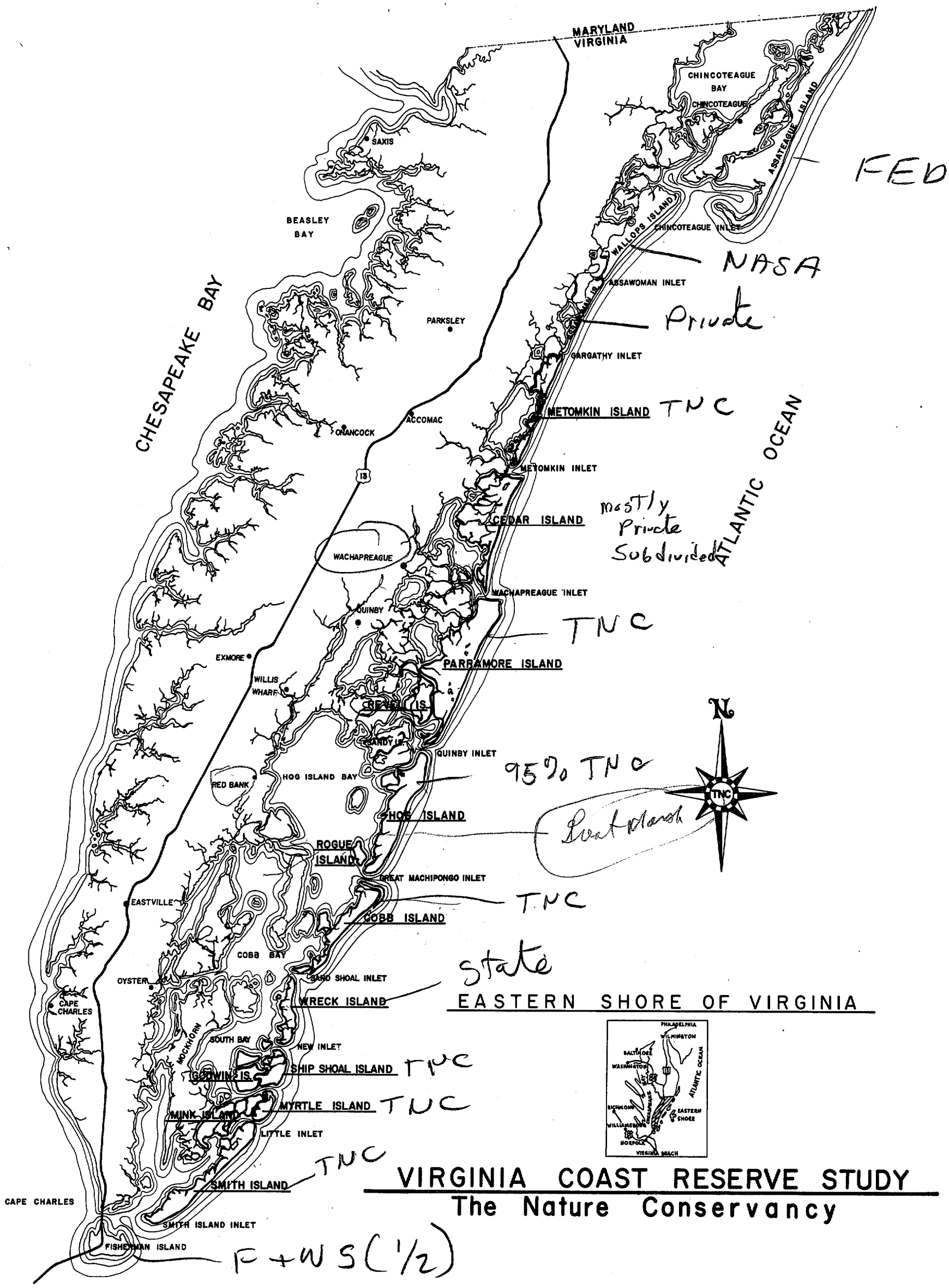
The objective of The Nature Conservancy's involvement with the Virginia Barrier Islands is to insure the perpetual preservation of this unique barrier island-lagoon ecosystem.

The Conservancy's concern for the barrier islands has been exemplified through the Virginia Coast Reserve Study. The objective of this investigation was to establish a base line of information that would yield an understanding of the operationally significant factors governing the stewardship of the island system. The study was divided into four separate sections. Objectives were set for each portion of the research.

1. Objectives of the Legislative Compendium, Title Search and Acquisition Priorities Section
   a. Provide The Nature Conservancy with a clear image of its ownership and inholdings within the reserve system.

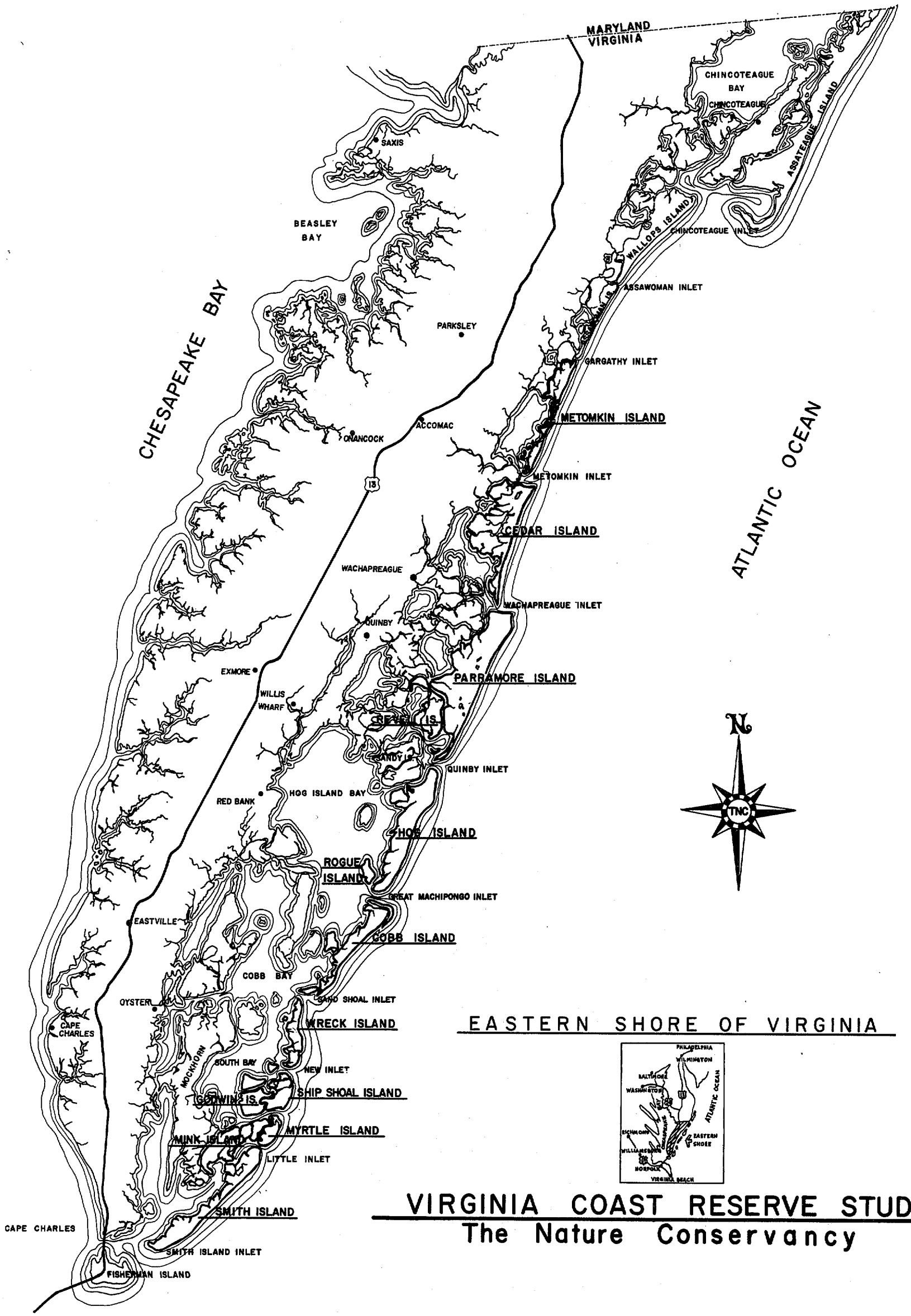
   b. Compile the legislation which pertains to the ownership of the islands, marshland and adjacent riparian and subaquatic rights to determine how it affects land stewardship.

   c. Establish a strategy for the further acquisition of key lands within this island-lagoon system that are worthy of preservation from an ecological or strategical perspective.



VIRGINIA COAST RESERVE STUDY

The Nature Conservancy


MARYLAND
VIRGINIA
CHINCOTEAGUE BAY
CHINCOTEAGUE
ASSATEAGUE ISLAND
SAXIS
BEASLEY BAY
WALLOPS ISLAND
CHINCOTEAGUE INLET
ASSAWOMAN INLET
CHESAPEAKE BAY
PARKSLEY
GARGATHY INLET
METOMKIN ISLAND
ACCOMAC
ONANCOCK
METOMKIN INLET
ATLANTIC OCEAN
CEDAR ISLAND
WACHAPREAGUE
WACHAPREAGUE INLET
QUINBY
EXMORE
PARRAMORE ISLAND
WILLIS WHARF
REVEL IS.
SANDY IS.
QUINBY INLET
RED BANK
HOG ISLAND BAY
HOG ISLAND
ROGUE ISLAND
GREAT MACHIPONGO INLET
EASTVILLE
COBB ISLAND
COBB BAY
OYSTER
SAND SHOAL INLET
CAPE CHARLES
WRECK ISLAND
MOCKHORN
SOUTH BAY
NEW INLET
SHIP SHOAL ISLAND
GOODWIN IS.
MYRTLE ISLAND
MINK ISLAND
LITTLE INLET
SMITH ISLAND
CAPE CHARLES
SMITH ISLAND INLET
FISHERMAN ISLAND
N
TNC
EASTERN SHORE OF VIRGINIA
PHILADELPHIA
WILMINGTON
BALTIMORE
WASHINGTON
ATLANTIC OCEAN
RICHMOND
EASTERN SHORE
WILLIAMSBURG
NORFOLK
VIRGINIA BEACH
VIRGINIA COAST RESERVE STUDY
The Nature Conservancy

2. Objectives of the Ecosystem Description Section

   a. Identify the limiting ecological factors which must be known in order to administer the Reserve, preserving its unique qualities.

   b. Define the ecological components of the system to begin the establishment of a monitoring program which will expose the scientific community to the potential for innovative research possibilities within the Virginia Coast Reserve.

3. Objectives of the Social and Economic Analysis Section

   a. Establish economic baseline information about the two counties within the Eastern Shore of Virginia.

   b. Assess effects of the preservation of the Virginia Coast Reserve Study on the local communities of Accomack and Northampton Counties.

   c. Assess the impacts of potential regional growth, land-use, and recreational needs on the Virginia Coast Reserve.

   d. Assess the indirect socio-economic benefits of the Virginia Coast Reserve associated with preservation of the system.

   e. Determine popular opinion regarding the preservation of the Virginia Coast Reserve.

4. Objectives of the Stewardship portion of the Virginia Coast Reserve Study

   a. Develop a list of the stewardship needs and procedures which offer maximum protection for the system.

   b. Determine agencies capable of accomplishing these goals and where ultimate stewardship responsibility should lie.

   c. Establish a preliminary management scheme accommodating preservation, research, education, and if appropriate, recreation.

   d. Determine the cost associated with this management scheme.

To achieve these objectives, the Virginia Coast Reserve Study coalesced the efforts of more than thirty professional administrative and research personnel. The experience and input of Eastern Shore residents also contributed to collecting this data.

LEGISLATIVE COMPENDIUM, TITLE SEARCH AND ACQUISITION

At the time of the acquisition of the Virginia Barrier Islands, the Conservancy became part of a parcel of difficulities including counter claims for ownership of the system, diverging interpretations in the chain of title to certain tracts, varying interpretations of existing island and wetlands-related legislation, and threats to the effectiveness of our preservation scheme from "inholdings" within the island system and lands owned adjacent to the reserve. We employed the full-time assistance of an environmental lawyer to catalogue, interpret and resolve these difficulties.

A complete title search was also conducted to determine the present ownership pattern of the barrier islands. This ownership information provided a basis from

which to assess the security of the Conservancy's present position as the controlling landowner within the island system, and of the intentions of insuring preservation of the complex. A review of the situation fostered the preparation of an acquisition strategy designed to fill the gaps in the present pattern of ownership.

At the same time, the complex environmental legislation pertinent to the administration of this marine wetlands area at federal, state and local levels was collected. The laws which may be used to insure the integrity of the reserve were compended. This allows their quick and efficient utilization in the administration of the reserve.

ECOSYSTEM DESCRIPTION

Information already existing pertinent to the natural history of the reserve has been collected. Additional basic field work was also completed to compliment this data.

The documentation of existing material included compilation of publications, maps, aerial photographs and other supportive material. The supply of existing comprehensive ecological data was scarce. Some information was available in the fields of geology, ornithology, and rudimentary plant community associations. A substantial body of material existed regarding the fisheries resources of the waters surrounding the island chain.

Supplementary ecological work was undertaken with the intention of complimenting existing data so that predictions and stewardship decisions based on a fundamental understanding of the ecology of the Virginia Coast Reserve system could be made.

SOCIAL AND ECONOMIC ANALYSIS

The barrier islands represent a valuable resource to the Eastern Shore of Virginia. They offer a livelihood to some by protecting marshland which provides a haven for marketable fish and shellfish. They offer attributes to residents of the "seaside" of the peninsula by buffering the shoreline from storm surges and winds. More intangible benefits are realized by a wider spectrum of the population. The islands are an integral part of the rural life style, the preferred quality of life, of the Eastern Shoreman.

These aspects, the benefits of the Virginia Barrier Islands to the local economy, lifestyle, and the residents' perception of the Eastern Shore, are analyzed in this section of the study. By the purchase of the barrier islands, the Conservancy has become the largest property owner in both Accomack and Northampton Counties. Addressing both the economic and social arguments for and against preservation of this huge system required the full-time assistance of a professional economist and the assistance of several contractual personnel from Salisbury State College, a local institution.

The economic analysis centered on the benefits and costs of barrier island preservation. This approach incorporated their tangible benefits and costs to the local communities and tangible and intangible benefits on a regional basis. Additionally, a detailed analysis of Virginia's Eastern Shore economy, in terms of the utilization of the local resource base, was conducted. The intent of this investigation was to assess the effect of barrier island preservation from the economic perspective of the Eastern Shore's citizenry.

The "quality of life" on the Eastern Shore is a well debated issue in local circles. The average citizens' perception of their lifestyle and general well being are clues

to the satisfaction or dissatisfaction with the style of life that The Nature Conservancy's natural area acquisition philosophy tends to preserve. The Conservancy was interested in determining whether its activities in the Virginia Barrier Islands were in accordance with or in opposition to the majority of sentiment of local residents. To assess these feelings, a broadly-based opinion poll of a representative sample of Eastern Shore citizens was conducted. Its aim was to gather data directly applicable to determining the "quality of life" dilemma here; were local residents happy with life as it is and the barrier islands as they are? The direct answers to these and associated questions have fostered conclusions about the Eastern Shore residents' perception of The Nature Conservancy's operations in this area and their wishes for the future of the Eastern Shore.

STEWARDSHIP

Effective administration of the reserve by any agency depends on the recognition of stewardship realities. In this section of the Virginia Coast Reserve Study, these were assessed and a scheme to deal with them is proposed.

Initially, a list of needs and procedures prerequisite to preserving the Virginia Barrier Islands was developed. The remainder of this section of the study dealt with how best to insure their fulfillment.

One of the greatest unknowns for the Virginia Barrier Islands preservation strategy was the ultimate managing agency for the system. It has traditionally been the Conservancy's policy to transfer some of its finest preserves to federal or state agencies interested in their management. Recently, a decision to internalize the management of selected preserves was made in accordance with The Nature Conservancy's model preserve "1980 Program". These conflicting policies had to be resolved in the best interest of the Virginia Barrier Islands.

The stewardship capabilities and policies of The Nature Conservancy and selected federal, state, and county agencies were examined. The interest each group had in the islands was assessed. Each agency's program was inspected to see whether it fit into the Conservancy's plan for the preservation of the Reserve. Finally, a review of their legislative, financial and enforcement abilities rounded out the picture.

The success or failure of The Nature Conservancy's own participation in this Virginia Coast Reserve management blend will be based on an operating budget. Present operating funds have been fully utilized in the preparation of this document. To continue operation requires the coordination of our management priorities and approximating an associated operating budget.

The stewardship option available to the Virginia Coast Reserve under the Conservancy's supervision is incorporated in this report. The scheme accommodates preservation, research and educational uses in differing proportions. This proposed stewardship plan addresses the number and functions of proposed Convervancy staff personnel to fulfill this preservation scheme, equipment requirements, office space and housing needs, future acquisition, and required research costs. The plan's implementation depends upon the identification of funding sources to power these programs.

Agency Analysis

AGENCY ANALYSIS

The Agency Analysis Section of this Report looks at the stewardship capabilities and policies of The Nature Conservancy and selected federal, state and county agencies were examined. The interest each group had in the islands was assessed. Each agency's program was inspected to see whether it fit into the Conservancy's plan for the preservation of the Reserve. Finally, a review of their legislative, financial and enforcement abilities rounded out the picture.

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U.S. FISH AND WILDLIFE SERVICE

I. PROPOSALS

Parramore Island, one of the largest and least disturbed islands of the chain, has been discussed in conjunction with the U.S. Fish and Wildlife Service in a variety of circumstances. The earliest occasion appears to be a U.S. Fish and Wildlife Service biological reconnaissance study done on Parramore Island to determine its potential and feasibility as a Wildlife Refuge. The study is out of print and a copy was not obtainable, however the resulting conclusions were favorable to pursuing the idea of preserving the area as a refuge.

The Accomack-Northampton Planning District Commission adopted a resolution in February, 1975, requesting that the U.S. Fish and Wildlife Service and the National Park Service establish a Wildlife Refuge and a National Seashore, respectively, after the fashion of Assateague Island, which would be designed to permit public recreation and yet protect valuable wildlife areas. (See Appendices "A" and "B").

The U.S. Fish and Wildlife Service is specifically named in an agreement accompanying the transfer deed from the original owners to The Nature Conservancy as one of two parties which the Conservancy must contact as a possible transferee in the event that the Conservancy chooses to dispose of Parramore. The other party is the Commonwealth of Virginia.

In addition to Parramore, other Virginia Barrier Islands have been mentioned for consideration as Wildlife Refuges. A Bureau of Outdoor Recreation 1967-'68 nationwide study of islands recommended that marsh islands and areas in the vicinity of Mockhorn Island State Wildlife Management Area "should be managed for fish and wildlife values. The most appropriate agencies to administer this resource are the State Commission of Game and Inland Fisheries and the Commission of Fisheries, or at the Federal level the Bureau of Sport Fisheries and Wildlife" (page V-21) (now the U.S. Fish and Wildlife Service). However, the recommendation further stated that "The existing state ownership and management of this area should be continued," that area already in state ownership should not be transferred to the Federal government. This recommendation for the Mockhorn Island area did not include Smith Island which was programmed for intensive private development at that time.

A second area of the island chain recommended for administration by the U.S. Fish and Wildlife Service, among other agencies, because of its wildlife resources, was the Fisherman's Island area which includes part of the Chesapeake Bay Bridge and Tunnel. This area was subsequently acquired by the Fish and Wildlife Service and is currently being managed as a refuge.

General discussions about the Virginia Coast Reserve have been held with Service personnel on several occasions regarding the probable relationships between Fish and Wildlife Service objectives and the stewardship of the Reserve. Several perspectives emerged from these discussions. One view is that the total Nature Conservancy holdings represent an outstanding wildlife resource area that is well qualified for inclusion in the National Wildlife Refuge System and, hence, both islands and marsh should be a high priority for Fish and Wildlife Service acquisition and management.

A second viewpoint gives a higher priority to the tidal marshes because of their important direct relationship to fish and wildlife resources rather than to the islands and attandant beachfronts. The latter often times have a tendency to be associated with concentrated visitor non-wildlife-oriented recreational use. Moreover, public use on Service refuges, from a priority standpoint, is secondary to resource-oriented activities by legislative mandate.

A third viewpoint was that the Service would be particularly interested in those islands providing significant black duck wintering habitats. Although only limited studies have been conducted by the Fish and Wildlife Service, information on hand does indicate that important black duck habitat exists in the marshes adjacent to many of the islands.

II. U.S. FISH AND WILDLIFE SERVICE

A. Responsibilities

In a memorandum dated May 9, 1973, prepared by the Deputy of the Fish and Wildlife Service, the responsibilities of the Service were as follows, "The mission of the Bureau of Sport Fisheries and Wildlife is to assure maximum opportunity for the American people, consistent with their needs and desires, to benefit from fish and wildlife resources as part of man's natural environment". The Fish and Wildlife Service is responsible for Federal programs relating to wild birds, mammals1/, and sport fisheries. In the past, the Service exercised its responsibilities mainly through the establishment and maintenance of Wildlife Refuges, of which there are currently 367 comprising about 33 million acres. The Service also controls 90 fish hatcheries which are independent of the Refuge System. More recently, the Service has been delegated major responsibilities for administration of the Endangered Species Act of 1973 by the Secretary of the Interior. The Fish and Wildlife Service also maintains an Office of Biological Services for research into the principal environmental problems which the Service will face in the next decade. These fall into three categories: 1) Aquatic Ecosystem; 2) Upland Ecosystem; and, 3) Inventory and Systems Development.

B. Objectives

The three basic objectives of the Fish and Wildlife Service as stated in the Department of the Interior Manual are:

1. To assist in the development and application of an environmental stewardship ethic for our society, based on ecological principles, scientific knowledge of fish and wildlife, and a sense of moral responsibility;

2. To assist and guide the conservation, development, and management of the Nation's fish and wildlife resources; and,

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1/The Marine Mammal Protection Act of 1972, 16 USC 1361, specifies that the Fish and Wildlife Service is responsible for marine mammals which frequent fresh water and terrestrial habitats: manatees, dugongs, sea otters, walruses, and polar bears. According to the Act, whales, seals, and sea lions are the responsibility of the National Marine Fisheries Service of the Department of Commerce.

3. To assist in the development of a national program to provide the American public opportunities to understand, appreciate, and use fish and wildlife resources. These objectives support the Service mission of assuring maximum opportunity for the American people, consistent with their needs and desires, to benefit from fish and wildlife resources as part of man's natural environment. (Chapter I, Part 142, 10/5/73, #1579).

C. Organization and Staff

The Service's complement of permanent, full-time employees is currently 4,214. This figure has remained relatively constant for the past five years while during that same time period the number of National Wildlife Refuge System staff decreased by 83, from a high of 901 to 818. (See Table 1). This full-time staff is augmented by 700-900 temporary employees, many on the Refuges, during the busy summer season.

Although undergoing frequent internal organization modification, the Service has always retained the traditional line staff concept. The hierarchy is composed of a Washington office staff, 6 regional offices and an Alaska area office. These offices are supported by approximately 430 field stations.

III. SERVICE PROGRAMS

The Fish and Wildlife Service seeks to accomplish its objectives through various programs. In recent years several new programs or directions have been added to the agency's responsibility by the Congress. Examples include biological services, endangered species and marine mammals. The addition of programs such as these have given the Service new capabilities to meet their objectives, but have also caused changes in the relative priority of earlier established programs within the Service. More programs presently share, and to a degree compete, in the agency's budgetary process than was formerly the case. This process involves the determination of which programs most effectively and efficiently contribute towards the accomplishment of Service objectives. A number of various legislatively mandated programs of the Fish and Wildlife Service are described in the Legislative Compendium Volume of this report. The 1976 and 1977 budget figures for both programs and activities is provided in Table 2.

The goals, objectives and budgets of eight Service Programs that have the potential to have an impact on the stewardship of the Virginia Coast Reserve are described below.

A. Animal Damage Control

1. Program Goals:

To manage wildlife populations for the protection, safety, and economic resources of man in a manner which protects natural resources, as well as man.

TABLE 1

NWRS Growth, Funding and Public Use 1/

1957-1976

Fiscal Year	No. of 2/ Refuges	Refuge 2/ Acres	No. of 3/ WPAs	WPA 3/ Acres	P.F.T. 4/ Field Manpower	Res. Mgmt. 5/6/ Field Allocation	Res. Mgmt. 7/ Deflated to '57 $ Value	Construction Field Allocation	Construction 7/ Deflated to '57 $ Value	VISITOR USE No. Visits 8/	% Increase From 1957
1976					818	24,905		2,343		25,600	3.4
1975	378	32,271	127	1,428	843	22,100	6,210	1,041	293	24,121	3.2
1974	368	32,070	116	1,371	883	20,082	7,049	967	339	21,538	2.9
1973	356	29,288	114	1,303	887	17,808	8,423	2,376	1,124	19,588	2.6
1972	342	29,445	113	1,222	901	16,020	8,987	2,463	1,382	20,249	2.8
1971	331	29,285	113	1,128	836	14,290	8,503	2,178	1,296	19,295	2.5
1970	332	29,242	110	1,019	846	11,740	7,384	820	516	17,870	2.4
1969	325	29,215	110	885	881	11,028	7,543	791	541	16,346	2.2
1968	321	27,953	109	798	930	10,459	7,792	2,222	1,655	15,221	2.0
1967	312	27,881	105	677	900	8,317	6,587	1,985	1,572	14,528	1.9
1966	303	28,398	97	529	778	8,924	7,336	2,650	2,178	13,803	1.8
1965	297	28,344	88	353	757	8,722	7,466	1,468	1,257	12,906	1.7
1964	286	28,298	57	153	749	7,174	6,277	1,728	1,512	14,020	1.9
1963	284	28,556	34	66	-	-	-	-	-	-	-
1957	270	18,000	-	-	479	5,367 9/	5,367	9/	-	7,555	-

1/ Acres, dollars and visits are in thousands (000).
2/ Does not include Wildlife Coordination areas.
3/ Refers to the number of counties in which Waterfowl Production areas are located. First WPA's (20) established in 1961.
4/ Estimates for 1964-72 are derived by reducing total Wildlife Refuge Division personnel by 130 for RO and WO; this was based on known differences of 130 in FY 1973. Estimate for FY 1957 was reduced by 100.
5/ Total Wildlife Refuge Division funds allocation was assumed to be reduced by 20% for FWS (WO, RO and AO) support.
6/ Includes monies set aside specifically to apply to rehabilitation backlog: FY 1975=$1,175 million and FY 1976=$2,267 million.
7/ Inflation rate is based on the Bureau of Labor Statistics' Consumer Price Index.
8/ Visitor use projected at +1.5 million for FY 1976.
9/ Total FY 1957 appropriation.

Provided thru the courtesy of the U. S. Department of the Interior, Fish and Wildlife Service.

TABLE 2 1/

U.S. FISH AND WILDLIFE SERVICE

February 12, 1976

Resource Management Appropriation Crosswalk
(in thousands of dollars)

	Fish Hatcheries		Tech. Asst.		Refuges		Law Enfor.		Ecol. Svcs.		Animal Damage Control		Fishery Research		Wildlife Research		Other Field Office Operations		Grants & Contracts		Regional & Area Offices		Washington Office a/		Program Totals b/	
	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77	'76	'77
Env.Cont.Evaluation			40	40					17	17	51	51	1,089	1,231	2,286	2,289					375	375	440	499	4,298	4,502
Land&W.Res. Devel.			81	79	2	2			4,113	4,513	53	51	-		85						2,023	1,801	2,443	2,764	8,800	9,210
Biological Svcs.			25	25	1	1	11	11	378	418			50	137	273	292	1,476	1,476	2,840	4,443	952	1,048	1,937	2,108	7,943	9,959
Migratory Birds			141	141	16,986	16,718	3,629	3,629							2,731	2,724	1,674	1,674			2,352	2,286	4,774	5,266	32,287	32,438
Mammals&Non-m.Birds			48	48	2,749	2,544	1,433	1,433			13	13			1,842	1,695	131	131			1,079	1,800	1,203	1,319	8,498	8,963
Animal D.Control					16	16					4,611	4,611			2,802	2,770					596	538	1,118	1,229	9,143	9,164
Coop.Res.Units													1,404	1,400	1,151	1,148							290	303	2,845	2,851
Coast.Anad.Fish	2,458	2,458	270	270			50	50					1,070	1,070					1,985		843	843	810	884	7,486	5,575
Gt.Lakes Fish	561	565											2,037	2,053							114	114	439	458	3,151	3,190
Inland Fish& Res.	8,066	8,019	1,346	1,346	7	7	14	14	21	21			2,536	2,536							1,398	1,398	2,174	2,412	15,562	15,753
End.&Th.Species	38	38	113	113	1,032	1,332	1,734	1,734			131	131			1,086	1,036	285	285	2,000		991	1,416	2,083	3,113	9,493	9,198
Int.&Recreation	244	244	22	22	4,112	4,271	8	8									3	3			1,088	1,134	1,297	1,321	6,774	7,003
Exe.Dir.&Planning																					982	1,237	439	710	1,421	1,947
Admin. Support																					2,159	2,159	768	889	2,927	3,048
	11,367	11,324	2,086	2,084	24,905	24,891	6,879	6,879	4,529	4,969	4,859	4,857	8,186	8,427	12,256	11,954	3,569	3,569	6,825	4,443	14,952	16,149	20,215	23,275	120,628	122,821

a/ Contains centrally paid expenses such as postage, communication costs, space costs, and pay act totalling $11,028 in FY 1976 and $12,767 in FY 1977.

b/ Individual FY 1977 program totals are higher than the President's Budget because increased pay and space costs have been distributed to program totals above.

1/ Taken from the Department of the Interior U.S. Fish and Wildlife Service, Budget Summary- Fiscal Year 1977.

2. Program Objectives:

a. To develop methods and provide assistance to local, state, and Federal public health organizations to suppress wildlife-borne diseases.

b. To develop methods and provide assistance to military and civilian agencies to prevent bird-aircraft strikes.

c. To develop methods and provide assistance to protect the values (aesthetic and economic) of public and private property in residential, commercial, and industrial situations from damages caused by wildlife, especially commensal rodents and birds.

d. To develop methods and provide assistance to protect agricultural, forest, and range resources from damages caused by wildlife.

e. To develop methods and provide assistance to protect newly introduced, seriously depressed, or endangered populations of wildlife by reducing predation or competition where they are limiting factors, and to protect desirable wildlife populations where there is evidence that predation or competition is severely affecting the desired species.

f. To develop damage assessment methods and provide accurate estimates on the extent of wildlife caused damage.

g. To develop new and improve existing population census and indexing methods for predators and those wildlife species that have potential for being detrimental to man's interest.

3. FY 1977 Budget: $9,194,000. Increase over 1976 $21,000. Percentage of total appropriated budget 19%.

B. Coastal Anadromous Fish Program

1. Program Goal:

To improve stocks of coastal anadromous fish species and their habitats for the benefit of sport and related commercial fisheries.

2. Coastal Anadromous Fish Program Objectives:

a. To provide and preserve freshwater, estuarine, and marine habitat in quantity and quality to produce anadromous fish populations at levels adequate to preserve the resource.

b. To provide access that will permit use opportunity at a level commensurate with the abundance and distribution of the resource.

c. To develop comprehensive plans on a state, regional, or watershed basis which satisfy management objectives, taking into account multiple uses and stresses, and related natural resource programs.

d. To provide fish passage and protection facilities and produce and stock fish of the species required to maintain the fishery.

e. To assess needs for additional conservation, development, and enhancement activities.

f. To overcome limiting factors of habitat destruction, obstacles to movement, nutrition deficiencies and diseases of coastal anadromous fish through research leading to solution of unfavorable situations.

g. To join with the states in carrying out programs of the state, regional, and national significance.

3. FY 1977 Budget: $5,575,000. Percentage of total appropriated budget 5%. Decrease over 1976 $1,911,000.

C. Endangered Species

1. Program Goal:

To restore species and subspecies of vertebrates, mollusks, and crustaceans which have been identified as being threatened with extinction to the point at which they are once again viable components of their ecosystems, and to prevent additional species or subspecies from becoming endangered.

2. Endangered Species Program Objectives:

a. To develop a nationally coordinated endangered species program by enlisting the aid and services of other Federal, state, and private agencies and organizations in the implementation of mutually developed endangered species recovery plans.

b. To conduct surveys to determine status of native and foreign threatened species as well as programs confronting them.

c. To develop and keep current a scientifically accurate endangered species list, developed through consultation with individuals throughout the world who are knowledgeable about the various species, their status and needs.

d. To develop and keep current a recovery plan for each threatened native species. These plans will identify limiting factors, propose corrective measures, make recommendations for land acquisition, management of Service lands, and guide efforts to restore individual threatened species.

e. To increase the scope and effectiveness of importation regulations through increased enforcement in order to prevent the United States from contributing to the diminution of foreign animal resources.

f. To provide up-to-date information services on endangered species to the public, news media, and educational organizations.

g. To help foreign countries resolve their own endangered species problems by 1) expanding our program to train foreign nationals, 2) providing assistance in conducting surveys to determine the status of foreign endangered species as well as the problems confronting them, and 3) providing expert consultation services to foreign countries requesting our assistance.

3. FY 1977 Budget: $9,198,000. Percentage of total appropriated budget 7%. Decrease over 1976 $295,000.

D. Environmental Contamination Evaluation

1. Program Goals:

To develop a centralized national biological information gathering, storing, and retrieval system that will establish sensitive monitoring systems for key species and environments; develop animal population and/or habitat data on selected game and non-game species; provide data essential to making biologically sound planning and management decisions.

2. Program Objectives:

a. To identify those fish and wildlife species that are recognizable and reliable indicators of environmental conditions.

b. To identify and evaluate the various factors and influences (including environmental pollution) which are affecting biological communities or a species.

c. To make available outputs of the Biological Monitoring program for agencies involved in comprehensive planning and assessment of land and water development projects.

d. To establish a national system for monitoring critical, threatened, or remnant ecosystems, such as grassland types, desert faunas, the Florida Everglades, major rivers, inland wetlands, estuarine systems and others.

e. To consolidate on a continuing basis information concerning the status, distribution, and abundance of selected game and non-game species.

f. To make available to other Federal agencies and the states, and the public, information of effects of fundamental changes in the natural environment and the interrelationship between human well-being and the welfare of fish and wildlife.

3. FY 1977 Budget: $4,502,000. Percentage of total appropriated budget 4%. Increase over 1976 $204,000.

E. Interpretation and Recreation

1. Program Goals:

The basic goal is to expand understanding and appreciation of fish and wildlife, wildlands, ecology, and man's role in his environment utilizing Service facilities and special competence of its personnel.

2. Program Objectives:

a. To allow the use of Service lands for scientific studies by colleges, universities, professional organizations, scientific societies and individuals.

b. To make available environmental study areas on Service lands for use by school groups and teachers (kindergarten through 12) to conduct studies to better understand fish, wildlife, wildlands ecology and man's role in his environment.

c. To increase public opportunities for obtaining basic understanding of fish, wildlife and wildlands through improved interpretive programs.

d. To improve the ability of people to better react to environmental problems locally and nationally by providing through specialized media information about fish and wildlife and its relationship to man.

e. To provide fish and wildlife-oriented recreation activities that are compatible with wildlife management programs.

f. To determine consumptive use and values of fish and wildlife resources through research and surveys.

g. To improve the ability of other agencies in providing fish and wildlife-oriented programs through technical assistance activities.

3. FY 1977 Budget: $7,003,000. Percentage of total appropriated budget 6%. Increase over 1976 $229,000.

F. Land and Water Resource Development

1. Program Goals:

In an era of increasing demands on a generally decreasing renewable resource base, it is in the public interest to manage fish and wildlife resources under the aegis of a comprehensive plan.

2. Program Objectives: (by sub-programs)

a. To participate directly in all levels and stages of interagency basin planning efforts in order that fish and wildlife values be given optimum consideration in decisions as to land and water use.

b. To represent fish and wildlife interests in land and water use decisions covering special areas and in special studies which effect the rationale of use allocations.

c. To participate in efforts designed to identify and evaluate in detail sufficient for legislative action, segments of land and water habitat having certain unique qualities which dictate that preservation in a near pristine state seems to be its highest and best use.

d. To provide guidance and support to states in the development of their long-range, comprehensive fish and wildlife management plans and to coordinate activities associated with planning to eliminate duplication of effort and to increase utility of manpower.

3. FY 1977 Budget: $9,210,000. Percentage of total appropriated budget 7%. Increase over 1976 $410,000.

G. Mammals and Non-Migratory Birds

1. Program Goals:

To insure that all mammals and non-migratory birds remain a viable part of the natural ecosystem. In doing so we are assuring that these animals are available to fill their natural function as well as provide recreation for the Nation's people.

2. Program Objectives:

a. To acquire, through research, the resource management information needed to attain the program goal.

b. To manage Service lands, in conjunction with other Service program objectives so as to:

Demonstrate, through habitat manipulation and other management techniques: how to retain native wildlife species, and how to reconcile wildlife needs with human modifications of traditional habitat.

Support wildlife populations representative of all major vegetative associations.

Maintain an abundance and diversity of populations of resident game and non-game species, compatible with carrying capacities and other constraints, for the enjoyment of the people.

Maintain, at above minimum recovery levels, all native species normally associated with the environments found in National Wildlife Refuges.

c. To actively carry out Service mandates of recently passed marine mammal legislation.

d. To increase the quality, and availability, of professional wildlife management advisory services as may be requested by such organizations as Indian tribes and other government agencies.

e. To protect national and international wildlife resources and control human activities so as to insure the perpetuation of these resources through an improved law enforcement program.

f. To coordinate mammal and non-migratory bird programs with other government agencies to avoid duplication of effort.

g. To expand man's understanding and appreciation of wildlife, wildlands, and his role in the environment.

3. FY 1977 Budget: $8,983,000. Percentage of total appropriated budget 7%. Increase over 1976 $485,000.

H. Migratory Birds

1. Program Goals:

To maintain and increase migratory bird populations so they may continue to provide recreational and educational benefits for people.

2. Program Objectives:

a. To maintain migratory bird populations so that optimum numbers are available for both consumptive and non-consumptive public use.

b. To acquire, manage, restore and prevent or mitigate damage to habitats so that the numbers of migratory birds are increased and recreational opportunities are enhanced.

c. To avoid or correct situations where migratory birds are or threaten to be detrimental to the public welfare or to the resource.

d. To assure the perpetuation in a natural environment of each migratory bird species with special emphasis on those that are reduced or endangered.

e. To acquire and communicate information needed to increase public understanding and appreciation of migratory birds and their habitats.

f. To work closely with and support the responsible efforts of other nations, states, public and private organizations; and, individuals to maintain and enhance the migratory bird resource.

g. To safeguard the welfare of migratory game birds by careful and responsible control of hunting mortality.

h. To minimize losses of migratory birds to disease, pollution and other degrading influences.

i. To determine and maintain quality standards for all forms of recreation related to the migratory bird resource.

j. To gain added knowledge about migratory birds and their habitats so both may be better understood and managed.

3. FY 1977 Budget: $32,438,000. Percentage of total appropriated budget 26%. Increase over 1976 $151,000.

IV. THE NATIONAL WILDLIFE REFUGE SYSTEM

"National Wildlife Refuge System", according to the Code of Federal Regulations:

> ....means all lands, waters, and interests therein administered by the U.S. Fish and Wildlife Service as national wildlife refuges, wildlife ranges, game ranges, wildlife management areas, waterfowl production areas, and areas for the protection and conservation of fish and wildlife, that are threatened with extinction. (Title 50, Chapter I, Section 25.1).

The Refuge System contains 281 Waterfowl Migratory Bird Areas, 73 General Migratory Bird Areas, 16 Big Game Areas, 4 National Game Ranges, 4 National Wildlife Ranges, and numerous Waterfowl Production Areas in 116 counties in the United States. The Fish and Wildlife Service also has obligations for 59 Wildlife Management Areas or Coordination Areas, under cooperative agreements with federal and state agencies. During the last five years, 47 refuges have been added to the system. (See Table 1). A number of the many laws pertaining to the National Wildlife Refuge System are described in the Legislative Compendium Volume of this report.

