

with carolina coastal
management program
discussion draft

HT
393
.S6
S68
1978

july, 1978
s. c. coastal council

HT393.56 568 1978

AUG 1 8 1997

U. S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

Property of CSC Library

The preparation of this report was financed in part through grant #04-6-158-044075, from the
U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Planning.

INTRODUCTION

The South Carolina Coastal Management Program has been prepared in order to provide guidelines for further protection and development of the State's coastal zone. In passage of the South Carolina Coastal Management Act of 1977, the State General Assembly found that the rich variety of natural, commercial, recreational and industrial resources of the coastal zone have been facing increasing and competing demands, and that the pressures and conflicts might result in loss or damage to these resources if adequate planning and regulation were not provided. The basic State policy was expressed as follows:

To protect the quality of the coastal environment and to promote the economic and social improvement of the coastal zone and of all the people of the State.

The State of South Carolina is seeking approval of the Program by the U. S. Department of Commerce, through the National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, in order to obtain the benefits of the Federal Coastal Zone Management Act which will aid State efforts to better manage the valuable resources of the coastal zone. This discussion draft represents a first juncture in the culmination of over four years of efforts towards coastal management.

Chapter I describes coastal South Carolina, first, briefly setting out its rich a very important aspect of the lowcountry, to both residents and visitors alike. The environment and the wealth of natural resources are discussed, as well as the man-made attributes of the coastal zone, including the economy and the people (population characteristics).

Chapter II describes the State and Federal legislation that have established the basis for coastal zone planning. The South Carolina Coastal Council and its responsibilities are described fully.

The most important segment is Chapter III, which establishes the Goals and Objectives for the South Carolina Coastal Management Program. The boundary of the coastal zone also is delineated and discussed. This chapter includes the policies of the Coastal Council and the State for Activities Subject to Management, Activities of Regional Benefit, Activities in the National Interest and for Special Management Areas, including Geographic Areas of Particular Concern. (The next draft document will include sections in this chapter on Energy Planning, Erosion Control, Shoreline Access, and Living Marine Resources.)

Chapter IV documents the legal authority of the Coastal Council and the other State implementation agencies included in the overall management framework. The conflict resolution mechanisms for implementation of the coastal program are analyzed. Federally excluded lands and Federal consistency provisions are included as part of an Intergovernmental Coordination discussion. That section also discusses the role of local governments in coastal zone management. The chapter presents a description of the public participation efforts carried out by the Coastal Council in development of the program. And, finally, this chapter includes the mechanisms for continuing coastal planning in the future and amendment of the South Carolina Coastal Management Program.

TABLE OF CONTENTS

INTRODUCTION

Chapter 1 THE COAST OF SOUTH CAROLINA

A. INTRODUCTION	1
B. LOWCOUNTRY HISTORY	5
C. THE NATURAL ENVIRONMENT	25
D. COASTAL ECONOMY	60
E. POPULATION CHARACTERISTICS	82
F. COASTAL LAND USE	86

Chapter II COASTAL PLANNING PROCESS

A. SOUTH CAROLINA COASTAL MANAGEMENT ACT	100
B. FEDERAL COASTAL ZONE MANAGEMENT PROGRAM	109

Chapter III MANAGEMENT OF COASTAL RESOURCES

A. GOALS AND OBJECTIVES	113
B. COASTAL ZONE BOUNDARY	117
C. USES OF MANAGEMENT CONCERN	
1. RESOURCE POLICIES FOR ACTIVITIES SUBJECT TO MANAGEMENT	121
2. ACTIVITIES OF REGIONAL BENEFIT	262

3.	CONSIDERATION OF NATIONAL INTEREST	269
4.	ENERGY PLANNING PROCESS	278

D. SPECIAL MANAGEMENT AREAS

1.	GEOGRAPHIC AREAS OF PARTICULAR CONCERN	279
2.	EROSION CONTROL PROGRAM	349
3.	BEACH AND SHORELINE ACCESS	350
4.	LIVING MARINE RESOURCES	353

Chapter IV MANAGEMENT AUTHORITIES AND GOVERNMENTAL/PUBLIC INVOLVEMENT

A.	LEGAL AUTHORITIES & NETWORKING	356
B.	AMENDMENT PROCEDURE	363
C.	WATER AND AIR QUALITY STANDARDS	367

D. INTERGOVERNMENTAL COORDINATION

1.	FEDERAL COORDINATION	369
2.	FEDERALLY EXCLUDED LANDS	375
3.	FEDERAL CONSISTENCY	379
4.	STATE COORDINATION	425
5.	LOCAL GOVERNMENT COORDINATION	430
E.	PUBLIC PARTICIPATION	437

chapter one
the coast of south carolina

A. Introduction

Because South Carolina has been slow to develop the large industrial base common to many other coastal states, it is blessed with vast unspoiled natural areas. However, increasing, and often conflicting, demands upon coastal resources have made it necessary to balance the needs created by burgeoning populations and concomitant development against those for preservation of the environment. South Carolina's General Assembly clearly recognized the need for such a balance when it passed an act designated "to protect the quality of the coastal environment and to promote the economic and social improvement of the coastal zone and of all the people of the State." (S. C. Coastal Management Act of 1977, Act 123).