A. The Refuge Mission

The special mission of the Refuge System is to provide, manage and safeguard a national network of lands and waters sufficient in size, diversity and location to meet people's needs for areas where the entire spectrum of human benefits associated with wildlife, particularly migratory birds, and wildlands are protected, enhanced and made available to the public for observation and limited use.

The Code of Federal Regulations further elaborates on the purposes of Refuges:

> All Wildlife Refuge areas are maintained for the fundamental purpose of developing a national program of wildlife conservation and rehabilitation. These areas are dedicated to wildlife found thereon and for the restoration, preservation, development and management of wildlife habitat; for the protection and preservation of endangered or rare wildlife and their associated habitat; and, for the management of wildlife; in order to obtain maximum production for perpetuation, distribution, dispersal, and utilization. This subchapter effectuates these primary objectives in accordance with the obligations of the United States under the treaties with Great Britain and the United Mexican States, and allows public enjoyment of wildlife refuge areas consistent with these objectives. (Title 50, Chapter I, Section 25.2).

B. 1985 Objectives of the National Wildlife Refuge System

The following objectives describe responsibilities of the National Wildlife Refuge System. Based on 1974 budgetary levels of operations, associated quantifiable goals are projected to 1985:

1. To preserve, restore and enhance in their natural ecosystems all species of animals and plants that are endangered or threatened with becoming endangered on lands of the National Wildlife Refuge System. The annual goal is to provide 142 million use-days by threatened and endangered species.

2. To perpetuate the migratory bird resource for the benefit of the people. The current quantified goals on existing refuge lands are:

   --To produce 1.6 million waterfowl;

   --To support 1.8 billion use-days by waterfowl; and,

   --To sustain 4.2 million use-days by other specially recognized migratory birds including hawks, owls, doves, marsh and water birds and others.

3. To preserve natural diversity and abundance of mammals and non-migratory birds on refuge land. Goals are to provide 10.8 million use-days by 17 species of specially recognized mammals. (U.S. Fish and Wildlife, Draft Environmental Statement, Operation of the National Wildlife Refuge System, 1975, p. I-3).

C. Budgetary and Management Considerations

1. Current Budget

Refuges are not a budget unit themselves under the Service's program management budget system. Funding for refuges comes from eight program areas. Table 2, the "crosswalk" table, breaks out the funds from the program areas available to refuges. The proposed FY 1977 figure for refuges totals $24,891,000 representing 20% of the total appropriated budget and a $14,000 decrease from FY 1976

appropriated funding. The major allocation for refuges comes from the migratory bird program with significant amounts from interpretation and recreation, mammals and non-migratory birds, and endangered and threatened species respectively.

As stated earlier, the Fish and Wildlife Service manages and budgets by objectives. Therefore, by and large, that portion of the budget being spent on refuges reflects the contributions of refuges towards the achievement of the agency's program objectives. Individual units within the Refuge System are also evaluated in budgetary considerations as to their current or potential contributions towards the agency goals and objectives.

In addition to appropriated funds which cover operations/maintenance, rehabilitation, special studies, and salaries (as well as some acquisitions), funds for land acquisition come from the Migratory Bird Conservation Fund and the Land and Water Conservation Fund. Refuge acquisition funds have averaged $19 million for the last 5 years with a low of $15 million in FY 1975 and a high of $24 million in FY 1976. Funding for FY 1977 is projected to be $20.5 million.

2. Funding Needs

There are several indices that suggest that the current level of funding for the Refuge System is inadequate. Among these are:

--The backlog of rehabilitation needs on refuges is estimated at $70.1 million.

--The backlog of acquisitions authorized by the Secretary of the Interior, the Migratory Bird Conservation Commission or by Congress at the end of FY 1976 were approximately $218 million.

--The Refuge System increased by 101 units and 6 million acres in the last decade.

--To achieve the objective of producing 10 million annual huntable waterfowl surpluses, the acquisition of 1.9 million acres of key habitat, principally wetlands, will probably be required in the next 15 years.

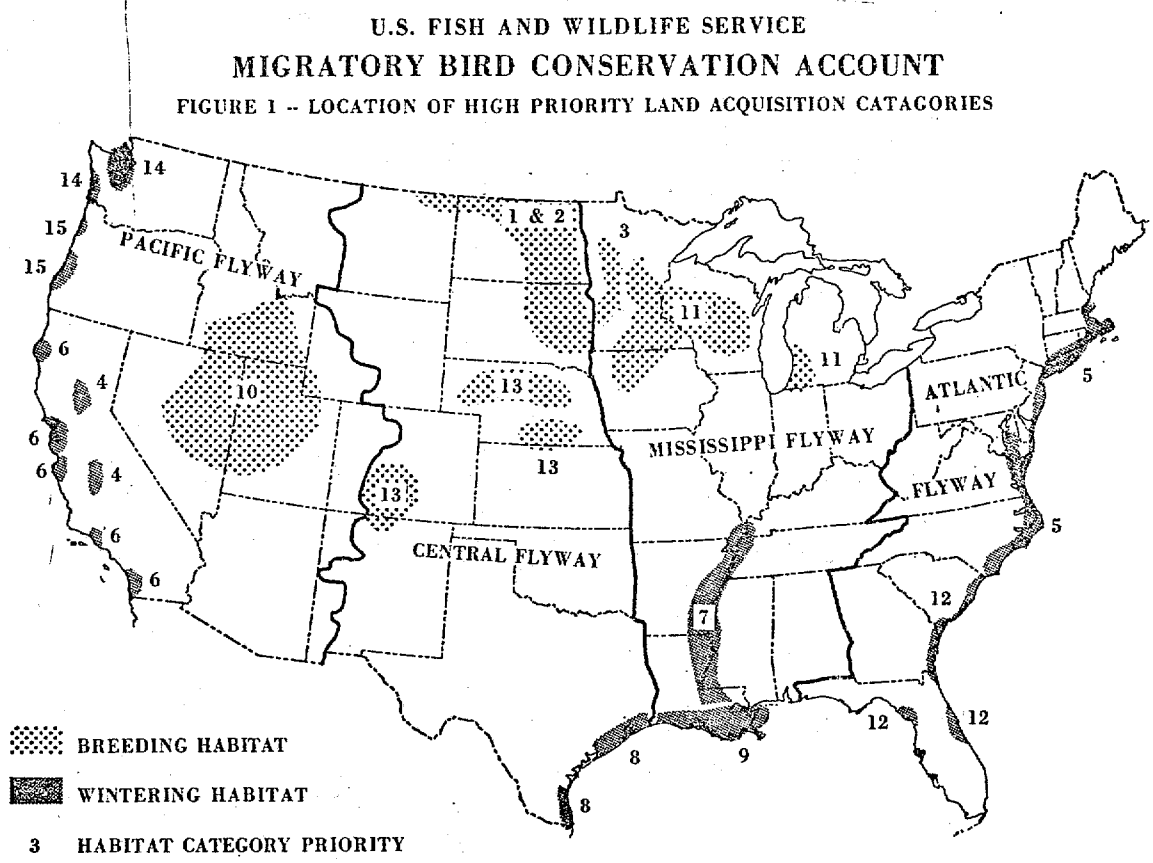
--The Refuge System decreased in permanent field positions from 901 to 818 in the past five years.

--Funds available for refuge management and acquisition have remained fixed for several years in an era of inflation and rising additional costs.

D. Land Acquisition Priorities

The Fish and Wildlife Service FY 1977 budget justifications contains at page 80 a map depicting the location of high priority land acquisition categories. (See Figure 1). The area listed as number five represents black duck habitat running from North Carolina to Massachusetts.

FIGURE 1 1/



1/ U. S. Department of the Interior Fish and Wildlife Service, Budjet of Justifications, F.Y. 1977., FWS 80.

It is an objective of the Service to acquire 40,000 acres of unprotected black duck habitat in this area which include the entire Virginia Barrier Island chain.

E. Management Leasing Agreements

The Fish and Wildlife Service is authorized by various statutes to establish refuges through acquisition by purchase, gift, condemnation (also referred to as "unwilling purchase"), and withdrawal of land from the public lands. The Service is also authorized to lease land for wildlife management purposes under the Fish and Wildlife Coordination Act of 1956, as amended. A number of lease agreements are currently in effect; the arrangements, the leasors, the type and size of the areas vary by agreement. Three leasing arrangements for marsh/wetland management are offered by way of examples:

1. Wallops Island National Wildlife Refuge: 3,000 acres of marsh and upland are being leased from NASA for migratory bird conservation and are managed by the Chincoteague Refuge staff. The lease was made in 1971 for five years.

2. Loxahatchee National Wildlife Refuge: 143,000 acres of wetlands are being leased from the Central and Southern Florida Flood Control District for management of migratory birds, two endangered species and limited waterfowl production. There is a staff of nine full-time people. The lease runs for 50 years and contains automatic renewal provisions. The Service has also purchased 2,500 acres of adjacent land.

3. San Francisco Bay National Wildlife Refuge: 130 acres of marshland and abandoned salt crystallizer ponds are being leased from Mobil Oil Company for migratory bird and five endangered species conservation. The lease is renewed on an annual basis. The Service has plans to purchase 23,000 acres in the area and increase its staff to 38 full-time people.

F. Existing National Refuges Near the Virginia Coast Reserve

There are at least seven National Wildlife Refuges in the vicinity of the Conservancy's holdings. Three, Chincoteague, Wallops, and Fisherman Island, are actually on barrier islands. All are primarily managed for migratory birds. These are:

1. Chincoteague, Virginia: 9,439 acres, 9 full-time staff.

2. Fisherman Island, Virginia: 1,000 acres, managed by Back Bay staff.

3. Blackwater, Maryland: 11,216 acres, 8 full-time staff.

4. Back Bay, Virginia: 4,589 acres, 5 full-time staff.

5. Plumb Tree Island, Virginia: 3,276 acres, managed by Back Bay staff.

6. Martin, Maryland: 4,423 acres, one full-time staff.

7. Wallops Island, Virginia: 3,000 acres, managed by Chincoteague staff.

V. LAW ENFORCEMENT

The Fish and Wildlife Service promulgates and enforces regulations for the protection of migratory birds, marine mammals, fish and other non-endangered wildlife and endangered species from illegal taking, transportation, or sale within the United States or from foreign countries. As of 1976, the Service had 185 field agents to enforce laws and regulations protecting wildlife.

VI. CONCLUSIONS

The Fish and Wildlife Service has been traditionally viewed by The Nature Conservancy as the agency in the Federal government that holds objectives most closely aligned to those of the Conservancy. A long record of close cooperation on land preservation projects attests to the relationship that exists between the Conservancy and the Service. Examples include St. Vincent Island, Florida, Wassaw Island, Georgia, Little Egg Harbor, New Jersey, Sevilleta, New Mexico, Great Dismal Swamp and Mason Neck, Virginia.

The goals that the Fish and Wildlife Service have established for the National Wildlife Refuge System include the preservation, restoration, and enhancement in their natural ecosystems all species of animals and plants that are endangered or threatened on refuge lands, the perpetuation of the migratory bird resource, and the preservation of natural diversity and abundance of mammals and non-migratory birds on refuge lands. These goals closely match those held by the Conservancy for the Virginia Coast Reserve.

While the objectives held by the Service for the Refuge System are excellent, the priority attention that any individual refuge or potential refuge will receive for acquisition and management funding will depend on the contributions that refuge can make towards the overall objectives of the Service. Therefore, consideration of an area like the Virginia Coast Reserve as a potential refuge requires an evaluation of the attributes of the Reserve in terms of Service objectives.

The most obvious attribute of the Virginia Coast Reserve is the wetland areas providing habitat for black ducks. As noted in the discussion of acquisition priorities, black duck habitat is a high priority category. The significance the tidal marsh portion of the Reserve as wintering black duck habitat was evidenced in discussions with Service personnel.

The idea of the Fish and Wildlife Service managing the marshlands deserves serious consideration. Such an arrangement would create an expanded Fish and Wildlife presence in the Virginia Barrier Island chain. If an increased role of the Service in the area also resulted in increased law enforcement capability this would be a significant plus to the protection of the resource.

Obviously, before such a dual management arrangement could be implemented a number of important factors would have to be worked out. Among these are the development of compatible management plans and programs for the marshlands and islands and a plan and time table for the acquisition of those marshlands in further need of protection.

NATIONAL PARK SERVICE

I. PROPOSALS

A resolution requesting the National Park Service and the U.S. Fish and Wildlife Service to establish a National Seashore and a National Wildlife Refuge, respectively, on Parramore Island was adopted in February, 1975, by the Accomack-Northampton Planning District Commission. (See Appendix A). The Planning District Commission and Board of Directors of the Eastern Shore of Virginia Chamber of Commerce support the establishment of a National Seashore, specifically, for the recreation values it would provide to area residents and for the subsequent net economic gains which would alledgedly accrue from the presence of additional visitors to the community. Speaking for the National Park Service, Assistant Secretary for Parks, Fish and Wildlife, Nathanial P. Reed, stated in a January 19, 1976, letter to The Nature Conservancy:

> "The Department (of the Interior) has no plans at this time for considering designation of Parramore Island as a National Seashore. Nor, to the best of my knowledge, is there any State action underway to accomplish this objective."

The Eastern Shore of Virginia Chamber of Commerce Board of Directors passed its own resolution in October, 1974, calling for the Chamber to support efforts to have Parramore Island made a National Seashore. The Board's resolution also asked that The Nature Conservancy, which had purchased the island in mid-1973, transfer ownership to the federal government so that the cost of establishing a Seashore would be reduced. (See Appendix C).

The genesis of a recreation-oriented National Seashore is probably a study conducted in 1955 by the National Park Service, A Report on the Seashore Recreation Area Survey of the Atlantic and Gulf Coasts. The Report's brief reference to Parramore Island concludes with the "analysis":

> It is one of the best remaining undeveloped areas along this section of the Atlantic Coast, with important scenic and wildlife values, and would make an excellent public seashore recreation area.

Other Barrier Islands surveyed (which are now in Conservancy ownership) were eliminated as potential seashore recreation areas for varying reasons including inaccessibility, erosion, natural resources limitations.

The Parramore National Seashore idea was later discussed in the Bureau of Outdoor Recreation's Island Study: Virginia's Barrier Islands (1967-1968), part of a nationwide study of islands. This report divides the island chain into six units, but treats only one, unit 3, in any detail because the islands included in that unit: Parramore, Hog, Cedar and Metomkin, are "especially endowed" with outdoor recreation resources and "because the qualities of Unit 3 are superlative and are judged to be nationally significant." (page I-3). Four small portions of other landward islands were also included in Unit 3 to be used for public facilities.

Proposed recreation activities included intensive beach use, camping and boat access. The development plan recommendation for this area reads:

> The land and water resources of Unit 3 should be acquired by the federal government and established as a National Island Recreation Area, or Seashore, administered by the National Park Service. This unit meets the primary criteria for designation as a National Recreation Area.

The recreation-focused report did acknowledge that tidal marsh, the most ecologically sensitive of the components of Unit 3 constitutes about 32% of the unit, more than the more popular recreation-oriented components combined: coastal beach - 13%, sand dunes - 11%, upland - 4% (surrounding water constitutes 41%).

II. NATIONAL PARK SERVICE

A. Overall Objectives

The Park Service's basic and long-range objectives have evolved through its history of legislation. As stated in the Department of the Interior Manual, the objectives are:

1. To provide for the highest quality of use and enjoyment of the National Park System by increased millions of visitors in years to come.

2. To conserve and manage for their highest purpose the natural, historical, and recreational resources of the National Park System.

3. To develop the National Park System through inclusion of additional areas of scenic, scientific, historical, and recreation value to the Nation.

4. To communicate the cultural, inspirational, and recreational significance of the American heritage as represented in the National Park System.

5. To increase the effectiveness of the National Park Service as a "people-serving" organization dedicated to park conservation, historical preservation, and outdoor recreation.

(Chapter I, Part 145, 9/19/73, #1577).

B. Overall Responsibilities

In fulfillment of these objectives the National Park Service performs the following functions:

1. Manages a National Park System composed of almost 300 natural, historic, recreational, and cultural parks embracing 30.4 million acres in 48 states, Puerto Rico, and the Virgin Islands, together with the National Capital Park System of metropolitan Washington, D. C.

2. Conducts National Survey of Historic Sites and Buildings, Historic American Buildings Survey, Historic American Engineering Record Survey, nationwide archeological salvage program, studies of prospective environmental education landmarks, studies of natural and historical themes, studies of natural and historic resources of the National Park System, and studies of historic Federal property declared surplus or proposed for demolition.

3. Administers system of National Historic Landmarks, National Natural Landmarks, and National Environmental Education Landmarks.

4. Maintains National Register of Historic Places and registers of National Historic Landmarks, National Natural Landmarks, National Environmental Education Landmarks, and Research Natural Areas on Federal lands.1/

5. Provides matching grants-in-aid to states and the National Trust for Historic Preservation for historical surveys and plans and for acquisition, restoration, and rehabilitation of historic and cultural properties.

6. Provides technical and professional assistance to Federal, state, and local governments, and to public and private owners of natural, cultural, and urban properties.

7. Through cooperative agreements, administers recreation on lands under the jurisdiction of other Federal agencies.

8. Provides professional and administrative support to the Advisory Council on Historic Preservation; Advisory Board on National Parks, Historic Sites, Buildings, and Monuments; National Park Foundation; American Revolution Bicentennial Commission; and more than 25 other national, regional, and park advisory boards.

(Chapter I, Park 145, 9/19/73, #1577).

C. National Seashores

For the last decade the Park Service has employed three general catagories in looking at its diverse units. These are the natural, recreational and historic catagories. Very recently the Park Service has attempted to break away from strict labeling of a park unit by emphasizing that values in each of these catagories may exist in any given park unit, and that areas containing these values be managed accordingly, even though they were not the primary reasons for the establishment of the unit.

Thus, National Seashores, included in the recreation category, may be managed: (1) to provide high quality outdoor recreational opportunities, and (2) to preserve significant natural and historic resources.

1/The Park Service is responsible for only those Research Natural Areas which are on Park Service lands.

Objectives of each National Seashore are included in the authorizing legislation for each area. There are presently ten National Seashores. Key passages from the ten establishing acts follow:

Cape Cod...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.

Gulf Islands...to preserve for public use and enjoyment certain areas possessing outstanding natural, historic, and recreational values.

Padre Islands...to save and preserve, for purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of United States that remains undeveloped.

Cape Lookout...to preserve for public use and enjoyment an area... possessing outstanding natural and recreation values.

Cumberland Islands...to provide for public outdoor recreational use and enjoyment of certain significant shoreline lands and waters of the United States, and to preserve related scenic, scientific, and historical values.

Assateague Island...for the purpose of protection and developing Assateague Island...for public outdoor recreation use and enjoyment.

Canaveral...to preserve and protect the outstanding natural, scenic, scientific, ecologic, and historic values of certain lands, shoreline, and waters...and to provide for public outdoor recreation use and enjoyment of same.

Point Reyes...to save and preserve, for purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of the United States that remains undeveloped.

Cape Hatteras...Except for certain portions of the area, deemed to be especially adaptable for recreational uses, particularly swimming, boating, sailing, fishing, and other recreational activities of similar nature, which shall be developed for such uses as needed,

the said area shall be permanently reserved as a primitive wilderness and no development of the project or plan for the convenience of visitors shall be undertaken which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing in this area.

Fire Island...for the purpose of conserving and preserving for the use of future generations certain relatively unspoiled and undeveloped beaches, dunes, and other natural features...which possess high values to the Nation as examples of unspoiled areas of great natural beauty in close proximity to large concentrations of urban population.

The preceding excerpts from the establishing legislation of the ten National Seashores indicate the difficult dichotomy of Park Service intensions: providing outdoor recreation while preserving outstanding natural (and historical) values. Of the ten, it would appear that Fire Island and Cape Hatteras are the Seashores on which Congress has put the greatest stress on preservation of natural values. Fire Island, however, has long existed in a heavily populated region with substantial inholdings on the island itself, and it can be argued that the island has been used for recreation purposes predating the establishment of the Seashore. The enabling legislation permits the Secretary of the Interior to authorize hunting, fishing and shellfishing. Cape Hatteras, a relatively remote and unspoiled area, in these characteristics bearing resemblance to some of the barrier islands, is permitted by its authorizing act to accomodate commercial fishing by residents of inholdings in the Seashore, and hunting under the terms of the 1918 Migratory Bird Treaty Act.

It is worth noting that whenever a park is established, by federal, state or local authorities, but particularly the federal government, more visitors are attracted by virtue of the official recognition of park status. It follows that greater recreation use will be made of an official park, and a greater risk of disturbance to the area's ecology is created.

The position of the National Park Service on the subject of a National Seashore on Parramore Island was made clear by Nathanial P. Reed, Assistant Secretary for Parks, Fish and Wildlife. In a January 19, 1976 letter Mr. Reed stated:

> "...The Department has no plans at this time for considering designation of Parramore Island as a National Seashore. Nor, to the best of my knowledge, is there any State action underway to accomplish this objective."
>
> (See Appendix B for complete text of this letter).

D. Natural Area Versus Recreational Area Criteria

The following criteria draw distinctions between National Park Service natural areas and recreational areas, as stated in the National Park Service's 1975 Management Policies.

Natural Areas: Nationally significant areas are those which have exceptional values or qualities illustrating or interpreting the natural themes of our Nation. Broadly stated, these are:

- Outstanding geological formations or features significantly illustrating geologic processes and natural phenomena.

- Significant fossil evidence of the development of life on earth.

- An ecological community significantly illustrating characteristics of a physiographic province or biome.

- A habitat supporting a uniquely outstanding, highly concentrated, rare, endangered, or relict flora or fauna.

- Examples of the scenic grandeur of our natural heritage.

National Recreation Areas: The following criteria are established for the evaluation and selection of areas proposed for Congressional designation as National Recreation areas in the National Park System. These criteria modify those issued in the Recreation Advisory Council's Policy Circular No. 1 of March 26, 1963. The following criteria are to be applied to all proposals:

- National Recreation Areas should be spacious areas containing outstanding natural and/or historic features and providing significant recreation opportunities.

- National Recreation Areas should be located and designed to achieve comparatively heavy recreation use and should usually be located where they can contribute significantly to the recreation needs of urban populations.

- National Recreation Areas should provide recreation opportunities significant enough to assure national, as well as regional, visitation.

- The scale of investment, development, and operational responsibility should be sufficiently high to require either direct Federal involvement or substantial Federal participation to assure optimum public benefit.

- Within the National Recreation Area, outdoor recreation shall be recognized as a primary management purpose; however, such management shall be compatible with the protection of the natural and historic resources.

E. Budgetary and Management Considerations

National Park Service acquisitions are funded by annual allocations from the Land and Water Conservation Fund. In recent years, Congressionally authorized acquisitions have exceeded in dollar cost the amounts

provided through the Fund. At the end of FY 1975, the cost of all authorized acquisitions to which the Park Service was obligated by Congressional action was $572.6 million, while annual Fund allocations average between $70 and $77 million. In FY 1974 an impoundment of certain funds by the administration further reduced land acquisition spending. Furthermore, some of the annual Fund money is earmarked by Congress for specific projects. An amendment to increase the Fund to $1 billion has passed the Senate and a similar bill to increase the Fund to $800 million is before the House. If this amendment becomes law, it is likely to be vetoed by the President even if passed by the Congress acquisition funds for the National Park Service would be increased threefold.

In a recent survey[1/] by the National Parks and Conservation Association (NPCA), and National Park Service officials, it was found that a "serious deterioration of the resources, property, and administration of the National Park System exists as the result of personnel ceilings and budgetary restrictions." These same problems are also plaguing monuments recreation areas, and historic sites administered throughout the country by the National Park Service. The survey further stated that, "At a time when the National Park Service has to handle increasing numbers of visitors, lands, and responsibilities, personnel restrictions even threaten to close down some of the parks." So disturbing are the charges that a Congressional sub-committee responded with an investigation of the situation in December of 1975 and tentatively set other meetings for early 1976.

Since 1960, visitors to the park lands have tripled, and since 1965 they have doubled, jumping from 113.7 million to 228.9 million. The time visitors are spending in the parks is longer as rising energy costs discourage frequent camp site changes. One hundred new areas have been added to the park system. And the National Park Service has assumed responsibilities for administering job corps centers, controlling pollution, complying with the National Environmental Policy Act, and participating in Bicentennial programs. However, during the same 15 year period, permanent personnel has increased only 53 percent, from about 4,700 to less than 7,200.

Even with some of the work contracted out to private firms and increasing reliance on volunteers, the National Park Service has a tough time making ends meet. "The fact is," Service Director Gary Everhardt explained to the House Sub-committee on Conservation, Energy, and Natural Resources on December 4, "the Park Service has a chronic case of growing pains just at that point when our fiscal policy has prescribed belt tightening as an appropriate remedy for an inflationary economy."

Moreover, the current Park Service positions on new entries to the National Park System, ranging from urban parks and historic sites to traditional larger rural and scenic parks, reflects a reluctance to take

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1/"Congress Investigates Deterioration of National Parks", Conservation News, Vol. 41, No. 2, January 15, 1976, p. 8-10.

on added responsibilities in a time of rising overall management and maintenance expenses compounded by heavy increases in both year-round and seasonal visitor uses of national parks.

The Assistant Secretary for Parks, Fish and Wildlife, Nathanial P. Reed, has indicated that there are no current plans to look at any of the islands in the Virginia barrier chain as potential National Seashore sites. (See Appendix B).

III. PRESERVATION OBJECTIVE

The basic objective of the Conservancy's involvement in the Virginia Barrier Islands is to preserve the unique dynamic ecosystem which exists in its relatively natural state. Each island is an important link within this system. Parramore, the subject of the National Seashore and National Refuge resolution by the local counties' Planning District Commission, is one of the largest and least manipulated of the islands, and is located in the middle of the chain. It is particularly important to the preservation of the ecosystem.

By Park Service National Seashore objectives and criteria for National Recreation Areas, the establishment of such a park unit would substantially alter portions of Parramore Island and impact on other parts of the island and the area. Parramore is now accessible only by boat. Construction of roads from the mainland to the island and on the island would multiply the long-term impact, not only to the immediate area, but to the ecosystem. The visitor impact and recreation uses, the construction of needed facilities for visitors and Park Service maintenance would all contribute to ecological degradation, and unique natural resources would inevitably be lost.

IV. CONCLUSION

The suggestion by local authorities that a National Seashore be established on Parramore Island by the National Park Service is not a feasible alternative at this time. The Conservancy's preservation objective for Parramore Island is not compatible with the National Park Service's recreation-oriented criteria and objectives for National Seashores. Furthermore, the Department of the Interior, National Park Service, has expressed no interest in the establishment of a National Seashore on Parramore Island. In addition, the Conservancy's own recreational analysis in the Social and Economic Analysis Section of the Virginia Coast Reserve Study demonstrates no additional need for another National Seashore facility along the Atlantic Coast.

Should the Conservancy attempt to seriously explore this option, however, it is encumbered by certain restrictions agreed to between the Conservancy and the original owner in an agreement accompanying the deed which the Conservancy is obliged to honor. Among these restrictions, the Conservancy has agreed to first consider as possible transferees the Commonwealth of Virginia and the U.S. Fish and Wildlife Service. In addition, the seller has retained specific use rights listed in the agreement for a period of not to exceed 20 years from the date of conveyance to the Conservancy (June 27, 1973), which are non-assignable and non-transferrable except by the seller or his trustee.

At this time, any stewardship arrangement with the National Park Service is unlikely. It is conceivable that at some time after the privately held use rights expire an agreement could be reached with the National Park Service. A Park Service managed area that was also a wilderness area would most likely meet Conservancy objectives.

VIRGINIA DIVISION OF PARKS (DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT)

I. ADMINISTRATIVE RESPONSIBILITIES AND ACTIVITIES

A. General

(The following information was taken from Mission, Objectives and Goals, Division of State Parks, p. 4.)

The mission of the Division of State Parks is to protect significant State natural resources and to provide opportunities for outdoor recreation to meet the needs of the Commonwealth of Virginia consistent with the standards defined by the Virginia Outdoors Plan.

The first objective listed under this mission is:

> The acquisition of Natural Areas which preserve and protect sites of unique scenic value and lands suitable for the development of a wide range of recreational activities, utilizing the State's inherent natural resources. Also the acquisition and/or management of lands or waters upon which exist opportunities for specialized recreation, education or preservation.

The following are methods of accomplishing this mission:

1. Locate and describe all such areas.
2. Establish priorities in terms of importance and danger of destruction.
3. Estimate cost and project future budget requests.
4. Acquire when funds are available.
5. Prepare plans for preservation and development.
6. Develop sufficient facilities for public use and enjoyment.

Preservation of the State's resources is inherent in the establishment of the Division's control over any land. However, the lands used for State parks do not require as high a landscape quality as natural, historic or specialized areas. Likewise in planning for these areas, they do not require as rigid environmental land management controls.

(The following information was taken from Organization, Duties and Objectives, Department of Conservation and Economic Development, 1972, pp. 31-32.)

The Virginia State Park System was authorized in 1926 by an Act of the General Assembly which provided for the acquisition, preservation, development and maintenance of areas, properties, lands or estates of scenic beauty, recreational utility, historical interest, remarkable phenomena or other unusual features.

In keeping with the General Assembly Acts which authorize the establishment and growth of the State Park System, the primary purpose of the Division of Parks is to serve the people of Virginia by:

1. Establishing and operating State Parks that provide recreational use of natural resources and outdoor recreation in natural surroundings.

2. Portraying and interpreting plant and animal life, geology, and all other natural features and processes included in the various State Parks.

3. Preserving and protecting natural areas of unique or exceptional scenic value not only for the inspiration and benefit of the present generation, but also for generations to come.

4. Preserving, protecting and portraying historic and scientific sites of Statewide importance.

The Division of Parks operates thirteen State Parks, three recreational areas, four historic sites, and a museum. It also preserves six natural areas.

Property for four additional parks has been acquired at False Cape in Virginia Beach, Mason Neck in Fairfax County, Smith Mountain Lake in Bedford County, and York River in James City County. These parks will be developed as funds become available.

B. Natural Areas

The 6 areas comprising 4,900 acres which the Division of Parks is responsible for preserving are the Charles C. Steirly heron rookery in Sussex County, Goshen Pass in Rockbridge County, Lick Creek in Smyth and Bland Counties, Parkers Marsh in Accomack County, Wreck and Bone Island in Northampton County, and the Seashore Natural Area State Park at Virginia Beach.

(The following was taken from an unpublished Division of Parks information sheet entitled "Natural Areas System of Virginia".)

" Qualifications for Natural Areas:

To warrant inclusion in the System, a natural area must posses uniqueness of an (1) aesthetic, (2) topographical, or (3) biological nature.

Insofar as is compatible with these principles, the selection of individual areas must be governed by an ultimate intention that the System be dispersed throughout the State, while avoiding adjacency to great recreational lands presently in public ownership.

However, no area is to be included in this System, if such inclusion would effect a significant economic hardship upon the economy of either its immediate neighborhood or of a Statewide industry.

Standards for the Maintenance of Natural Areas:

1. All maintenance will seek to preserve the land in its natural condition.

2. Paths will be opened in a manner compatible with this basic principle of maintenance.

3. No buildings of any sort will be erected except for those required for minimum maintenance, and these will be located and built in as inconspicuous a fashion as possible.

4. No roads will be preserved or opened except as required for fire protection and other aspects of minimum maintenance.

5. No private motor vehicles will be allowed beyond border parking areas.

6. No hunting or trapping by any means whatever will be allowed.

7. No camping will be allowed except as may be required for scientific purposes, and then only by special permit.

8. No competitive, organized or team sports will be permitted.

9. No timber will be cut and no wood products gathered, except for measures of disease prevention or eradication in instances of extreme emergency.

10. No agricultural operations of any sort will be permitted.

11. Measures may be taken for the care and feeding of wildlife, without upsetting the ecological balances, as long as the measures are not in conflict with the above principle of natural preservation.

The Natural Areas System is to be operated as part of the Division of Parks, but held distinctly and completely separate in function from the parks themselves. The reasons for this are:

1. All people benefit from...the basic, elemental pleasures that are provided only by large areas of land preserved in a natural or wilderness condition.

2. The continuing growth of the population...

3. ...creative work in all the biological sciences requires frequent field study in natural areas where the delicate ecological balances of nature have not been disturbed by man.

4. Neither private enterprise nor the private landowner can be expected to provide and maintain properly these wilderness areas...

5. ...Public parks and forests...do not include certain rare types of landscape, biological study areas and choice spots of unsurpassed beauty that deserve perpetual preservation.

Originally the thought was that natural areas were "...intended to serve as little museums of nature where scientific research may be pursued, or where hikers and nature lovers may find passive recreation and relaxation in an atmosphere of undisturbed beauty." (Organization, Duties and Objectives, p. 32.) According to the Parks Division Director, Ben H. Bolen, thinking on the Natural Areas System has shifted to acquisition of larger areas which better sustain the uses for which they are established. Furthermore, according to Mr. Bolen, all Virginia parks are looked on by the Division as natural areas to some degree. Hence, a confusion in terminology arises between old and current Division of Parks literature.

There is a total of 32 units in the park system: 22 parks comprising about 42,000 acres, 6 natural areas with 4,900 acres, and historic areas with little acreage. The Parks Division operations budget for FY 1975 was $1,741,000, the acquisition budget for the biennium FY 1974-1976 is about $1,000,000. The Division has a staff of 30 in Richmond, 150 park rangers around the state year-round, and a summer staff of about 250 in the parks.

II. HOLDINGS IN THE VIRGINIA BARRIER ISLANDS

Wreck Island in Northampton County is owned and managed by the Division of Parks as a state natural area. Restrictions in the deed transferring the island from private ownership to the state provide for its natural area status. The deed states that:

> " ..the premises herein conveyed shall be maintained in their natural state and operated as a sanctuary for the maintenance of wildlife and its natural habitat undisturbed by hunting, trapping and other activities adversely affecting the wildlife. The use and development of the premises for public use and enjoyment shall not be considered to be a violation of the above restriction provided such use is limited to activities which would not adversely effect the environment or the wildlife population and provided such use is not inconsistent with the maintenance of the premises as a sanctuary as above outlined. Should the premises or any part thereof cease to be so used, as herein defined and set forth, then the title of the said party of the second part shall cease and determine and shall revert to and vest in the party of the first part, its successors and assigns, the said reversion and vesting to be automatic and not requiring any re-entry."

Wreck Island is managed by a Division of Parks employee, stationed at Seashore State Park in Virginia Beach, who also operates Parkers Marsh Natural Area in Accomack County. It is periodically looked over by a local warden of the Game and Inland Fisheries Commission.

Recently impetus for a state park on the peninsula mainland has come from Accomack and Northampton Counties. In response to this, Cape Charles Park Area was established and the State is currently giving high priority to acquisition plans for Butler's Bluff for park purposes. Both sites are located on the Chesapeake Bay in the southern portion of Northampton County and provide beach access.

III. STATE DIVISION OF PARKS AND THE VIRGINIA COAST RESERVE

Conservancy representatives Ray Culter and Susan Lukowski had a meeting with Parks Division Director Ben H. Bolen on January 27, 1976, to discuss the alternatives for cooperation between the Conservancy and the Parks Division in the Virginia Coast Reserve. The following information resulted from that meeting.

The Virginia State Division of Parks has demonstrated a concern for the preservation of natural areas in its acquisition and management policies. Reflecting this attitude, Mr. Bolen stated several times that he has long been concerned that the barrier islands be preserved and that he considers the Virginia Coast Reserve islands managed for preservation under the Conservancy's ownership. He added that a state park could not be maintained in the islands without disruption to the environment and therefore stated that such a move "was not a reality." However, he did not entirely rule out the possibility that the Division could become involved in some way in the Coast Reserve.

On that subject, Bolen pointed out that an outright gift to the state would be the most acceptable type of transfer. He expressed interest in both upland and marshland. The Division can accept deed restrictions in a gift or purchase. In the event that the Conservancy should offer a part or all of its holdings to the Parks Division, the next session of the General Assembly would have to appropriate management funds before the gift could be accepted.

The Division's management policies for the State's Natural Areas System appear to be compatible with many of the deed restrictions likely to be included in a land transaction with the Conservancy. For example, the Director of the Parks Division is empowered to close park and natural areas at his discretion in order to insure their preservation.

Mr. Bolen added that the 1973 negotiations for the sale of some of the Conservancy's island holdings to the state had gone as far as the drawing up of a deed for sale at fair market value. Despite the earlier Board of Parks Commissioners approval of this purchase, negotiations fell through because he personally felt that there were too many deed restrictions involved. Furthermore, a reverter clause (one which was included in the 1973 draft deed) may or may not be acceptable to the state, depending on the conditions. Such a clause was accepted in the 1961 deed transferring Wreck Island from private ownership to the Parks Division.

State purchase of all or part of the Conservancy's holdings appears unlikely, but ultimately the Virginia Legislature would make that decision in the form of acquisition appropriations. Both management and acquisition funds must be approved by the Senate Finance Committee and the House Appropriations Committee. Previous negotiations in 1973 between the Division of Parks and the Conservancy on the sale of islands in Conservancy ownership at that time led to an estimate of annual management costs of $100,000 by the Parks Division.

A joint management arrangement or a lease agreement are also possibilities; the Parks Division has authorization to enter into both, and is currently leasing land for park purposes from the federal government. Either arrangement may be worked out for one area or the entire Coast Reserve.

The Division of Parks Board members, however, must approve a purchase, gift, lease, or cooperative management agreement, and the Legislature must appropriate not only acquisition, but also management funds for any type of arrangement, otherwise the agreement cannot be acted on.

The Parks Division also has the power of eminent domain. Despite local opposition, the Division recently condemned 4,200 acres for a state park at False Cape.

Mr. Bolen expressed interest in reviewing the results of the Virginia Coast Reserve Study before giving further consideration to possible Parks Division involvement in the Conservancy's holdings.

IV. CONCLUSION

The objectives of the Natural Areas System of the Division of Parks seem to be compatible with the preservation of the Virginia Coast Reserve. However, it is unlikely that the Division of Parks would request state appropriations for the acquisition of all or portions of the Coast Reserve as a component of the Natural Areas System. It is the Commissioner's belief that the area is already afforded maximum protection under Conservancy ownership and that there is little need for the state to spend its limited resources on the acquisition and/or management of this area.

VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES

I. ADMINISTRATIVE RESPONSIBILITIES AND ACTIVITIES

A. General

(Taken from the Virginia Outdoors Plan, 1974, Commission of Outdoor Recreation, p. 67.)

The Commission of Game and Inland Fisheries has statutory responsibility for the management of the State's wildlife and inland fishery resources. It also administers the State's motorboat and watercraft safety laws, which delegate to the Commission regulatory and police powers over the use of the State's recreational boating resources.

The Game Commission is responsible for the provision of public fishing lakes, public boating and fishing access areas, trout streams, wildlife management areas, refuges and fish hatcheries. In 1976, it owned 170,500 acres for game and fish management and public water access areas. This includes over 166,000 acres for hunting, 4,500 acres of public fishing lakes and 134 public water access areas

In addition to the areas owned by this agency, it also manages 790 acres of fishing lakes, stocks 600 miles of fishing streams and cooperates in the management of wildlife resources on 1,900,210 acres of hunting land owned by the State Division of Forestry, U.S. Forest Service, Department of Defense and private individuals. In summary, the Commission of Game and Inland Fisheries provides over 2,066,000 acres in public hunting and fishing for Virginia's citizens and visitors.

In addition to its responsibility for regulating the recreational use of wildlife and inland fishery resources, the Commission exercises broad statutory authority to do such other things as it may deem advisable to conserve, protect and replenish the supply of game birds, mammals and fish, including the introduction of exotic species; and the Commission is vested with specific authority to take positive steps to provide opportunities for recreational use of fish and wildlife resources by acquiring and developing lands and waters for public shooting and fishing. The following programs illustrate such positive steps to provide these opportunities on State-owned property:

1. The Public Fishing and Boating Access Development Program promotes and expands public fishing and boating facilities in Virginia. Typical development of approved public fishing and boating access areas includes a parking area and a launching ramp to the water.

2. The Public Lake Development Program promotes and expands public lake facilities in Virginia. The Commission develops public fishing lakes, manages impounded public waters, and stocks freshwater fish in the public waters of the State. Typical facilities provided at a public lake development site include boat launching ramps, parking areas, sanitary facilities and a concession stand.

3. Through the Game Management Assistance Program, the Game Commission helps citizens develop proper techniques in the management

of upland game on private lands. Upon request, technical assistance is provided for private landowners in preparing management plans. Any landowner can be shown improvements for his land so as to virtually guarantee the annual production of harvestable supply of game. Any Virginia landowner interested in game management may receive technical assistance as well as free wildlife foods and cover planting materials under this aid program.

"The Commission has authority to protect non-game and endangered species as well as game species, which it does by enforcing State laws which prohibit the hunting or taking of all species, other than those classed by law as nuisance species, on which legal hunting and trapping seasons are not provided. The Commission has not accquired lands for the specific purpose of preserving or improving habitat for non-game species, but feels that its habitat protection and manipulation on the public hunting areas it manages and on its waterfowl refuges benefit non-game as well as game species of wildlife. The Commission accquires lands primarily for the purpose of producing sustained annual yields of harvestable wildlife, and opens such lands to hunting except in cases in which a refuge is maintained to attract and hold a huntable local population of migratory birds which provide improved hunting in surrounding areas."

The Commission staff currently numbers about 320 employees; 45 people work in the state capital, approximately 175 personnel with law enforcement authority around the state.

B. Acquisition and Leasing

The Commission feels that it has an adequate representation of hunting areas in the state. Therefore, acquisition of land adjacent to already existing state game and fish areas has priority over acquisition of new areas, according to Director Chester Phelps. Acquisition and management funds are primarily generated from the sale of hunting and fishing licenses. Annual revenues amount to about $10 million. Smaller amounts of federal assistance come from the Land and Water Conservation Fund for acquisition and development of additional recreation-related lands in conjunction with the Virginia Commission of Outdoor Recreation, and from the Dingle-Johnson and Pittman-Robertson Acts administered by the U.S. Fish and Wildlife Service for acquisition, development, maintenance, and research in state fish and game areas. Additions to Commission holdings must be approved by the Commissioners, an independent 10 member board, and by the Governor.

The Commission is authorized to accept deed restrictions with both gifts and purchases. However, in a January 27, 1976, interview with Mr. Phelps and several other administrative officials, Conservancy representatives Ray Culter and Susan Lukowski were made aware of the Commission's reluctance to receive or purchase lands so encumbered, particularly where there are restrictions on hunting.

Unlike the State Division of Parks, the Game and Inland Fisheries Commission does not have the power of eminent domain. It does, however, have the authority to enter into lease and cooperative management agreements with state and federal agencies and private parties. As of February, 1975, the Commission had cooperative management agreements involving 1,900,210 acres of land in other ownership. This substantially augments the 166,000 acres of land owned by the Commission for hunting purposes.

On the subject of the barrier islands, Commission officials at the January, 1976, meeting expressed interest primarily in the wetlands. However, Mr. James McInteer, Assistant Executive Director, appeared to be speaking for other officers present in the interview when he stated that much of the wetlands were already adequately protected by the state's wetland legislation and therefore, the Commission assigns a somewhat lower priority to the acquisition and management of such areas than they formerly did.

II. HOLDINGS IN THE VIRGINIA BARRIER ISLANDS

Mockhorn Island in Northampton County is currently the Commission's only holding in the area. It is a large island, mostly marshland, near the southernmost tip of the chain. The two state employees who oversee the island are a manager stationed at another refuge and a local warden who patrol the area by plane and boat about once a month. There is no intensive public use. A 2,500 acre portion of the island is managed as a refuge where no hunting is permitted; the remaining 6,610 acres are open to seasonal hunting.

The Executive Director of the Commission of Game and Inland Fisheries, Chester Phelps, responded to a request for information from the Conservancy regarding the Commission's current and projected activities and interests in the barrier islands. The following paragraphs are excerpts of the September 2, 1975, response by Mr. Phelps:

> "The Commission of Game and Inland Fisheries' land acquisition program is oriented toward the establishment and development of wildlife management areas, which serve primarily as either waterfowl refuges or public hunting areas, and sometimes a little of both. At present we do not have plans to acquire additional such areas in the Virginia Barrier Islands. Our present interest in the Barrier Islands is confined to the continued management of Mockhorn Island, primarily as breeding habitat and a public hunting area for clapper rails.
>
> Our law enforcement capability on the Barrier Islands is limited, as our resident law enforcement force for the entire Eastern Shore of Virginia normally consists of two game wardens. In special situations this capability can be reinforced temporarily.
>
> We have no specific plans at this time for establishing boating facilities on any of the Barrier Islands, but if any of these islands were owned by The Nature Conservancy or a public land management agency such as the Virginia Division of Parks, and if additional public boating access were deemed desirable, the Commission of Game and Inland Fisheries would be in a position at least to consider providing some limited facilities for boaters."

III. GAME AND INLAND FISHERIES COMMISSION AND THE VIRGINIA COAST RESERVE

From the tenor of the January meeting between Mr. Phelps, several administrative officers of the Commission, and Ray Culter and Susan Lukowski of the Conservancy, it is clear that the Commission does not assign a high priority to the purchase of additional areas in the barrier islands, although a gift might be considered.

The subject of cooperative management and leasing did arouse mutual interest. Such arrangements provide the Commission with ten times the amount of land then it actually owns, and agreements can be made with private parties. Should the Conservancy determine that some of its island holdings could withstand seasonal hunting activities, a cooperative management agreement with the Commission could add to the protection afforded both in season and out. Cooperative agreements do not need the approval of the Commissioners or the Governor. A lease arrangement should only be considered if the Commission agrees to add additional law enforcement personnel to the area during the hunting season.

IV. CONCLUSIONS

The primary thrust of the Virginia Commission of Game and Inland Fisheries land acquisition program has been to provide hunting and fishing opportunities to the people in the Commonwealth of Virginia. The Commission is the only state agency charged with the responsibility of protecting and managing the Commonwealth's non-game species, however, to date no areas have been acquired specifically for this purpose. The Commission does, however, take into consideration the protection of non-game species in the management of state hunting and fishing areas. Since important objectives for the preservation of the Virginia Coast Reserve include immediate habitat management for non-game species, overall Conservancy goals and objectives could not be met, at this time, by vesting ownership of all or a part of the system in the Commission of Game and Inland Fisheries unless a major reorientation of their present program were undertaken. This is not likely to occur in the near future.

The Virginia Barrier Islands have traditionally provided hunting and fishing opportunities for residents of the Eastern Shore. Carefully supervised and managed hunting and fishing on portions of the Virginia Coast Reserve may be compatible with, or even necessary, to maintain the natural ecosystems. It may be desirable, at some future date, to enter into a cooperative management or lease agreement with the state to facilitate these activities.

COASTAL ZONE MANAGEMENT PROGRAM UNDER THE DIVISION OF STATE PLANNING AND COMMUNITY AFFAIRS

I. ADMINISTRATION

A. The Coastal Zone Management Act

The federal Coastal Zone Management Act of 1972 was established to "preserve, protect, develop, and where possible, to restore or enhance the resources of the Nation's coastal zone", by encouraging and assisting states to exercise their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of land and water resources. State and local governments and regional agencies are called upon to cooperate in the development of each state's plans. The law requires public participation in the development and implementation of each coastal zone program. There are two types of grants offered under the law: a grant for planning and management activities authorized by section 305, and a grant for implementation authorized by section 306. (For further discussion of the federal legislation, see the Legislative Compendium portion of this study).

B. Virginia's Coastal Zone Program

Virginia's Coastal Zone program is being coordinated and administered at the state level by the Division of State Planning and Community Affairs. It has a staff of 12. Virginia is at the end of its first year of a 305 planning/management grant. The state submitted its application for the grant in May, 1974, and it was approved on August 1, 1974. Normally, the termination date for the first year would be on July 1, 1975, but the state requested an extension until October 31, 1975.

Virginia has elected to apply for three annual 305 grants (the current maximum provided by the Act) which are not automatic. Each annual request must be submitted and approved by the Office of Coastal Zone Management. The application for the second year of the 305 grant was held up by the federal Office of Coastal Zone Management on technicalities until early 1976. Funding for the first year totaled $376,655; $251,044 was provided by the Office of Coastal Zone Management and $125,522 by the state. Second year funding totaled $403,520; $269,012 was the federal share and $134,560 was contributed by the state.

During the first year activity has focused on data collection and issue identification. The decision to extend planning over a three year period has slowed the state's substantive planning efforts. During the second year, the Division of State Planning and Community Affairs plans to focus on the development of management requirements and public participation and discussion on the issues identified. According to the Division, the state will structure and fund regional or county-wide workshops as one vehicle for public input.

The data collection effort for the first two years has been partly delegated to the Virginia Institute of Marine Science which is developing tidal marsh inventories and shoreline situation reports for all the counties in the tidewater area. The projected completion date is mid-1977 for both complete sets, however, the Northampton Shoreline Situation

Report is available for distribution, and the one for Accomack will be printed this spring. The tidal marsh inventories for these two counties are in various stages of development. At least one-half of the state's coastal zone management budget for 1975 went into the effort to produce these reports. The Virginia Institute of Marine Science received a contract for $196,984 to serve as a technical advisor to the state and to compile the inventories and reports.

II. COASTAL ZONE MANAGEMENT ACTIVITIES IN ACCOMACK AND NORTHAMPTON COUNTIES

The nine state planning district commissions in the Virginia coastal zone formed regional advisory committees during the first year of the 305 grant. The Accomack-Northampton Planning District Commission (PDC 22), elected to become the regional advisory body for the two county area, and unlike the other eight planning districts did not name other members of the community to sit in an advisory capacity.

The Accomack-Northampton Coastal Zone Advisory Committee worked with Ms. Stewart Gamage, a staff member of the State Planning Division, in developing a position paper for that region which was completed in draft form in September, 1975. The paper, Coastal Zone Regional Assessment Report, is Appendix D of this portion of the study. The counties' advisory committee, however, also submitted its own draft which it felt more adequately reflected its position on the issues. That paper, On The Future of Coastal Zone Management Programs of the State of Virginia, completed in August, 1975, is Appendix E . The differences in wording are worth pointing out on several of the issues covered in these two versions. The following are excerpts:

General Concern (Planning District's Position Paper)

Any coastal zone management program makes sense only if it means a simplification and not a further complication of land, water, and resource use activities in the coastal area.

Local people are concerned that a coastal zone management program would add an additional bureaucratic procedure on top of the existing ones.

As a solution to simplified administration of land, water, and resource use activities related to coastal area, the Commission recommends that all applications to be submitted to just one local authority which would then further process the application, obtaining simultaneously comments from the various federal, state and local agencies before a decision is made and the requirements or conditions of approval be listed. This would greatly reduce the expenses and wasted time of the applicant. This single local authority could be the local wetlands board, or a similar agency.

Role of Local Government (State Assessment Report)

Paramount to any specific coastal concern identified was the belief that the local decision-making process should be maintained and any attempt to design a program which would alter this premise would be strongly resisted. Participants emphatically stated that localities could accept additional responsibilities, even in light of growing local responsibilities, if sufficient funds were made available for that purpose.

General Concern (Planning District's Position Paper)

In order to facilitate the coastal zone management, the Commission recommends that an exact delineation of the coastal zone be made. All land, water, and resource use activities in the coastal zone would be supervised by the local coastal zone management authority (Wetlands Board or similar agency). All activity in areas outside of the coastal zone would be under the supervision of the local Planning and Zoning Commission. There would be no overlap of authority in jurisdictions.

The Commission realizes that achievement of the above recommendations would involve changing existing federal and state laws.

Program Coordination (State Assessment Report)

....If the Coastal Zone Management Program could provide a mechanism to bring together these diffused and uncoordinated programs into a more unified approach to coastal problem solving, it would be supported. Conversely, if the program solely succeeded in producing another layer of administrative and bureaucratic review, it would stimulate organized opposition.

Erosion Due to Land Development Activities (Planning District's Position Paper)

Erosion due to man-made activities and land disturbances cause very little erosion problems on the Eastern Shore of Virginia due to the level contour of the land and, therefore, the Commission opposes the stringent requirement of the Soil Erosion and Sediment Control measures of the State law.

Induced Erosion/Sediment Control (State Assessment Paper)

Management techniques and regulatory provisions for controlling erosion emanating from land alterations and construction were severely criticized in RAC (Regional Advisory Commission) discussions. Particular opposition was raised regarding the Statewide Soil Erosion and Sediment Control Ordinance.

Flood Control (Planning District's Position Paper)

Flood danger in coastal areas and even in inland areas does exist due to periodical high tidal flows or hurricanes. Adequate legislation to prohibit any construction in these areas could meet the problem.

Flood, Erosion and Sediment Control (State Assessment Paper)

Given the elevation of the Shore, large portions of the region may be subject to flooding. The delineation of the flood plain, however, is quite difficult as rainfall, wind and tide variables combine to produce flooding conditions, making flood plain delineation and forecasting most difficult. Realizing these complications, the RAC indicated basic satisfaction with present activities involving flood insurance and control.

Shortage of Recreation Areas and Access to Open Waters and Barrier Islands

There is a definite shortage of public recreational areas near water. We refer here to parks with picnic, beach, fishing and camping facilities.

The only beach open to the public is on Assateague Island. It is an ironic situation that the Eastern Shore with approximately 200 miles of shore line has practically no public access to the waters. The establishment of public recreation areas could solve the problem.

Beach Access (State's Assessment Report)

The availability of public beaches was cited as a major concern by the participants. Public access to the beaches along both sides of the Shore is restricted save the (2) public beaches located at Assateague and Cape Charles. While this shortage severely limits the number of Shore residents that have access to the beach, it also was noted as a factor influencing the growth of tourism.

Acquisition of the Barrier Islands by The Nature Conservancy, while viewed by the RAC as a positive action, will delay or perhaps prevent the transformation of the islands into additional public beach along the seaside. The membership expressed strong interest in the conversion of Parramore Island, the largest and most stable island within the system, to a national seashore or park. No action is expected by the Conservancy or the federal government until a study of the island's ecosystems and the Shore's attitudes regarding island usage has been completed.

A conflict pervading this discussion of the public beach access to the Barrier Islands and along the Shore was the issue of private property rights vs. the local and regional utilization of the beaches. (Rights of property owners extend to the low water mark).

Recognizing this interest in the Barrier Islands, there are significant property holdings in both counties owned by the federal and state government that could be developed as public beach or recreational areas. A role for the Coastal Zone Program was seen in facilitating administrative procedures permitting the conversion of these properties, in conjunction with PDC and local government action, to recreation uses.

Wetlands (Planning District's Position Paper)

State laws regulating wetland management are seen by the Commission as too restrictive and time consuming. Difficulty seen with State overview, not local administration.

Wetlands (State Assessment Report)

The Eastern Shore of Virginia has extensive and productive wetlands that extend along the Bay and sea boundaries of the Shore. Because of the large acreage embraced by the wetlands, the enactment of State wetlands legislation had a major impact upon the region. The law,

which has been in effect since 1972, was seen as too restrictive and time consuming. The participants identified the difficulties as emerging from the State overview and not the local implementation of the program.

The State's Assessment Report contained a final section entitled, "Program Emphasis and Participation Second Year", which states that:

> Continued participation by the RAC will be most useful in conducting this validation. In the instance of PDC 22, the sessions with the RAC would continue, but on a less frequent basis. The primary purpose for the continued meetings with the RAC would be to receive comments as to conclusions emanating from the data analysis and to obtain reactions to various management approaches.*
>
> *(It is anticipated that the scope of the participation program would be enlarged within the region to include sessions with local governments, planning commissions and citizen groups in addition to those held with the RAC).
>
> Conversations with the RAC in PDC 22 throughout the last six (6) months have indicated that, while they have serious reservations about the program, avid participation is essential if local governments are to inject their views into the decision-making process.
>
> PDC 22, therefore, supports the retention of the RAC structure during the second program year in order to maintain an avenue of communication by which they can communicate their ideas concerning Coastal Zone Management to the respective State agencies in addition to requesting the provision of funds to the PDC to assist with second year activities.

III. CONCLUSIONS

As the largest owner of coastal zone real estate on the Eastern Shore, The Nature Conservancy is understandably concerned with the coastal zone planning process. The actions of Planning District Commission 22 and the State Division of Planning and Community Affairs have the potential for significantly impacting upon the Virginia Coast Reserve.

Planning District Commission 22 did not provide for public input during the first year of the 305 grant program. Public participation will be required by the State during the second year and the Conservancy, using the information generated from this study, will be in a good position to offer constructive input to the coastal zone management planning process for Accomack and Northampton Counties. It is our intention to work as closely as possible with Planning District Commission 22 and the State Division of Planning to insure that sound coastal zone management programs are developed on the Eastern Shore.

Some statements contained in the State Assessment Report and the Planning District's Position Paper appear to conflict with data gathered during the Virginia Coast Reserve Study. Copies of our study will be made available to the Planning District and the Division of State Planning.

During the coastal zone management planning process, consideration should be given to the desirability and feasibility of establishing a marine and/or estuarine sanctuary. These programs are described briefly in the Legislative Compendium section of the Virginia Coast Reserve Study.

VIRGINIA COMMISSION OF OUTDOOR RECREATION

I. LEGAL AUTHORITY AND RESPONSIBILITIES

A. Legal Authority

(This information was taken from The Virginia Outdoors Plan 1974, Commission of Outdoor Recreation, p. 6.)

The Act creating the Commission of Outdoor Recreation named it to be the official State agency to "create and put into effect a long-range plan for the acquisition...and development of a comprehensive system of outdoor recreation facilities..." Other provisions in the Act spell out the nature of the statewide recreation plan. Based upon the Commission of Outdoor Recreation Act and adoption by the Commission of Outdoor Recreation, this present document constitutes the official Statewide Comprehensive Outdoor Recreation Plan for Virginia - the "Virginia Outdoors Plan."

The legal authority for Virginia to participate in the Land and Water Conservation Fund program is contained in Section 10-21.8 (e) of the Act creating the Commission of Outdoor Recreation. The Director of the Commission assumed the responsibilities of State Liaison Officer to the Bureau of Outdoor Recreation, U.S. Department of the Interior, on May 1, 1967.

B. Administrative Structure of the Commission

...The Commission is composed of four ex-officio members who represent four state agencies concerned with outdoor recreation, and five members appointed from the state at-large by the Governor. In addition, nine other major state agencies are represented on the Commission. This representation provides a formal policy-level coordination mechanism. The agencies represented are the Department of Conservation and Economic Development (including the Divisions of Parks, Forestry, Mined Land Reclamation, and Mineral Resources, and the State Travel Service), the Commission of Game and Inland Fisheries, the Department of Highways and the Division of State Planning and Community Affairs...

C. Responsibilities

The Virginia Commission of Outdoor Recreation is responsible for the preparation of the State Outdoor Recreation Plan, the coordination of matters which relate to recreation, and the implementation of the Plan through a grant-in-aid program.

For the purposes of the Virginia Coast Reserve Study, the Commission of Outdoor Recreation's responsibilities for the implementation of the Plan are treated in Part II of this portion of the study, and a discussion of pertinent aspects of the Virginia Outdoors Plan 1974 is the subject of Parts III and IV.

II. IMPLEMENTATION OF THE VIRGINIA OUTDOORS PLAN

(Plan 1974, pp. 146-148, 150-152).

A. The Roles of Local Governments and "Quasi-Public Programs"

Local Governments

The political subdivisions of the State (the cities, towns and counties) have the legal powers to provide a comprehensive system of public outdoor recreation areas and open spaces. They can acquire sites by various methods, develop them, operate them, secure scenic easements, zone their floodplains and other hazardous lands against intensive development, and can encourage the preservation of open spaces by private property owners through preferential taxation. They can do these things individually, or they can do them cooperatively through the medium of a regional park authority (Chapter 27, Title 15.1, Code of Virginia).

Local governments finance their park and recreation activities out of local general funds, supplemented by grants-in-aid, by special revenues and by borrowings. Bond issues are becoming more and more useful and sensible for long-range investments in land and permanent improvements. In the eight years prior to 1973, Virginia cities, towns and counties issued almost $58,000,000 in bonds for outdoor recreation land acquisitions and developments, with more expected to follow.

Quasi-Public Programs

These are the activities of non-profit, public-spirited groups and individuals that contribute so much to the total effort toward preserving the natural environment and historical resources, and of providing outdoor recreational opportunities. Among them are National Audubon Society, Izaak Walton League, the Boy Scouts and Girl Scouts, service clubs, country clubs, swimming and tennis clubs, and many others. Historic preservation organizations, such as Colonial Williamsburg and the Association for the Preservation of Virginia Antiquities (APVA), also contribute to recreational enjoyment. Indeed, in Virginia, there are many places like Williamsburg or Mount Vernon where historical education is a form of recreation, and the two cannot be separated.

Public recreational opportunities are provided by the public utility companies in connection with hydro-electric projects, under regulations of the Federal Power Commission.

B. Implementation Measures

Land Use Controls

Basically, the need is for intelligent regulation of the use and development of land in the broad public interest. Historically, this has been done by zoning under the police power of the state, delegated to and exercised by the cities, towns and counties. Experience has shown that this system does not always work to the best interests of the people at large where a resource lies within two or more political subdivisions or is of more than just local importance. The larger state interests, and even the national interest, is now being recognized in the treatment of wetlands.

Tax Incentives

The new Land Use Assessment Law, designed to encourage and assist private property owners to maintain their lands in agricultural, horticultural forestry and open space uses is based on the concept that for them to do so accomplishes a public purpose.

Implementation of the Land Use Assessment Law is optional and Northampton County has chosen not to use it. In a conversation with Kenneth Arnold, Commissioner of Revenue, stated that the County expected to enact this legislation within a couple of years. At present, land is being reassessed and new tax bills will be issued in 1978. At this time, the County will try to implement the Land Use Assessment Law as it applies to agricultural lands, open space and forests.

Accomack County is in the same position as Northampton except they have developed no plans, at present, to exercise their local option of giving tax incentives.

Easements

Scenic, historic or open space easements offer a way for private owners of property to preserve these values for future generations to enjoy without giving up their ownership and yet with the possibility of certain tax advantages. Such an easement is simply a dedication of restrictions on the future use and development of the property, given voluntarily to a public or semi-public agency in trust. The Virginia Outdoors Foundation was created by the Legislature expressly for this purpose. The owner and his successors in ownership retain the right of continued ownership and usage, consistent with the restrictions. The donor is eligible for a deduction in his federal and state income taxes and in the inheritance taxes on his estate.

Multiple Uses

Among the desired uses of public and private lands are the recreational

uses of military reservations, hunting privileges on private forest lands, and others. One further possibility is the use of public utility rights-of-way for trails and bikeways, and even for play space in urban areas where other open land is unavailable.

C. The Virginia Outdoors Fund

This fund is a major source of money for the acquisition and development of recreational lands at the state and local levels. It consists of state funds appropriated by the General Assembly, and federal funds allocated to the state from the Land and Water Conservation Fund. It is administered by the Commission of Outdoor Recreation in accordance with the Virginia Outdoors Plan. Money is authorized by the Commission from time to time, subject to the Governor's approval and that of the Bureau of Outdoor Recreation, for specific qualifying projects of certain State agencies and of the cities, towns, counties and regional park authorities throughout the State. The State Division of Parks and the Commission of Game and Inland Fisheries both receive funds through this program.

The majority of these projects are funded 50 percent with federal Land and Water Conservation Funds. In the case of State Park acquisitions and major developments, the other 50 percent consists of appropriated State money. For Game and Fish projects, the Outdoors Fund provides 50 percent federal money to go with 50 percent Game and Fish Commission money, which comes from its own funds obtained from licenses, fees and other non-federal sources. City, county and town projects are funded 50 percent Land and Water Conservation Funds, 25 percent State, and 25 percent local. Regional Park Authority projects are funded 50 percent Land and Water Conservation Funds, 30 percent State, and 20 percent local funds. The extra five percent State funding is to stimulate efforts to establish park authorities with memberships composed of two or more political subdivisions. (Accomack and Northampton Counties have not combined their parks and recreation agencies to qualify as "Regional Park Authority").

Since the beginning of the Virginia Outdoors Fund in January, 1966, and through December 31, 1973, approximately $39 million in State and federal funds have been committed to projects in Virginia. Although the obligation is impressive, the existing supply of outdoor recreation facilities is still far short of actual needs....

Land and Water Conservation funds are apportioned by Congress on an annual basis. Although the program is scheduled for a 25-year period, annual apportionments are subject to Congressional and Presidential discretion. Frequently, Virginia's share of the fund is not known until several months after the beginning of the fiscal year. The uncertainity of annual federal apportionments combined with the uncertainty of biennial State allocations makes it difficult to plan an orderly sequence of acquisitions and developments.

Since the beginning of the Virginia Outdoors Fund, the amounts available to the program were as follows:

TABLE 3

FUNDS AVAILABLE

Biennium	State	Federal	TOTAL (State/Federal)
1966-68	$ 4,298,950	$ 4,129,313	$ 8,428,263
1968-70	3,040,000	2,105,533	5,145,533
1970-72	3,000,000	10,185,564	13,185,564
1972-74	8,274,000	5,169,584	13,443,584
1974-76	5,050,000	7,184,700	12,234,700
TOTALS (Approx.)	$ 23,662,950	$ 28,774,694	$ 52,437,644

D. Priorities in the Use of the Virginia Outdoors Fund

Budget Controls

In its administration of the Virginia Outdoors Plan, the Commission has first of all some constraints imposed by the General Assembly in the biennial Appropriations Act. For the 1972-74 biennium, for example, in a total general fund appropriation of $8,274,000 about 70 percent, or $5,774,000, was specified for State parks and 30 percent, or $2,500,000, for local and regional parks assistance. Approximately the same proportions are incorporated in the 1974-76 budget request. This sets the basic framework for broad priorities in this program.

Federal Land and Water Conservation Funds come to the State without such restrictions. They are shared among State and local government agencies, however, roughly in the same proportion as the State funds, subject to some differences in matching ratios. On State projects, the State and federal funds are matched equally. On local government projects (cities, towns, counties), the ratio currently is 50 percent federal, 25 percent State and 25 percent local. On regional projects (administered by an official regional park authority), the ratio is 50 percent federal, 30 percent State and 20 percent local. Federal matching is limited by law to not over 50 percent. Otherwise, these are policy determinations by the Commission of Outdoor Recreation, which can be changed at any time within the limits of funds available. Since the start of the program in Virginia, federal funds have actually been allocated 47 percent to local agencies and 53 percent to State projects, while State funds have gone 28.5 percent to local agencies and 71.5 percent to State.

Acquisition vs. Development

This again has been a policy determination by the Commission of Outdoor Recreation, the Division of Parks, the General Assembly and other State officials. The decisions are based largely on the realization that good park land is limited, some of the more important sites are threatened with exploitation, and land values are going up about 15 percent per year on the average, making land acquisition quite urgent. Development after the land is acquired can be stretched out over many years without so much risk, except for the presently rising cost of construction. Therefore, the following guides apply:

1. Acquisition of State park lands has been and will continue to take general priority over development, although development should now be accelerated with a view to opening more park land to public enjoyment without further delay.

2. Further development or redevelopment of some older State parks will be pushed, to make better public use of available acreage.

3. Acquisition of local or regional parks will continue to be favored over development, especially in those regions having a major need for acreage; provided, however, that some development is also advisable and should be encouraged in regions having major deficiencies in existing facilities.

During 1975 and 1976, there has been a trend toward developing lands already acquired by state, local and regional park agencies and less emphasis on acquiring additional areas.

General Criteria

Approval of projects for financing from the Virginia Outdoors Fund (Land and Water Conservation Funds plus State funds) is by vote of the nine-member Commission of Outdoor Recreation at its periodic official meetings, after full investigation and recommendation by its technical staff. To assist in weighing each project and determining which ones to approve within the limits of available funds, the Commission looks at several factors, as follows:

1. The extent to which the project will meet a demonstrated need, particularly the deficiencies identified in the Virginia Outdoors Plan or in a local or regional plan. High priority will be given to localities that have (a) a well-conceived local or regional park and open space plan as part of its comprehensive plan in which recreational needs and priorities are identified, and (b) floodplain and other conservation or protective zoning for critical environmental areas.

2. An equitable distribution of funds between the various sections of the State, in consideration of such factors as population, visitation, and location of natural assets.

3. Special encouragement of regional park agencies that provide recreational facilities to serve a group of communities collectively, rather than just one.

4. The capacity of the sponsor to start the project promptly, complete it, and maintain it for public use. This includes the sponsor's ability to finance its part of the cost and to provide an adequate professional staff of park and recreation personnel.

5. The ability of the sponsor, or lack of it, to finance the project from other sources.

6. The need for assistance in completing a good project that can be made better by a change in scope.

7. The urgency for acquisition to forestall an undesireable use of the land or a prohibitive increase in cost.

8. The situation as to other projects with higher priorities.

General Priorities

In addition to the foregoing considerations, certain types of areas will receive favorable priority because of their physical character or location. These are:

1. Areas with frontage on the ocean, rivers, lakes, estuaries, and reservoirs that will provide waterbased recreational opportunities.

2. Additions to existing parks, forests, wildlife areas, reservations, and parkways where the additions will be devoted to public recreation purposes.

3. Areas of land and water along scenic roads, rivers, floodplains, trail routes, and wetlands, or that give public access thereto.

4. Areas containing sites for lakes having recreational uses.

5. Outstanding areas of natural or pastoral beauty, natural wonders, special ecological areas, and such others as deserve public preservation.

6. Areas providing for urban-type recreational needs, such as day-use picnic areas, playgrounds, sports and games areas (non-professional), parks, municipal forest preserves, greenbelts and the like.

In looking for areas to purchase for local and regional purposes, the Commission places a high priority on large tracts which can service regions of the state rather than single jurisdictions. These tracts should be in a natural state as far as possible and have access to water for water-related activities. Regions without such park and recreation facilities are high priority. Regions which apply for funds for additional acquisition and development are looked at carefully in terms of past performance with Commission funds.

Priorities Based on Need and Adequacy

Combined with all of the foregoing factors in the determination of project justification and priority are the factors of need and adequacy as measured by the supply and demand studies and the acreage standards described in this plan. An effort is made, among others, to satisfy the unmet demand in a given locality as closely as possible.

III. THE VIRGINIA OUTDOORS PLAN 1974

A. Summary of Recommendations

Those recommendations pertinent to the Virginia Coast Reserve have been reproduced from the Plan, pp. 14-16:

Rural Recreation

1. Rural localities should appraise their special natural attractions and develop them not only for the enjoyment of their own people, but particularly to capture spillover business from major urban areas.

2. Adjacent smaller towns and rural counties should join together and establish regional park authorities to provide recreation facilities cooperatively for their residents.

3. Every town, county, and planning district should have a long-range plan and program for developing a comprehensive system of recreation areas and facilities. These should be an integral part of a comprehensive land-use plan prepared by the appropriate planning commission.

4. The towns and counties should use their zoning, sub-division, and other regulatory control powers more effectively to prevent flood-plain encroachments, protect scenic roads and rivers, promote open spaces, and for other worthwhile objectives.

5. Localities should levy a two-cent tax now authorized by law to provide a recreation fund.

The State Park System

1. Twenty-eight new State parks should be acquired and development started.

2. Facilities in the present park and recreation areas should be enlarged and improved.

Natural Areas System

The present State Natural Areas System administered by the Division of Parks should be expanded to preserve additional areas of ecological, faunal, floral, geological, marine or aquatic significance. In addition, the State should encourage and support the preservation of natural areas by all public agencies and private organizations, through zoning, easements, preferential taxation and other means.

Wildlife Resources

1. The construction of public water access areas should be accelerated.

2. Wildlife management areas should be developed for a broad range of natural environmental usage.

Wetlands

1. The Virginia Institute of Marine Science should determine legal ownership of wetlands and carry out ecological studies.

2. A fund for the acquisition of wetlands and a program of wetland acquisition should be established.

B. Participation and Coordination

(Plan 1974, pp. 17-19).

The inventory of existing outdoor recreation areas and resources was made through participation by the 22 planning district commissions and other State, federal and local agencies. The commissions had not all been fully organized in time for this effort but those that were in operation did participate. The information will serve their needs as well as those of the state-wide plan. The final results have been provided the districts and localities for their regional and local use in the publication "1972 Virginia Outdoor Recreation Inventory", by the Division of Forestry and the Extension Division of Virginia Polytechnic Institute and State University. This was another item of "participation". Detailed computer printouts of the recreation inventory have also been furnished to the planning district commissions.

The planning district commissions were consulted also in connection with the Recreational Demand Survey and have been provided with the published report for use in their territories. Each planning district commission is supposed to prepare a Comprehensive Land Use Plan for its territory including a Park and Open Space Plan. The demand and inventory data thus provided are being used in this connection, along with other material and recommendations in the Virginia Outdoors Plan. Each local government in turn is expected to prepare its own local park and open space plan within the framework of the district plan. As the planning district commissions become more thoroughly established and experienced, the effectiveness of these lines of communication will improve.

An additional means of coordination between the State, district and local park planning efforts is available through the Division of State Planning and Community Affairs which provides substantial matching money for operation of the planning district commissions and also administers the Planning Assistance (701) Program of the Federal Department of Housing and Urban Development. Much of the local and district planning is done through this program. The Commission of Outdoor Recreation provides advisory assistance to the localities and districts in the prepreation of their plans and reviews their plans in draft form. The 1974 Virginia Outdoors Plan has been designed in part to provide useful information for the local and regional agencies and to stimulate increased coordination.

In addition, there are numerous other means of coordination. The primary instrument, as previously noted, is the Commission of Outdoor Recreation itself. Another is through participation of many kinds of committees and task forces. Examples include:

State Land Evaluation Advisory Committee, which sets the ranges of suggested values for use value taxation on open space and other lands. The Director of the Commission of Outdoor Recreation is a member of the committee.

Tourism and Industrial Potentials, Virginia Eastern Shore, undertaken by the Division of State Planning and Community Affairs with funds provided largely by the Economic Development Administration of the U.S. Department of Commerce, to appraise the potential for agriculture-agribusiness, seafood, recreation and tourism, and industrial development in this two-county region.

Critical Environmental Areas Study, by the Division of State Planning and Community Affairs at the direction of the General Assembly, in which 134 critical environmental areas were delineated throughout the State. The Commission of Outdoor Recreation and 13 other State agencies participated on the task force. Detailed studies of selected areas are requiring further collaboration.

Open Space and Recreation Report, undertaken by the Accomack-Northampton Planning District Commission. This report contains a survey of the existing recreational facilities and open space in Planning District #22, discusses the present recreational shortcomings, and presents a plan for recreational facilities for the years 1980-2000.

C. Natural Areas

(Plan 1974, pp. 75-79).

As the population increases and man-made developments spread across the face of Virginia, there remain fewer and fewer unspoiled examples of the natural world in which we live. And at the same time we find more and more that intimate and informed contacts with nature provide experiences which educate the human character. In a statement of policy, the Department of Conservation and Economic Development declares that "the privilege of returning, for an hour or a day, to the untouched beauty of the natural world, in all its variety, should be the opportunity and the right of every Virginian."

Creative work in all the biological sciences requires frequent field study in natural areas where the delicate ecological balances of nature have not been disturbed by man. The preservation of such areas for purposes of continuing study is an essential service to the secondary, college, and postgraduate students of the State.

Establishment of the Natural Areas System of Virginia was initiated in 1960 by acquisition of Parker's Marsh on the Eastern Shore, with funds provided by the Old Dominion Foundation. Four other areas have since been acquired: Wreck and Bone Island, Charles C. Steirly Natural Area, Goshen Pass, and Lick Creek. A large part of Seashore State Park has been designated as a natural area and is on the National Register of Natural Landmarks. The total area of these six properties is now over 4,900 acres. Major additions to the list will be made when several of the Barrier Islands, recently acquired by The Nature Conservancy, are transferred to the State.

These acquisitions demonstrate the State's official recognition of the value of the wilderness to present and future generations. Preserved choice bits of nature, selected for the aesthetic, physiographic, or biologic uniqueness, have been acquired.

The State system of natural areas should continue to expand. Some 25 or 30 potential areas are indicated on the accompanying map. Some of these should undoubtedly be handled by other public or semi-public agencies,

which the State should encourage. Several small areas in the State Forests, for example, have been set aside by the Division of Forestry; and, in the National Forests, there are two "scenic" areas designated in the Jefferson National Forest (Mountain Lake and Mount Rogers), and one "wilderness" area (James River Face), with two more under study. The designation of suitable lands for "natural" areas (wilderness, scenic, etc.) is an established part of the multiple-use management principle in the National Forests, but the truly natural areas do need to be set aside and protected from multiple use. Several locations are recommended herein for such protection.

Expansion of the Natural Areas System (including both State and other holdings) should have as its objectives the following:

1. To preserve the rare examples of nature, wherever they occur.

2. To preserve the best representative examples of typical natural conditions in each section of the State.

3. To secure a variety of types.

4. To have these all under protective custody according to the most logical administrative agency in each case.

Types of Areas

Natural areas suggested for protection are of many types. Some are marshes or swamps having unusual characteristics in Virginia, including the Great Dismal Swamp which in certain respects is nationally unique. Some are remarkably rugged and scenic mountain areas, or especially beautiful river gorges. Some are seashore fastnesses, other dense forests or curious rock formations or secluded waterfalls. One group of karst areas, including important caves, sinks, sinking creeks, natural arches, and big springs, is of special importance. Karst formations are created by the dissolving action of water on limestone, and Virginia has some that are of major national importance. They need to be protected against destructive exploitation and vandalism.

The Nature Conservancy

This national, non-profit society has probably done more in its quiet way to save important pieces of nature in Virginia than has any other agency. It steps in when such an area is threatened, buys the property if necessary, and turns it over as soon as possible to some governmental or other conservation agency. It has a revolving fund for this purpose. It receives some properties as gifts, and some are retained in their own custody. Among these are several natural areas shown on plate 10. Altogether, The Nature Conservancy has succeeded in saving more than 30,000 acres of naturally important land in Virginia, some of which it has transferred to other agencies, and some it has kept. Currently, the Conservancy is trying to preserve some 80 natural areas around the Chesapeake Bay, in Virginia, through "adoption" by interested individuals and organizations.

Recommendations

Realizing that natural succession in temperate climates can restore "natural" conditions in less than half a century in Virginia, many areas are suggested for Natural Area designation which do not now represent remarkable wilder-

ness types or contain old-growth communities. These could provide areas for accommodating environmental education classes, youth group outings, teacher camps and nature study by individuals.

Specific areas are suggested on the regional maps as potential Natural Areas and on the State Natural Area System mpa. If, after study, they are found suitable, they should be protected for their natural values in the face of all timber, mining, water or recreational development demands.

Private groups such as The Nature Conservancy are encouraged in their very important efforts to preserve endangered relict areas or valuable resources.

Efforts now under way to acquire natural areas by the Division of Parks and by the Division of Forestry should be accelerated and private organizations alerted before destruction of a desirable resource becomes imminent.

A register of critical environmental areas will be maintained as part of a continuing environmental resource survey by the Division of State Planning and Community Affairs. The Virginia Outdoors Foundation can utilize this register in supplementing the activities of other agencies in fostering donations, exchanges or acquisitions by appropriate agencies.

IV. THE VIRGINIA OUTDOORS PLAN AND THE VIRGINIA BARRIER ISLANDS

A. The 1974 Plan

Although the Eastern Shore of Virginia has less than one percent of the State's population (42,400 in 1972), it embraces a large percentage of the State's saltwater shores including most of the ocean frontage. To a very large extent this frontage is relatively unspoiled. On the Chesapeake Bay side there are islands and inlets, and some marshlands with sandy beaches toward the southern end. On the seaward side there are wide expanses of marshland, shallow bays, and winding channels all guarded by a chain of barrier islands with beautifully unspoiled occan beaches. This whole region is a vast incubating and feeding ground for bird and sea life that is of vital importance to fish and wildlife interest far beyond the borders of this one State.