One reason for the multitude of conflicting interests within the coastal zone is the fact that it is attractive - as a place to live and a place to play, as an industrial site and as the only possible location for occupations such as shipping and fishing. The coastal zone has played an important part in the state's cultural and historical development, and consequently contains a number of irreplaceable sites. The aesthetic and ecological resources found in the coastal zone are unique and equally irreplaceable.

South Carolina's coastal zone can be divided into three segments, based on both physical

and sociological distinctions. The morphology of the coast represents a transition zone between the North Carolina and Georgia shorelines. From the North Carolina border to Winyah Bay, the coast forms a gentle crescent, called an arcuate strand. The coast in this section is characterized by broad sandy beaches, few tidal inlets, a well-developed dune system and generally sparse salt marshes. In contrast, the southern section of the coast from Bulls Bay to the Georgia border is fronted by a series of barrier islands separated from the mainland by a wide zone of salt marsh. Tidal inlets are more numerous, and in some areas there is little or no dune development. Extending thirty kilometers along the shore between the northern and southern coastal segments lies the Santee River Delta, the largest deltaic complex on the east coast. Unfortunately, this delta is eroding at a rapid rate due to damming and diversion projects which have cut down on the flow of fresh water and sediments.

The physical characteristics of each section of the coast have been important in determining the economic and social character which developed over time. The sandy beaches of the arcuate strand in Georgetown and Horry Counties have nurtured a thriving tourist economy centered around Myrtle Beach. Georgetown, the other principle center of population in the northern segment of the coastal zone, has an industrial economy. This is due in part to the abundant forests of the region, which supply the City's most significant industry - the pulp mills - with raw materials.

The central portion of the coast, dominated by the greater Charleston area, is the major permanent population center as well as industrial center in the coastal zone. Due to its natural harbor,

Charleston has become a port of major importance, and has attracted a number of industrial and manufacturing concerns. In addition to its importance as a center of commerce, Charleston possesses a number of cultural and historical attributes unequalled in the State or the nation. The Spoleto Festival celebrating the arts has become an annual event in the port city. During the colonial era, Charleston is said to have eclipsed even Boston as a city of consequence, and it remained an important center for social and intellectual life even after the devastation of the Civil War.

The natural history of the lower part of the coast - Jasper, Beaufort and Colleton counties - has had a great influence on the economic and social development of the area. Because of the extensive tracts of marsh, estuary and forest, population and industrial growth have been constrained to some degree. The numerous sea islands, often isolated, have given rise to a culture all their own. Beaufort and Port Royal are the principle population centers, although the development of exclusive resort property on Hilton Head Island has led to increased growth in nearby Bluffton. Fishing and leisure-related activities are the primary form of industry in the tri-county region.

The fact that much of South Carolina's coastal zone remains unspoiled may be attributed in large part to the plantation system and to the aftermath of the Civil War. The plantation system served to keep large tracts of land under single ownership and in non-commercial use at least until the

time of the War Between the States. During Reconstruction, many old plantations were sold to hunt clubs or to large corporations who allowed the fields and rice impoundments to revert to their natural state. This situation has served to protect much of the South Carolina coast from rapid development. Wise management and equitable resource allocation decisions will be necessary to provide for needed economic expansion while continuing this heritage for future generations.

B. LOW COUNTRY HISTORY

The Indians

Any history of South Carolina's low country must necessarily begin with its first settlers, the Red Carolinians. Ethnologists have divided the American Indians living north of Mexico into some sixty stocks based on language. The stocks represented among the Indians who inhabited the South Carolina low country are the Muskogean, the Siouan and the Yuchi.¹

Low country Indian tribes were numerous and small, and the earliest Indian inhabitants of this area consisted of wandering groups who lived in an area only as long as the game they depended on lasted. In time these tribes began to settle down and develop an agrarian lifestyle.²

All of the Indians in the low country and in South Carolina as a whole had certain things in common - ". . . even the most primitive among them had attained a fairly diversified agriculture; they all built permanent or semi-permanent houses; they all were village dwellers. Their culture, although subject to wide tribal variations, was based primarily upon the production of food crops and secondarily upon hunting".³

It is tragic that the growth of western civilization resulted in the demise of so many of the American Indian tribes. A few Catawba families living in York County (near the North Carolina border) are the only remnant left of all the many tribes that once inhabited South Carolina.

The first white South Carolinians were indebted to many of the low country Indians for their friendship and generosity through the sharing of their food and their assistance against enemy attack. We shall always be

indebted to them for the legacy they left us, part of which is evident today in the lovely names of many of our low country islands and rivers -- names such as Waccamaw, Ashepoo, Bohicket, Edisto, Wadmalaw, Kiawah, Wando, Santee and Combahee.