The region has great recreational, educational, and historical importance. There have been a few attempts at commercial exploitation, but now a massive attempt is being made to acquire and preserve the barrier islands in their natural state for perpetual protection and limited public recreation. All or part of eight islands and marshes have been acquired by The Nature Conservancy, three islands are being administered by federal agencies, and one island is maintained by the State as a natural area. On the bay side, there are two State-controlled areas of marshlands, one for wildlife management and hunting and one a protected natural area. The State also owns extensive wetlands for wildlife management in between the mainland and barrier islands on the ocean side.

Present recreation facilities seem to be adequate for the present local demand for most types of outdoor activity. The principal need on the Shore is to provide outlets for Virginians in general and for those from other states to begin to enjoy the natural seashore and bayside resources described above. The actions proposed here will help to achieve the long range goals of conserving outstanding examples of Virginia's natural resources and at the same time provide space for facilities to meet some of the shortages that now exist in the Norfolk-Newport News area.

State Parks

1. Butlers Bluff. This unique stretch of wooded bluff and sand beach, south of Cape Charles in Northampton County, should be given high priority for acquisition and development. Butlers Bluff State Park will preserve a resource and satisfy some of the inter-regional demand for boat access, beach use, fishing, picnicking and hiking trails.

2. Barrier Islands (Accomack and Northampton Counties). The islands that are now owned by The Nature Conservancy are being given consideration for acquisition by the State. Parramore Island, seven and one-half miles long, three quarters of a mile wide, and containing 6,250 acres of land, is considered to be one of the best remaining undeveloped areas along this section of the Atlantic coast. Within the forest-covered area of the island are several fresh water ponds frequented by migratory waterfowl.

Natural Areas

3. Cape Charles Natural Area (Northampton County). This 293-acre area, acquired when it became surplus to the needs of the Department of Defense, is being maintained as a natural area and will, in the future, provide an access point to the Barrier Islands.

National Seashore

4. Assateague Island National Seashore (Accomack County). Additional land acquisition and some limited developments are planned for the Virginia portion of Assateague Island National Seashore although there has been a moratorium on all developments within the Seashore since 1969.

Scenic Highways, Byways and Parkways

5. Route 180 (Accomack County). From Pungoteague to Wachapreague.

6. Route 605 (Accomack County). From Wachapreague to Accomac.

7. Route 175 (Accomack County). From Route 13 to Chincoteague.

8. Route 718 and Route 178 (Accomack County). From Onancock to Accomac.

Public Game and Fish Management Areas

9. Wildlife Management Lands and Waters (Northampton and Accomack Counties). Long range plans of the Commission of Game and Inland Fisheries include the acquisition of marshlands between the mainland and the Barrier Islands for waterfowl management.

10. A public water access area is proposed at Wise Point in Northampton County.

B. The Commission and the Virginia Coast Reserve

In response to a Conservancy letter of inquiry regarding the Commission of Outdoor Recreation and the Virginia Barrier Islands, Commission Director, Rob R. Blackmore, stated in a letter of August 14, 1975:

"....The Virginia Outdoors Plan, 1974 (copy enclosed) addresses the broad scope of outdoor recreation and environmental conservation in Virginia. Hopefully, the data in this publication will provide you with many of the answers which you are seeking. The Plan addresses long range plans for acquisition, development, financial plans, existing facilities and other matters of this type. Budgetary or financial capabilities can be projected for all kinds of programs, but they can be approved only by our General Assembly on a biennial basis. Our State has not actively pursued a natural area of wilderness program. We have supported wilderness designations on some of the federal lands in Virginia; however, there is no such designation on State-owned lands.

You will recall that I made the statement during our meeting that we are very much willing to work with The Nature Conservancy, federal agencies or others that might be involved in a program of protection and management for Virginia's Barrier Islands. I feel that the State of Virginia has the flexibility to respond to just about any type of program you might recommend. Whether we can get the money to finance such a program is another question altogether; and, as I mentioned previously, that final decision would have to rest with our General Assembly...."

IV. CONCLUSIONS

The Virginia Commission of Outdoor Recreation and their Virginia Outdoors Recreation Plan provide funding and guidance to local and state agencies that implement outdoor recreation programs. The Commission is not a land holding and managing agency of the state. For this reason, The Nature Conservancy has not drawn specific conclusions as to what role The Virginia Commission of Outdoor Recreation might play in the future management of the Virginia Coast Reserve. However, it is important to note that the conclusions drawn concerning the state and local land managing agencies reflect, in part, the directions and perspectives found in the Virginia Outdoors Recreation Plan. Lands acquired by the state and local agencies may be financed in part or total with funds provided or approved by the Virginia Commission of Outdoor Recreation.

ACCOMACK AND NORTHAMPTON COUNTIES

I. PROPOSALS

A. Accomack-Northampton Planning District Commission

The Accomack-Northampton Planning District Commission adopted a resolution in February, 1975, requesting that the U.S. Fish and Wildlife Service and the National Park Service establish a Wildlife Refuge and a National Seashore, respectively, on Parramore Island (Accomack County), after the fashion of Assateague Island, which would be designed to permit public recreation and yet protect valuable wildlife areas. (See Appendices A & C). For a discussion of this proposal in the context of the two federal agencies, see the sections on the National Park Service and the U.S. Fish and Wildlife Service.

B. The Nature Conservancy

The Nature Conservancy envisions that some non-destructive daytime recreation uses by the public in certain areas of the Virginia Coast Reserve may be desirable. These uses could include swimming, surf-fishing, organized hiking and picnicking. The Conservancy's objective of preservation will determine which uses and areas are to be opened to the public, when and how. However, the Conservancy has determined that some such activities are both compatible and desirable, and should be encouraged with appropriate limitations. Given the interest expressed by local community members in establishing recreation areas in the barrier islands, it is appropriate that the Northampton and Accomack County governments be approached by the Conservancy with cooperative arrangements in mind.

Within each county the Conservancy has identified an area where certain public uses would be compatible with preservation if carefully monitored. These areas are Hog and Smith Islands in Northampton County and Cedar and Metomkin Islands in Accomack County. One arrangement to accomplish this would be a lease agreement on an annual basis with each county requiring that each county enforce the terms of the agreement, develop facilities (which should be minimal) and provide transportation or access from the county's own resources.

Rod Hennessey, Director of the Virginia Coast Reserve Study, broached the subject of a cooperative arrangement with Rebecca McCann, Director of the Northampton Recreation and Parks Department, Donald Hull, Director of the Accomack County Parks and Recreation Department, and C.M. Williams, County Administrator of Accomack County in September, 1975.

II. THE COUNTIES' PARKS AND RECREATION AGENCIES

A. Accomack County Parks and Recreation Commission

The Accomack County Board of Supervisors authorized the establishment of that county's Parks and Recreation Commission in July, 1972. The

Agency's objective is:

> "...to provide opportunities for worthwhile use of leisure time; to provide parks and recreational facilities for families regardless of ethnic background, race or creed." (Letter from Donald D. Hull, Director, Accomack County Parks and Recreation Commission, October 17, 1975).

The Commission's long-range plans over the next few years call for (also see Appendix F):

A. Investigation of the use of Parramore Island for beach and nature observance.

B. Establishment of a State Park in Accomack County.

Acquisition plans are as follows:

A. Establishment of a County Park at Wallops Island (excess land from NASA).

B. County Park at Saxis Island (community project).

C. A central recreational and all-purpose complex in the central Accomack area.

D. Acquisition of real property to establish a recreational center on Chincoteague Island.

E. Establishment of a County Park in lower Accomack County.

Donald Hull's letter of October 17, 1975, states that, "...the Eastern Shore Community College has made available to us land upon which picnic areas and perhaps some athletic fields may be built in cooperation with their program."

The Parks and Recreation Commission proposal for the acquisition of an inland farm, which would have provided a location for a central recreation and park facility, was voted down twice by the County Board of Supervisors in December, 1975, and January, 1976, despite tentative approval of a grant-in-aid by the federal Bureau of Outdoor Recreation and a private donation promise of the additional 25% which the county would otherwise have to put up. A major reason cited was that management costs would prove to be a financial onus on the county.

Rod Hennessey, Director of the Virginia Coast Reserve Study, approached Donald Hull, Director of the Commission, in late 1975, with the possibility of a cooperative arrangement for the daytime recreation use of the 22-acre Conservancy holding on Cedar Island. Mr. Hull has indicated that when the Conservancy has completed its study of the Virginia Coast Reserve further discussion can take place between the Commission and the County Board of Supervisors. The Board must approve all projects of the Commission.

The Parks and Recreation Commission is currently in the planning process for the establishment of a neighborhood recreation facility on Tangier Island. No state parks are foreseen for the immediate future in the area due to state funding limitations.

The Commission is made up of eleven members and the Director, each appointed by the County Board of Supervisors. The Commission staff currently has eight full- or part-time employees and an administrative budget of $27,800 for 1976. Acquisition funds which may be provided by the County are separate allocations.

In response to a written inquiry from Rod Hennessey in September, 1975, the Commission's statement on the barrier islands was:

> "In regards to current agency land holdings with significant relationships with the Virginia Coastal Reserve, Accomack County has no holdings in this relationship at the present time." (Letter from Donald D. Hull, Director, October 17, 1975).

B. Northampton County Recreation and Parks Department

The Department of Recreation and Parks was created by the County Board of Supervisors in January, 1975. There is no organic act for the Department; its functions are defined by its activities. In the first year of its existence it has undertaken to both create recreation activities with existing and new facilities and to establish parks for county residents.

The County has received 52 acres of surplus federal land at Indiantown Neck for park and recreation purposes, and preliminary approval of a Bureau of Outdoor Recreation grant-in-aid of $370,000 with which to develop the planned recreation facilities. Receipt of the grant is contingent on the County contributing 25% of that sum ($87,000). The issue has been tabled by the Northampton County Board of Supervisors which must approve all projects of the Recreation and Parks Department.

The possibility of a cooperative nature study program between the County and the Conservancy on one of the Conservancy's nearby holdings -- e.g. Hog or Smith Islands -- was discussed informally between Rod Hennessey, Director of the Virginia Coast Reserve Study, and Rebecca McCann, Director of the Northampton County Recreation and Parks Department in late 1975. Ms. McCann expressed interest should the County acquire land adjacent to the Indiantown Neck site which would provide water access to one of the islands. This appears to be the only viable interest the Department currently has in the barrier islands.

Additional surplus land from Cape Charles Air Force Base has been applied for for park purposes and is currently pending federal surveys.

The staff currently numbers three; a fourth person may be brought on in 1976. The annual budget for 1975 was $11,000, approximately $8,000 of which is for park development. Salaries are drawn from the federal Comprehensive Employment Training Assistance Act and Virginia's Urban Assistance Incentive Fund.

III. ACCOMACK - NORTHAMPTON PLANNING DISTRICT COMMISSION

A. Background

The Virginia State Legislature passed a bill in 1970 requiring that the state be organized into 22 planning districts organized on the county level in order to facilitate regional planning. The Accomack-Northampton Planning District Commission was organized in mid-1970 as District #22. A revised charter for the Planning District is Appendix G.

B. Coastal Zone Management

Although each county's Board of Supervisors and parks and recreation commission works individually within its own boards on most issues, the two county governments have come together to work on the issues of the Coastal Zone Management Program as they affect that area. The State of Virginia, through its designated coastal zone program agency, the Division of State Planning and Community Affairs, has given its planning districts wide latitude in structuring the mechanisms for and contributing input to the coastal zone program in its initial phases. The state has chosen to take its federal grant for planning a coastal zone program (offered under section 305 of the Coastal Zone Management Act) in three one-year segments. The second year segment has just been approved by the federal government. The first year's activities were primarily data collection and issue identification; the second year is intended to broaden input through public participation. (For further discussion from the state's perspective, see the state portion of this report on Coastal Zone Management and the Division of State Planning and Community Affairs.)

The Accomack-Northampton Planning District Commission, made up of supervisors of the two counties, elected to name themselves as the Coastal Zone Management Committee for Planning District #22. It was the only one to do so; other planning districts with coastal zone responsibilities have appointed non-members in various degrees to assist them in this program. Input for this area has thus been limited to date to the Commission members and the state's designated agency. Both the Commission and the state have drawn up position papers on the issues involved in District #22.

In 1975, the Division of State Planning and Community Affairs produced an Assessment Report for Accomack-Northampton Counties addressing local coastal zone management issues. The most interesting issue covered in the State's Assessment Report, from The Nature Conservancy's point of view, was beach access. The paper stated that:

> The availability of public beaches was cited as a major concern by the participants. Public access to the beaches along both sides of the shore is restricted save the (2) public beaches located at Assateague and Cape Charles. While this shortage severely limits the number of shore residents that have access to the beach, it also was noted as a factor influencing the growth of tourism.

> Acquisition of the barrier islands by The Nature Conservancy, while viewed by the Regional Advisory Committee as a positive action, will delay or perhaps prevent the transformation of the islands into additional public beach along the seaside. The membership expressed strong interest in the conversion of Parramore Island, the largest and most stable island within the system, to a national seashore or park. No action is expected by the Conservancy or the federal government until a study of the islands' ecosystems and the shore's attitudes regarding island usage has been completed.

A conflict pervading this discussion of public beach access to the barrier islands and along the shore was the issue of private property rights vs. the local and regional utilization of the beaches. (Rights of property owners extend to the low water mark).

Recognizing this interest in the barrier islands, there are significant property holdings in both counties owned by the federal (Ed. Note: Wallops and Fisherman Islands) and state (Ed. Note: Wreck Island) governments that could be developed as public beach or recreational areas. A role for the Coastal Zone Program was seen in facilitating administrative procedures permitting the conversion of the properties, in conjunction with Planning District Commission and local government action, to recreational uses. (Coastal Zone Regional Assessment Report (draft), September, 1975, pp. 6-7.)

A second issue of importance to the ecology of the entire barrier island chain is the 1972 State Wetlands Legislation. The paper stated that:

> The Eastern Shore of Virginia has extensive and productive wetlands that extend along the Bay and sea boundaries of the shore. Because of the large acreage embraced by the wetlands, the enactment of State Wetlands Legislation had a major impact upon the region. The law, which has been in effect since 1972, was seen as too restrictive and time consuming. The participants identified the difficulties as emerging from the state overview and not the local implementation of the program. (Coastal Zone Regional Assessment Report (draft), September, 1975, p. 8.)

For additional information, refer to the Coastal Zone Regional Assessment Report (draft), Appendix "G", and the Position Paper of Planning District Commission #22: On The Future of the Coastal Zone Management Program of the State of Virginia, Appendix G.

IV. ZONING STATUS OF THE BARRIER ISLANDS

Currently, all of the islands in Accomack and Northampton Counties are zoned for agriculture. No zoning change requests for the islands are pending. Zoning changes are first considered by the zoning boards of the respective counties, then voted on by the counties' Boards of Supervisors.

V. CONDEMNATION AUTHORITY

According to Virginia state laws, "Any city, town or county may establish and conduct a system of public recreation...may acquire land, buildings and other recreational facilities by gift, purchase, lease or condemnation..." (Title 15.1, Chapter 8, Section 271, Recreation Enabling Legislation of Va.)

VI. COUNTY WETLANDS BOARDS

A 1972 Virginia state law authorized counties to establish wetlands boards to review permit applications for dredging, filling, and construction in each county's wetlands. This responsibility at the state level is vested in the Marine Resources Commission. Accomack and Northampton Counties established wetlands boards in August, 1975. This additional element of local responsibility has not been entirely satisfactory to the two counties' leaders because of the constraints imposed by legislation on the wetlands boards. (See discussion of wetlands in the coastal zone position papers, Appendices D and E.)

VII. CONCLUSION

Accomack and Northampton Counties are in a nearly classical situation: small, relatively non-affluent rural communities facing what could be overnight physical, social and economic changes. Some of the anticipated changes are welcome, some are not, and the degree of acceptability varies between different individuals and groups in these communities.

Several points surface from this brief researching of the counties' governments, their activities and attitudes toward the islands, the issues of recreation and the presence of the Conservancy in the area.

One, it is clear that the two counties' Boards of Supervisors and their parks and recreation departments are very interested in the recreational resources of the area, and the potential of the islands in fulfilling local leisure needs and providing income from tourism. A strong desire to see Parramore as a National Seashore is shared by the local leaders who were interviewed. The question of recreational needs are discussed further in the recreation portion of the Social and Economic Analysis section of the Coast Reserve Study.

Two, it is also apparent that these bodies look to outside funding sources to pay for the acquisition, management, and support services for major recreation area development. Northampton County's Board is troubled by the need to raise $87,000 to match federal and state funds for the development of a mainland park; Accomack County's Board has expressed problems with raising the maintenance funds required for a new mainland park which would otherwise come into their possession free of charge. This raises questions about the counties' capacity to fund any major activities on the Conservancy's holdings even though various members of the Boards and parks departments have expressed interest in cooperative arrangements for daytime limited use of several of the islands under Conservancy ownership.

The counties look to state and federal agencies to provide the acquisition vehicles and the management and support services needed to establish and maintain new parks. Yet, these state and federal agencies are currently facing fiscal and personnel problems which severely limit their potential involvement in the new undertakings not high on their priority lists. This is further compounded by the attitude which most of these agencies share that once the islands are in the Conservancy's ownership, they are preserved for many of the same purposes and resources for which the agencies would manage them. Therefore, the islands in Conservancy ownership are not high on state and federal acquisition lists if they are under consideration at all.

Three, despite strong statements about planning for the future, at least in terms of recreation needs, there appears to be narrow thinking in the community about the planning and financing needed to sustain recreational development. If Parramore could ultimately be designated as a National Seashore by the National Park Service, the increased number of visitors from outside the community would put pressure on the area for lodging, eating, law enforcement, utilities, and other services which would mean increased taxes and the need for adequate community planning.

Four, the Boards of Supervisors and the Planning District Commission have expressed repeated concern about the large private ownership of prime recreation resources in the area. The Conservancy is the major focus involved in this issue since it owns 13 of the barrier islands, including the largest and most desirable ones. Given the Conservancy's strong desire to see the islands preserved as a unique ecosystem, it may be necessary for the counties and the Conservancy to work out suitable arrangements for the management of these islands to permit some flexibility for public use, whether the Conservancy retains ownership or transfers all or part of its holdings to other entities. It is important that the counties be willing to seriously explore various arrangements on the management and use of the islands on a limited basis since it is unlikely that the Conservancy would transfer any part of its current holdings without deed restrictions designed to prohibit overuse or any significant alteration of the ecological features of the 13 islands. It is necessary for the counties to understand that the Conservancy's position is based on the conviction that preservation of this area is an effort to endow the future with an environment which cannot be regenerated or duplicated, with resources which must successfully compete with human needs if people are to live in balance with nature. This conviction benefits in the long run both the immediate area and far beyond.

THE NATURE CONSERVANCY

I. BACKGROUND INFORMATION

The Nature Conservancy is a national "publicly supported", non-governmental, scientific and educational conservation organization exempt from taxation under Section 501 (c) (3) of the Internal Revenue Code. The Conservancy's resources are devoted to natural area preservation in the interest of biological diversity, scientific inquiry, and educational use. The Conservancy also seeks to exemplify a new land ethic and to encourage intelligent land use.

Article II of The Nature Conservancy's bylaws sets forth the objectives of the organization as follows:

> Recognizing a dependence on natural lands for environmental stability, for essential scientific inquiry, for wholesome human life, and in fact for the survival of abundant and varied life on earth, the objectives of The Nature Conservancy are (a) to preserve natural areas for biological diversity, for the uses of science, and for the wilderness experience; (b) to preserve open land for conservation of natural features, for pleasure or recreation, and for education; (c) to restore land; (d) to improve techniques of land preservation by demonstrating to others how to do it well, by studying and trying out new ways to do it better, and by devising standards and priorities for the preservation of natural areas; (e) to advance the cause of natural area preservation in the schools, in private enterprise, in government, and in other countries; (f) to advance the foregoing objectives in cooperation with other organizations having similar and related objectives.

The Conservancy works in seven basic ways to accomplish its objectives:

By accepting gifts of ecologically significant land for preservation;

By purchasing lands using funds available nationally from the Conservancy's own revolving fund and then repaid through fundraising;

By managing some 650 Conservancy-owned preserves using volunteers and staff;

By working with local, state and federal governments to help identify and preserve land and monitoring government preservation programs;

By acquiring land in advance of government agencies' ability to do so--often with considerable savings to the taxpayer.

By working systematically to identify the nation's ecologically vital areas in cooperation with private and public conservation and research agencies.

By assisting other private or public conservation bodies in acquiring or protecting natural lands and by accepting conservation easements.

II. ORGANIZATION

The Nature Conservancy, with a membership of approximately 25,000, is governed by an elected Board of Governors. In addition to its volunteer members, the Conservancy has a paid professional staff with backgrounds ranging from ecology to real estate and law. National headquarters are in metropolitan Washington, D.C. Regional offices are in San Francisco, Minneapolis, Atlanta and Boston. Field, Chapter, or project offices are also professionally staffed in an additional 10 states. At present, there are 30 Conservancy chapters chartered by the Board of Governors.

III. HISTORY

In 1917, the Ecological Society of America established the Committee for the Preservation of Natural Conditions, thus recognizing the fact that the nation's natural areas were endangered. It is to this committee of scientists, as well as its companion Committee for the Study of Plant and Animal Communities, that The Nature Conservancy traces its roots.

In 1946, the Committees became a separate entity, the Ecologists Union. After a few years of operation, during which the Union was primarily concerned with encouraging other groups to establish natural areas, the membership decided that a direct and active role in natural areas preservation could make the group more effective. Borrowing the name of an earlier established British group, the Ecologists Union became The Nature Conservancy in 1950. That same year the Conservancy was recognized as a non-profit association by the Internal Revenue Service. In 1951, the Conservancy was incorporated in Washington, D.C. as an organization chartered for scientific and educational purposes. At that time the Conservancy had 342 members.

The new organization spent several years experimenting with various methods of land preservation. Then in 1953 the first independent project was undertaken by the Conservancy at Mianus River Gorge in Westchester County, New York, when a group of Connecticut residents asked for affiliation with the Conservancy in order to raise money to preserve and protect the Gorge. In the years since, the Conservancy and its volunteer members have been involved in over a thousand projects involving all types of habitats across the continent, in the Caribbean and Latin America.

IV. ACQUISITION AND STEWARDSHIP

Although the Conservancy's origins date back to 1917, its active program of land acquisition began only 23 years ago with the purchase of lands within Mianus River Gorge in Westchester County, New York. By 1969, acquisitions had increased to over 100 per year and in 1972 the Conservancy topped the 200 per year mark. As of December 31, 1975, the Conservancy has been responsible for the acquisition of over 1,570 projects involving over 900,000 acres of forest, swamps, marshes, prairies, mountains, beaches, deserts and islands in 47 states, the Virgin Islands, Canada, and the Caribbean. The Conservancy owns over 650 preserves scattered throughout the United States and in the Virgin Islands. Table 4 shows a recent history of Conservancy land ownership.

TABLE 4

RECENT HISTORY OF CONSERVANCY LAND OWNERSHIP

Year	Acres
1966	18,659
1967	20,907
1968	47,006
1969	55,478
1970	47,779
1971	74,223
1972	87,019
1973	123,019
1974	127,076
1975	181,677

From 1953 to 1972, management on Nature Conservancy preserves was handled by a loosely knit network of volunteers. At the time of acquisition, an individual was identified or a committee appointed who would attend to the day-to-day stewardship needs associated with an area. Only on a few areas did the Conservancy have an endowment large enough to hire a land steward (Appendix H). This system of volunteers functioned adequately, and in many cases outstandingly, with very little supervison over the years. The foundation of the Conservancy's strong stewardship base of today was laid during those early development years. The Nature Conservancy is unique insofar as its local volunteer Stewardship Committees still accept the crucial responsibility of actively safe-guarding for present and future generations most of the natural land that the Conservancy has devoted all its professional expertise and resources to acquire. Effective utilization of these volunteers has been the key to the Conservancy's stewardship success and has allowed them to provide care for over 650 separate management units with a minimum of financial resources.

However, as the Conservancy began to acquire and retain more and more land, it gradually outstripped a total volunteer framework. In an effort to meet its new stewardship responsibilities, the Conservancy developed within a simple, straightforward, organizational framework, an effective and efficient means of providing the stewardship necessary for its preserves. This framework called for a professional National Director of Land Stewardship; professional Regional Land Stewards for each of our four Regional Offices; Chapter Stewardship Committees where Chapters exist; and local volunteer Stewardship Committees which attend to day-to-day stewardship for individual preserves. The responsibilities of each of these groups was detailed on pages II-1 through II-5 (Appendix I) of the organization's Preserve Management Manual drafted in 1972.

V. 1980 PROGRAM

In 1975, the Conservancy prepared and adopted a Long Range Plan which included 1980 program objectives. The plan describes the mission of each program, its organization in 1980, where they stood in 1975 in developement of this program, the strategy for achieving the mission by 1980, and the projected cost. In stewardship, this program calls for developing a diversified national preserve system by concentrating on the best preserves. Additional resources are to be secured and applied to its best or "Model" preserves with special emphasis on areas of national ecological significance where outstanding programs and/or research can be accommodated. Loosely defined, a "Model" preserve is an area which exemplifies the finest of Conservancy projects from identification through acquisition and management. These are the ecologically significant areas which the Conservancy would like to retain in its preserve inventory. They should be unique in their natural qualities, be able to maintain the integrity of the natural system over time, be relatively free from human impact, and the Conservancy should possess the ability to protect the area from destruction or alteration by man. These model preserves would serve as outdoor laboratories for research on problems of programmatic significance, house imaginative non-consumptive educational programs, be provided the best possible care and protection, and become centers for various forms of compatible public use.

VI. 1982 PROGRAM

The 1982 Long Range Plan continues to place increased emphasis on the Conservancy's stewardship role within the organization. A greater percentage of the organization's human and financial resources will be devoted to the stewardship of its preserves and the developement and implementation of use programs which complement the resource. By creating a selective preserve portfolio and systematically making grants available for new and creative programs as well as the defense of preserves, the Conservancy hopes to demonstrate it's reliability as an effective land steward.

Specifically:

1. The Conservancy will maintain a preserve portfolio of ecologically significant preserves or, preserves with an effective management entity and scientific or educational use programs.

2. All Conservancy preserves will have adequate stewardship programs and funding available to carry out the programs.

3. The stewardship of all TNC preserves transferred to other agencies will be monitored, as applicable.

4. Develop model preserves where ever possible and create new innovative programs to promote TNC's credibility as a reliable, effective land steward.

5. Test, and if feasible develop a national educational use program designed to utilize the capabilities of volunteers, involving the local school system and local community in the proper, non-destructive use of TNC preserves and to create an awareness of TNC and the importance of natural diversity.

6. Provide for the legal defense of Conservancy preserves to protect TNC's credibility as a land steward and TNC's real property tax exemption.

7. Develop a stewardship communications network to keep all committees and chapters informed of new programs and ideas.

VII. VIRGINIA COAST RESERVE OWNERSHIP CONSTRAINTS

The Title Search section of the Legislative Compendium points out that Parramore, Revel, Sandy and Cobb, have deed restrictions of various duration which prohibit public use at this time. While these deed restrictions present no problem in the protection of the islands by The Nature Conservancy, they do represent potential stumbling blocks in the types of programs which might be implemented under state and federal ownership. The Parramore Island deed also contains the additional restriction that should the Conservancy ever determine that it is in the best interest of preservation and management of the property to transfer the island, it shall first consider as possible recipients the Commonwealth of Virginia and the United States Bureau of Sport Fisheries and Wildlife (now the Fish and Wildlife Service).

If the Conservancy decided to sell or transfer all or part of the Virginia Coast Reserve, the organization would insist upon adequate deed restrictions to guarantee the perpetual preservation of the resource in its undeveloped and natural state. A number of state and federal agencies expressed a reluctance to accept deed restrictions which may obligate them to maintain a certain level of stewardship performance and prohibit them from exercising the operational flexibility that they may need in the future should their agency or department undergo changes in objectives or function.

Ship Shoal Island was used during World War II as an aerial bombing range by the U.S. Navy on the basis of 1942 and 1945 permits issued by the Commonwealth of Virginia. As a result of this action, unexploded ordnance is still found on many parts of the island. Although these permits were apparently invalid since Virginia did not own much of the land affected, neither the State or U.S. government would agree to the costly and difficult task of removing said explosives nor would they assume the liability for any injury which might occur as a result of use of the island. This has created an extremely dangerous situation that prohibits public use of this fine natural area.

There still exists a major outstanding fundraising debt in excess of $450,000 on Smith Island. Until this money is raised, the Conservancy cannot transfer this island by way of a gift, and it is doubtful that any state or federal agency would be willing to purchase the island with the deed restrictions that the Conservancy deems necessary. Several other islands also have key and bothersome in-holdings which the Conservancy seems best equipped to acquire at this time. Several of these in-holdings are currently under negotiation.

VIII. MANAGEMENT CONSIDERATIONS

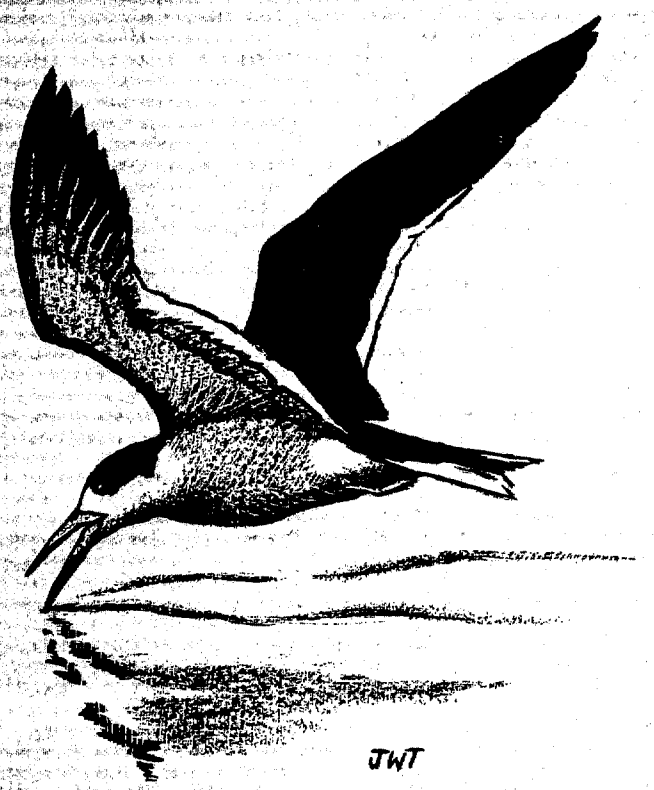
The easiest way for the Conservancy to insure that its preservation objectives for the Virginia Coast Reserve are met over time is to retain a major presence in the ownership of the system. To do this, the Conservancy would have to identify a source of funding, since it could not rely entirely on a volunteer stewardship unit to meet all the management needs of the islands and does not have the internal budgetary capabilities to absorb the program into its present operation. A study of similar management units, both public and private, has indicated that minimum annual operating cost would run about $50,000 per year in 1975 dollars while the ideal annual budget would be $100,000 per year. The $50,000 budget includes salaries for a land steward, maintenance person, secretary, office expenses, and general maintenance and equipment costs. (See sample budget in Stewardship Strategy Section.) These annual operating budget figures are considerably less than budget figures for similar federal and state areas since the Conservancy could offset some of its expenses through the use of volunteer resources. In addition, the Conservancy would not be obligated, expected, or have the desire to provide many of the facilities, programs and services that are traditionally associated with publicly managed lands. Under Conservancy ownership and management our highest and first priority would be the preservation of the resource. Increased funding would provide for the development and implementation of scientific research and educational use programs. Public enjoyment and use of the island resources would be accommodated once these early needs are addressed.

IX. CONCLUSIONS

Among the nearly 660 preserves still owned and managed by The Nature Conservancy, there are a number of real jewels, and among these, the Virginia Coast Reserve is in many ways the best. To our knowledge, it is the largest preserve managed by a private group in the Atlantic coastal zone where the pressure of development and rising land prices have made the establishment of such preserves increasingly difficult. Even in the public sector there are very few coastal sanctuaries that rival this 33,000 acre natural area, and there are, of course, no duplicates. The combination of private organizational ownership, the large size and significance, and the fact that it is comprised of undeveloped barrier islands which are increasingly rare and threatened resources make the Virginia Coast Reserve the most potentially important private preserve in the nation today for research, education, and the development of stewardship tools. It is for these reasons, coupled with the way the islands impact on the organizations long range "model preserve" program, that the Conservancy has decided to retain responsibility for the Islands' stewardship.

The 18 month Virginia Coast Reserve Study has reinforced all our prior belief about the high quality and significance of these islands and their natural systems and has laid an important baseline for future research efforts. Building upon the perspectives engendered by these earlier studies, the Conservancy now has the opportunity and indeed a responsibility to see that we do not now turn our attention form the barrier islands but actually that we intensify our efforts.

Stewardship Strategy



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STEWARDSHIP SCHEME

This section of the Virginia Coast Reserve Study outlines significant findings, decisions and proposed future involvement by The Nature Conservancy within the Virginia Barrier Islands. Stewardship decisions for the Virginia Coast Reserve are based on a synthesis of data obtained within the Virginia Coast Reserve Study and presented in four volumes: Ecosystem Description; Legislative Compendium, Title Search and Acquisition Priorities; Social and Economic Analysis; and Stewardship. This summary identifies the most important decisions and the basis from which they were made.

The objective of the Conservancy's concern with the Virginia Barrier Islands is the preservation of this unique natural system. To achieve this end, various stewardship goals and priorities have been identified by the professionals associated with the Virginia Coast Reserve Study. These goals include the acquisition of additional islands, marshes and inholdings, preservation and restoration of sensitive ecological components, dealing with human impact on the Reserve, analyzing and identifying government interests and their stewardship capabilities, and proposing a plan for long term Conservancy involvement within the Virginia Coast Reserve.

The 18-month study of the Virginia Coast Reserve, made possible by the Mary Flagler Cary Charitable Trust, has demonstrated the high quality and significance of these islands and their natural systems. Nothing quite like them exists anywhere along the U.S. coasts, though there are many other barrier islands stretching from New Hampshire, around the Gulf of Mexico, to southern Texas. The precise mix of sea and sand, biological organisms, coastal dynamics, and other system attributes are not duplicated on any of the other islands. Of significant ecological importance is the fact that the Virginia Barrier Island system is essentially preserved intact through a unique cooperative effort of the private sector and dedicated institutions. The islands' ecological significance combined with private ownership and management provide a rare opportunity for the Virginia Barrier Islands to assume an even greater role in future barrier island protection and stewardship in the wider sphere of perpetuating natural ecological diversity and quality. The barrier islands make a great contribution as a laboratory of sound ecological preservation and management, and as a demonstration of the benefits which can be derived from this practice.

I. PRESERVE OWNERSHIP

Further development of these parameters depends largely on the final ownership of the Virginia Coast Reserve. Therefore, one of the most critical conclusions reached through this study concerns the Reserve's final disposition. The decision has been reached to retain the Virginia Coast Reserve under Nature Conservancy stewardship. The management study analyzed seven entities' interest in the Reserve. Agency objectives, authorizing authority, structure, plans, adjacent landholdings, performance in similar circumstances, and ability and willingness to accept deed restrictions or other assurances of management continuity were assessed. These were compared to Virginia Coast Reserve preservation objectives and priorities developed throughout other sections of this study. This systematic scrutiny eliminated the possibility of land ownership at this time by all government agencies except the Fish and Wildlife Service.

All the decisions affecting title transferability of the Virginia Barrier Islands are subject to some intrinsic limitations. These include deed restrictions or financial debts which encumber several islands. The previous owners of Parramore, Revel and Cobb Islands retained certain use rights, title to property, or restrictions of title transfer to all or parts of their former land. Ship Shoal Island is restricted through the liability of an unexploded ordinance remaining from the area's former use as a bombing range. Funds used to purchase Smith Island from The Nature Conservancy's Project Revolving Fund still represent a $450,000 outstanding debt. The title search also brought to light some other deed limitations which may affect title transfer at this time.

II. AGENCIES ANALYZED DURING THE VIRGINIA COAST RESERVE STUDY

A. U.S. DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE: Virginia Coast Reserve preservation objectives and the National Park Service's recreation orientation do not mesh. Park Service representatives have stated that there is no interest in a National Seashore complex for the islands by their agency and no need for one based on existing regional facilities and recreational demands. All past proposed National Seashore plans focused on Parramore Island which has deed restrictions that preclude title transfer of this island to the National Park Service at this time.

B. U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE: Preservation objectives closely match The Nature Conservancy's. Federal enforcement powers would help protect sensitive components of the system. Fish and Wildlife Service has given high priority to the acquisition of Atlantic Coast wetlands to preserve critical black duck wintering habitat which includes the salt marsh component of the Virginia Coast Reserve. Concern over current funding and management problems of existing National Wildlife Refuges, including several formerly transferred by The Nature Conservancy to the Fish and Wildlife Service, dictates that firm commitments to proper management be obtained before any sale or lease is negotiated with this agency.

C. VIRGINIA DIVISION OF PARKS: Objectives and performance of natural areas preservation coincide with The Naure Conservancy objectives. Lack of funding for acquisitions and the belief of the Division that existing security is offered by the Conservancy eliminates this Division's acquisition interest.

D. VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES: Total Conservancy goals and objectives for the Virginia Coast Reserve would probably not be met by this agency. Future cooperative management agreements may develop between The Nature Conservancy and the Commission which would be beneficial to both.

E. ACCOMACK AND NORTHAMPTON COUNTIES: The Counties lack the capacity to fund any major action regarding the Conservancy's holdings. They should not be granted title to any of the Reserve's lands. Suitable arrangements may be worked out to accommodate some County sponsored public use.

F. THE NATURE CONSERVANCY: The Conservancy, having set the objectives of the Virginia Coast Reserve's preservation, is most amenable to fulfilling them. The Conservancy's physical presence would insure long-term adherance to these objectives. In cooperation with state and federal agencies, private land stewardship can be explored, perhaps helping ameliorate some of the

deficiencies that exist in government land stewardship programs. The Nature Conservancy presently is most familiar with the island system and is emphasizing its self-appointed land stewardship role in keeping with its Core Programs of 1980 and 1982. The Nature Conservancy has secured assurance of multiple agency cooperation in its scheme, yet enjoys the lateral mobility of administrative and stewardship procedures of a private, non-governmental organization. Inter-agency layers of protection can be developed for the island system by The Nature Conservancy. The Conservancy's major inadequacy is the assurance of future stewardship funding.

III. CONCLUSIONS

Based on this evidence the Virginia Coast Reserve Study recommends that the Reserve be maintained under Nature Conservancy stewardship and be developed as a model preserve commensurate with long-term goals outlined in The Nature Conservancy's 1980 and 1982 Long Range Plans. This program identifies the greatest disparity between the objectives defined in the 1980 Core Program and the current situation; "It is in Preserve Management (now Land Stewardship) that we are furthest from the 1980 Core program". Retaining control and administration of the Virginia Coast Reserve would begin to counteract this deficiency.

Beaches, uplands and interior wetlands should be retained by The Nature Conservancy. Salt marsh wetlands may be leased or purchased by the Fish and Wildlife Service and managed as waterfowl refuge areas. The increased surveillance and enforcement generated by this cooperative arrangement benefits the islands, yet enables the Fish and Wildlife Service to avoid the management problems associated with supervision of beach and upland recreation. The Nature Conservancy still would maintain administrative responsibility for the system. Private ownership would prevent non-compatible, increased public use of the system, which often accompanies public ownership.

The Conservancy has a tremendous opportunity and, indeed, a responsibility to see that we continue to focus our attention on the barrier islands, and that we intensify our efforts in such a way that what has been accomplished so far has a multiplying effect in helping us to achieve additional conservation objectives both in the barrier islands and elsewhere. We have determined that the Conservancy must retain ownership and management responsibilities in spite of the difficult task this will set and the ease with which we might transfer these lands to another agency for management. We always retain the future option of transferring the islands to some other agency if we determine that this would be in their best interest. However, we have not found any agency which would be either perfectly suitable, reliable or even more effective than the Conservancy is apt to be. Combining these conclusions with the important opportunites represented by the private sector management which continues the private sector action by which these resources were preserved, and without which they would otherwise have certainly been lost to the forces of development, we are determined to retain stewardship responsibility for the islands.

One of the crucial reasons for the Conservancy's retaining ownership at this time is the preservation of barrier islands is not yet assured. They are threatened by the impending increased industrialization development on all or parts of the Eastern shore. In spite of the financial uncertainties that may plague private sector actions of this kind, the Conservancy is at least as able to resist these pressures on and around the islands as any of the potential alternative managers. However, it is the Conservancy's increasing conviction

that in the face of relentless pervasive pressures for land alteration in this country, it is going to be necessary to pursue preservation objectives in a much more comprehensive manner than we have in the past. Because of the size, scope and conspicuously outstanding quality of the barrier islands, they represent perhaps the best opportunity in the country today to act as a laboratory for experimenting with just such comprehensive preservation planning as it pertains to the islands themselves, the region in which they are located and to barrier islands generally as a particular ecological system more or less universally affected by the same laws, practices and pressures.

IV. Virginia Coast Reserve Office

This scheme would involve The Nature Conservancy as the immediate land steward responsible for the islands' supervision. Duties of the Virginia Coast Reserve office would switch from temporary, primarily academic orientation, to those associated with permanent land preservation. Information from similar federal and private sanctuaries indicate that this would include increasing personnel, housing, office space and equipment. The budget for this commitment would vary according to the degree of emphasis placed on the preservation, research and recreation ammenities of the islands. The proposed annual budget of $50,000, Table 1, would provide for basic stewardship responsibilites, required research and some financial flexibility to allow personnel to explore future acquisitions and program development.

V. Virginia Coast Reserve Office Programs

Added to this basic stewardship program which surveys, manages and protects the Reserve, the program will expand to accomplish even greater objectives.

A. ADDED LAYERS OF PROTECTION: The preserve may additionally be protected with several layers of overlapping, government sponsored protection. These are primarily status designations which may be obtained while the islands remain in Conservancy ownership. They include protection at various levels:

1. Federal:
   a. U.S. Department of the Interior, National Park Service, National Natural Landmark, National Environmental Education Landmark.
   b. U.S. Department of the Interior, Fish and Wildlife Service Wetlands lease or easement agreement.
   c. U.S. Department of Commerce, National Oceanographic and Atmospheric Association, Marine or estuarine sanctuary.
2. State:
   a. State Water Control Board, critical groundwater area.
   b. Division of Planning and Community Affairs, state critical area, protected by the Coastal Zone Management Act.
   c. Division of Game and Inland Fisheries, wetlands lease or easement agreement.
3. Local: County land use plans-designation as critical environmental areas.

(Additional protected designations are outlined in Volume II of this study in the Legislative Compendium Section).

B. SCIENTIFIC DEVELOPMENTS AND EDUCATIONAL OPPORTUNITIES: The immense value of the Virginia Coast Reserve as a living natural laboratory has barely been realized. The research sponsored by the Virginia Coast Reserve Study has awakened the scientific community to study possibilities available nowhere else on the Atlantic Coastal Plain. Our work has shown that perhaps the most stirring opportunities provided by the islands are in the fields of future island preservation, island biogeography and ecosystem management and restoration. As testimony to their value, universities, researchers and businessmen have encouraged the Conservancy to retain ownership of the islands and proceed in developing a Virginia Barrier Islands Research Consortium (see Appendix). This facility would provide a nucleus for development of undergraduate, graduate and post-graduate studies in environmental processes of the coastal zone which would be applicable to broader scale land use decisions throughout this region.

C. ISLAND USE PROGRAM: The value of the islands as a recreational asset will incorporate planned compatible use programs for the islands. Various methods of allocating this sparce resource are proposed including maintenance of existing, non-destructive, traditional use; cooperative regional planning and organized recreational areas supervised by local recreation commissions; and, organized wilderness outings for groups such as the Wilderness Society, Sierra Club and Audubon Society.

D. LAND ACQUISITION AND REGIONAL DEVELOPMENT: The ongoing identification and acquisition of Eastern Shore natural areas would further stimulate the Conservancy's already enormous own regional ecological protection. The impact of the proposed Conservancy's office and island-related preservation activities will develop a following even further promoting the preservation of vital island and wetland areas by regional decision-makers.

Each of these tasks described above deserves a fuller explanation and consideration of the resources and programs that will have to be developed in order to make them possible. The fundamental resource for all these is the barrier islands themselves in their pristine natural condition. Through our systematic work, and setting of rational priorities both by the Conservancy and its cooperators, these islands have been set aside as the most impressive privately managed natural area preserve in the nation.

E. INTEGRATED BARRIER ISLAND-NATURE CONSERVANCY PROGRAM: The number of relevant Nature Conservancy activities which would both contribute to and benefit from the full development of the Virginia Barrier Islands as the main Conservancy reserve for research development and application are multi-dimensional.

Barrier Islands and Other Islands: No other conservation organization has attempted the land conservation activities in which The Nature Conservancy engages. Our accomplishments in the field of island preservation are substantial yet they are not nearly enough to act as a significant counterweight to the pressure for land alteration which is resurging with renewed force in coastal zones. We have had a particular focus within our programs on the coastal zone and in the barrier islands alone we have acquired not only the Virginia Barrier Islands, but Wassaw, Wolfe and Egg in Georgia, Turtle in South Carolina and tracts on Sanibel, St. Vincent, Ten Thousand Islands, Jack's Island and Jupiter Islands in Florida and

Fire Island in New York. Among the non-sandy coastal islands we have preserved over 40 acres on the Coast of Maine, Hamilton Island in the Chesapeake Bay, tracts on Nantucket and Martha's Vinyard in Massachusetts, Horse Island in Connecticut, Lignumvitae Shell Key and other tracts in the Florida Keys. The number of coastal tracts which are nearly islands or similar to islands and a number of inland islands in lakes and rivers throughout the country is tremendous.

The Conservancy's interest in the coast goes far back in its organizational history. In the early 1950's, critical coastal resources, such as salt marshes and barrier islands and estuaries, had been identified as areas of concentration. An inventory was begun in 1956 which is variously credited with sparking diverse subsequent activity by other institutions and agencies, though the Conservancy's own emerging programs emphasized protection through acquisition, as noted above. In later years, inventory programs were initiated on the coast of Maine and in the Chesapeake Bay. Of the Conservancy's current eight State Natural Heritage Programs, four of them are in coastal states where they have contributed to and benefited from coastal zone management programs.

This wide experience with island and coastal protection should be made use of both by The Nature Conservancy and other cooperating conservation use groups. Virginia Barrier Island stewardship and research programs would provide the Conservancy with an excellent format for future concentration in this area. It is our intent to further protection of the coastal zone through a concentrated cooperative effort of conservationists based on The Nature Conservancy's experience in the Virginia Barrier Islands.

VIRGINIA COAST RESERVE

BUDGETS

The following budgets are comprised from information gathered on refuges similar to the Virginia Coast Reserve throughout the Eastern Coastal States. Analysis of data supplied by five federal National Wildlife Refuges, two adjacent state game refuges, and one private refuge was collected. This led to the construction of the minimum and ideal operating budgets and the initial start-up costs which are presented below.

VIRGINIA COAST RESERVE

MINIMUM OPERATING BUDGET

Estimated In 1975 Dollars

ANNUAL EXPENSES

I. SALARIES		
Refuge Manager	$	13,000
Benefits 12%		1,560
Patrol/Maintenance Person		8,400
Benefits 12%		1,008
Secretary (2/3 time)		4,000
Benefits 12%		480
TOTAL	$	28,448
II. OFFICE OPERATION		
Rental	$	2,400
Utilities		1,500
TOTAL	$	3,900
III. OFFICE EXPENSES		
Telephone	$	1,000
Travel		1,500
Postage		200
Printing		500
Meetings & Conventions		200
Insurance (boats, vehicles, etc.)		700
Office Supplies		500
Publications		300
Equipment Expenses		50
TOTAL	$	4,950

ANNUAL EXPENSES

IV.	REFUGE TRANSPORTATION	
	Truck Depreciation (1 vehicle, 6 year life, $6,000 new)	$ 1,000
	Truck: Fuel, Maintenance (1 vehicle)	1,100
	Boat (1 boat, 10 year life, $3,500 new)	350
	Motor (1 motor, 3 year life, $1,500 new)	500
	Boat: Fuel, Maintenance	900
	Miscellaneous Boat Expenses	500
	Plane Rental (twice a month @$25/hr.)	650
	TOTAL	$ 5,000
V.	RESEARCH PROGRAMS (Annual Research Necessary to Manage Islands)1/	
	*Breeding Bird Survey (Identify & monitor annual changes & locations to pinpoint sensitive areas)	
	*Geological Process Monitoring Program	
	*Deer Population Surveys on Parramore & Smith Islands	
	*Study methods & determination of cost for exotic species eradication (e.g. pheasants, blacktailed jack rabbits, feral livestock, Russian thesil, etc.)	
	*Ecosystem Restoration (e.g. cattle & sheep damage on Hog Island)	
	TOTAL	$ 4,000
VI.	CONTINGENCY FUND	$ 2,500
	TOTAL BUDGET	$ 48,798

1/ Supplemental Fundraising Needed

VIRGINIA COAST RESERVE

IDEAL OPERATING BUDGET

Estimated in 1975 Dollars

ANNUAL EXPENSES

I. SALARIES		
Refuge Manager		$ 17,600
Benefits 12%		2,102
Administrative Assistant		14,000
Benefits 12%		2,680
Patrol/Maintenance Person		8,400
Benefits 12%		1,008
Secretary (2/3 time)		4,000
Benefits 12%		480
	TOTAL	$ 50,270
II. OFFICE OPERATION		
Rental		$ 2,400
Utilities		1,500
	TOTAL	$ 3,900
III. OFFICE EXPENSES		
Telephone		$ 2,000
Travel		2,000
Postage		200
Printing		500
Meetings & Conventions		200
Insurance (boats, vehicles, etc.)		700
Office Supplies		500
Publications		300
Equipment Expenses		50
	TOTAL	$ 6,450

IDEAL OPERATING BUDGET CONTINUED

IV.	REFUGE TRANSPORTATION	
	Truck Depreciation (2 vehicles, 6 year life, $6,000 new)	$ 2,000
	Truck: Fuel, Maintenance (2 vehicles)	2,200
	Boats (2 boats, 10 year life, $3,500 new each)	700
	Motor (2 motors, 3 year life, $1,500 new each)	1,000
	Boat: Fuel, Maintenance	900
	Miscellaneous Boat Expenses	500
	Plane Rental (twice a month @$25/hour)	1,300
	TOTAL	$ 8,600
V.	TNC SPONSORED PROGRAMS AND RESEARCH (Annual Research Necessary to Manage Islands)	
	°Breeding Bird Survey (Identify and monitor annual changes and locations to pinpoint sensitive areas)	
	°Geological Process Monitoring Program	
	°Deer Population Surveys on Parramore and Smith Islands	
	°Study methods and determine cost of eradicating exotic species (e.g. pheasants, blacktailed jack rabbits, feral livestock, Russian thesil, etc.)	
	°Ecosystem Restoration (e.g. cattle and sheep damage on Hog Island)	
	TOTAL	$ 20,000
VI.	LEGAL FUND	$ 3,000
VII.	CONTINGENCY FUND	$ 5,000
	TOTAL BUDGET	$ 97,220

VIRGINIA COAST RESERVE

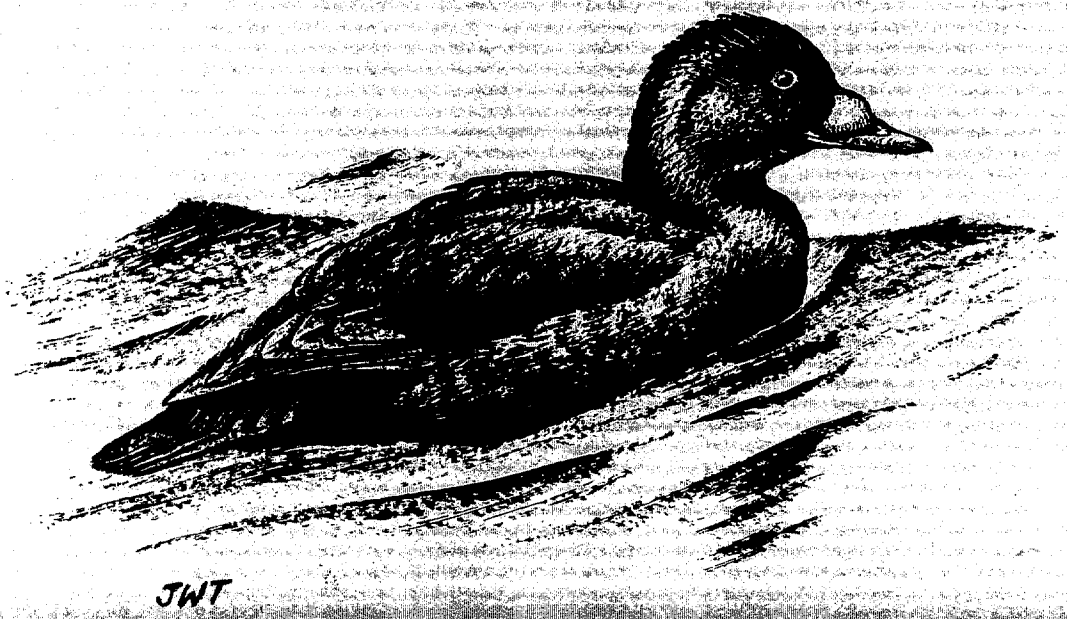
INITIAL EXPENDITURES

Estimated in 1975 Dollars

Land and Buildings*		
Maintenance Building		$10,000
Second Boat and Motor		5,000
Island Patrol Vehicle		2,000
Radio System (Ship-to-Shore)		5,000
Camera		250
Dictating Equipment		500
Typewriter		700
Office Furniture		525
	TOTAL	$29,275

*It is the Conservancy's intention to maintain a long term presence in the Eastern Shore of Virginia. Therefore, we will be looking for a convenient location to establish an office and resident caretaker facility within easy access to the water. In the long run, this site could also serve as an Ecological Research Station for the host of colleges, universities and independent researchers who have expressed an interest in studying the islands. Cost of this acquisition is not yet known since the site has not been identified.

Ecological Considerations



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Smith Island

APPENDIX

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ECOLOGICAL CONSIDERATIONS

The Nature Conservancy must insure the protection of the Virginia Barrier Islands. Portions of the Virginia Coast Reserve Study were designated to identify the islands' operationally significant, ecologically sensitive components. These parameters measure the systems' integrity. Efforts to protect the islands' natural diversity hinge on them.

The Conservancy's natural area philosophy emphasizes preserve stewardship rather than preserve management. This subtle difference stresses a laissez-faire approach to the preservation of natural areas. Land stewards are the overseers of natural processes. Their efforts are directed to preserve natural area resources and to interfere with existing processes only benignly or beneficially. Benign intervention includes properly structured research, educational, or recreational uses. Beneficial intervention includes protective or restorative measures.

Historically, human influence of the islands has been very pervasive and has interfered with existing natural systems frequently. This wide-spread influence is detailed in The Ecosystem Description Volume of the Virginia Coast Reserve Study under Section One, Land Use History - A Study of Man's Influence on the Virginia Barrier Islands. The Conservancy's program of protecting natural systems includes the manipulation of existing human-induced habitats into more natural ones as well as monitoring indicative processes in existing natural environments. This Ecological Considerations Section relies on the information produced in other parts of the Virginia Coast Reserve Study, particularly The Ecosystem Description, documents prepared by various contractors, and independent sources. It outlines the information which supports a plan for resource stewardship.

Ecological sensitivity maps accompany this text at the end of this section. They define portions of the Virginia Coast Reserve which are considered sensitive to human disruption. With time, these maps will require revision as these areas change with the shifting barrier island resource. The theory behind a barrier island stewardship plan endures longer than the absolute location of some of the areas it is designed to protect. The following text deals with selected components of the Virginia Coast Reserve system and identifies their sensitive aspects.

I. SOILS AND GEOLOGY

The soil and geological systems of the Virginia Coast Reserve are the substrate for the development of the islands' natural communities. The three are inextricably linked. Disturbance of one affects the other. This section deals with the properties of the soils themselves which make them susceptable to environmental alteration and the Geological considerations of Preserve Stewardship. This includes the effects that disturbance of some associated biotic communities have on soil types. Soils and Geological processes may dictate the sensitivity of portions of the reserve.

A. Soils

Beach soils are not particularly sensitive to disturbance from the human activity normally associated with the barrier islands, excluding motor

vehicle traffic. They resist permanent soil compaction. Their apparent resilience may be compounded by associated biological communities. They support communities of terrestrial arthropods and crustacea which are susceptible to extensive beach traffic. Beaches often provide nesting habitat for a variety of ground-nesting birds. This aspect of their sensitivity is treated later within this section.

Corolla soils have a surface layer of fine sand that is especially susceptible to wind erosion. They are generally well vegetated with plants that resist deflation. When unvegetated, they are subject to severe wind erosion. Excessive traffic or disturbance to this soil results in the deterioration of the protective plant cover and leads to erosion. Soil scientists of the U.S. Soil Conservation Service observed ongoing wind erosion in sparsely vegetated locations (Cullipher, 1976). The overwash phase of the corolla soil is often selected by beach nesting bird species for breeding sites. Colonizing plant species established here provide resistance to overwash and require protection from beach traffic. The entire corolla series is subject to use limitations partially due to frequent tidal flooding and partially due to sensitive, tenuously vegetated areas. These later regions are defined later in this section.

Duckston soils are not particularly sensitive to research, educational, or light recreational use. Their suitability to all of these uses is restricted by flooding and wetness.

Newhan soils have a loose surface layer of pale brown sand. They occupy upland portions of the islands as dunes. The loose soil is very susceptible to wind erosion. Vegetation cover varies and some types are more sensitive to disturbance than others. These areas are all vulnerable to overuse and should be protected, especially along frontal dunes and steep slopes.

Sulfaquent soils are primarily the tidal marsh soils of the Virginia Coast Reserve characterized by 0.75% or greater sulfur content. They are broadly divided into two groups: silty sulfaquents, the dominant component, and sandy sulfaquents. Sulfaquents can withstand most of the use activities they have traditionally supported. The soils are most sensitive to disturbance due to dredging. Soils scientists who conducted the field survey for the Conservancy caution that disturbance of the silty sulfaquents, such as accompanies dredging, would be detrimental to shellfish and other benthic fauna. The fine particles of this soil remain in suspension for long periods, are subject to movement by tidal action and may cover bottom organisms. Sulfaquents must be kept flooded to maintain soil pH in the neutral to slightly alkaline range. When the soils are drained, as from marsh drainage or dredging, sulfides oxidize and soils become acidic (pH 3) (Cullipher, 1976).

These same scientists cautioned against the sensitivity of all island soils to vehicular traffic which destroys vegetation, thereby aggravating wind erosion or compacting soils.

B. Geology

The geological processes operating within the reserve are responsible for the frequent, rapid ubiquitous changes in island position, size, shape and number. It has been pointed out in the geological section of Volume I that perhaps the greatest problem in stewardship of this coastal system is

the discrepency between the predominant physical processes operating within the reserve and the legal system which legislates these processes. Specific management recommendations are elaborated on in Volume I. The most pressing sensitivities here are in the realm of establishing ownership of newly emergent islands within the Virginia Coast Reserve system. There is substantial geological justification for claiming that new ebb tide delta islands will emerge adjacent to the northern shores of Hog, Cobb and Myrtle Islands. These islands will eventually merge with their barrier island neighbor. Legal frame work should be developed to assimilate these into the reserve system quickly. Similarly flood tide delta and inlet islands should be assimilated as soon as possible. These often retain their autonomy from other islands, not merging with them, and may become major barrier islands themselves. Monitoring of these processes and actions on existing newly emerged islands are imperative.

The Conservancy should adopt a deliberate policy of minimum interference with the natural geological processes acting on the islands. By publicizing this program and its active components it will begin to establish a widespread local understanding of the processes acting upon the islands. This will help avoid a direct conflict between preservation of the natural system and arbitrarily attempting its stabilization.

There are several sensitive areas defined by the geological analysis. Inlets can be expected to break through at the Mud Hole on Smith Island, south of the midpoint of Cobb Island and south of the marsh on Cedar Island. No permanent facilities should be established at these areas nor should they be dependent on access across them. Overwash deposits frequently bury commercial shellfish grounds to the rear of many islands. Efforts should be made to prevent this from happening by establishing marsh grass plantings on these deposits. Dredge spoils frequently a by-product of dredging activities, can best be disposed of in an ecologically sound manner by beach nourishment projects, provided the material is of the proper grain size and is uncontaminated. Projects should also consider the special sensitivities of other natural components of the island systems. This helps eliminate spoil disposal problems in wetland areas. These agreements should be considered only when the Conservancy does not oppose the actual dredging project on other grounds.

II. VEGETATION

The plant community associations of the Virginia Coast Reserve are the result of interaction between natural and human influences. The barrier islands' vegetation conforms with the long-term natural stresses of the island system. Species are adapted to cope with such natural events as burial, overwash, and physiological drought. Human induced perturbations of this natural scheme have not evolved as a part of the system. As a result, they are often disruptive to natural processes. Human influence on the islands' vegetation has most often resulted from livestock grazing, fires, and traffic (Volume I, Section 1).

Certain portions of the islands' plant communities are more ecologically sensitive than others. These areas are shown on the appended maps. The following section identifies community types and individual species which should be given special protection. Much of this material is derived from Volume I, and McCaffrey (1975).

A. Sensitive Communities

The upland vegetation cover types which are extremely sensitive are the foredune grassland (A), sparse grassland (g), and foredune-sparse grassland (Ag). They require protection from trampling caused by pedestrians, vehicles, or livestock. These areas are often recovering from sand burial. Successful plant establishment is important in capturing and maintaining sand, temporarily stabilizing it. Traffic in these regions can uproot vegetation or damage the fragile spreading root system responsible for the plants' sustenance and sand binding ability. Pressure on the soil above their roots breaks the plants' life support system. The grasses die and the dunes are exposed to the erosive forces of the wind. This leads to the deflation of these areas, a situation known as dune "blowout". Blowouts are caused by human or livestock trafficking across these areas on foot or by vehicle (Normann, 1975). Livestock either graze or trample the plants, thus damaging them. A specific discussion of the effects of grazing on salt marshes and sand dunes follows in the portion of this section dealing with exotic mammal species. These communities can sustain some occasional pedestrian traffic. To protect them from abuse, vehicles should be prohibited from the islands and visitors cautioned to avoid these areas. When extensive foot and motor vehicle traffic must cross these areas, it is best to funnel them through recent overwash regions.

Several wetland mapping units are vulnerable to a lesser degree. These include the upper (Mm) and lower (m) salt marshes, brackish (M) and fresh (F) marshes and salt flat (s) edges. These correspond to the preserve's drainages, wetlands, and tidelands and are generally recognized as vital areas of special ecological value requiring protection (Clark, 1974). They are not as susceptible to pedestrian traffic as the formerly mentioned areas due partly to their higher resiliency and partly because they are less attractive for intensive recreation. Pedestrian traffic is permissible but livestock grazing and vehicle traffic are damaging to the species' composition and community substrate.

Dredging and ditching pose a serious threat to parts of the preserve's wetlands. Salt marsh components of the system are particularly sensitive to these practices. They directly destroy portions of these productive communities permanently and are diametrically opposed to The Nature Conservancy's goals for the Virginia Coast Reserve. They should be precluded from any portion of the preserve. The deposition of dredge spoil represents a secondary effect of this activity. This material may be silty or sandy (Cullipher, 1976). Alternatives for its disposal include beach nourishment, marsh development, volunteer marsh creation, and refuge island creation (Department of the Army, 1976; Gilchrist, 1975).

Marsh development and volunteer marsh creation describe attempts to deposit spoil on areas that do not support salt marsh vegetation and either create marsh by planting cordgrass sprouts or allow marsh to develop naturally at these sights. These efforts have failed to date due to erosion caused by tides and wind and grazing by waterfowl. Investigators are exploring the possibility of stabilizing these silty materials with shell retaining walls and silt-ban curtains. Refuge island creation is a concept designed to provide refuge for clapper rails during high tides and storms. During these periods, the birds have historically suffered large population losses. Creating spoil islands on existing marshes would provide refuge for the rails during these times. This option provides an attractive

alternative for wildlife managers. It would foster higher harvestable supplies of rails to the hunter. Manipulating natural systems, however, is not part of the Conservancy's land stewardship policy. Accordingly, refuge islands should not be built on the Virginia Coast Reserve's marshes.

Beach nourishment describes the deposition of sandy spoil material on upland, usually ocean front lands. It is a temporary method of ameliorating the symptoms of the island erosion. The practice apparently has few detrimental consequences to vegetation when correctly done. Unfortunate instances of disruption of beach nesting birds have occurred associated with this practice. This disposal method could be tolerated with the Virginia Coast Reserve provided it resulted from only the dredging maintenance of the existing waterways and does not provide areas for disposal of the spoil resulting from newly authorized projects. These seemingly beneficial spoil disposal projects are often used as pawns to avert opposition to proposed dredging projects. Discussions with National Wildlife Refuge managers have indicated a distrust of agreements between preserve managers and the U.S. Army Corp of Engineers, the agency responsible for spoil deposition. Past performance indicates these arrangements are often difficult to mesh with refuge objectives. The Conservancy should oppose these schemes when they are disruptive to natural communities or are used as justification for dredging operations which may be detrimental to the preservation of the Virginia Coast Reserve.

B. Sensitive Species

In addition to community types, there are several individual plant species which merit special stewardship within the reserve. The Virginia Barrier Islands occupy a half-way position on the Atlantic Coastal Plain. The islands contain species populations that represent the limits of, or are disjunct groups of major plant populations to the north, south, or west. These island populations are important representatives of species living at the edge of their range. They may be surviving at the limit of their adaptability. Under these conditions these species provide insight into the organisms' ecological amplitude (Jenkins, 1974). Each individual plant is particularly important, as it represents an inordinately important portion of the total species' ecological and genetic adaptability. A few plants or even a single individual naturally occurring at a range limit or as an outlier population is more important than entire aggregates within the normal range of the species. Community associations of range limit and outlier species with the typical biota of this region and the outliers and range limits of other regions are unique among the Virginia Barrier Islands. Volume I contains a complete list of these plant species. Locations of particularly sensitive individuals, groups or cover-types are considered here.

1. Parramore Island: The interior open dune system at the northern end of the island is unique within the Virginia Coast Reserve. Such unvegetated regions of other coastal islands are mobile and threaten other island communities and features with burial. This region on Parramore is a static one and shows no evidence of shifting. It is protected from the influence of wind by seaward vegetation. The area should be protected from undue disturbance to prevent mobilizing the sand. The present jeep trail through the area is not causing damage. Efforts should be made to insure that no departure from the trail is made in the future.

2. Revel Island: Several individuals of Ilex vomitoria, yaupon, occur on the southern end of the island's western ridge. These individuals appear

to be the northernmost extension of the species. There is little human activity in the area. The major threat to these shrubs is from a small band of feral sheep which is established on the island. They should be removed to prevent alteration of the vegetation community in general and damage to the yaupon specifically.

3. Hog Island: Uniola paniculata, sea oats, has been reported from Hog Island (Harvill, 1974). It has been reported for only two other Virginia Barrier Islands, Smith (McCaffrey, 1975), and Assateague (Bauman, 1975). The sites represent the northern limit of this species' range. On Hog Island, they are endangered from vehicle activity and livestock grazing. Both of these uses should be discontinued. Human use of the immediate vicinity of the sea oats should be avoided.

4. Rogue Island: Physalis viscosa ssp. maritima, ground cherry, occurs in the small foredune grassland on the eastern point of the island. This is probably the northern limit for this species. The island receives little human use and the species should be preserved via normal Conservancy stewardship practices.

5. Myrtle Island: Ground Cherry occurs here too in the foredune grassland. The same precautions observed on Rogue Island apply.

6. Smith Island: Two significant northern outlier plant species grow on the island: Quercus virginiana, live oak, and Uniola paniculata, has sea oats. The location of the species has been pinpointed. Two individuals of oaks were located and specimens verified on one of the island's upland ridges (Cullipher, 1975). The sea oats occur in four small patches within the foredune grassland at the island's southern end. This region should be protected from vehicles and trampling. The island receives some motor vehicle traffic and human use due to an inholding located near the Cape Charles Lighthouse. Efforts should be made to minimize the effect of this holding.

C. Aquatic Systems

Surface water and its associated vegetation communities are acutely sensitive to human alteration of the surrounding environment. Changes in water quality and quantity resulting from human activities such as road building, drainage system alteration and septic systems can affect the biotic communities associated with aquatic systems (Hillestad, 1975). A thorough investigation into the islands' surface water regimes was beyond the scope of the Virginia Coast Reserve Study. These systems can be protected by regulating human activities on the islands which have the potential to disturb them. These include fires and alteration of drainage regimes. Most surface water systems within the reserve can support the limited human activity they presently receive. The natural drainage and salinity of Goose Lakes and the next easterly slough on Parramore Island have been affected by the construction of the road which leads from Club House Gut to the beach. Restoration of these areas should include cleaning and maintenance of existing culverts and addition of more where necessary.

The major human activity associated with surface water systems is waterfowl hunting. In areas where this occurs, feeding waterfowl may ingest the lead shot and develop systemic lead poisoning (Kimball, 1975). Motor vehicles have sometimes been used to reach surface water areas; in so doing they damage surrounding soils and vegetation. Compaction of this substrate

changes its drainage regime and reduces its porosity, water retention capability, plant cover and sub-soil fauna. To avoid these problems, hunters retaining rights to shoot over the interior waters of the reserve should be requested to use steel shot and to avoid ecologically sensitive areas when using motor vehicles.

D. Forest Succession

The pure pine forest on Parramore Island's Italian Hill generates speculation concerning ecological succession. Sparse regeneration of trees beneath this stand has fostered speculation concerning this cover type's eventual fate. Some investigators feel that a dense pine needle litter, insufficient seed source, dense overhead canopy and excessive browsing are restricting successful regeneration of the dominant loblolly pine in this cover type. This has lead to the speculation that this pine forest will succeed to a complex dominated by wax myrtle, redbay, American holly, and sassafras (McCaffrey, 1975). Examination of the same site leads other qualified personnel to the assumption that the edaphic climax will be a "permanent reproducing pine type" (Steirly, 1975). (Appendix Vol. I.) All researchers agree that seedling mortality resulting from deer browsing is at least partly responsible for the lack of seedling success within the forest (1. Folk, 1975; 2. McCaffrey, 1975; 3. Steirly, 1975; 4. Williams, 1975). Large numbers of feral goats previously browsed the island during the 1940's.(Volume II Section 1). This must have also put an inordinate pressure on establishment of seedlings, yet today's cover type has successfully developed. (Stewardship suggestions concerning the islands' deer herd follow on later pages). Various manipulative management suggestions have been proffered to foster either the maintenance of the existing cover type or the establishment of a more "desirable" hardwood climax type. There are additionally other arguments favoring the maintenance of the existing pine-dominated forest.

Hillestad-et al.(1975) states that certain pine forests in the southeast are maintained by fire. In Volume I, Section 1, it is noted that Parramore Island was affected by two such fires in the 1920's. It has probably experienced many more historically. The apparent effect of the first of these fires was destruction of underbrush. Damage to the large trees was minimal. This report is consistent with Komarek's (1962, 1964) hypothesis that pine-dominated forests and their associated herbaceous flora are successional systems maintained for long periods by fire.

The consensus of opinion concerning Parramore's pure pine forest appears to be that the pure pine forest historically was successful in establishing and maintaining itself on the island, and will continue as the predominant cover when the philosophy "...why not let it go to Nature..." (Steirly, 1975) is followed. There is apparently little need for manipulation of this cover type to insure its maintenance.

E. Coastal Plantings

Coastal plantings are often successful in arresting sand from blowing and washing. The short term effects of these stabilizations appear to have no detrimental effect on other portions of the islands' communities and are more amenable to preservation of the islands' natural processes than are "structural solutions" to these same processes. Plantings inoffensive or

perhaps constructive to the islands' integrity are also very visible public relations tools which foster community cooperation in efforts to arrest erosion. Detailed analysis and recommendations concerning the geological processes of the Virginia Coast Reserve are dealt with in Volume I. Plantings might be considered to stabilize unvegetated overwash, dune, and mudflat areas. Plant materials suited to propagation on each of these areas are Spartina patens, Ammophila breviligulata, and Spartina alterniflora. The necessary requisites for successful establishment of these species on such barren areas are complex. These stabilization efforts would most likely serve more as a public relations prop than as a real solution to barrier island regression.

F. Human Influences and Remedies

The plant communities of the Virginia Coast Reserve have enjoyed unparalleled protection as a barrier island system. Existing stewardship problems are not extensive. Most ecologically sensitive areas are undisturbed. Exceptional species are not being unduly pressured. A handful of low intensity human induced problems plague the reserve and its sensitive plant associations. These include damage from vehicle use, livestock grazing, deer browsing, and human induced fire hazard. Control of these sporadic but persistent problems should protect the islands' flora.

1. Vanished Natural Components

As with most components of relatively natural systems along the east coast, vegetation species composition of the Virginia Coast Reserve has been influenced unnaturally. There are no known instances of plant species being extirpated from the reserve; however, the influence of human activity has been long term and pervasive. Section 1 of the Ecosystem Description Volume elaborates on practices which may have disrupted original plant communities. Speculation about their effects on original species composition remains conjectural. This lack of evidence leads to the conclusion that no restorative measures should be considered to reintroduce plant species to the Virginia Coast Reserve. The most profound effect on local species may result from local extinctions due to the dynamic influences of natural events.

2. Introduced Species

Introduced plant species have the potential to affect both plant and animal community composition and natural processes in unpredictable ways. Ranwell (1975) states that an introduced alien burr (Acaena anserinifolia) is responsible for reducing ground nesting birds' reproductive success in Europe. The burr clogs fledglings' feathers, restricts their movement, and inhibits feeding. The effect of exotic plants within the Virginia Coast Reserve was not a topic of research for this study and has not been assessed. No blatant examples of their adversely influencing the islands were noted. These species are enumerated in the Ecosystem Description volume of this study. Future observers should help monitor the species' effects on the islands. The eradication of such species might prove rather ardous. Although they may be allowed to exist within the reserve, future introductions should be prevented.

III. TERRESTRIAL VERTEBRATES

The terrestrial vertebrate component of the barrier island system includes mammals, reptiles, and amphibians, a varied group capable of directly or indirectly influencing other components of the ecosystem. In turn, they are particularly susceptible to the effects of habitat modification since they are more or less restricted to the islands by physical or behavioral constraints. These natural and introduced terrestrial vertebrate fauna have been enumerated in the Ecosystem Description Volume of this Study. The naturally occurring species are best protected through a program of habitat maintenance. This can be assured through total protection of existing natural components of the system, restoration of compatible eradicated components and removal of exotics which influence other native plant and animal species unnaturally. This program allows for temporary manipulative modification of some islands' systems in order to restore them to their original integrity.

A. Mammals

The sixteen mammalian species of the reserve show one of the most persistent effects of human influence. Interspersed with the native island fauna are five introduced mammals: the domestic cow and sheep, California jack rabbit, house mouse, and Norway rat. Five naturally occurring large mammal species have been partially or entirely extirpated from the peninsula-barrier island complex. These include the black bear, gray wolf, bobcat (Steirling, 1903; Upshur, 1900; Handley, 1975), red fox, and puma. The first three species are historically recorded for the Eastern Shore peninsula. Black bears have actually been documented on the islands. The red fox has been persecuted on several of the islands and may have been eliminated from all but one.

One endemic sub-species, the Smith Island cottontail rabbit, occurs only within the Virginia Barrier Islands. This sub-species' limited range warrants it special stewardship consideration.

1. Exotic Species

The intentionally introduced domestic livestock on the islands present the most obvious affront to the preservation of the islands as a natural system. Both domestic cattle and sheep occur on Hog Island. A small band of sheep also live on Revel Island. No specific information was gathered about the impact of these large herbivores on the structure and diversity of the islands' systems during this study. Virtually all of the Virginia Barrier Islands have been used historically for livestock grazing.

Extrapolating effects from other coastal islands, sand dunes, and salt marshes indicate that cattle and sheep have affected the naturally occurring flora and fauna here and if allowed to continue, will do so increasingly. Hillestad et al (1975) have documented a pronounced browse line, overgrazed grasslands, and reduced plant species diversity on Cumberland Island, Georgia, due to feral livestock. Cattle traversing dune areas, consuming plants, and trampling stabilizing vegetation have also initiated extensive and massive dune shifting. Cattle on this island compete with the island's deer herd for browse and forage and are the main host for parasites of deer (Dictyocaulus viviparus and Harnonchus contortus). Ranwell (1975) states that cropping of salt marsh

vegetation by domestic grazing animals has strongly influenced many salt marshes along the Gulf and Atlantic Coasts of North America. These activities have affected both the physical environment of the marsh and its species composition. Spartina marshes have been replaced by other species and the rate of marsh aggradation has been changed by sheep grazing. He also contends that both cows and sheep are particularly damaging to sand dunes. A cow's hoof exerts 40-60 lbs. per in.^{2} of pressure and a sheep's exerts 25-35 lbs. per in.^{2}. Typically, a cow will trod its pasture land three to four times per year and a sheep will do so six to ten times per year. These pressures and frequencies are particularly damaging to fragile sand dune vegetation. This evidence and the the suspicion that the islands "...can be managed either as a seagoing pasture or as a barrier island nature preserve, but not as both." (Dueser, 1976) warrants the removal of the feral animals soon. Provision should be made to allow for study of the influence they have had on the island ecosystem prior to and after their removal. This information would be useful in assessing the extent of present and historical livestock influence on other coastal systems and add to the literature of ecosystem restoration.

The California Jack Rabbit documented on Cobb and Little Cobb Islands, and perhaps occurring on Rogue and Hog Islands (Weske, 1976) is another introduced species which evidence indicates may damage the island system. No systematic information was gathered during this brief study to support this contention. Information from other analogous situations reports that extensive feral rabbit grazing in Europe was responsible for the structure of the sand dune vegetation communities there. More intensive grazing of the sward regions triggered uncontrolled mobility of the sand dunes. A parallel on Cobb Island is unestablished yet. The evidence indicates that the population should be eliminated with consideration given to the value of documenting the phenomenon.

The jack rabbit population and effect on vegetation should be monitored. Dueser, et al, hypothesize in Volume I of this study that island inundation may be the limiting stochastic variable of the vertebrate fauna of low lying islands such as Cobb. Recent information indicates that this may not be so in the case of these hares (Weske, 1976). Provided jack rabbit populations are not obviously adversely affecting the island, waiting until the island is inundated by the next severe coastal storm serves several purposes. It would permanently answer Dueser's biogeographical hypothesis concerning the effect of inundation on some island populations. If it eliminated the jack rabbit, it would by-pass the expense of an elaborate eradication program. If the animals were not destroyed after flooding, the hypothesis would be nullified and the option of artificially removing the jack rabbits would remain. Whether a natural or contrived removal plan is followed, the animals should be removed eventually. Removal should proceed immediately if the jack rabbit's reported overwater dispersal ability is substantiated to prevent spread of this exotic species to adjacent islands.

The two exotic rodents of the island system are the house mouse and Norway rat. They have been found on Parramore, Hog, and Smith Islands; and Parramore and Revel Islands respectively. Dueser et al

state that they have affected natural communities by inducing small mammal species shuffling within the island complex. Specific effects of these species as a consumer group on plants and animals are undocumented for the Virginia Coast Reserve. In an instance in Massachusetts, Norway rats were responsible for killing about 95% of the chicks in a mixed colony of 700 pairs of common and 200 pairs of roseate terns within a five day period. Similar ly a colony of 300 pairs of common terns was also devastated there. Chicks were attacked, killed, and eaten, adult birds were killed and eggs were either eaten or cached (U.S. Fish and Wildlife Service, 1975). Similar incidents might occur within the Virginia Barrier Island system. It is desirable to eliminate these introduced rodents from the islands; yet it is unrealistic to expect that this could be done expediently.