Spanish and French Attempts at Settlement

The first recorded visit of Europeans to South Carolina's coast was made by Spaniards from the Spanish colony of San Domingo (then called Hispaniola). Two ships met at sea -- one dispatched by Judge Lucas Vasquez de Ayllon and returning from a voyage of exploration, the other headed out on a mission to capture Indians for slaves. The captains of the two vessels joined forces and headed for the continent where they made port on June 24, 1521, probably at Winyah Bay.⁴ After enticing, under the pretext of friendship, some 150 Indians to come aboard the two vessels, they suddenly put to sea with their hapless "guests". One of the ships sank, and many of the enslaved Indians aboard the other vessel starved themselves to death after reaching San Domingo.⁵

In 1525, two ships were dispatched by de Ayllon to explore the coast of the continent and return those few Indians who had survived captivity.⁶ In 1526, Ayllon himself set out with a fleet of seven vessels and some 500 men and women. In August, 1526, they founded the settlement of San Miguel de Gualdape on what is thought to have been the shores of Winyah Bay. The settlement, (the first European settlement in South Carolina) plagued by mutiny, fire, uncommonly cold weather and discouraged by the death of de Ayllon, was soon abandoned. The next attempt at settlement was to be made by the French thirty-six years later.⁷

In February, 1562, the Frenchman Jean Ribaut set sail with two ships and 150 persons, mostly Huguenots, to establish a French colony on the Carolina coast.⁸ The purpose of this endeavor was two-fold: to found an asylum for the Huguenots and to further the cause of France against Spain by establishing an outpost in the New World.⁹

Ribaut crossed the ocean to Florida and proceeded along the coast to a place which he named Port Royal in present day South Carolina.¹⁰ There, on Parris Island, he established Charlesfort and left thirty men to protect it while he returned to France for supplies and reinforcements.¹¹ On his return Ribaut found France in the midst of religious wars. This and other complications prevented his return to the settlement at Charlesfort where life presented ever-increasing hardships. A lack of food (in spite of the generosity of the local Indians), monotony and the merciless discipline of their commander resulted in their killing him and setting sail for France in a makeshift ship.¹² After suffering the hardships of bad weather and starvation which forced them to cannibalism, they were rescued through their chance encounter with an English ship. Thus ended French attempts at formal settlement in Carolina.¹³

In 1564, the French established Fort Caroline on the St. John's River in the present State of Florida.¹⁴ This settlement led to Spanish massacre of the Frenchmen at Fort Caroline, bloody French reprisal and the decision by Spain to build a series of forts along the coasts of South Carolina, Georgia and Florida to discourage further French activity.¹⁵ In 1566, Menendez established Fort San Felipe on Parris Island about two miles from the remains of Charlesfort. The settlement survived until 1576 when an Indian uprising forced the Spanish to abandon the fort and withdraw to St. Augustine. The following year, 1577, they rebuilt near the ashes of San Felipe which had

been burned by the Indians. The new fort, San Marcos, lasted for ten years. In 1587, the Spanish withdrew after the English destruction of St. Augustine necessitated a reduction of their frontier posts. Spanish friars, however, continued their mission work for nearly one hundred years afterward in small outposts in what is today North and South Carolina.¹⁶

The British

In 1629, Charles I of England granted to Sir Robert Heath a charter to all America from ocean to ocean between north latitudes 36 and 31. No genuine attempts at settlement were made under this charter, and it was declared forfeited in 1663 when Charles II granted to eight of his most faithful supporters the ownership of the same territory. A second charter was granted, in 1665, to these eight Lords Proprietors, as they were called, because the Heath Charter had not been properly annulled. The chief difference between the 1663 and 1665 charters was an extension of the boundaries of the granted land to 36 degrees 30 minutes on the north and 29 degrees on the south, that is, from Virginia to a point 65 miles south of St. Augustine.¹⁷

The eight men chosen by King Charles to receive the enormous land grant were: the Earl of Clarendon, the Duke of Albemarle, Lord Craven, Lord Berkeley, Lord Ashley, Sir George Carteret, Sir William Berkeley and Sir John Colleton -- with Lord Ashley (Anthony Ashley Cooper, Earl of Shaftesbury) taking far more interest in the venture than any of the others.¹⁸ For the territory, the King was to receive certain returns on whatever profits were made from its development. The charter empowered the Proprietors to make laws, to establish (with popular consent) the Anglican Church as the official State Church, and to grant freedom of worship to all who would settle

in whatever colony might be founded. The laws made by the Proprietors were to be approved by the people of the colony, thus a certain degree of self-government was to be allowed.¹⁹

In 1669, Lord Ashley assumed a leadership position among the group of Proprietors and began to make firm plans for a colony at Port Royal, South Carolina. Joseph West was appointed governor and commander-in-chief until an appointed fleet of three vessels should land in Barbados on the way to their final destination.²⁰ Thus, in August 1669, three ships, the Carolina, the Albemarle and the Port Royal, under West's command, left England and headed for Barbados.²¹ Arriving there in October, the ships encountered a storm which wrecked the Albemarle and necessitated its replacement by the Three Brothers.²²

In mid-November the fleet set sail from Barbados, and after touching at the island of Nevis, the ships became separated by a storm. The Port Royal was wrecked in the Bahamas after six weeks of wandering, and many passengers died on shore before they were able to hire a ship to take them to Bermuda where the Carolina had already taken refuge. Months passed before news was received from the Three Brothers.²³

In Bermuda Col. William Sayle was appointed governor (West's leadership having expired in Barbados), and under his command the Carolina and a new Bermuda vessel set sail for Port Royal. On their arrival in March, 1670, an Indian chief, the cacique of Kiawah, urged the newcomers not to settle at Port Royal but rather in his home territory of Kiawah which was on the banks of the Ashley River. The colonists took the chief's advice, and in early April they landed and chose a nine acre site on the western bank of the Ashley, a location invisible from the ocean and the topography of which allowed for easy defense from both the river side as well as landward. The

colonists named their settlement Albemarle Point in honor of the eldest Proprietor, but the Proprietors later changed the name to Charles Town in honor of the king.²⁴

The Carolina and its companion ship had entered Charleston harbor in April, 1670; on May 23 the Three Brothers finally made her arrival after surviving a storm which had driven her as far north as Virginia.²⁵

Establishing the Colony

The settlement at Charles Town began with about 148 persons, the majority of whom were English. There were, however, a few persons of Scotch and Irish background and, according to some accounts, three Negro slaves.²⁶ On completion of a protective palisade and temporary housing, the settlers began to clear ground and to plant crops such as wheat, corn, peas, indigo, tobacco and cotton.

The need for protection from the Spanish as well as from hostile Indians (particularly the fierce Westos, said to have been cannibalistic) was of paramount concern during the early days of the colony, and with good cause, for in August, 1670, Spanish from St. Augustine, along with their Indian allies, came to destroy the settlement. Fortunately for the Charles Town settlers, the would be attackers were caught in a hurricane and forced to retreat.²⁷

It was during these early times that Dr. Henry Woodward became of invaluable service to the colony. Dr. Woodward had joined the passengers of the Carolina at Nevis and had accompanied them to help establish their settlement on the Ashley River. Earlier, he had lived with the Indians at Port Royal, had learned their language and customs and had gained their friendship and confidence.²⁸ Through his assistance the Charles Town settlers were

able to establish a flourishing trade with many of these people, a trade that was the key to the colony's early success and ultimate permanence.

In February, 1671, 106 settlers arrived from Barbados, and in time Barbadians came to compose about half the population. Because many of them were experienced with colonial life, they dominated the affairs of the colony for some time.²⁹

With the increase in population, the threat of attack from the Indians and Spanish was lessened, and some people began to move out from their fortified village site onto farms and plantations.³⁰ Others established satellite towns such as James Town on James Island (1672-1674) and New London or Wiltown (near Edisto Island) which died out around 1800.³¹ Indian trade, lumbering and naval stores soon brought considerable wealth into the young colony.

Although good relations had been established with many of the Indians, the settlers had their share of problems with some others. As early as 1671 a small expedition was sent out to chastise the Coosas who had been stealing hogs and provisions and had finally murdered some of the colonists. The expedition was a success, and a number of Indians were taken prisoner and made into slaves although Indian slavery had been forbidden by the Proprietors.³²

The Move to Oyster Point

Almost from the beginning of the settlement, plans had been made to eventually move the town from the west bank of the Ashley to the peninsular between the Ashley and Cooper Rivers, a place called Oyster Point.³³

At the end of 1679, the Lords Proprietors gave instructions that the official port town be moved to Oyster Point, and in 1680, the move to the new location was begun.³⁴

The colony grew quite rapidly during the decade between 1680-1690. Many Dissenters from England and a large number of French Huguenots, all seeking religious freedom, found their way to Charles Town during this

period.³⁵ By 1700 the colony contained even more of a mixture of peoples with the arrival of Dutchmen, Antipaedobaptists, Sephardic Jews, Quakers, Irish Catholics and a few privateers turned planters.³⁶ Indian trade, lumbering and naval stores continued to bring wealth into the colony.

Development of the Plantation System

No longer feeling the need for living close together in one place, some people moved out of town and took up land along the rivers. The resulting system of large plantations soon became an established way of life, and Charles Town's well being was dependent upon and virtually inseparable from their prosperity.

It was the successful planting of rice that was responsible for the rapid spread of the plantation system³⁷ and its attendant institution of slavery. The plantations thus flourished at the expense of the Negro as well as the Indian, whose land was continuously encroached upon. At first, any payment to the Indians for their lands was forbidden by the Proprietors. This was later changed, however, "but the strings of worthless beads, the yards of red cloth, the hatchets and sundries given for land made this arrangement largely a change from "force to fraud".³⁸

Three great crops - rice, indigo and cotton - were responsible for the accumulation of tremendous fortunes by Carolina low country planters. The first of these staple crops was rice, planted as early as 1672. A new strain, brought in from Madagascar in the early 1690's, increased the quantity and quality of the crop which virtually became the money of the Province.³⁹ ". . . for over two hundred years its characteristics and requirements molded Low Country life as did nothing else."⁴⁰

Indigo, the second staple crop, became of importance after its successful culture and processing by a precocious young girl, Eliza Lucas. Her father, Governor of Antigua, brought his family to the Carolina low country and placed Eliza in charge of his plantations while he returned to his duties in Antigua.⁴¹ When she was only eighteen years old, Eliza began experimenting with various types of Indigo seed sent to her by her father. After a successful growing season, an assistant was hired to help her learn the difficult and complicated technique of processing the plant. Miss Lucas, despite her assistant's deceiving her and sabotaging the process, mastered the art of producing the valuable dye and shared her knowledge with her neighbors. Shortly afterwards, indigo was bringing great wealth into the South Carolina low country.⁴²

The planting of indigo ceased during the Revolution, and with the loss of the subsidy from the British government following the Revolution, the revival of the crop never occurred.⁴³