2. Native Species

Several mammal species particularly sensitive to human influence occur on the islands. They are the commonly sought fur-bearers or game animals including the Smith Island cottontail rabbit, gray squirrel, red fox, mink, and river otter. These species are considered sensitive and merit protection on the basis of their relative rarity within the system or in the case of the Smith Island cottontail, due to their unique taxonomic status. Dueser, et al,(1976) have indicated hunting and trapping as one of the main factors contributing to barrier island extinctions. These species must be protected from these activities to ensure their survival within the Virginia Coast Reserve. Upland hunting and trapping were once more intensive on the islands than they are now. Prohibiting these activities does not significantly alter the current traditional use of the islands. Restrictions against upland hunting should not arbitrarily preclude white-tailed deer hunting. This population may require some manipulative management in the future. The topic is considered in more detail below.

Predator control should likewise be prohibited on the islands. Regrettable instances of these activities have occurred in recent years on Parramore Island. Strychnine bait was broadcast to poison fox, raccoon, and other predators prior to game-stocking activities. The persecution of the red fox on this island is elaborated in the Ecosystem Description Volume. None have been sighted in recent years. Any terrestrial insular fauna, particularly island predators, are ecologically valuable, rare entities (Lazell, 1975a). They should be relished as exceptional species rather than persecuted. Future stewardship plans should preclude any control of naturally occuring predators. This is particularly urgent on Parramore Island where plans are often spoken of to further manipulate predator populations (Schmidlapp, 1975).

Several documented mammalian components of the original Virginia Barrier Islands have been extirpated. Ecosystem restoration of the islands should include re-establishing these species where practical. The red fox occurs in low densities on Hog Island and

possibly others. Field research should determine whether they presently exist on other islands, particularly Parramore and Smith. If not, reintroduction of this species may be warranted after considering habitat availability. Similarly, the bobcat was once a component of the coastal ecosystem. Officials at Cumberland Island National Seashore have recently reintroduced a male and two female bobcats there. Research should determine whether any of the Virginia Coast Reserve islands could support this species. Its reintroduction would restore a lost component of the barrier island system and might help balance populations of the over-abundant, under-sized deer and raccoons of Parramore Island. Diminutive black bears, pumas, and gray wolves were also original components of the peninsula-island system. Their reintroduction today would be impractical, and the reserve alone probably would not satisfy their habitat requirements.

The white-tailed deer of the reserve may present a special stewardship problem. All investigators who have examined individuals of the Parramore Island herd or the forage conditions on the island have concluded that the deer are in poor condition and/or that their range is overbrowsed (Dueser, et al, 1976a; Folk, 1975; Gilliam, 1969; McCaffrey, 1976; Settle, 1975; Williams, 1975). No data has been obtained on the deer of the other islands beyond observations of their occurrence on nearly all the islands by various investigators and local contacts. McCaffrey (1976) reports minimal browse damage to the vegetation of Smith Island. There is at least one observation indicating inter-island mobility of deer between Myrtle and Smith Islands, across Little Inlet (Hennessey, 1975). Dueser, et al, also believe that deer have the potential to at least temporarily utilize all of the reserve's islands due to their strong overwater dispersal ability. This contention is corroborated by local residents who report incidents of deer crossing the marshes and channels between the islands and mainland. Evidence collected from five deer on Parramore Island on September 17, 1975, indicates a substantial discrepancy between the condition of the vigor of the island's deer herd and the mainland's. Compared to mainland populations Island specimens were unusually small, had scant mysentary fat, carried a greater than average number of abomasal parasites, had abnormal antler development, and the sample indicated an unusual age structure (Settle, 1975). Based on this comparison, Dueser et al question the extent to which these populations intermix. This viewpoint also is shared by Hillestad, et al (1975) who state that island deer populations have limited immigration possibilities.

The biology of the islands' deer is poorly understood. They are the only native large mammal remaining on the island complex. In the past, the reports of local residents indicate that deer had become scarce on both the mainland and the islands during the early twentieth century. Deer were introduced to Parramore Island around 1930 and later stocking occurred close after 1934 (Graham, 1976). The effect of these stockings on the islands' and peninsula's herds is unknown, though many area residents claim that it revived the

area herd. Precise harvest data for the islands' deer is lacking. Poaching and legal harvest probably account for an insignificant number of deer annually. There are no natural predators of deer on the islands.

Insular deer herds are typically undersized by comparison with adjacent mainland deer. This general trend is found throughout the white-tailed deer complex (Hillestad, et al, 1975). A survey of the order artiodactyla on eleven ocean islands indicated that island forms were smaller on nine islands and the same size on two (Foster, 1964). The reasons for this size discrepancy are partially related to genetic factors and partially based on dietary deficiency. Population size and body size are also inter-related. Hillestad, et al (1975) state:

> "On most islands in the southeast, deer populations are limited by parasites and diseases interacting with poor nutrition. Because island deer populations are limited in immigration possibilities and large predators are absent, selection pressures for optimum size would favor smaller animals better able to maintain a population size large enough to insure survival of the herd in a habitat with food resources greatly limited in quantity and quality. Subtropical temperatures may also be a factor."

The Virginia Barrier Islands occupy a position intermediate along the Atlantic Coastal Plain. While they have characteristics of both northern and southern systems the botanical features are distinctly southern. It appears that the above explanation of deer size on other southern barrier islands may at least partially explain the small deer and dense herd on Parramore.

Additional evidence recently developed supports the hypothesis that cyclic population fluctuations are an integral component of the ecology of barrier island floral - faunal systems. Historical instances of such "booms and busts" have been recorded for islands in this region where deer have been introduced. Up to 60% of an insular population of 300 deer died within a two month period. Over two years, mortality reached 78% (Christian et al, 1960). Traditional island management schemes have attempted to treat deer herds according to the guidelines of orthodox wildlife management practices which mandate that large deer are more desirable individuals. This generally applied maxim is not necessarily true for barrier island populations. Here the cyclic increases and decline of populations may be integrally attuned to reciprocal fluctuations of other vertebrate, invertebrate and plant species. Disruption of these deer cycles in favor of a management strategy which would tend to optimize herd size and deer size at some prescribed carrying capacity or limit might inadvertently affect reproduction and survival of the deer themselves and of other ecosystem components. Allowing the population of deer to regulate its own numbers through the imposition of natural, existing environmental constraints may provide the best approach to total ecosystem protection available.

To test this hypothesis, two rather discrete populations of deer, those on Parramore Island and those on Smith Island, should be earmarked for experimental monitoring and manipulation. Analysis of the effects of a traditional "carrying capacity" approach to herd management on one island and another non-manipulative approach on another would determine the effects that these divergent practices have on ecosystem structure.

An immediate apparent flaw in proposing that natural processes be allowed to govern the size of the reserve's deer herd is that other system components have been disturbed to the extent that their present absence may also effect the species. It is almost certain that this pristine island system contained vertebrate predators which affected deer populations. Efforts should be directed at determining these species precisely. Appropriate measures should be considered to reintroduce extirpated fauna compatible with present island stewardship objectives. Bobcats have been reintroduced to Cumberland Island, Georgia to restore that system's original island fauna and to act as a natural damper on the island's deer. Similar practices should be investigated for implementation where appropriate within the Virginia Coast Reserve.

The limited hunting that currently is done on Parramore's herd is permissible. This practice should be curtailed in other portions of the reserve pending future study and determination of a precise deer management scheme.

B. Reptiles and Amphibians

The herptofauna of the Virginia Coast Reserve is known from literature citations, observations, and museum specimens. As with the mammalian fauna, the islands' reptiles and amphibians seem to represent a depauperate subset of the mainland species. Within the Virginia Coast Reserve, Smith Island presently supports the widest array of reptiles and amphibians. Hog Island once supported nearly as wide a range of species but it appears that with the loss of the diverse forests formerly at the southern end of the island, the herp fauna diminished. Parramore, the largest of the islands, supports considerably fewer species. Additional needed field work might substantially alter these findings.

There are no historical accounts of the original undisturbed herpetofauna of the islands and hence, no baseline from which to gauge their sensitivity to disturbance. Most species will benefit from general habitat protection. Additional safeguards should shield these delicate insular breeding populations from over-zealous collecting by amateur naturalists and bona fide researchers as well. To insure this, all research projects should be approved by qualified scientific staff. Individual specimens might be collected only for deposition in permanent museums. Care should be taken that they do not represent an inordinate percent of the islands' population. Male specimens should be collected rather than females. Gravid females should never be collected. When possible infirmed animals should be taken rather than healthy individuals.

There are only a few members of the islands' herptofauna that appear particularly ecologically sensitive. They are the black rat snake, eastern king snake, eastern box turtle, a specific population of snapping turtles, northern fence lizard, ground skink, and the Atlantic loggerhead turtle. The ground skink and box turtle on Smith Island represent the only record of these species within the entire island complex. The black rat snake and the northern fence lizard are found only on Assateague and Smith Islands at the extreme ends of the system. The eastern king snake was first found on Smith Island only recently (Hennessey, 1975). The islands' particular race is an integrated form. It is apparently taxonomically intermediate between the eastern kingsnake (Lampropeltis g. getulus) and the Outer Banks kingsnake (Lampropeltis g. sticticeps) Furthermore, it appears that this is the only example of this species known on any barrier island north of the North Carolina Outer Banks (Lazelle, 1975). Their isolated distributions and in the case of the king snake, its unique taxonomic status, make these animals particularly sensitive to disturbance and warrant special protection for the species. A dense, mature population of large snapping turtles thrives in Goose Lakes on Parramore Island. This is a relatively unparalleled situation anywhere, particularly with a shallow, confined barrier island pond (Bury, 1976). This population should be protected from harvesting or from impact by predator control activities.

The Atlantic loggerhead turtle still nests on the Virginia Barrier Islands. Historical reports (Hogg, 1975) and recent citing of turtle crawls (McCaffrey & Cullipher, 1975; Walker, 1976) corroborate the turtles' long-term dependence on the islands' beaches. Direct observations of nesting signs have been found in early May. Evidence from other nesting areas indicates that the turtles may nest here through June (Anderson, 1976). Loggerhead turtles are rather abundant around the barrier islands throughout the summer months. In other areas of their range, they have been severely depleted. All nesting beaches of this species are important to their future survival. The turtles have recently been proposed for official recognition as a threatened species (Noack, 1976). Nesting activity may be disturbed by human activities. Paramount among these are disturbance of females during nesting and of young upon hatching. Disturbances typically result from vehicle activity on nesting beaches and interference with the primarily nocturnal females and young on their trips to or return from their nests. Accordingly, beaches should be specifically patrolled to eliminate motor vehicle use and overnight vehicle camping during these susceptible periods.

IV. BIRDS

The Virginia Coast Reserve provides a variety of breeding, migratory, and wintering habitat to a wide array of bird species. They are discussed in detail in two sections of Volume I, The Ecosystem Description of this study. Some components of the avian species' population are more sensitive to disturbance than others. This sensitivity is shown by historical disturbances reported in these sections and Volume I, Section 1. Analysis of the latest reproductive success of beach nesting and colonial birds indicates successful

recolonizing of the Virginia Coast Reserve following their historical disturbance. Specific analysis of these species during 1975 showed a high success rate. As detailed reproductive information has not been gathered for the upland species, in Volume I, species-habitat associations are discussed for this component of the islands' ecosystem. Passing reference is also made to the islands' importance as breeding habitat for osprey and as a migratory corridor for shorebirds and their allies, waterfowl, and peregrine falcons.

This research all indicates that the breeding aggregations of beach nesting and wading species are the most ecologically sensitive components of the islands' avian fauna. The upland species and migrant shorebirds are afforded protection through habitat preservation. Osprey nest sites require some protective management which is easily provided. Peregrines use the area only briefly and are susceptible to capture. Patrolling beaches during migratory season provides for their best protection. Migratory and wintering waterfowl congregate on the islands' fresh water ponds and require special protection to minimize their disturbance.

Beach nesting birds, particularly terns and skimmers, are highly susceptible to human activities including accidental disturbance and deliberate disruption via egging. Embryoes and chicks may die due to the overheating caused when alarmed parents abandon their nests when disturbed. People and motor vehicles crush inconspicuous nests and young inadvertently. They should be precluded from colonial nest sites. To accomplish this the shifting colonies should be surveyed annually. The boundaries should be appropriately marked warning island users to avoid the area. Such programs have been undertaken by the Florida and Massachusetts Audubon Societies. Similar stewardship recommendations have been outlined for these birds in Volume II. The location of the beach colonies, heronries, and osprey nests during 1975 are shown on the accompanying sensitive areas maps.

Mixed heronries consisting of several species of herons, egrets, night herons, and glossy ibis have been identified on several islands. The colonies are often located in the same spot annually. These wading species can adapt to human visitation if it occurs commonly throughout the breeding season (Hillestad, et al, 1975). If the birds are not properly conditioned, infrequent human visits always frighten them. Adults fleeing nests subject eggs and nestlings to overheating, chilling, and predation from attendant and opportunistic fish crows. When alarmed the gangling young birds may also fall from their nests and die. On the Virginia Coast Reserve, no rookeries can expect to receive the consistent amount of human contact necessary to condition the birds to tolerate these intrusions. Therefore, all visits would be detrimental to the species' nesting success. The heronries should be posted and patrolled annually to prevent intrusion.

Seventeen active osprey nests were reported within the Virginia Coast Reserve during 1975. The islands provide both natural and man-made nest structures to the birds. The osprey presently appear to be moving from the islands and relocating nests along channel markers and similar man-made structures further in-shore. (Byrd, 1975). The reasons for this shift are unknown. Ospreys are apparently able to tolerate human activity in the vicinity of their nests (Spitzer, 1973). Their nests should be located and posted annually to insure undue disturbance but no particular precautions are required to protect them otherwise.

Arctic peregrine falcons use all of the Virginia Barrier Islands as a migratory corridor. During the autumn, particularly September and October, these birds are frequently sighted. In late September and early October, 1975, forty falcons were banded on Assateague Island and seventeen banded on Cedar Island. The barrier islands are particularly important to the population of the falcons dependent on the east coast as a "leading line" for migration. This east coast flyway is perhaps the major one in North America for these birds. Recent banding recoveries indicate that falcons establish traditional hunting and resting grounds within their migratory routes (Ward, 1975). Local sources have indicated that within the past several years, falconers have trapped and collected these birds from the Virginia Coast Reserve (Volume I, Section 1, Faunal History). Strict patrol measures should be implemented during the fall of the year to prevent reoccurrence of these events. The United States Fish and Wildlife Services' Division of Law Enforcement is responsible for enforcing the protection of these endangered species. They have indicated a willingness to cooperate in the protection with the Virginia Coast Reserve.

Migratory waterfowl congregate within the Virginia Coast Reserve in large numbers. Parramore, Hog, and Smith Islands are especially attractive to waterfowl, apparently due to their fresh water ponds and sloughs. The islands and marshes of the Virginia Coast Reserve have provided recreational and commercial harvests of waterfowl for centuries. Both practices still occur. The interior portion of the islands concentrate waterfowl. Hunters often violate federal game laws, using illegal methods and killing exorbitant numbers of birds within the preserve. To avoid this contingency in the future, the upland portion of all islands should be considered an ecologically sensitive area, closed to hunting during the waterfowl gunning season. This restriction in effect still opens thousands of acres of Nature Conservancy owned marshes adjacent to the upland portions of the islands to sport hunting, but retains the islands' interiors as a waterfowl sanctuary area. The areas open to regulated gunning within the reserve correspond to the low salt marsh and upper low salt marsh classifications defined in Volume I. Legal restrictions prevent the marshes of Parramore, Revel, Cobb, and Ship Shoal Islands from being opened to public hunting.

Waterfowl trapping is an illegal activity which presently exists within the reserve. Formerly, the practice was more widespread than today (Volume I, Section 1, Disturbance to Avian Fauna). The illegal trapper pays little attention to use restrictions imposed on private property. To define sensitive areas for this decimating activity would be superfluous. State and federal wardens and The Nature Conservancy personnel should be encouraged to be on the lookout for this activity within the Virginia Coast Reserve during routine patrol duties.

The variety of upland birds reported in Volume II are afforded protection through habitat maintenance. No endangered species appear to occur in this portion of the islands' community. The Ipswich sparrow has been found wintering on Assateague Island. Ideal habitat is provided within the Virginia Coast Reserve. The islands lie within the species' migratory and wintering range. They probably occur here during fall and winter. The endangered Southern bald eagle and red cockaded woodpecker might find suitable nesting habitat within the reserve were colonizing individuals to discover the islands.

Several exotic or naturalized bird species exist within the Virginia Coast Reserve. These include species purposefully introduced for sport hunting and those that are apparently a vestige of former human use of the islands. Ring-necked pheasants occur on Hog and Cobb islands. Bobwhite quail have

been introduced and may exist on Parramore and Cobb Islands and feral chickens and guinea hens live on Hog Island. The impact of these species on the naturally occurring biotic diversity of these islands is uncertain. They have not displaced any other bird species. Suspected effects on other components of the islands' ecology are largely conjectural. Strictly speaking, they are not components of the naturally occurring system. However, there is no evidence that they present a threat now. Their eradication may be possible but this is not a priority stewardship problem.

Restoration of the original Virginia Coast Reserve ecosystem should include assessment of the original avian fauna of the islands and provision for their future sustenance.. There is historical evidence that suggests the components of the Virginia Coast Reserve's avian fauna that have been depleted. The majority of the beach nesting and wading species have had good nesting success recently. The program previously outlined for the Virginia Coast Reserve breeding grounds gives these species the opportunity to re-establish their former abundance provided they have similar opportunities throughout their range.

Formerly, osprey occurred in larger colonies within the islands than they do now. "... Thousands of fish hawks..." previously nested on Hog Island (Volume I, Section 1, Disturbance of Avifauna through Human Activity). Seventeen were reported within the entire preserve in 1975. Lack of breeding habitat is not the limiting factor for the osprey population. If other environmental parameters improve, the population within the Virginia Coast Reserve will probably respond by increasing toward former abundance.

Occasional pairs of peregrine falcons formerly nested in old osprey nests along the Virginia Coast. The Atlantic coastal marshes certainly provide abundant prey populations (Cade, 1975). The Cornell University Laboratory of Ornithology has recently successfully reintroduced captive-bred fledgling falcons into their former habitat. Lab officials indicate that it will be several years before reintroduction of the birds to the Virginia coast will be attempted (Dague, 1976). There is the possibility that at that time the Virginia Coast Reserve may support a resident breeding population of peregrines as well as providing a migratory corridor for this species as it does now.

Similarly, suitable nesting habitat exists for the southern bald eagle within the reserve. The islands are within the birds' present range and eagles are sighted occasionally in the area. This endangered species could nest within the reserve in the future although the prognosis is poor since their reproductive rate, 5-35%, is below that necessary to establish a stable population (Jenkins, 1974).

The main stewardship emphasis of the Virginia Coast Reserve's avian resource should concentrate on protection of colonial nesting species during the breeding season and migratory waterfowl during the fall and winter. To accomplish this former goal, annual breeding surveys should locate each colony. Waterfowl protection can be insured by controlling access and patrolling during appropriate seasons. Other specific programs should include species restoration and monitoring combined with overall habitat preservation.

V. GENERAL THREATS

Two major potential threats to the natural integrity of the Virginia Coast Reserve include the discovery and development of outer continental shelf oil and gas reserves in the Baltimore Canyon Trough adjacent to the barrier islands and the enlargement and construction of the Delmarva Waterway, a project of the United States Army Corps of Engineers which would dredge an intercoastal passage for vessels between the barrier islands and mainland extending 150 miles from Lewes, Delaware, south to Cape Charles, Virginia.

A. Outer Continental Shelf (OCS)

The possible ecological impacts of oil and gas developments were the subject of separate inquiries conducted by two federal agencies. The United States Department of the Interior, Bureau of Land Management, produced the: Draft Environmental Statement (2 volumes), Proposed Increase in Acreage to be Offered for Oil and Gas Leasing on the Outer Continental Shelf (DES74-90). The Council on Environmental Quality published OCS Oil and Gas-An Environmental Assessment (5 volumes) in April, 1974. Both reports address the potential disruption that oil and gas related activities might have on the marine, beach and wetland systems of the Virginia Coast Reserve. These disturbances would result from a variety of direct, indirect, temporary, and permanent impacts. The magnitude of and impetus for OCS development generally exceeds The Nature Conservancy's sphere of influence. Should OCS development prove imminent, a double strategy should be adopted to protect the barrier islands. Baseline monitoring of sensitive ecological components of the system should continue to provide a reliable data base from which to assess the island system's health. This would provide indices of changes within the system and a comparison line in the event of any OCS related impact on the islands. In addition to this monitoring, island stewards should be directly involved with planning the offshore and onshore facilities to minimize potential impact on fragile coastal resources.

The Council on Environmental Quality's summary of the ecological effects of OCS activities states that:

> Both permanent and temporary stresses can cause ecological impacts. Permanent stresses result from development of harbors and construction facilities, placement of platforms and pipelines, dredging and filling operations, alteration of drainage patterns, and construction of refining and petrochemical complexes. Chronic pollution by the operational discharge of brines from active fields may also be considered to be permanent, since these discharges - which also contain some oil - continue and actually increase with the age of the field. Permanent effects may be further subdivided into direct, indirect, and associated problems. Direct effects involve the permanent loss of land or water bottoms to structures, dredging operations, and spoil placement. Indirect effects, which cause the greatest damage to ecosystem dynamics, are broader in scope, involving changes in water cirulation, salinity, turbidity, and chronic pollution. Associated effects involve a multitude of changes in land use, air and water pollution, and other problems resulting from such secondary developments as construction of industrial complexes and housing, and shifts of populations to or within the coastal zone.

Temporary ecological impacts are generally associated with accidents such as well blowouts, loss of drilling muds, and oil spills. These occurrences can be costly and destructive and reduce productivity of the impacted area. After a variable amount of time has elapsed, the affected ecosystem generally will recover to a point where the normal biota and ecosystem activity are restored.

The significance of such impacts may be measured by their spatial extent and the length of time required for recovery. The recovery time depends not only on the species present in the area and their interdependencies, but also on the persistence of the pollutant in the environment. As indicated in the CEQ Report, the persistence of oil in the marine environment is still poorly understood. Conflicting observations on the persistence of oil and its long-term effects on the local ecosystem abound in the published literature. Evidence exists for rapid degradation and dispersal of oil by natural processes. On the other hand, there is also evidence of continuing impacts due, for example, to periodic releases of hydrocarbons that have been incorporated into sediments, where they can persist unchanged for long periods of time. We suggest that the questions surrounding the persistence of oil in the marine environment should be resolved through careful and intensive investigation before irreversible damage is inflicted on biologically and economically sensitive areas.

Having determined the nature of the temporary impacts, it is important to predict the frequency with which they occur. The CEQ study has revealed interesting and useful statistics on the probabilities of accidents. These statistics should lead to a further analysis of the causes of failures, both physical and operational, so that technology can be developed and implemented to reduce their recurrence.

Accidental spills should also be analyzed for the probability of reaching an ecologically sensitive area. This probability depends upon the location of the source, the type and amount of pollution, the location of the ecosystem affected, and the season of occurrence. The size of the spill and the extent of the area affected would be important in evaluating the impact on the function or productivity of the area. The CEQ study has addressed these problems for accidental spills at possible production sites offshore and for selected local areas based on the work performed by MIT.

The probability of localized impacts based upon computed drifts or trajectories of oil slicks using historical wind and weather data could be helpful in evaluating the relative hazards of different drilling sites or locations for shore-based pipeline terminals, transfer facilities, or refineries. However, as noted in Section III, the data on which the study is based are inadequate and the model uncertain. The probabilities in the CEQ Report are based on a large number of simulated trajectories using hypothesized mean currents and stochastic winds. The mathematical simulations were checked against drift bottle data that may or may not have meaning for the tracking of oil spills. Because the mathematical and physical models of the transport mechanisms are themselves uncertain, we do not have confidence in present capability to predict the probability of localized impact due to the movement of oil spills.

We wish to emphasize that for a particular spill at a given time predictions of the probability of that spill reaching a particular location may be misleading. Since spills are not expected to occur frequently, the degree of risk will be determined by the actual weather and sea conditions at the time of the accident and for a period of time following it.

The toxicity of crude oil and its fractions is also little known and poorly understood. Most of the literature on toxicity has evolved from laboratory experiments or from heavy spills into small areas. An evaluation of the toxicity problem should account for the amount of oil spilled, the proportion of the toxic fraction, the total volume of water polluted and its rate of replacement, and the surface area involved. This type of analysis over many variations of the environmental parameters does not exist, as the CEQ study implies.

A thorough evaluation of an oil spill impact on an ecosystem, its productivity, and economic structure, requires estimation of the size of the spill, the probability of oil reaching the area, the physical and biological effects of the oil, its persistence in the environment, and the resilience of the ecosystem to the intrusion. The resilience of an ecosystem is determined by its internal dynamics. As we indicated in Section III, some systems, for example, estuaries and deltas, have inherent dynamic characteristics that permit them to withstand highly variable and seasonal changes in their natural environmental parameters. In specific cases these natural fluctuations can be so great that they overshadow any effect from either chronic or accidental spills thus far observed. Many communities and species are transient; their appearance and disappearance by season or by some other short interval of time may obscure the impact of a localized and temporary stress from oil. Even assuming that most of the living organisms were killed within a local area, the total productivity of the ecosystem might still fall within the measurable limits of annual variations in production. Thus, only cumulative losses in acreage or changes in the composition of the biota would give evidence for measurable permanent damage.

It should not be inferred, however, that recovery from unnatural or man-made stresses, whether chronic or temporary, can always proceed without measurable long-term effects. The response of a particular system to an unnatural stress may differ from that due to natural variations, especially since the existing ecosystem has developed as a result of tolerance to the usual range of natural phenomena. Clearly, the response of a specific ecosystem to man-made changes will depend critically upon the system, its dynamics, and the nature of the alteration.

The impacts of oil pollution on ecosystems in different habitats will differ. Oil spilled near stable shores with narrow intertidal zones is likely to be washed away by wave action more rapidly than oil spilled in estuaries and marshlands with wide, shallow intertidal zones. In these latter areas, pollution is more likely to be trapped and incorporated into sediments where it can persist for long periods. The finer sediments, such as silts and clays, will retain oil for

longer periods than will clean sandy sediments. As the CEQ Report concludes, the economic impact of oil pollution in estuaries and marshlands is also likely to be more significant because these areas generally serve as feeding and nursery grounds for many important commercial species of fish and shellfish.

The CEQ study has concentrated primarily on the fates and effects of temporary oil spills from offshore locations and secondarily on the impacts of chronic discharges. The Committee concludes that insufficient attention has been given to permanent, direct and indirect effects and to the effects associated with onshore development. In particular, the environmental effects in the coastal zone due to economic activities accompanying OCS development, such as changing land use patterns and population centers, ought to be examined in detail.

One type of permanent impact treated in the CEQ Report results from the landfall of pipelines. Dredging, filling, and damming in unstable estuarine and deltaic regions can alter changes in the physical and chemical environment with resultant ecosystem changes. Much less damage may occur, however, if pipelines come ashore at stable shores.

While all of the necessary information regarding the impact of oil on the marine environment is not available, definitive conclusions can be reached for some effects. For example, the evidence on the effects of oil on birds is clear. Toxic results are known where refined oils have been spilled in confined areas. The distribution of tar balls in the open sea is well known, as is their presence on beaches. In contrast, clear damage by sublethal chronic contamination in the Gulf of Mexico has not been demonstrated. Ambiguities arise because most studies have been incomplete, inadequate, and transitory, and the effects of spills in the open seas have rarely been studied.1/

Hypothetical Atlantic Ocean drilling sites are shown in Figure 1.

B. Delmarva Waterway

The Delmarva Waterway project would have a widespread ecological impact on the Virginia Coast Reserve of a different sort. If the project is approved in Virginia (see Figure 2), the immediate direct and far-reaching indirect consequences would be enormous. Although the state of Virginia, as well as Maryland and Delaware, withdrew their support for the proposed Waterway in early 1976, the project has not been deauthorized by Congress. Accordingly, the Delmarva Waterway could once again rare its ugly head in the future, bringing far-reaching consequences to the protection of the Barrier Islands.

In a brochure prepared by the Committee to Preserve Assateague the following impacts are noted:

> The Delmarva Waterway would cross an area consisting of shallow bays surrounded by rich wetlands. These wetlands form the base of the food chain essential to the survival of life in the oceans. Experts state they are an extremely valuable and fragile estuarine system and are among the most important fish nursery grounds along the mid-Atlantic Coast. In 1973 the commercial value of the Atlantic Ocean

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1/OCS Oil and Gas - An Environmental Assessment: A Report to the President, Council on Environmental Quality, April, 1974, Volume I, pp. 202-204.

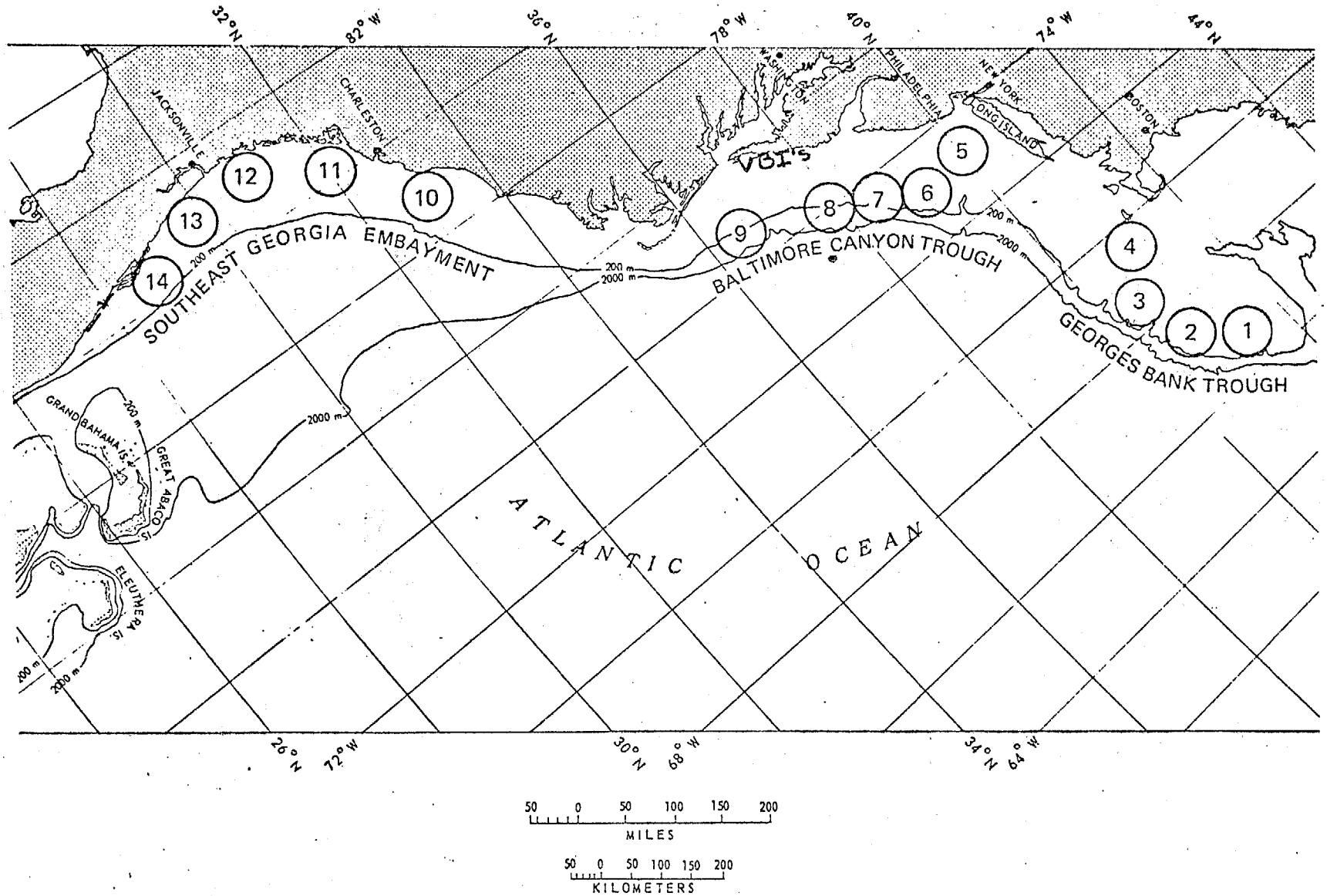
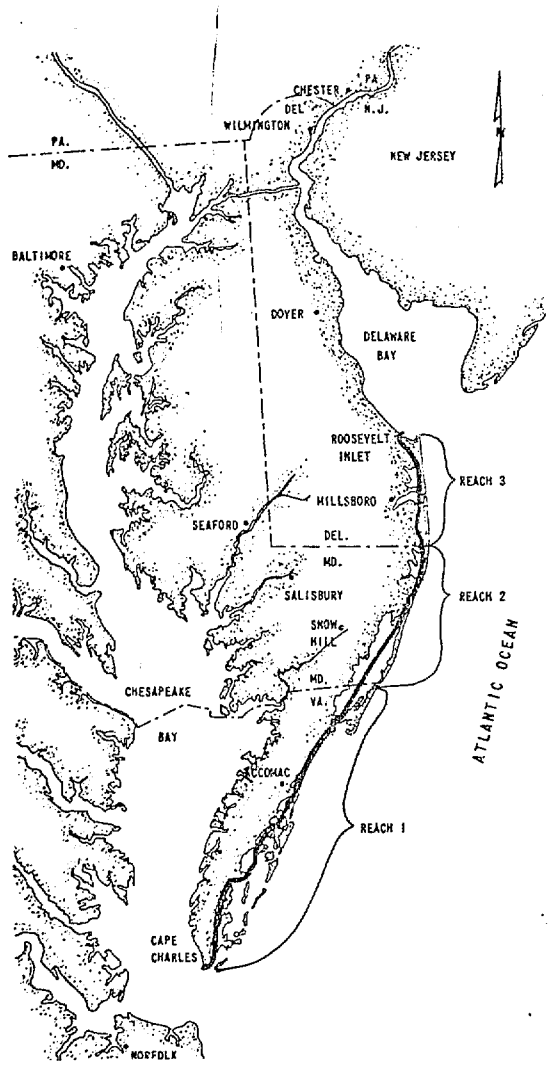


Figure 1. Atlantic Hypothetical Drilling Sites

FIGURE 2

The Waterway would be dredged along the Atlantic Coast behind the barrier islands from Delaware south to Virginia.



and Chincoteague Bay landings for this region totaled $1,853,301 for shell fish and $387,262 for finfish, but the fishery resources can only be maintained and enhanced if the marsh fringe and water quality are preserved. This area is also a critical habitat for hundreds of thousands of wintering migratory waterfowl and encompasses the Chincoteague National Wildlife Refuge. It is an important nesting area for black duck, teal and other species.

To build the waterway the Corps will have to carry out tremendous dredging, cut through marshes, and dispose of large quantities of dredged material. 2,800 acres of land will have to be sacrificed for the disposal of more than 20 million cubic yards of spoil over the life of the project. Water quality will be adversely affected both by initial dredging, the almost continuous maintenance dredging that would be required and the disposal of spoil. The waterway will lure large pleasure boats into these shallow bays with oil and sewage contamination sure to follow since these bays have little flushing capability (scientists estimate it takes 200 days for an exchange of water in Chincoteague Bay).

Above and beyond the damaging effects of building and maintaining the waterway are the tremendous adverse impacts from attendant development spurred by a canal. This project will open the door wider to real estate developers who have already destroyed much of our nation's best marshes. Once the waterway is built, there may be pressure to enlarge it to accommodate oil barges, as is being done in South Carolina, which would have devastating effects on this prime recreational area. The Chesapeake Bay just experienced a serious spill from a barge with thousands of waterfowl being killed. Development, siltation and pollution have forced the closing of areas on the Eastern Shore to shellfish harvesting--St. Martin's River, Herring Creek, Greenbackville and many others. What will happen to commercial and recreational fishing if this continues?1/

The project has been scrutinized by the U.S. Army Corps of Engineers, Philadelphia, in a Draft Environmental Impact Statement. The document is currently being reviewed by many organizations and individuals including The Nature Conservancy.

1/Brochure: Delmarva Waterway Project of the Army Corps of Engineers: A Serious Threat to the Coastal Region, Committee to Preserve Assateague, 1976.

VI. FUTURE RESEARCH

Throughout this study it has become apparent that the research opportunities present in the Virginia Coast Reserve are abundant. This is specifically so within the natural sciences though other fields of research are also critical. They are devisible into two subsets, those necessary to successful preservation of the Virginia Coast Reserve as a natural system and theoretical investigations of a more academic nature. The two are closely allied with one another. Stewardship-oriented research has contributed and will continue to contribute substantially to a purely scientific appreciation of this barrier island system. Conversely, research oriented studies also add operative information which can be incorporated into island stewardship plans.

Recommended future research has been considered individually within several sections of Volume I and in other parts of the Ecological Sensitivities section of this volume. The following is a list of required and recommended research. No attempt was made to exhaust the research potential within the reserve.

TABLE 1

RECOMMENDED FUTURE RESEARCH

Field	Stewardship Research	Pure Research
Land Use History		1. Archeological investigation of insular Indian middens.
Environmental Law	1. Periodic update of pertinent legislation.	
Geology & Soils	1. Investigate lead shot contamination of traditional waterfowl hunting areas. 2. Produce periodic false color thermal infrared aerial photography. 3. Investigate tidal hydrodynamics and sedimentation of inlets. 4. Conduct marine geomorphic studies of a. Longshore sediment transport b. Sedimentation rate of lagoon and marsh areas. 5. Compilation of a detailed, distributable series showing navigable channels, landing, topography and vegetation type.	1. Aging studies of: a. Parramore Island's sand based marshes b. Ancient forest stumps on Parramore' beach. c. Marsh peats on ocean face of Smith Island d. Drowned beach ridges of Holly Bluff, Raccoon, Skidmore and Mockhorn Islands
Vegetation	1. Compile complete floristic list. 2. Delineate tidal wetlands and other management boundaries precisely. 3. Investigate dune plantings. 4. Establish permanent transect lines and camera points. 5. Determine the association of fires' impact on vegetation community.	1. Investigate: a. Community structure and species importance. b. Salt Marsh productivity and characteristics. c. Marsh succession rates on overwash and mud flat areas.
Fauna		
Terrestrial Vertebrates	1. Examine forage relationships of deer and feral livestock, and their impact on vegetation composition and productivity.	1. Collect a voucher series of all terrestrial vertebrate species. 2. Investigate potential genetic and morphological variations.

TABLE CONT'D

Field	Stewardship Research	Pure Research
	2. Determine the feasibility and effects of reintroduction of extirpated vertebrate species. 3. Devise techniques and plans for removal of exotic species. 4. Devise and implement a seaturtle nesting population survey.	3. Investigate disease/parasite-host relationships.
Avifauna	1. Conduct annual seasonal censuses of rookeries. 2. Inventory migratory and breeding waterfowl populations.	1. Examine the effect of abrupt habitat zonation on species diversity of upland birds and terrestrial vertebrates. 2. Document total species abundance of the island-peninsula's colonial nesting bird species. 3. Define the critical criteria determining colonial bird rookery site selection.
Aquatic Fauna	1. Inventory of aquatic fishes of islands' ponds and drainage systems.	
Terrestrial Arthropods	1. Begin compiling a list of species-habitat relationships. 2. Examine the ecology of the southern pine bark beetle on Parramore Island.	

ISLAND USES

Uses of the islands of the Virginia Coast Reserve are determined by a combination of legal and ecological constraints. Ecosystem limitations are defined in the Ecological Sensitivities section of this volume. Legal constraints prohibit Parramore, Revel, Cobb and Ship Shoal Islands from use by other than specifically authorized personnel. Island uses themselves include sets of specifically prescribed permitted and prohibited categories.

I. SCIENTIFIC RESEARCH

The potential for research within the Virginia Coast Reserve is enormous. A preliminary list of research topics was presented earlier in this volume. The researchers responsible for specific disciplines within this study have unearthed many other noteworthy topics for study which should be pursued. Generally, the islands should be accessible to scientific research of a non-consumptive nature. Individual projects should always be presented to the Wachaprague Office of the Nature Conservancy through a written proposal including a precise definition of purpose and objectives. Biological specimen collecting is discouraged and will be controlled by species and island. Any records should include species, sex, location collected, date, place of repository, and specimen number. All research proposals will be reviewed by Virginia Coast personnel and national office staff. A standardized report format will be required from each project.