The third great crop, cotton, became "king" after 1793, the year in which Eli Whitney invented the cotton gin.⁴⁴ "In the Low Country itself cotton built new regions of plantations and made over old ones left

derelect by indigo, doing for sections like Upper St. John's Berkeley, and the Sea Islands what rice had done for

the Santee and the Combahee."⁴⁵

So integral a part of low country history were the plantations that some space must be allowed here to the type of life they supported. Charles Town's primacy was insured by the business of the Indian trade but "was further developed by the steady interchange of life as well as business between it and the plantations".⁴⁶ The town became a sort of City-State, and the name of the city became interchangeable with its surrounding territory. Many prosperous Charles Town merchants were also prominent planters, and an aristocracy of birth was formed among families of prominence and wealth.⁴⁷

Fortunes made by the planting of rice enabled the building of fine new plantation houses or the addition of fine wings and porticoes to older structures. For some time plantation families stayed in the country during the summer and spent much of the winter social season in Charleston.⁴⁸

About the time of the Revolution and sometime after, the rise of malaria caused plantation families to move during the warm months (May - October) from their mosquito infested lands to little villages set in the pine-lands and along the coast. "Sea-Island people chose the beaches for themselves, inlanders the pine lands, and lightly built, airy little houses with many piazzas were spotted along the sand dunes or scattered among the pines, where the breezes of the ocean or the terebinthine odors of the pines would protect the plantation people from the night miasmas."⁴⁹ Thus came into being villages or towns such as Summerville, Pineville, McClellanville, Plantersville, Pinopolis, Summerton and Rockville. Some of those families of greatest wealth went into the Piedmont and mountain area of South Carolina as well as into North Carolina, Virginia, New York and New England. "Newport was

made fashionable largely by South Carolinians who summered in the neighborhood,. . .⁵⁰

The Yemassee War, 1715 - 1717

From 1715 - 1717 the low country experienced the Yemassee War, spearheaded by the Yemassee Indians and including most of the tribes over which the settlers had exercised sway. "The conspiracy involved so many Indian nations. . . extending from the coast to the middle of the present State of Alabama, that only lack of Indian co-operation saved the whites."⁵¹

This war, caused by "Indian resentment of long-standing abuses by traders, followed by settlers' taking up Yemassee lands", resulted in the death of some 400 colonists and left South Carolina impoverished.⁵² Stoney relates that the Indians "destroyed or looted some two hundred houses throughout the Low Country, driving even the prosperous Goose Creek people away from their plantations."⁵³ The salvation of the colony was due to the decision of the Cherokees to join forces with the South Carolinians. In November, 1717, the war was formerly brought to a close, but its aftermath was felt for years to come.⁵⁴

Royal Rule, the Revolution and After

One good outcome of the Yemassee War was the change, in 1719, from proprietary rule to that of the Crown.⁵⁵ "Proprietary government had numerous faults, often magnified by lengthy and uncertain communications which delayed vital decisions for months and permitted minor irritations to accrue into major problems."⁵⁶

One unforgiveable insult to the colonists came during the Yemassee War when the proprietors "not only neglected to send aid to the colony. . . , but even refused to ask assistance from the King. . ." ⁵⁷ In 1719, through a bloodless revolution, the majority of the colonists deposed their proprietary governor, formed a new Assembly and waited for the royal government to take charge. Finally, in 1721, a provisional royal governor arrived to take charge, and the colony began its period of royal rule which lasted until 1776. ⁵⁸

The low country saw the arrival of the Revolution in 1776 with the British attack on Fort Moultrie, and in 1780 Charles Town and the surrounding area were taken by the British. The end of the war left the low country devastated. "Great areas of land were so fought over that not even wild animals survived in them. . ." ⁵⁹ The low country was further hurt by the loss of living men as well as those who died, for many prominent Loyalists left the area and never returned. In addition to all the other losses was that of the British market for indigo, and plantation communities were abandoned, and many plantation houses simply fell to pieces. ⁶⁰

Soon after the Revolution the name of Charles Town was changed to Charleston, and the seat of government was transferred to Columbia. Gradually economic growth began again in the low country. Once again rice brought great wealth to this area -- this time through the new method of tidal culture which set water to work cultivating rice on the richest type of soil. ⁶¹

Once proved practicable, the new method spread rapidly. The scheme depended on a habit the Low Country rivers have of cutting beds far too wide for themselves and then filling up the consequent meanders with a mixture of silt and peat; this deposit is called pluff mud, because of the blue-grey puffs, or pluffs, it sends boiling smokily up into the water when disturbed. Tides run in the Low Country rivers far higher than the "saltpoints" where they cease to be brackish,

and at flood tides the river waters cover the mud flats they have made. Johnstone watching these phenomena contrived a system of banks, ditches and flood gates, to make rice fields that could be kept as dry or as wet as the crop required without depending on chancy reserve waters, and which by flooding at the proper times could be freed of weeds by the simple process of drowning them and thus save a good deal of hoeing.⁶²

Soon rice was being shipped from the low country all over Northern Europe.⁶³

The Rise of Cotton

In 1793, Eli Whitney invented the cotton gin, and the raising of cotton then became a profitable venture. Its effect on the South Carolina low country was almost immediate, and the planting of cotton spread the plantation system well into the Middle Country. The Sea Islands were especially blessed by this crop, and wealthy island planters became famous for their particular strains of the famous black-seed cotton of tropic origin.⁶⁴