One proposal which has stimulated interest within the scientific community, The Nature Conservancy and the financial community is the possibility of establishing a barrier island research consortium within the Virginia Coast Reserve. (See Appendix J.) This facility would locate on the mainland adjacent to the reserve office and utilize the islands as a nautral laboratory. The benefits of such a facility would be many. The Islands would derive immediate protection from the increased surveillance provided by scientific observers attuned to detecting ecosystem disturbance. A secondary layer of protection would also develop. As the islands became more important as a research and educational resource, damages from other avoidable threats such as channelization and off-shore oil and gas development would become less likely. The consortium would be structured to provide operating income to the reserve through an overhead fee. This income would help defray the costs inherent in private sector land stewardship while data generated by a consortium would help expand the base for future management decisions which would further protect the islands. Preliminary inquiry has established that substantial justification exists for establishment of this facility. As the concept develops, an objective assessment of the need for its establishment should be explored.

II. RECREATION

The information contained in the Recreation Section of the Social and Economic Analysis of this study reveals that there is no need to create additional organized beach recreation areas along the inaccessible barrier islands. Where further local waterfront recreational areas are desired, tracts on Wallops Island or along the Chesapeake Bay's shore would provide accessible outlets. Establishment of such facilities on the Conservancy's Virginia Coast Reserve is discouraged considering the other logical sites that are available and more readily accessible.

Traditional pedestrian day use of the islands should be permitted by local residents where it does not conflict with legal or ecological limitations previously outlined. Uses can include such non-destructive activities as beach combing, swimming, hiking, surf fishing, scientific observation and research, nature study and photography. Waterfowl hunting may be permitted in portions of the low salt marsh and in areas of the Reserve where hunting rights have not otherwise been reserved. Waterfowlers on the Reserve should be required to use steel shot exclusively. These concessions effectively open vast portions of the privately owned islands and wetlands to limited local recreational use.

The distinction has deliberately been made between island use by area residents versus outsiders. It is distinctly possible that the extensive recreational resources offered by the Eastern Shore of the Virginia Coast Reserve will become increasingly popular with "outsiders". If this contingency develops and use pressures become more oppressive to the islands and marshlands of the Virginia Coast Reserve, more stringent regulations, including island visitor quotas, may be required. As a follow-up to this study, an effort should be made to predetermine these pressures, anticipating the time when further regulation may be needed.

III. GOVERNMENT PROGRAMS

The Virginia Coast Reserve meets the criteria of a number of government sponsored programs. These programs have been mentioned elsewhere within this volume as layers of protection, capable of further insuring the preservation of the Virginia Coast Reserve. Here they are reiterated as a "use" of the Reserve by the government sector. These programs are primarily status designations which may be obtained while the islands remain in Conservancy ownership and include programs at federal, state, and local levels.

A. Federal

1. United States Department of the Interior, National Park Service:
    a. National Natural Landmark
    b. National Environmental Education Landmark

2. United States Department of the Interior, Fish and Wildlife Service:
    a. Lease (Hunting)
    b. Wetlands Easement

3. United States Department of Commerce, National Oceanic and Atmospheric Administration:
    a. Marine Sanctuary
    b. Estuarine Sanctuary

4. United States Department of Agriculture, Soil Conservation Service
    a. Managed Natural Area
    b. Bench Mark Soil Series Area

B. State

1. State Water Control Board, Critical Ground Water Area

2. Division of Planning and Community Affairs, State Critical Area

3. Division of Game and Inland Fisheries:
    a. Lease (Hunting)
    b. Wetlands Easement

4. Division of Parks
    Management Lease for Natural Area

C. Local

1. Incorporation into County Land Use Programs as Conservation or Critical Environmental Areas.

2. Protective Zoning

IV. PROHIBITED USES

Several typical island uses have been determined to be disruptive to the preservation or stewardship of the islands. They are damaging directly to the systems or interfere with expedient management. In the former category there are several basic resource-destructive activities which are prohibited. These include hunting on island uplands above the low marsh boundary (except where prescribed by specific agreement), trapping in any portion of the reserve, egging (collecting edible eggs during the spring and early summer), harvesting or otherwise deliberately destroying vegetation, use of motor vehicles (except for patrol purposes by authorized personnel), and importation of domestic animals for any reason and at any time. Overnight camping is also prohibited based on its actual ecological impact on the islands themselves, particularly from the fire hazard they present, and on the probability that overnight campers are less manageable and more prone to mishap than are daytime island users. Presently, only authorized research and patrol personnel are permitted to camp overnight. These parties should be especially conscious of

the everpresent fire hazard on the islands and mindful to avoid constructing open fires whenever possible.

V. PERMIT SYSTEM

The Conservancy could develop and implement a permit system which would include a user fee for various activities conducted on the islands. This income would help defray the cost inherent in private sector land stewardship enabling The Conservancy to implement programs it could not otherwise afford. The rationale behind this argument concedes that these unspoiled islands and beaches are an eminently desirable, extremely scarce commodity. To deny this would be to overlook the tremendous "development" pressures which have historically altered and are presently desecrating other coastal areas. The desire to experience these areas has eventually led to their destruction. A populace which continually exhibits these tendencies, which is relentlessly drawn to these areas, is manifesting its willingness to pay for these resources. Commensurate with the extent of the private sector's provision of recreation areas to the public at large, has been the inability to financially mitigate the costs of managing these systems, barring charitable contributions or volunteer efforts, by private conservation organizations. Even within public land conservation agencies there is a constricting financial bind afflicting the ability of these bodies to economically provide for stewardship of their land holdings after acquisition. It is nearly incumbent that at the juncture of these two pressures, private conservation organizations strive to ameliorate the deficiency in funding for some of their preserves, perhaps opening new avenues of thought within the government sector along these lines.

The Virginia Islands have historically attracted a wealthy class of enthusiasts. Recently, there appears to be a resurgence of interest by this same group in the type of experience which can be offered through the Virginia Coast Reserve. The Reserve's proximity to major population centers insures a regional market for the amenities offered by the islands.

The wilderness experience could be initially marketed to bird watchers, hikers, fishermen and naturalists on a limited, day-use permit basis. Similar experiences might be made to hunters if concessions were made to ensure against mismanagement of island resources. The market for these enterprises could be recruited from the readership of conservation and outdoor periodicals. Following testing of these initial programs, long range plans for the Reserve might include multiple day outings to various islands provided with primitive overnight and interpretive facilities in ecologically stable, resilient areas. The resulting business should develop into a provider of capital which might help sustain the maintenance of the Virginia Coast Reserve system when coupled with other programs. The incipient small business activity accompanying this system would be a boon to the economy of the supporting seaside communities. Locally,

a user permit system should be experimentally initiated to achieve several ends. It should be designed to at least "break even" financially, the cost of overhead being recouped in the cost of permits. It would also serve as a self policing system, each permit applicant being made aware of The Conservancy's ownership of the islands, the privilege he was afforded to use them at a nominal fee and that he risked losing this right if he abused his privilege.

These approaches deserve further development which are beyond the scope of the Virginia Coast Reserve Study. They should be further pursued and incorporated in the long range planning for the Reserve.

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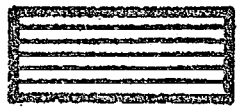
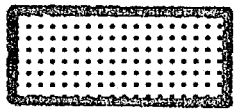
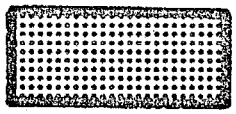


SENSITIVE AREAS
Sensitive Areas Based On Soil Factors

Sensitive Areas Based On Vegetative Factors



SEASONALLY SENSITIVE AREAS
Sensitive Areas, Site Of 1975 Ground Nesting Bird Colony

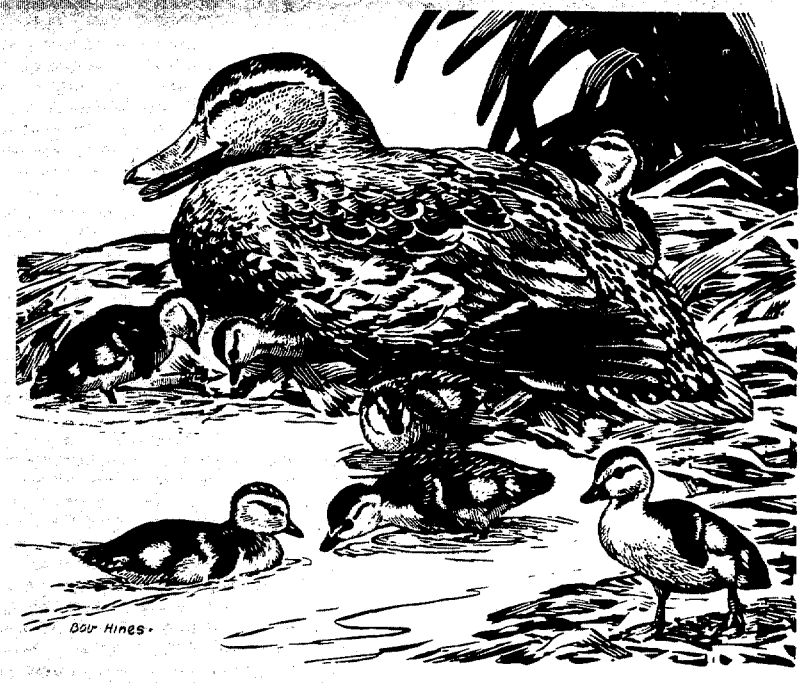


Sensitive Areas, Site Of Traditional Heronry

Sensitive Areas, Site Of Traditional Osprey Nest

Sensitive Areas, Site Of Probable Inlet Breaching

Appendix



APPENDIX A

MELFA, VIRGINIA: At the gular meeting of the Chairman and members of the Accomack-Northampton Planning District Commission held at the Eastern Shore Community College, Melfa, Virginia, on February 17, 1975.

Whereas, the Accomack-Northampton Planning District Commission, Accomac, Virginia, is duly recognized and legally constituted as Virginia Planning District #22 under Title 15.1 of the Code of Virginia; and

Whereas, the County of Accomack and the County of Northampton are members of the Planning District Commission; and

Whereas, the County of Accomack and the County of Northampton, together as the Planning District Commission serve to promote the best interests of both jurisdictions, separately and jointly; and

Whereas, the Accomack-Northampton Planning District Commission is authorized to promote the orderly and efficient development of the physical, social, and economic elements of the District by planning; and

Whereas, the Planning District Commission is authorized to assist governmental subdivisions with planning for the future; and

Whereas, the Planning District Commission is authorized to advise in the field of recreational activities, recommend recreational projects, encourage recreational interests, seek and coordinate the cooperation of other individuals and agencies, local State and Federal, and secure funding; and

Whereas, the Planning District Commission authorized the preparation of two Reports concerning the various aspects of recreation; and

Whereas, these Reports, Land Use Report, 1973 and Open-Space and Recreation Report, 1974, assessed the problem and made certain recommendations;

Whereas, the Planning District Commission recognizes the need for more public recreational areas and activities and greater access by the people to these areas and activities; and

Whereas, the Planning District Commission encourages the preservation of open space for recreation on Virginia's Eastern Shore; and

Whereas, the Planning District Commission recognizes this privilege and right and takes this opportunity to recommend this recreational project;

NOW THEREFORE BE IT RESOLVED, by the Chairman and Members of the Accomack-Northampton Planning District Commission, Accomac, Virginia, that:

1. The Accomack-Northampton Planning District Commission endorses the designation of Paramore Island as a Wildlife Refuge and National Seashore through resolution and other supporting activity as they shall from time to time deem appropriate.

2. The Accomack-Northampton Planning District Commission requests that the United States Department of The Interior, Bureau of Sport Fisheries and Wildlife and The National Park Service, accept this endorsement and designation.

3. The United States Department of The Interior, Bureau of Sport Fisheries and Wildlife and The National Park Service, shall place on their priorities list the purchase and maintenance of Paramore Island as a Wildlife Refuge and National Seashore in Accomack County on Virginia's Eastern Shore.

AYES: Passed unanimously

NAYES: None

A copy teste

CHAIRMAN

EXECUTIVE DIRECTOR

APPENDIX B

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JAN 19 1976

Dear Mr. Noonan:

We are pleased to respond to your letter of December 4, 1975, requesting information as to Departmental interest in establishing a National Recreation Area on Parramore Island. Parramore Island was among the major islands reviewed in a preliminary report entitled Virginia's Barrier Islands. This report was completed as part of the response to the President's directive of November 1966 to Secretary of the Interior to undertake a nationwide inventory of America's islands. The final publication of this report to the President, Islands of America, in discussing the Virginia Barrier Islands including Parramore, states: "The Virginia Islands provide an outstanding opportunity for seashore recreation development in the public interest... ."

Beyond these citations and study references, there has been no further evidence of Departmental interest in Parramore Island. The Department has no plans at this time for considering designation of Parramore Island as a National Seashore. Nor, to the best of my knowledge, is there any State action underway to accomplish this objective.

Sincerely yours,

(sgd) Nat

Assistant Secretary of the Interior

Mr. Patrick F. Noonan, President
The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209

APPENDIX C

RESOLUTION REGARDING PARRAMORE ISLAND AS A NATIONAL SEASHORE

Whereas, The Eastern Shore of Virginia Chamber of Commerce, Inc. has recognized the need for more public recreational areas and activities and access for the people to these areas and activities; and

Whereas, the Accomack County Board of Supervisors in its Overall Economic Development Plan pointed out the need for recreational use of Parramore Island; and

Whereas, the Northampton County Board of Supervisors in its Overall Economic Development Plan pointed out the need for recreational use of Parramore Island; and

Whereas, the Accomack-Northampton Planning District Commission #22 pointed out the need for recreational use of Parramore Island in its; (1) Land Use Report, (2) Housing Report, and (3) Open Space and Recreation Report; and

Whereas, the Delmarva Advisory Council in its Overall Economic Development Plan pointed out the need for recreational use of Parramore Island, and

Whereas, the Virginia Outdoor Recreation Commission in its initial report pointed out the need for recreational use of Parramore Island; and

Whereas, the Area Redevelopment Administration (Federal) study done by Old Dominion University pointed out the need for recreational use of Parramore Island; and

Whereas, the Economic Development Administration (Federal) study done by Spindletop Research, Inc., pointed out the need for recreational use of Parramore Island, and

Whereas, the Parks and Recreation Commission of Accomack County in its earliest recommendations pointed out the need for recreational use of Parramore Island,

NOW, THEREFORE BE IT RESOLVED, that the Eastern Shore of Virginia Chamber of Commerce, Inc., with the awareness of the above listed plans, studies and suggestions, recommend the following; that,

(1) The Department of the Interior of the United States be urgently requested to create a National Seashore with proper access on Parramore Island, and that the whole of Parramore Island be acquired by the United States so that its use by future generations cannot be hampered.

(2) The Nature Conservancy be asked to support this quest of the people of the Eastern Shore of Virginia and transfer ownership of Parramore Island to the United States so that the cost of creating such a great National Seashore to display our wild heritage to future generations might be diminished.

(3) The Boards of Supervisors of Accomack and Northampton Counties consider the creation of a National Seashore on Parramore Island a "NUMBER ONE PRIORITY PROJECT" and to assign the combined forces of the Accomack-Northampton Planning District Commission #22 and the Commissions of Parks and Recreation of both counties to work for the successful conclusion of such a project.

(4) The Boards of Supervisors and the membership of the Eastern Shore of Virginia Chamber of Commerce, Inc., impress upon the appropiate agencies within the Commonwealth of Virginia that the creation of a National Seashore on Parramore Island is considered a "NUMBER ONE PRIORITY PROJECT" and that their full support and assistance is expected.

(5) The Eastern Shore of Virginia Chamber of Commerce, Inc. work with every interested organization and municipality to secure resolutions of approval for a National Seashore on Parramore Island.

(6) In the interest of unity of purpose, the manner in which the National Seashore with proper access on Parramore Island is created and developed be left to the National Park Service of the Department of the Interior-the experts in the field.

Adopted October 22, 1974

APPENDIX D

DRAFT

COASTAL ZONE REGIONAL ASSESSMENT REPORT

ACCOMACK-NORTHAMPTON PLANNING DISTRICT

September, 1975

Prepared in cooperation with the Planning District Commission by the Division of State Planning and Community Affairs

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SUMMARY OF ISSUE DISCUSSIONS . . . . . p. 4

PROGRAM EMPHASIS AND PARTICIPATION . . p. 13
SECOND YEAR

INTRODUCTION

Since March of this year, the Division of State Planning and Community Affairs (DSPCA) has been meeting monthly with the Regional Advisory Committee (RAC) of Planning District 22 to define and discuss the primary problems and concerns of the region with regard to coastal resources and coastal development. These meetings were intended to provide an opportunity for frank and candid discussion of community attitudes pertaining to coastal issues with a detailed analysis of pertinent factual data conducted in the coming year. This technical evaluation will serve to confirm, support or modify the perceived state of coastal affairs identified in this initial attitudinal assessment.

The value of this process can best be expressed by the RAC participants, which in Planning District Commission (PDC) 22, embraced the entire PDC membership. Views as to the net benefit of the discussion process vary. While all reluctantly accepted state participation in the program and consider the basic intent of the program contrary to the principles of local decision making and governance, they have welcomed the forum to express their definitive views as to substance and form the program should assume. The success of this dialogue is founded upon the willingness and cooperation of the participants to outline their attitudes and reactions to coastal issues in an honest, sincere and direct fashion. The following material is presented as a descriptive summary of the framework for and concerns raised in those discussions.

ASSESSMENT PURPOSE AND FRAMEWORK

In order to provide a participatory mechanism that reflected civic attitudes and issues and supplied basic information and continuity to the process, each of the nine (9) PDC's were asked to establish Regional Advisory Committees with representatives from local governments, the private sector and various interest groups. PDC 22 responded to this request by appointing the Planning District Commission as the Regional Advisory Committee (RAC).

Objectives:

The objectives of the CZM ISSUE ASSESSMENT were to:

- Engender an understanding of CZM in each PDC within the coastal region and provide a forum for increasing communication as to the basic intent and status of the program;
- Provide an opportunity for local and regional participants to identify CZM issues and conflicts in the region and supply suggested approaches for dealing with those issues;
- Present a system for local and regional governments and their citizenry to recommend primary elements of the State program and their respective role and responsibility in its development and implementation.

Relationship to Program Development:

The regional assessments will contribute to the overall development of the program in a variety of ways. The State assessment, conducted simultaneously with the nine (9) regional assessments, will focus on similar issues, relationships, conflicts and management resolutions relating to coastal resources. The juxtaposition of the State analysis of these issues and the regional viewpoint will illuminate many critical dimensions of the management

needs and problems in the early stages of program development, including:

1. Conflict Determination in Coastal Resource Utilization

   In the analysis of coastal issues, conflicts between resource uses emerged. The investigation of possible tradeoffs and the resolution of these conflicts in priority and permissible land and water uses will be a major activity in the 2nd year of the program.

2. Regional perceptions of regional and Statewide Coastal Issues

   The Regional Advisory Committees (RAC's) identified Regional Coastal Related problems. Some of these issues, while regional in nature, also involved problems that were of regional or Statewide significance. Therefore, the perspective of the RAC and the region as to which issues are important to their coastal areas and acceptable techniques for dealing with these problems will be valuable in developing the substance of the management program.

3. Regional Suggestions and Attitudes Relative to Potential Management Approaches

   Through the assessment process attitudes concerning existing management techniques and regulations available to or employed in each of the nine (9) regions were discussed. When juxtaposed against the regional and Statewide issues brought forth by each RAC, management gaps, conflicts or duplications will be delineated. Suggested approaches for coordinating present mechanisms and attitudes toward devising new systems will be instrumental to the determination of a viable management program and will be a major activity during year two.

Methodology:

After an introductory session with the RAC at which time the basic program direction was reviewed, the participants were asked to indicate the five (5) primary coastal issues they believed to exist on Eastern Shore. Using these responses the State staff, with assistance from the PDC, began to compile preliminary information on each issue topic. This information was presented at successive meetings and used as a departure point for discussion. Basic questions addressed to each topic included:

Is this a major concern on the shore?

If so, what is the extent of the problem?

What is the area of impact and who is effected?

How is the problem being dealt with at present?

Is this an effective means of dealing with the situation?

If not, what are the problems?

The attitudes, opinions and concerns derived in this manner were organized into issue statements and circulated to the membership for comment.

This report with changes made by the RAC will then be submitted by the PDC as the regional assessment of coastal issues in the Accomack-Northampton area. (See diagram A for first year program schedule and program relationships.)

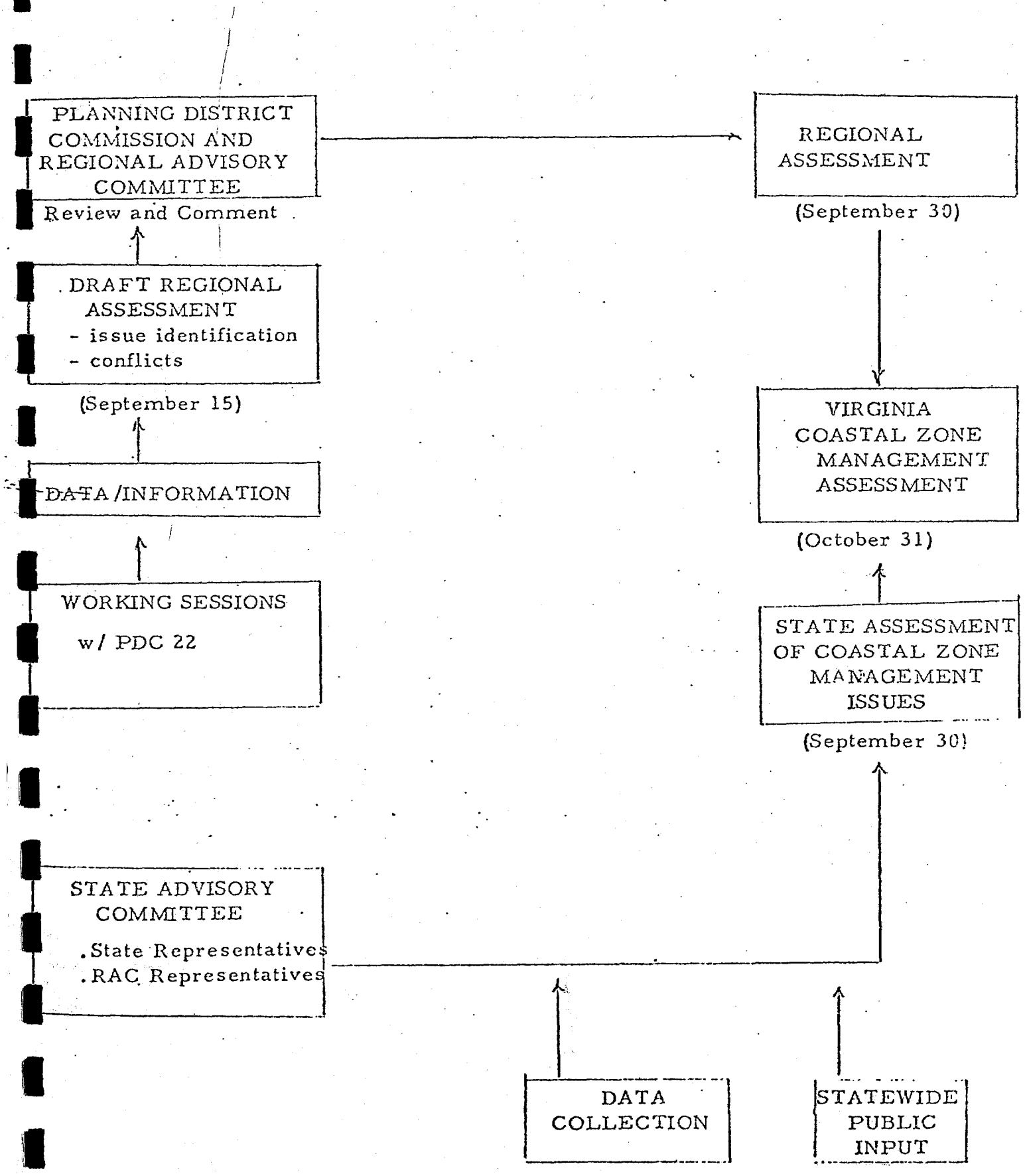
The following description of issues is an expansion of those initial statements made in RAC discussions with the suggested additions and modifications.

Diagram A

SCHEDULE FOR ASSESSMENT ACTIVITY COMPLETION

APPENDIX D (continued)

First Program Year



SUMMARY OF ISSUE DISCUSSIONS

General Statements

During the discussions held with the RAC, a number of general concerns that extended beyond the narrow focus of a single topic were repeated continually.

ROLE OF LOCAL GOVERNMENT:

Paramount to any specific coastal concern identified was the belief that the local decision-making process should be maintained and any attempt to design a program which would alter this premise would be strongly resisted. Participants emphatically stated that localities could accept additional responsibilities, even in the light of growing local responsibilities, if sufficient funds were made available for that purpose.

Specific instances of State insensitivity to Shore requests for planning assistance, both at the regional and local level, were cited. The participants noted obvious contradictions between State legislation requiring local action and the funds provided Shore communities to carry out these mandates.

COMPREHENSIVE PLANNING:

Pressure from small communities for planning assistance from the regional staff and requests for aid from both Accomack and Northampton counties for completion of a comprehensive plan have increased the need for additional fiscal resources.

State Planning funds vis-a-vis the HUD 701 program, was the target of many complaints with pointed charges of insufficient and inequitable funding. The RAC agreed to support the concept of comprehensive planning performed at the local level if adequate financial support was made available for that purpose.

PROGRAM COORDINATION:

Participants forcibly indicated that the gross proliferation of federal and State programs was placing unnecessary and undue hardships upon private enterprise and the citizen community. The over-regulation and duplication characteristics of programs, ranging from water quality to erosion control, were infringing upon basic individual freedoms and resulting in the waste of the tax dollar. If the Coastal Zone Management Program could provide a mechanism to bring together these diffused and uncoordinated programs into a more unified approach to coastal problem solving, it would be supported. Conversely, if the program solely succeeded in producing another layer of administrative and bureaucratic review, it would stimulate organized opposition.

Views on Specific Issues

In addition to discussing general concerns with the development of a State coastal program, a number of specific issues were addressed in detail (see methodology p. 3 for discussion format). The issue categories were identified by the participants at the onset of this process. The summary statements that follow represent collective opinions expressed during RAC sessions.

RECREATION:

Beach Access

The availability of public beaches was cited as a major concern by the participants. Public access to the beaches along both sides of the Shore is restricted save the (2) public beaches located at Assateague and Cape Charles . While this shortage severely limits the number of Shore residents that have access to the beach, it also was noted as a factor influencing the growth of tourism.

Acquisition of the Barrier Islands by the Nature Conservancy, while viewed by the RAC as a positive action, will delay or perhaps prevent the transformation of the Islands into additional public beach along the seaside. The membership expressed strong interest in the conversion of Paramore Island, the largest and most stable island within the system, to a national seashore or park. No action is expected by the Conservancy or the federal government until a study of the island's eco-systems and the Shore's attitudes regarding island useage has been completed.

A conflict prevading this discussion of public beach access to the Barrier Islands and along the Shore was the issue of private property rights vs. the local and regional utilization of the beaches. (Rights of property owners extend to the low water mark.)

Recognizing this interest in the Barrier Islands, there are significant property holdings in both counties owned by the federal and State government that could be developed as public beach or recreational areas. A role for the Coastal Zone Program was seen in facilitating administrative procedures permitting the conversion of these properties, in conjunction with PDC and local government action, to recreational uses.

Water-Related Recreational Facilities

A shortage of public recreational parks surfaced during these discussions along with a noted increase in the development of private campgrounds. One of the most urgent and controversial recreational problems, however, deals with the provision and maintenance of boat ramps. Difficulties stem from:

- insufficient facilities to service demand;
- inadequate upkeep of facilities and infrequent maintenance dredging of surrounding channels;
- lack of personnel to supervise peak season usage;
- disregard for personal property of adjacent land-owners; and
- influx of boat users from out of state resulting in facility overcrowding which prompted one county to levy a fee on non-Virginia users.

Growth of marina and sport fishing facilities were seen as dependent upon harbor improvements, State assistance and the location of the Intercoastal Waterway (the Virginia Inside Passage) along the ocean side of the shore. The Corps of Engineers presently is conducting an environmental impact study to determine the advisability of the waterway project.

WETLANDS:

The Eastern Shore of Virginia has extensive and productive wetlands that extend along the Bay and sea boundaries of the Shore. Because of the large acreage embraced by the wetlands, the enactment of State wetlands legislation had a major impact upon the region. The law, which has been in effect since 1972, was seen as too restrictive and time consuming. The participants identified the difficulties as emerging from the State overview and not the local implementation of the program.

FLOOD, EROSION AND SEDIMENT CONTROL:

Flood Plain Delineation

Given the elevation of the Shore, large portions of the region may be subject to flooding. The delineation of the flood plain, however, is quite difficult as rainfall, wind and tide variables combine to produce flooding conditions, making flood plain delineation and forecasting most difficult. Realizing these complications, the RAC indicated basic satisfaction with present activities involving flood insurance and control.

Natural Erosion

Natural shoreline erosion is proceeding at an alarming rate along both sides of the Shore from the Maryland line to the Chesapeake Bay Bridge

Tunnel. Extreme examples include eroding action along the Barrier Islands where the sand remains in a fluid state, constantly changing the configuration of the islands and the adjacent channels and Tangier Island which has experienced an annual erosion rate of 18 feet per year since the mid 1800's.

The RAC remains skeptical as to the commitment to assist the Shore in reversing these serious erosion problems. It was recognized, however, that State agencies had begun to employ technical and financial resources to analyze site specific problems and to devise reclamation or prevention devices to reverse or retard the erosion process.

INDUCED EROSION/SEDIMENT CONTROL

Management techniques and regulatory provisions for controlling erosion emanating from land alterations and construction were severely criticized in RAC discussions. Particular opposition was raised regarding the Statewide Soil Erosion and Sediment Control Ordinance. Objections included arguments that: (a) the contour of the shore did not warrant such stringent controls; (b) the ordinance requiring permits unnecessarily encompassed small commercial projects and minor building additions, serving only to increase building costs and delay project completion; and (c) the regulation duplicated many aspects of the building code permitting process previously enacted.

AGRICULTURE:

While a proportionately high number of Shore residents are engaged

in activities directly or indirectly related to agriculture and while primary use of land is vested in agriculture, the RAC was hesitant to make a strong link between coastal problems and agriculture. The key point was made that both developers and farmers were competing for the best agricultural land. The suggestion accompanying the statement urged that development be channeled initially away from prime agricultural land.

WATER SUPPLY, QUALITY AND SEWAGE TREATMENT:

Water Supply

In discussion of residential and economic growth potential on the Shore, the question arose as to the sufficiency of the water supply to support an extremely large influx of people and industry. A debate ensued as to the present supply of fresh water and the draw down capability prior to salt water intrusion. After a lengthy conversation, the PDC voted to recommend that funds be made available through the CZM program or associated State sources to conduct a geological survey of fresh water supplies on Eastern Shore.

Water Quality and Sewage Treatment

Although water quality was not reviewed at length, the problem of sewage treatment on the Shore was identified as a major problem area, particularly with regard to its influence upon the shellfish and fishing industry. The presence of high BOD levels in certain Shore locations, in addition to the construction of marinas near shellfish grounds, have resulted in the closing of a number of world famous oyster and clam beds.

The upgrading of sewage facilities is scheduled to begin in the near future with the assistance of federal funds earmarked for Chincateague, Cape Charles and Tangier. Members of the RAC remained pessimistic of the impact such facilities would have upon reopening heretofore productive shellfish areas.

HARBOR DEVELOPMENT AND OCS ACTIVITIES AND ECONOMIC ACTIVITY:

Harbor Development

The recent completion of a project directed toward refurbishing the Cape Charles harbor constitutes the major harbor improvement activity undertaken on the Shore. Renovation of docking accommodations and channel dredging for small harbors, including: Saxis; Onancock; Oyster and Wachapreague was supported by the entire RAC.

OCS Activities

The development of adequate harbor facilities and the accommodation of potential OCS operations could prove to be closely connected. Given the sites selected for OCS exploration, the possibility remains that an Eastern Shore Harbor might serve as an operations base servicing offshore facilities. The length of the supply line from the Shore may prove the determining factor in the location of an operations base. In any event, the disruption incurred by such an activity is seen as negligible, both by industry and the RAC. At this juncture it is impossible to predict what ancillary industries may be attracted to the Shore in addition to the Brown & Root proposal. The RAC recorded their sentiments as favoring any OCS operations that proved to be compatible with Shore communities.

Economic Activity

A discussion of a questionnaire distributed to the RAC which solicited responses concerning economic development attitudes clearly pointed out that the membership's belief that the type, location and intensity of development must be analyzed on a site-by-site basis. Although the provision of public facilities, water supply and access were seen as factors influencing industrial location, it was assumed that industry would gravitate toward areas where sufficient resources and facilities were available.

TRANSPORTATION:

Mobility from the Shore to the mainland has been facilitated by the construction of the Chesapeake Bay Bridge Tunnel. Reliance of the tunnel for commercial and individual transport, however, has become a significant problem during periods when the tunnel was being repaired. Contingency plans have been drawn up and are in the implementation stage in the event bridge-tunnel access is interrupted.

Similarly the abandonment of the Penn Central line connecting the Shore to the Northeast and by car float to the Virginia mainland could result in transportation and economic dislocations. The outlook for acquisition of the system by Southern Railway Company is extremely favorable at present.

PROGRAM EMPHASIS AND PARTICIPATION SECOND YEAR

This information obtained on both the broad concepts of coastal management and the more detailed review of specific coastal problems will be used in: (a) focusing the data gathering effort pursued in the second year of the program; and (b) molding the boundaries of the program by defining substantive problem areas.

The data collection and program definition activities will constitute a VALIDATION process intended to confirm, negate and/or amplify the issues raised in the regional and Statewide assessments as well as analyze existing policies and programs impacting upon these issues. (See diagram B.)

Continued participation by the RAC will be most useful in conducting this validation. In the instance of PDC 22, the sessions with the RAC would continue but on a less frequent basis. The primary purpose for the continued meetings with the RAC would be to receive comments as to conclusions emanating from the data analysis and to obtain reactions to various management approaches.*

Conversations with the RAC in PDC 22 throughout the last six (6) months have indicated that, while they have serious reservations about the program, avid participation is essential if local governments are to inject their views into the decision-making process.

*It is anticipated that the scope of the participation program would be enlarged within the region to include sessions with local governments, planning commissions and citizen groups in addition to those held with the RAC.

PDC 22, therefore, supports the retention of the RAC structure during the second program year in order to maintain an avenue of communication by which they can communicate their ideas concerning Coastal Zone Management to the respective State agencies in addition to requesting the provision of funds to the PDC to assist with second year activities.

APPENDIX E

POSITION PAPER
OF PDC #22

ON THE FUTURE COASTAL ZONE MANAGEMENT PROGRAM
OF THE STATE OF VIRGINIA

ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
Accomac, Virginia

August 1975

INTRODUCTION

FEDERAL ACT.

The U. S. Coastal Zone Management Act requires states to identify the boundaries of their coastal zone, develop a process to determine appropriate land and water uses in the zone, designate areas of particular concern, establish priority uses within specific areas of the zone, determine intergovernmental arrangements needed to conduct an effective management program, and evaluate the adequacy of existing regulations for proper land and water use management.

PROGRAM DEVELOPMENT BY THE STATE.

Responsibility for development of Virginia's Coastal Zone Management Program has been given to the Division of State Planning and Community Affairs (DSPCA), Commerce and Resources Section, and the Virginia Institute of Marine Science (VIMS). As the lead agency, DSPCA will coordinate most of the planning effort; VIMS will provide support in terms of marine-related research, data collection and technical advice.

OBJECTIVES BY THE STATE.

Generally the three-year planning effort is designed to accomplish five major objectives:

An Assessment of Public and Private Activities in the Coastal Zone: This task will identify the roles and responsibilities of private, local, multi-county, state and federal organizations in Virginia's coastal zone.

Data Collection and Analysis: In support of overall program development, a pertinent data base is being assembled. DSPCA will collect and analyze fast land resource data and assess the prevailing socioeconomic conditions in the coastal zone. VIMS is compiling information related to marine life, oceanic and estuarine water conditions and areas of special concern in the coastal zone.

Problem Identification: Using the knowledge derived from the previous tasks, a list of specific problems will be identified. Program goals and objectives will then be developed in light of these problems.

Development of Alternative Strategies: Alternative methods for the attainment of the desired goals will be developed.

Recommendations for Action: Based on an appraisal of the alternative strategies, specific recommendations for action will be made to Virginia's legislature.

STATE (DSPCA) LIAISON PERSONS.

Mr. B. C. Leynes, Jr. and Ms. Stewart H. Gamage have been appointed by the State to serve as liaison persons with the Regional Advisory Committee of PDC #22.

VIMS.

Mr. John Pleasants, Associate Director, VIMS, is the liaison person representing this agency. VIMS and DSPCA share, jointly, the responsibility for planning the coastal zone management for the State of Virginia.

REGIONAL ADVISORY COMMITTEE.

The Accomack-Northampton Planning District Commission designated itself as the Regional Advisory Committee for Planning District #22 of Virginia.

LOCAL CONCERN

Members of PDC #22 and the public in general view with great concern the pending Coastal Zone Management Program to be prepared and enacted by the State of Virginia. The concern is two fold: in general, the need for such program; and in particular, the specific issues to be included into the program.

GENERAL CONCERN

1. Any coastal zone management program makes sense only if it means a simplification and not a further complication of land, water, and resource use activities in the coastal area.

At the present time, any use activity in the coastal area may mean applications to and decisions by the Army Corps of Engineers, Virginia Institute of Marine Science, Wetlands Board, Soil Erosion and Sediment Control Authority, Water Control Board, Planning and Zoning Commission, etc. etc. Each application requires extra expenses and long delays in time.

Local people are concerned that a coastal zone management program would add an additional bureaucratic procedure on top of the existing ones.

As a solution to simplified administration of land, water, and resource use activities related to coastal area, the Commission recommends that all applications be submitted to just one local authority which would then further process the application, obtaining simultaneously comments from the various Federal, State and local agencies before a decision is made and the requirements or conditions of approval be listed. This would greatly reduce the expenses and wasted time of the applicant. This single local authority could be the local wetlands board, or a similar agency.

2. The local people are viewing with increasing concern that more and more decision making authority is being taken away from local agencies and given to state and federal agencies far removed from the spot, with little knowledge of the circumstances and little knowledge of the needs and problems of the local people.

The Planning Commission, therefore, strongly recommends that any decision making body dealing with coastal zone management, be composed of local people, representing local interests. The Commission feels that in the past 300 years local people took good care of the coastal areas and resources and they are quite able to do so in the future too. Of course, the Commission understands that a coordination of interests of a wider domain is necessary and cooperation with state and federal agencies cannot be negated.

3. In order to facilitate the coastal zone management, the Commission recommends that an exact delineation of the coastal zone be made. All land, water, and resource use activities in the coastal zone would be supervised by the local coastal zone management authority (Wetlands Board or similar agency). All activity in areas outside of coastal zone would be under the supervision of the local Planning and Zoning Commission. There would be no overlap of authority in jurisdictions.

The Commission realizes that achievement of the above recommendations would involve changing existing federal and state laws.

APPENDIX E (continued)

SPECIFIC ISSUES.

The Commission recognizes the following problems and concerns related to coastal areas that need solution in context of the Coastal Zone Management Program:

1. Erosion and Sediment Control.

Natural Erosion. Erosion from natural causes is proceeding at an alarming rate, particularly on the Barrier Islands, on the Bay shore line and on Tangier Island .

Massive shifting of sand by natural currents is resulting in constant natural channel modifications and cause continual dredging requirements.