Civil War and Its Aftermath

The coming of the War Between the States marked the end of the great plantation era, and the period following the war was one of tremendous change for the low country. Many plantation houses were abandoned, and farming continued largely under the share-crop system.⁶⁵

The war brought an end to the repressive laws of slavery, and for the first time Blacks were legally citizens. Many of them were sold land by their former owners. Others were given property by the Federal government.⁶⁶ Both Blacks and Whites, however, suffered greatly after the war, for "Grim poverty and wholesale

demoralization" held the area in a vice grip for some time.⁶⁷

In time rice and cotton again made money for the low country but never to the extent shown before the war. Gradually the crops had to be abandoned, the final blow to rice being several devastating hurricanes, and to cotton, the boll weevil.⁶⁸ The pesky boll weevil was a blessing in disguise, however, for low country planters were forced to diversify. Truck farming and tobacco cultivation subsequently brought prosperity to many areas that had depended on either rice or cotton.

The late 19th and early 20th centuries have seen the slow recovery of the low country from the disastrous effects of the War Between the States as well as the hardships of the great depression of the 1930's. In the Berkeley-Charleston-Dorchester area phosphate mining and the building of fertilizer plants just to the north of Charleston helped the economic picture of the area as did lumbering before the beginning of the First World War. With the establishment of the Navy Yard, in 1901, Charleston and surrounding areas began a dependency on the military-related industry.⁶⁹ The port of Charleston has continued to grow in importance both to the low country and the entire state as well. Historic Charleston has become a mecca for many tourists interested in seeing a city of living history, and tourism is becoming one of Charleston's leading industries.

The Waccamaw region of the low country, with its tall stands of sturdy pine forests, has enjoyed the economic benefits of the pulpwood and logging industries.⁷⁰ The City of Georgetown has become an important port, and the fishing industry of the area continues to grow. The area of the Waccamaw region known as the Grand Strand has in recent years felt the prosperity of a rich and flourishing tourist trade.

The area encompassed by Colleton, Beaufort and Jasper counties has perhaps experienced the most difficult times of any area within the low country following the War Between the States and the great depression. Truck farming and the fishing industry have been its mainstay. Today the future of this area looks promising with the gradual influx of new industries.

FOOTNOTES

1. David Duncan Wallace, South Carolina: A Short History, 1520-1948, Columbia, 1961, p. 5. Hereinafter cited as Wallace, Short History.
2. Historic Preservation Plan, Berkeley-Charleston-Dorchester Regional Planning Council, June, 1972, p. 1. Hereinafter cited as Preservation Plan, B-C-D.
3. Chapman J. Milling, Red Carolinians, Columbia, 1969, p. 4. Hereinafter cited as Milling, Carolinians.
4. Charles Towne: Birth of a City, Published by the News & Courier/Charleston Evening Post, 1970, p. 1. Hereinafter cited as Birth of a City.
5. Wallace, Short History, p. 16.
6. Joseph I. Waring, M.D., The First Voyage and Settlement at Charles Town, 1670-1680, Columbia, 1970, p. 3. Hereinafter cited as Waring, Voyage and Settlement.
7. Birth of a City, p. 1.
8. Waring, op. cit., p. 5.
9. Birth of a City, p. 1.
10. Waring, op. cit., p. 5.
11. Birth of a City, p. 1.
12. Wallace, Short History, pp. 19-20.
13. Waring, Voyage and Settlement, p. 6.
14. Ibid., p. 6.
15. Wallace, Short History, pp. 20-21.
16. Birth of a City, p. 2.

17. Wallace, op. cit., pp. 23-24.
18. Ibid., pp. 24 & 26.
19. Ibid., p. 24.
20. Ibid., p. 26.
21. Waring, Voyage and Settlement, p. 22.
22. Wallace, op. cit., p. 27.
23. Ibid., p. 27.
24. Ibid., pp. 28-29.
25. Ibid., p. 28.
26. Ibid., pp. 27 & 31.
27. Samuel Gaillard Stoney, Plantations of the Carolina Low Country, Charleston, 1964, pp. 15-16. Hereinafter cited as Stoney, Plantations.
28. Wallace, op. cit., p. 29.
29. Ibid., p. 30.
30. Birth of a City, pp. 15 & 20.
31. Preservation Plan, B-C-D, p. 1.
32. Waring, Voyage and Settlement, p. 38.
33. Birth of a City, p. 20.
34. Waring, op. cit., p. 50.

35. Wallace, Short History, pp. 37-38.
36. Stoney, Plantations, pp. 18-19.
37. Ibid., p. 21.
38. Ibid., p. 21.
39. Ibid., p. 22.
40. Ibid., p. 22.
41. Ibid., p. 28.
42. Birth of a City, p. 35.
43. Ibid., p. 35.
44. Stoney, Plantations, p. 38.
45. Ibid., p. 39.
46. Ibid., p. 24.
47. Ibid., p. 25.
48. Ibid., p. 34.
49. Ibid., pp. 34-35.
50. Ibid., p. 36.
51. Wallace, Short History, pp. 87-88.
52. Ibid., pp. 86 & 90.

53. Stoney, Plantations, p. 24.
54. Wallace, op. cit., p. 90.
55. Stoney, op. cit., p. 24.
56. Birth of a City, p. 48.
57. Ibid., p. 48.
58. Wallace, Short History, pp. 101-102.
59. Stoney, Plantations, p. 30.
60. Ibid., pp. 30-31.
61. Ibid., pp. 31-32.
62. Ibid., p. 32.
63. Ibid., p. 33.
64. Ibid., pp. 38-40.
65. Preservation Plan, B-C-D, p. 5.
66. Ibid., p. 5.
67. Stoney, Plantations, p. 42.
68. Ibid., p. 42.
69. Preservation Plan, B-C-D, p. 5.
70. Survey of Historic Places, Waccamaw Regional Planning & Development Commission, September, 1971.

BIBLIOGRAPHY

- Charles Towne: Birth of a City, Published by The News & Courier/Charleston Evening Post, Charleston, S.C., 1970.
- Historic Preservation Plan, Berkeley-Charleston-Dorchester Regional Planning Council, June, 1972.
- Milling, Chapman J., Red Carolinians, Columbia, S. C., University of South Carolina Press, 1969.
- Stoney, Samuel Gaillard, Plantations of the Carolina Low Country, Charleston, S. C., Carolina Art Association, 1964.
- Survey of Historic Places, Waccamaw Regional Planning & Development Commission, September, 1971.
- Wallace, David Duncan, South Carolina: A Short History, 1520-1948, Columbia, S. C., University of South Carolina Press, 1961.
- Waring, Joseph I., M.D., The First Voyage and Settlement at Charles Town, 1670-1680, Columbia, S. C., University of South Carolina Press, 1970.

C. THE NATURAL ENVIRONMENT

1) Marshes and Wetlands

a) The Salt Marsh Ecosystem

South Carolina has been greatly blessed by possessing one of the richest and most unique habitats on earth, that of the salt marsh and tidal estuaries of the low country. So familiar is the salt marsh to most of us who live in the low country, that we tend to take it for granted. Many of us, whether we come from the up country of South Carolina or whether our homes are on or near the coast, have failed to educate ourselves to the importance of this tremendous natural resource.

The coastal zone of South Carolina is an area where land and sea meet, the place where fresh waters from inland lakes and streams join with inflowing salt water from the ocean. Tidal creeks and estuaries (inlets or arms of the ocean) are formed at this meeting place, and alongside the intricate maze of estuaries and creeks flourish thousands of acres of salt marsh. South Carolina contains some 504,445 acres of coastal marshes, more than any other Atlantic coast state. Of this amount, 334,501 acres are classified as salt marsh.

The prominent species of salt marsh vegetation, Spartina alterniflora (smooth cordgrass), grows abundantly along our coast. This species is one of the most remarkable plants on earth because of its ability to live and thrive in salt water. Ordinary plants have a lower concentration of salt than seawater, and if an ordinary plant is immersed in salt water, the water within the plant's cells will leak out through the permeable cell membranes in an attempt to make the salt concentration of the water equal the concentration within the

the plant itself. Thus, the plant loses its own water into the salt water in which it is immersed, and the result is death for the plant.

Smooth cordgrass, on the other hand, concentrates salts within its cells at higher levels than seawater, and water is actively pumped into its cells, giving the stems additional strength. If the salts become too concentrated, the excess salt is secreted by special glands at the surface of the leaves.

So productive is the natural salt marsh that it manufactures as much or perhaps even more organic material than the richest, most productive wheat field. As strange as it may seem, a crop of salt marsh plants, especially smooth cordgrass, is extremely valuable even when dead and decaying. Each fall the grass dies and is decomposed by bacteria. The mixture of dead grass and bacteria is called detritus and has been referred to as a "rich soup" because it serves as the major source of food for most of the higher organisms in the salt marsh ecosystem. "Bacterial decomposition is a slow process, and although aided by mechanical wave action, it may take a year for bacteria to break down completely each season's crop of Spartina. Consequently, detritus is available as a food source year-round." ("Salt Marsh: A Question of Survival," Pete Laurie, South Carolina Wildlife, March-April, 1975, p.27)

Detritus provides nourishment not only for the microscopic zooplankton (including the larval stages of shellfish and fish) but for adult clams, mussels, oysters, crabs, shrimp and certain fish. All these creatures serve in turn as food for various types of fish as well as countless shore birds such as gulls, terns, egrets, skimmers and oystercatchers. Thus, it can be seen that all creatures living in the salt marsh ecosystem

depend either directly or indirectly on the marsh grasses for their food supply.

In addition to providing food, the salt marsh serves as a shelter and nursery grounds for many species, including shrimp. Without the shelter provided by the exposed root systems of the marsh, the larval stages of shrimp, crabs, oysters, clams, etc. would not be able to survive long enough to reach adulthood.

In addition to the creatures already mentioned, many mammals, as well, find shelter and food in the salt marsh and estuaries. One of these is the familiar raccoon which satisfies its appetite on fish, shellfish and crabs. The bottlenose dolphin, a marine mammal, enters salt water rivers and creeks from the ocean to feed on fish which are its main source of food.

The salt marsh, while serving as a tremendous source of food and shelter for thousands of living creatures also provides a nesting place for birds such as the marsh wren, red-winged blackbird and clapper rail or marsh hen. Other creatures found within this complicated ecosystem are the diamondback terrapin, loggerhead sea turtle and, at times, even the alligator.