Erosion due to Land Development Activities. Erosion due to man made activities and land disturbances cause very little erosion problems on the Eastern Shore of Virginia due to the level contour of the land and, therefore, the Commission opposes the stringent requirement of the Soil Erosion and Sediment Control measures of the State law.

2. Water Pollution.

(a) Water Pollution Caused by Agriculture. Farming on agricultural land causes water pollution in two respects: pesticides, animal wastes and other pollutants are washed into the rivers, marshlands and open bays and affects marine life.

Sanitary waste from inadequately serviced labor camps.

(b) Water Pollution Caused by Sanitary Waste. The very slow program of the Water Quality Management Plan designed to provide adequate sewerage systems for PDC #22 will cause continuing pollution of the waters in the next 10 or 20 years.

Only a more aggressive program with increased federal financial help could solve the problem.

(c) Water Pollution from Motor Boats. Sanitary and oil wastes from motor boats can cause pollution of the waters. Adequate measures should be taken to prevent it, or to minimize it.

3. Flood Control.

Flood danger in coastal areas and even in inland areas does exist due to periodical high tidal flows or hurricanes. Adequate legislation to prohibit any construction in these areas could meet the problem.

4. Shortage of Recreational Areas.

There is a definit shortage of public recreational areas near water. We refer here to parks with picnic, beach, fishing and camping facilities.

5. Access to Open Waters and Barrier Islands.

The only beach open to the public is on Assateague Island. It is an ironic situation that the Eastern Shore with approximately 200 miles of shore line has practically no public access to the waters. The establishment of public recreation areas could solve the problem.

6. Wetlands.

State laws regulating wetland management are seen by the Commission as too restrictive and time consuming. Difficulty seen with State overview, not local administration.

7. Fresh Water Supply.

Fresh water supply depends on the capacity of ground water aguifers. There are indications that the ground water supply is limited. Consequently, the industrial and residential potential of PDC #22 is also limited. The danger exists that overuse of ground water may result in salt water intrusion. A detailed survey would be necessary to ascertain the water supply.

8. Wharf Facilities.

Improvement of docking accommodations and channel improvements are needed for all small harbors along the shore. State assistance is needed to achieve better docking facilities.

9. Ferry Service.

There is no transportation facility presently between the lower west shore of the Chesapeak Bay and the Delmarva Peninsula. A ferry service should be considered between the Eastern Shore and the west shore of the Bay. On the Eastern Shore it could be based in Onancock.

10. Summer Cottage and Camp Site Subdivisions.

There is an increasing demand for land subdivisions in coastal areas. These cater mostly for people wanting lots for summer cottages or camp sites. Some of the existing subdivisions contain several thousand lots. In most cases no public sanitary facilities and no public water supply are provided. There is need also for increased police and fire protection. These subdivisions are a potential source of water pollution, health hazard and destruction of maritime life. They may cause also traffic problems on the narrow secondary roads.

11. Fishing and Hunting.

Comprehensive regulations concerning commercial and sport fishing (including clams, oysters, crabs, etc.) and hunting are needed.

12. Protection of Small Sea-Food Industries.

Existing too-restrictive regulations on sea-food industries are putting many small local sea food industries out of business. Regulations that protect the small industries are needed.

13. Other Problems.

Other potential problems are in coastal areas:

(a) Water related private recreational facilities (private beaches, marinas, fishing piers, boat ramps).

(b) Industries. (Oil related industries, boat factories, etc.)

APPENDIX F

A FIVE YEAR COMMUNITY DEVELOPMENT PLAN FOR PARKS AND RECREATION

ACCOMACK COUNTY

PRELIMINARY STAGES

1975

1. Acquisition of real property for
   a) County Park at Wallops Island (Excess Land from NASA)
   b) County Park at Saxis Island (Community project)
   c) Central Recreational and all-purpose complex in the central Accomack area.
   d) Recreational Center at Chincoteague

2. Construction of new facilities
   a) Picnic Sites at Wallops
   b) Picnic Sites at Saxis
   c) Picnic Sites at Central Complex
   d) Athletic Fields at Wallops
   e) Night Softball Field
   f) Recreational Building on Tangier Island
   g) Recreational Building on Chincoteague
   h) Central Complex Building

3. Renovation of Existing Sites
   a) Tennis Court at Atlantic High School
   b) Tennis Court at Central High School
   c) Some school playground sites

1976

1. Construct new facilities
   a) Swimming Pool at Central Complex
   b) Athletic Fields at Central Complex
   c) Nature and Hiking Trails at Wallops
   d) Nature and Hiking Trails at Central Complex

2. Renovation
   a) all playground sites

1977

1. New Facilities
   a) Playground Area at Central Complex
   b) Field Archery Range at Central Complex

1978

1. New Facilities
   a) 18 Hole, Par 3, executive Golf Course, Central Complex

2. Renovation
   a) Athletic Fields

1979

1. New Facility
   a) County Park in Lower Accomack County

In addition to the above, during this period, to keep working on the establishment of bikeways and biketrails; access roads into the State Park at Parkers Marsh and into County Parks that become realities.

APPENDIX G

CHARTER AGREEMENT OF THE
ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
OCTOBER 1, 1973

This revised Charter Agreement to reorganize a Planning District Commission made this 15th day of August, 1973 by and between the undersigned governmental subdivisions as authorized by the Virginia Area Development Act (Title 15.1, Chapter 34, Sections 15.1-1400, et seq., Code of Virginia, (1950), as amended;

NOW THEREFORE it is agreed that:

ARTICLE I

Name, Location, Authority, Purpose

Section 1. The name of this organization shall be the Accomack-Northampton Planning District Commission, hereinafter called the "Commission."

Section 2. The principal office of the COMMISSION shall be in Accomac, Virginia. The location of the principal office may be changed by the concurrence of three-forths of the COMMISSION members present at a regular meeting, provided that the clerk of the governing body of each member governmental subdivision has been notified of the contemplated relocation in writing at least thirty days before such meeting.

Section 3. The COMMISSION shall be a public body corporate and politic with all the powers and duties granted to it by the Virginia Area Development Act.

Section 4. The purpose of the COMMISSION shall be to promote the orderly and efficient development of the physical, social, and economic elements of the District by planning, and encouraging and assisting governmental subdivisions to plan for the future. It shall not be the duty of the COMMISSION to perform the functions necessary to implement the plans and policies established by it or to furnish governmental services to the District. No action of the COMMISSION shall affect the powers and duties provided to the COMMISSION by law.

ARTICLE II

Membership

Section 1. COMMISSION members shall be appointed by the respective governing bodies of those political subdivisions which are parties to this Charter Agreement provided, however that at least a majority, but not substantially more than a majority, of the COMMISSION'S members shall be elected officials of the governing bodies of the governmental subdivisions within the Planning District with each participating county, city, and town of more than 3,500 population having at least one representative, and the other members being qualified voters and residents of the District, who hold no office elected by the people.

Section 2. Governmental subdivisions which are parties to this Charter Agreement shall appoint members to the COMMISSION on the following basis:

	Elected Members	Non-Elected Members
Accomack County	5	2
Northampton County	3	2

Section 3. Vacancies on the COMMISSION shall be filled for the unexpired term in the same manner as the original appointment was made.

Section 4. Any member of the COMMISSION shall be eligible for reappointment but may be removed for cause by the governing body which appointed him.

ARTICLE III

Terms of Office and Voting Rights

Section 1. The terms of office of COMMISSION members who are also members of the governing bodies shall be coincident with their elected terms of office, or such shorter terms as their governing bodies shall determine. The terms of office of the non-elected members shall be for one year. Non-elected members serve at the pleasure of the governing bodies and may be removed with or without cause shown, by the governing bodies at any time. Initial appointments for the non-elected members shall expire on June 30, 1974. All subsequent appointments of non-elected members shall be for a term of one year and expire on June 30 of each succeeding year.

Section 2. Each member of the COMMISSION shall have <u>one equal vote in all matters before the COMMISSION</u>.

ARTICLE IV

Officers of the Commission

Section 1. Officers of the COMMISSION shall consist of a Chairman and Vice-Chairman who shall be elected by the membership of the COMMISSION. The COMMISSION may elect other officers.

Section 2. The Chairman and Vice-Chairman shall be elected for terms of one year or until their successors are elected.

Section 3. COMMISSION officers shall be eligible for re-election, but may serve no more than three consecutive terms.

Section 4. The COMMISSION shall appoint an Executive Director who shall be an employee of the COMMISSION and shall serve <u>at the pleasure of a majority of the membership</u>.

ARTICLE V

Addition or Withdrawal of Members

Section 1. Any governmental subdivision within Planning District Number 22 which is not a party to this Charter Agreement at the effective date thereof may hereafter join the COMMISSION provided that such governmental subdivision is eligible for membership and that it adopts and executes this Agreement.

Section 2. Any governmental subdivision may withdraw from the COMMISSION by submitting to the COMMISSION in writing, at least 90 days before the end of the COMMISSION'S then current fiscal year, a notice of intent to withdraw. Such withdrawal shall not become effective until the COMMISSION'S fiscal year has ended.

ARTICLE VI

Appointment of an Executive Committee and Adoption of By-Laws

Section 1. The Commission may designate an Executive Committee and delegate to it such power as the COMMISSION may determine, provided that these powers are not inconsistent with provisions of the Virginia Area Development Act.

Section 2. The COMMISSION may adopt By-Laws and such other rules as it deems necessary to govern its operations.

ARTICLE VII

Meetings

Section 1. The Commission shall hold regular meetings on a schedule which will be determined by the membership.

Section 2. The COMMISSION may also hold such special meetings, as it may deem necessary, at such times and places as it may find convenient; and it may adjourn from time to time as it may find convenient; and it may adjourn from time to time as it may deem necessary.

Section 3. A special meeting of the COMMISSION shall be held when requested by two or more of the members thereof. Such request shall be in writing, addressed to the Executive Director of the COMMISSION, and shall specify the time and place of the meeting and the matters to be considered at the meeting. Upon receipt of such request, the Executive Director shall immediately notify each member of the COMMISSION, in writing, to attend such meeting at the time and place mentioned in the request. Such notice shall specify the matters to be considered at

the meeting. The Executive Director shall send a copy of such notice to each member of the COMMISSION by registered mail not less than five days before the day of the special meeting; provided, that the Executive Director may have such notice served on the members of the COMMISSION by the Sheriffs of the respective Counties, if he deems the same necessary to secure their attendance; and provided further, that no matter not specified in the notice shall be considered at such meeting, unless all the members of the COMMISSION are present.

Section 4. A simple majority of the membership of the COMMISSION shall constitute a quorum at all meetings of the COMMISSION.

Section 5. Meetings of the COMMISSION shall be open to the public, however, the COMMISSION may hold executive meetings in accordance with the provisions of the Virginia Freedom of Information Act.

ARTICLE VIII

Amendments

Section 1. This Charter Agreement may be amended, supplemented or superseded only by concurring resolutions of member governmental subdivisions.

ARTICLE IX

Date of Organization

Section 1. The organization of the Accomack-Northampton Planning District Commission shall be effective on the 1st day of January, 1970 or at such time after this date when the Charter Agreement has been adopted and signed by that governmental subdivision whose population when added to the aggregate population of those who have already adopted and signed the Charter Agreement embraces the majority of the population within Planning District Number 22.

ARTICLE X

Date of Charter Revision

Section 1. This revised Charter Agreement shall be effective on October 1, 1973. Any previous Charter provisions inconsistant herewith shall terminate upon the effective date of this Charter Agreement.

APPENDIX H

THE NATURE CONSERVANCY - PRESERVE ENDOWMENTS

As of December 31, 1975

Preserve/State	1970	1971	1972	1973	1974	1975
Devils Den, Conn.	$ 540,062	$ 531,301	$ 527,898	$ 527,818	$ 529,112	$ 534,177
Butler Sanctuary, N.Y.	30,533	31,097	31,324	31,292	31,292	31,292
Dome Island, N.Y.	25,720	26,290	26,461	26,440	26,440	26,440
Mianus River Gorge, N.Y.	84,231	93,261	91,649	96,607	101,030	102,548
Woodbourne Forest, N.Y.	29,190	29,190	31,234	31,997	33,632	34,580
Thompson Pond, N.Y.	1,098	1,175	1,311	1,412	1,672	3,235
Arthur Dayton Memorial, Me.	15,302	16,133	17,266	18,003	18,960	19,575
Rachel Carson Sea Coast, Me.	11,589	15,043	16,250	17,016	17,813	17,586
Eastern New York	2,606	2,843	3,612	3,962	4,250	6,762
Lawrence Mem. Grasslands, Or.	15,481	26,025	28,098	29,298	23,766	9,389
Mt. Meadow, Va.	103,307	113,337	124,498	128,753	133,511	121,732
Millcove, N.Y.	10,057	10,640	1,614	--	--	--
Rodney Johnson Wildlife, Ca.	--	282,761	286,628	286,356	286,356	286,356
Barr Hill Nature, Vt.	--	--	20,418	20,610	20,787	20,819
Burnham Creek, Conn.	--	--	3,395	8,083	9,605	15,157
Fernalds Neck, Me.	--	--	79,994	81,516	83,599	85,993
Ledgewood Preserve, Me.	--	--	60,807	63,524	66,714	94,455
Henry Morgenthau Preserve, N.Y.	--	--	305,079	311,418	314,278	323,441
Preserve Stewardship	--	--	--	362,925	377,320	385,564
Meyer Sanctuary, N.Y.	--	--	--	200,029	209,772	214,454
Sunny Valley Farm, Conn.	--	--	--	250,000	487,988	499,329
Willa Cath Prairie, Ne.	--	--	--	--	10.193	10,569
Pambina Tract, Minn.	--	--	--	--	15,667	16,245
Mt. Meadow Research, Va.	--	--	--	--	--	15,000
TOTAL	869,176	1,179,096	1,657,536	2,497,059	2,803,657	2,874,698

THE NATURE CONSERVANCY

PRESERVE MANAGEMENT MANUAL

Pages II-2/II-5

A. The Preserve Stewardship Committee and the Preserve Director

The Preserve Stewardship Committee:

The Preserve Stewardship Committee is the most vital component of the preserve management system. The Committee should be composed of interested local citizens representing a cross section of ages as well as vocational and social backgrounds. The membership of the Committee may initially consist of the original Project Committee which was instrumental in establishing the preserve. One Committee may have responsibility for more than one preserve, particularly in a locale where separate preserves exist in relatively close proximity to one another.

The Committee has seven basic functions:

1. Preserve the natural ecological integrity of the preserve.

2. Inventory the preserve and assemble information necessary for the preparation of the Master Plan.

3. Develop use and stewardship policies for the preserve.

4. Draft a Preserve Master Plan as described on page IV-1 and Addendum No. 4 of the Preserve Management Manual and submit to the Regional Office for approval.

5. Prepare the Annual Status Report and send a copy of the completed Status Report to the chapter (if one exists) and the Regional Office.

6. Controlling and reviewing fiscal matters relating to the preserve, subject to the approval of the chapter board of trustees (if one exists), and/or the Regional Director of Land Stewardship.

7. Appointing (optional) and supervising a Preserve Director to implement, on a day-to-day basis, the policies and concepts contained within the Master Plan. If the Director is to receive financial compensation, his hiring must be coordinated through the Regional Office prior to any commitments being made.

The chapter board of trustees will have the power to appoint and remove committee members. The committee may wish to appoint certain members to handle particular activities such as educational programs, public relations, posting of boundaries, or finances.

The Director:

When appointed, the Preserve Director is the official agent of the Preserve Stewardship Committee. In many cases, he will be a member of the committee. His responsibilities include:

1. Monitoring and controlling the day-to-day use of the preserve.

2. Enforcing the rules and regulations established by the committee.

3. Contractual supervision of all improvement and maintenance work.

4. Providing a point of contract for information and problems related to the preserve.

The Director should be a person able to act with sound judgement and discretion since he is the duly authorized agent of the Conservancy in matters specifically pertaining to the preserve. In questions of enforcement, such as illegal trespass or entry, the Director will have the support of the entire Conservancy.

B. Chapter Land Stewardship Committee

To provide for an overall program of preserve stewardship within a chapter area and to coordinate the stewardship of specific preserves, an intermediate level of preserve stewardship responsibility is required. This will be provided by a Chapter Land Stewardship Committee headed by a Vice Chairman for Land Stewardship. The committee members should be drawn from a variety of backgrounds to provide the diversity of knowledge necessary to deal with land ownership problems.

The basic functions of the Chapter Land Stewardship Committee will be:

1. Insuring the establishment and perpetuation of a Preserve Stewardship Committee for each preserve within the chapter area.

2. Receiving and reviewing a copy of the Master Plan for each of the preserves within the chapter area and forwarding a copy of the Plan, with comments, to the appropriate Regional Office.

3. Distribute Annual Status Report forms. Receiving and reviewing a copy of the Annual Status Report (see p. IV-10) from the Preserve Stewardship Committee and forwarding a copy to the appropriate Regional Office on or before the 30th of November of each year.

4. Monitoring the stewardship practices of each preserve within the chapter area by periodically visiting preserves to see that they are being adequately maintained.

5. Assisting the Preserve Stewardship Committee and the Preserve Directors on tasks for which their local resources are inadequate and providing specialized analysis and advice on matters requiring professional expertise.

6. Providing liason with educational and scientific groups in order to promote appropriate use of preserves within the chapter area.

7. Being prepared to react quickly to an emergency and acting upon its own authority when delay might result in damage to the preserve.

8. Inform National and Regional Directors of Land Stewardship of any additions to or changes in Preserve Directors.

9. Distribute complete Preserve Management Manuals to all new Preserve Directors.

C. The Regional Directors of Land Stewardship

The chief functions of the Regional Land Steward will be:

1. To advise, encourage, assist and direct chapters and Preserve Directors through frequent communication and in-person visits with Chapter Land Stewardship Committee members.

2. Providing the ultimate day-to-day authority for the administration of the preserve stewardship program. Only unusually complex preserve problems should be referred to the National Director of Land Stewardship.

3. Review Preserve Master Plans and, if approved, forward a copy with comment to the National Director of Land Stewardship.

4. Monitor the preservation and use of preserves leased by the Conservancy as well as those areas which have been transferred out with reverters or other deed restrictions.

5. Review all potential projects evaluating their ecological merit, defensibility and manageability.

6. Advise National Director of Land Stewardship of developments in Regions which are of National significance. Major preserve stewardship decisions such as changes in personnel, new programs, large expenditures of monies or other resources should be brought to the attention of the National Director before decisions are finalized.

7. Provide a year end report summarizing status of preserve stewardship in Region, highlighting accomplishments and problems and attaching copies of the Annual Statue Report when appropriate.

8. Submit a monthly report giving a synopsis of past month's management activities.

9. FILLING THE FUNCTION OF THE CHAPTER LAND STEWARDSHIP COMMITTEE IN THOSE STATES OR THOSE GEOGRAPHICAL AREAS WHERE NO CHAPTER EXISTS.

D. The National Director of Land Stewardship

The preserve stewardship staff of the National Office is responsible for developing preserve stewardship procedures and policy. Involvement in administration matters and management decisions will be limited to those matters requiring National Office resources. Specific preserve stewardship functions of the National Office are:

1. Developing Preserve Stewardship policy and procedures, and working with other national and regional office staff in the preparation of the organization's long-range goals.

2. Encouraging and assisting the volunteer membership in the implementation and continuation of an active preserve stewardship program.

3. Reporting through the President to the Board of Governors on the status of the national preserve stewardship operation, and serving as staff representative to the Board's Science/ Stewardship Committee.

4. Receiving, reviewing and analyzing the preserve Master Plans, monthly reports, and annual reports submitted by the Regional Offices.

5. Administering the Preserve Stewardship Endowment.

6. Periodically revising and adding to the Preserve Management Manual.

7. FILLING THE FUNCTION OF THE REGIONAL LAND STEWARD IN THOSE REGIONS WHERE NO DIRECTOR EXISTS.

The importance of the National Office land stewardship staff lies in its role as a central monitor of the preserve use and management program for the organization as a whole.

DANIEL A. POOLE
President

L. R. JAHN
Vice-President

APPENDIX J

WILDLIFE MANAGEMENT INSTITUTE

IRA N. GABRIELSON
Board Chairman

L. L. WILLIAMSON
Secretary

Dedicated to Wildlife Restoration
709 WIRE BUILDING, 1000 VERMONT AVENUE, WASHINGTON, D. C. 20005 (202) 347-1774

December 3, 1975

Mr. Gerard J. Hennessey
The Nature Conservancy
c/o Virginia Institute of Marine Sciences
Wachapreague, Virginia 23480

Dear Rod:

I was pleased to learn of the Nature Conservancy's proposal to establish a permanent presence on the Eastern Shore. Your organization's work has been outstanding in maintaining those unique small units of habitat associated with the coast of Virginia.

Precisely how unique the islands are can only be revealed through studies conducted in future years. The important information required for maintaining and managing those land and water resources could be accumulated through the proposed Virginia Coast Reserve Research Consortium. With adequate information on hand, guidelines should be developed for human activities that will permit actions consistent with the needs of the resource base and avoid degrading and destructive adverse impacts. Only with appropriate information available and used can people maintain a rewarding way of life and avoid potential costly taxpayer resource restoration costs in the future. There is no question that findings from scientific research must be applied to develop innovative resource-human relationships.

We wish you the best of success in your activities.

Sincerely yours,

Laurence R. Jahn
Vice-President

LRJ:dt

National WILDLIFE
International WILDLIFE
Editorial offices: 534 N. Broadway Milwaukee, Wis. 53202 Phone: 414/273-2486
Washington offices: 1412 16th St., N.W. Washington, D.C. 20036 Phone: 202/483-1550

5 December 1975

Mr. Rod Hennessey
The Nature Conservancy
Wachapreague, Virginia 23480

Dear Rod:

I'm delighted to hear that The Nature Conservancy has decided to establish a permanent presence on the Eastern Shore of Virginia. The Conservancy's barrier island holdings in Virginia represent the last essentially undisturbed, major section of coastline between Cape Charles and Cape Cod. The islands' value in terms of fish, shellfish and wildlife production are enormous, and their total human value is beyond calculation. As the eastern seaboard corridor continues to develop, as the demands for food, clean air, water and for recreation increase, and as the intricacies of one of the most bountiful ecosystems in the world is better understood through the good and comprehensive work of your Virginia Coastal Reserve Study, the value of what The Nature Conservancy has done in setting aside these islands will be recognized and appreciated by all men.

However, land ownership is a responsibility, a stewardship. While there are constructive uses of barrier island opportunities north and south of The Nature Conservancy holdings (e.g., NASA on Wallops and the U.S. Fish and Wildlife Service on Assateague and Fisherman's Island), I sincerely hope that The Nature Conservancy will not be forced into pursuing one of these alternatives -- or any other -- until you and the other administrators have worked out long-term plans and proposals of your own. This cannot be done in two years; perhaps, not in ten. Thus, a continuing presence involving on-going research and plan development is not only desirable, any other course would be immoral to the concept of the barrier islands, to the supporters of The Conservancy, and to the many people who provided the initial research.

I wish you luck in your search for further funding. I'll send my own donation in the New Year.

Best Regards,

George W. Reiger

George W. Reiger
Senior Editor

GWR:bb

UNITED VIRGINIA BANK / SEABOARD NATIONAL, BOX 3127, NORFOLK, VIRGINIA 23514

APPENDIX J CONTINUED

United Virginia Bank

M. LEE PAYNE
CHAIRMAN

December 5, 1975

Mr. Gerard J. Hennessey, Director
The Virginia Coast Reserve Study
The Nature Conservancy
c/o Virginia Institute of Marine Sciences
Wachapreague, Virginia 23480

Dear Rod:

I am pleased to respond to your recent letter concerning the ultimate management and utilization of the Virginia barrier islands and adjacent areas now controlled by the Nature Conservancy. In the first place, the ability to acquire such a remarkably diverse and undeveloped section of our coast land has been an extraordinary accomplishment. The second objective must be to utilize its inherent assets while preserving its unique character. A research consortium participated in by educational and scientific institutions is an ideal concept to achieve such benefits.

Scientific observations and descriptions of these islands seventy-five years ago are remarkably similar to those of today. In the meantime, however, they have become surrounded by the growing metropolis along the Eastern Seaboard and both to the north and south once similar terrain has been destroyed by the human urge to populate the seashore. In consequence, this chain of islands in Virginia, and particularly the lower two-thirds with the contiguous marshes and adjacent uplands, represent an extraordinary resource quite adjacent to the largest population concentration on this continent. More importantly, they represent an adjacency for educational and research purposes with an incredible potential.

Institutions of higher learning would undoubtedly respond to the opportunity. One Dean of the Science Department of a major state university recently remarked to me that this could be a highly practical location for environmental biology - so much more in the best interest of today's student than classical biological instruction. In addition, the opportunities for education and research in marine biology, oceanography, mariculture, ornithology and various other scientific specialties are truly unlimited.

To my mind it could become a highly similar scientific environment comparable to the tropical research station in the Canal Zone operated by the Smithsonian Institution, but with the far greater practicality of participation by educational institutions for general instructional objectives. The initiation of such a concept would create a protective shield that could, hopefully, isolate this incredible resource from potential destruction in the future, and I believe the Nature Conservancy should remain involved at least in an overview capacity in order to assure such an objective. On the other hand, the beneficial public relations resulting from productive educational and research activities would be convincing evidence of the proper utilization of this area.

While the above comments are basically those of a private citizen who believes in the wise conservation of unique natural resources, they are strengthened by my association over a period of time with several educational institutions, my position as Chairman of the State Commission of Outdoor Recreation, and my responsibilities in this corporation which has on several occasions demonstrated its commitment to such objectives.

I trust the above observations are of value.

Most sincerely,

Lee

M. Lee Payne

MLP:mhd

The Commonwealth of Massachusetts
University of Massachusetts
Amherst 01002

DEPARTMENT OF
GEOLOGY AND GEOGRAPHY
MORRILL SCIENCE CENTER

Telephone: (413) 545-2286

December 7, 1975

Gerard J. Hennessey, Director
The Nature Conservency
c/o Virginia Institute of Marine Sciences
Wachapreague, Virginia 23480

Dear Mr. Hennessey:

This letter is in response to your request for comment on a plan of the Nature Conservency to create a unique stewardship of the Southern Delmarva Barrier Islands by developing the Virginia Coast Reserve Research Consortium. This is to maintain the islands and marshes as a preserve for scientific studies and educational experiences. We feel that this is unequivocally the best possible scheme for these islands. Our study has convinced us that the islands are too mobile and subject to storm erosion (and other damage) to provide sites for commercial development. More importantly, they have not yet been spoiled by development so that they represent one of the few places on the entire Atlantic seaboard which allow scientists to study natural coastal processes. We are not qualified as biologists but are sure that you have, or can get, tremendous support from the biological community for the preservation of the habitats which are unique to these islands. From the point of view of coastal geologists, interested in physical coastal processes, we can state adamantly that the availability of a protected natural area to study physical processes and island, marsh, lagoon and inlet development will be a great asset to the future development of our science. The results of future research will certainly be of great importance in the Central Atlantic Seaboard areas, as well as to coastal research elsewhere in the world. Often, the results of research in one coastal area produces economic or other benefits throughout the world.

On reflection we do wish to caution you that the nature and level of research and other educational use be carefully defined as early as possible. We encourage you to attract good quality studies without becoming overrun by enthusiastic amateurs or individuals without serious studies in mind. Fortunately you have access to a fine group at the Virginia Institute of Marine Science who should be able to greatly assist you in this endeavor.

We hope that we are providing you with sufficiently strong endorsement for this plan. However, if there is anything else we can do to help the Virginia Coastal Reserve Research Consortium be realized, do not hesitate to ask.

Sincerely,

Alan W. Niedoroda

Alan W. Niedoroda
Director, Coastal Research Center
and Assistant Professor

Thomas E. Rice

Thomas E. Rice

AWN:mlf

United States Department of the Interior

FISH AND WILDLIFE SERVICE

National Fish and Wildlife Laboratory
National Museum of Natural History
Washington, D.C. 20560

December 8, 1975

Mr. G. J. Hennessey, Director
The Virginia Coast Reserve Study
The Nature Conservancy
Wachapreague, Virginia 23480

Dear Rod:

Thank you for your letter telling me of the Nature Conservancy's decision with regard to the Virginia Coast Reserve. Perhaps at the outset I should insert the standard caveat that "the opinions expressed below are my own and don't necessarily represent those of the Fish and Wildlife Service". I personally am delighted to hear that the Conservancy plans to establish a permanent presence on the Eastern Shore and create a research consortium to foster scientific and educational use of the Reserve.

My own research interests lead me, of course, to emphasize the importance of the Reserve as habitat for birds. The preservation of these barrier islands in a natural condition is particularly vital to the maintenance of East Coast populations of certain water-birds like the Black Skimmer, for elsewhere along the coast many of the former nesting localities of such birds have been lost or compromised.

With its future as a Natural Area assured, the islands provide an attractive and often unique site for the research on nesting colonial birds, such as these studies: reproductive success in large vs. small colonies, or in undisturbed colonies within the Reserve vs. moderately disturbed ones elsewhere; long-term population trends; interchange of adults between colonies; and monitoring possible effects of widespread low level environmental contamination, effects which might be overlooked at other sites which sustain direct but variable human disturbance.

Apart from colonial water-birds, the Reserve will be an excellent place for investigating the relationship between island area and species diversity of land birds, the ecology of marsh birds, and coastal migration of songbirds, shorebirds, and raptors.

The potential research projects mentioned for birds have parallels for most other groups. The fact that the Conservancy will continue to assume the responsibility for the management of the Reserve should especially facilitate long range research. While keeping the interests of Eastern Shore citizens in mind, the Conservancy is probably in a better position than public agencies to resist political pressure for development of the islands, which would endanger their value for research, education, and wildlife conservation.

Sincerely yours,

John

John S. Weske
Staff Zoologist, Bird Section

OLD DOMINION UNIVERSITY
NORFOLK, VIRGINIA 23508

Office of the President

March 26, 1976

Mr. Gerard T. Hennessey, Director
The Virginia Coastal Reserve Study
The Nature Conservancy
c/o Virginia Institute of Marine Sciences
Wachapreaque, Virginia 23480

Dear Mr. Hennessey:

Old Dominion University is extremely interested in the unique opportunities for environmental education and research presented by The Nature Conservancy's Coastal Reserve. The preservation of this vitally important national resource represents one of the outstanding achievements in the history of natural resource conservation. Not only does this serve to preserve and protect habitat essential to the marine ecosystem, but it also provides opportunities for the investigation of the ecological function of this complex system.

The University has been defined as a regional institution of higher education dedicated to the development of excellence in those areas which best relate to the needs of Eastern Virginia and its special geographic features. The University has a commitment to extend its services throughout the region. In defining its priorities, the University has established a series of programmatic themes, the highest of which is the area of environmental and marine studies. It is Old Dominion University's policy to allocate its resources so as to reflect its hierarchy of priorities.

Research studies involving undergraduate, master's and doctoral students and faculty within the Virginia Coastal Reserve are envisioned. Programs would include faculty and students representing many areas within the School of Sciences and Health Professions, as well as other schools of the University. Especially involved would be the departments of Biological Sciences, Chemical Sciences, Mathematics and Computing Sciences, Physics and Geophysical Sciences and the Institute of Oceanography among the former; and the Schools of Arts and Letters, Business Administration, Education, Engineering, and Continuing Studies among the latter.

Currently the University offers master's programs in most departments including Biological and Chemical Sciences and Oceanography, as well as the Ph.D. in Oceanography. The School of Sciences and Health Professions has proposed that a doctoral degree program in Ecological Studies be initiated by 1980.

The University sees its role as the keystone institution in a Consortium for the Barrier Islands. Its function would be to provide initiative for the creation of a cooperative body dedicated toward the preservation of this resource, its study and the dissemination of knowledge concerning it. Old Dominion University would assume the responsibility for administration of the Consortium's research and education programs and dedicate itself to the development of cooperative efforts.

The heart of the Consortium's programs would be a wetlands laboratory centrally located on the Eastern Shore's oceanside. This well-equipped laboratory and educational facility would house offices, classrooms and research space for staff engaged in a wide spectrum of Coastal Reserve studies and would include a wet laboratory. Boat houses, docks and dormitory facilities would complement the main laboratory. Two or more smaller stations would be located on the larger islands such as Cedar, Paramore, Hog, and Smith.

Funding for the purchase of an appropriate site and the construction of facilities would be acquired through grants and contributions. The University would invest seed money to the extent possible, to support initial efforts of organization and funding. Equipment available from past projects and not required for other on-going efforts would be dedicated to these new programs.

The development of the programs described above will provide the Virginia Coastal Reserve with additional protection as program participants would be able to report incidents of depredation, and by their presence create an inhibitory effect on potential despoilers. The research and education efforts of the proposed program cannot help but enhance the appreciation of The Nature Conservancy's motivation in protecting this vital area.

The data generated by the Consortium's efforts would help provide the basis for The Nature Conservancy's management decisions. The group would also provide The Conservancy with a readily available source of ecological expertise needed for its other projects.

It is obvious that without The Nature Conservancy's active support, this ambitious program would be impossible. Help in establishing working relations with other institutions, and acquiring the means for placing this enterprise on a firm financial basis is essential. The University has had recent success in obtaining funding for a great diversity of programs but it would require the assistance of The Nature Conservancy, with its experience and record of success, to create the major educational and research facility which this outstanding natural resource warrants.

Sincerely yours,

James L. Bugg, Jr.

James L. Bugg, Jr.
President

JLB/lmr

cc: Dr. Charles O. Burgess
Dr. Dale W. Lick

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/SE

Mr. Gerard J. Hennessey, Director
The Virginia Coast Reserve Study
c/o Virginia Institute of Marine Sciences
Wachapreague, Virginia 23480

Dear Rod:

This letter should be considered as a testimonial which details my impressions, recommendations, and suggestions with regard to the future fate of the Virginia Coast Reserve and its included islands.

Background: I have attached a copy of my curriculum vitae which should serve to document my ecological expertise. With special emphasis relating to the "VCR" I have studied coastal sand island and sand dune habitats not only along the Atlantic coast, but along the Pacific coast of California Channel Islands. I am generally familiar with the environmental nature and fragility of these habitats, and am aware of the extent to which these enviornments have been impacted. I have spent one entire day on Parramore Island evaluating its forest and dune habitats, but have not visited other islands in the Reserve.

Findings: Parramore Island (and probably other islands of VCR) is as close to an undisturbed state as any island along the coasts of the United States. It contains particularly fine examples of undisturbed loblolly pine forest and dune systems. Among the small numbers of insects I sampled, none are endemic and none would seem to qualify as Endangered or Threatened species. The special attributes of Parramore Island relate to its undisturbed nature, the inherant individuality of all islands, and the fact that the ecosystem to which it belongs is geographically limited.

The narrow coastal marine strip running from Florida north to central Massachusetts contains a number of elongate barrier sand islands or peninsulas. Only where these formations are sufficiently wide and somewhat protected from the inundations associated with periodic

hurricanes do forests or diverse dune communities become established. These habitats are limited even along this extensive stretch of coast and are extremely fragile. Today most of these islands and peninsulas have been highly altered by man. Perhaps the greater portion have been densely settled with beach homes with paved roads running their entire length. Secondarily, barrier strips are under public ownership in the form of National Seashores and State Beach Parks. These areas, although some attempt is made to retain a natural aspect, have been greatly altered. Artificial beach dunes have been formed, paved roads constructed, and vehicular beach access is encouraged. As a result of the above only a very few islands which do not have ready vehicular access remain in a relatively undisturbed state.

Recommendation: Ownership and trusteeship of the VCR remain in the hands of TNC with principal land-use designation as natural preserve. No vehicular access to any islands should be permitted. All introduced domestic animals should be removed, as should any other remnants of man's hand. The use of VCR as a living laboratory should be restricted only to those studies, preferably long-term and ecological in nature, which relate to the VCR's more unique aspects. A small panel could review and pass judgement upon all proposed study applications.

Opportunities: The following is a brief enumeration of some of the kinds of research which might be encouraged. All such studies should rely upon the VCR as an undisturbed control area and should not result in any significant reduction of the VCR character and integrity.

A. Monitoring of coastal littoral and marsh areas. Base-line surveys of exact sites would provide comparative data with homologous habitats already disturbed by man, and could provide documentation for the effects of and recovery from any future oil spills or other marine pollutants.

B. Few climax forests of any sort exist in eastern North America. The loblolly pine forest on Parramore Island could serve as a standard of comparison for studies of forest succession and recovery.

C. The presence of a number of islands could serve as the basis of biogeographic studies.

D. Numerous other possibilities probably exist, but any project not leading to publication or written reports on resource management should not be approved.

I am most appreciative for the opportunity to have contributed to this study, and am willing to assist you in the future as your needs and my opportunity allows.

Sincerely yours,

Paul A. Opler

Paul A. Opler, Staff Specialist
Office of Endangered Species and
International Activities

Enclosures

APPENDIX K

BIOGRAPHY OF RESEARCHERS

Ray M. Culter was The Nature Conservancy's Staff Supervisor of the Virginia Coast Reserve Study and served as a member of the Study Advisory Committee. He received his B.S. in Community Planning in 1968 from the University of Cincinnati, College of Design, Architecture and Art. His previous work experience includes Planner at the Hamilton County Regional Planning Commission and Director of Little Miami, Inc., a non-profit conservation organization which was successful in preserving the Little Miami River under both the State (Ohio) and Federal Scenic River Systems. Culter joined The Nature Conservancy as Director of Preserve Management (now called Land Stewardship) in January, 1973. His primary responsibilities include formulating land stewardship policy and administering the stewardship program for the organization's 600 plus preserves.

Gerard J. Hennessey directed the Virginia Coast Reserve Study. He received his B.S. in Wildlife Biology from Rutgers University in 1972 and an M.S. degree in Wildlife Ecology in 1974 from Yale University. His previous refuge management experience includes apprenticeship with the New Jersey Division of Fish, Game and Shellfisheries, Harvard University's Black Rock Forest, and the United States Fish and Wildlife Service's National Wildlife Refuge System. Hennessey joined The Nature Conservancy as Director of the Virginia Coast Reserve Study in September, 1974. His primary responsibilities have included conducting the Virginia Coast Reserve Study and acting as the Virginia Coast Reserve's land steward from the Conservancy's office on the Eastern Shore of Virginia.

John W. Humke has been associated with The Nature Conservancy for the past ten years. His experience with the organization includes the establishment of the Conservancy's Mid-Western Regional Office, pioneering the development of professional staff at the state chapter level, and supervising the organization's national land conservation program as Director of Operations. Humke's current responsibilities include the development of natural area preservation programs in government. Current activities include the development of model state nature preserve legislation, the evaluation of land use regulation as a preservation device, preservation/protection planning for the Conservancy's State Natural Heritage Program, and the development of a national system of ecological reserves. Before joining the Conservancy, Mr. Humke gained field experience with the Wisconsin Department of Natural Resources. He was also formerly a consultant to the Illinois Nature Preserves Commission. Holding a B.S. from the University of Wisconsin - Stevens Point in Conservation and Biology Humke earned his M.S. at Michigan State University with studies in Resources Development and Urban Planning.

Robert E. Jenkins has a background in biology with emphasis in ecology and evolutionary studies. He has been with The Nature Conservancy since 1970 as Director of natural areas research and management programs. During this time he has been involved in nearly every aspect of natural area protection. He has designed and implemented ecological inventories and data managment systems; initiated and conducted research on the design, management and restoration of ecosystem preserves; developed endangered species lists; formulated and directs the State Natural Heritage Programs. Jenkins received his A.B. in Biology from Rutgers University in 1964; his Ph.D. in Biology

from Harvard University in 1970; and his Postdoctoral in Demography and Environmental Studies from Harvard University in 1969-70.

Susan M. Lukowski wrote the agency and program background for the Stewardship section of the Virginia Coast Reserve Study. She is currently the Director of the U.S. - U.S.S.R. State Study at The Nature Conservancy. Before coming to the Conservancy in 1974, she had worked as a writer, reporter, and consultant in the U.S. and Europe. Among the publications which she has co-authored or co-edited are: Strategy and Tactics for Getting a Government Job, Washington IV, Impeachment Congress, The Preservation of Natural Diversity. She received her M.A. in International Politics from George Washington University in 1971.