For many years the marshlands have made possible a vigorous sports fishery and a viable commercial fishery that have offered recreation and employment for many of South Carolina's citizens. As if all the above mentioned things were not enough, the salt marsh serves as a buffer area between the ocean and the inland. While the sand dunes of the beaches absorb the pounding of the ocean, the marshlands slow down and absorb the daily inrush of the ocean's flow thus preventing erosion of the coastline.

Still another service performed by the salt marshes is that of a filter. It is here that pesticides and other pollutants are broken down into a form which is harmless to the environment. Thus it can be seen that without the salt marsh the shrimping and other fishery industries, and many of the beauties and wonders of the marsh life would be drastically depleted.

b) Brackish-Water and Tidal Fresh-Water Marshes

In addition to the large acreage of salt marsh, coastal South Carolina contains 34,962 acres of brackish-water and 64,531 acres of fresh-water marsh. Situated between the salt and tidal fresh-water marshes, the brackish marsh represents a transition zone between those two wetland types and contains plant species characteristic of both.

The brackish marshes, which are closer to the ocean, look very much like the high zone of the salt marsh and contain vast stands of black needlerush (Juncus roemerianus) which in some areas extend down to the edge of the creeks. Generally, however, smooth cordgrass (Spartina alterniflora) will be found along the water's edge. Among the other plants found in more seaward brackish marshes are the salt marsh bulrush, marsh elder, sea myrtle, marsh-hay cordgrass, and sea ox-eye.

Proceeding further up the tidal rivers and creeks away from the ocean, the black needlerush is replaced by giant cordgrass (Spartina cynosuroides), but other plants common to the high zone of salt marshes may still be found. In addition to these plants are found those which are typical of fresh-water marshes - cattails, sedges, wild rice, smartweeds, giant cutgrass, pickerel-weed, water parsnip, sawgrass, alligator-weed, etc.

()

Tidal fresh-water marshes are found along coastal rivers beyond the salt water reach of high tide where the water is fresh or relatively low in salinity. Here the diversity of plant species is greater than in either the salt or brackish marshes, and the predominant force governing plant distribution is the fresh water river. There is no clearly defined boundary between the fresh and brackish-water marshes. The change is a subtle one whereby marsh plants found in the upper brackish marsh region gradually become more prominent in the fresh-water marsh. Both areas play an important role in their contribution of nutrients into the overall estuarine system, in salinity maintenance, and in the habitat they provide for numerous land and aquatic species.

c) Swamps and Bottomlands

The meaning and connotation of the word "swamp" varies greatly from one region of the country to another. The U. S. Fish and Wildlife Service of the Department of Interior "considers as swamps all wetlands with greater than 50 percent area cover of woody plants." This simply means that if an area contains trees or bushes and remains soggy or covered with water on a permanent basis, it is considered to be a swamp. The term swamp, river bottom, bottomland, hardwood bottom, and floodplain forest are often used synonymously. Strictly speaking, however, swamps are permanently flooded areas whereas floodplain forests become flooded periodically when the rivers along which they lie swell from heavy rainfall and overflow their banks.

There are two main types of swamps in South Carolina's coastal zone - the river or alluvial swamp such as those occupying the floodplains of the Waccamaw, Pee Dee and Santee Rivers and the non-alluvial

()

or inland swamp such as Four Holes located approximately thirty-five miles northwest of Charleston. A river swamp depends on the river for its existence. Occurring in bottomlands (floodplain forests), a river swamp either borders the river or is found between the floodplain forest and adjacent uplands. A non-alluvial or inland swamp does not occupy the floodplain of a river or stream that runs in a clear-cut bed. Non-alluvial swamps are fed by and owe their existence to slowly meandering streams and underground springs.

Only recently have the importance and vital ecological role of swamps been understood. Today we know that swamps are immensely important in the controlling of both floods and water pollution. When a flooding river spreads its waters into a bordering floodplain or bottomland forest and swamp, surrounding upland is buffered from the river's excess water, and people in the river's lower reaches experience considerably less danger from flooding. The excess water is absorbed by the forest and later released into underlying aquifers.

In addition to helping control floods, swamps act as nutrient traps, assimilating and using the nutrients deposited in them from the flooding of rivers and streams. Swamps also control water pollution by serving as natural sewage treatment plants. The deposits of forest debris which accumulate on the swamp floor provide mechanical filtration as well as surfaces to which organisms which biologically remove pollutants can attach themselves.

Swamps play a tremendously important role as preserves of animal life (their remoteness probably being the salvation of some species) and serve as marvelous tools for teaching, learning and research. Dr. Charles H. Wharton, biologist at Georgia State University, has made the following statement about river swamps.

"The river swamps are ideal examples of what we mean by 'open space', 'green belts', and 'natural corridors'. They may function in many ways: sponges for regulation of the vital water cycle, giant kidneys for waste purification, convalescent wards for the esthetically ill, outdoor classrooms for school children and oxygen machines for air quality."

The river swamps and bottomlands of South Carolina's coastal zone contain a diverse representation of hardwoods including trees such as bald cypress, tupelo gum, sweetgums, blackgums, sycamores, southern hackberries, oaks, elms, ashes, hickories, red maples, American hollies, red mulberries and others. Small trees and shrubs such as pawpaw, spicebush, blue beech, planer tree, blue-stem palmetto and strawberry bush are also found as well as numbers of woody vines.

The non-alluvial, black-water swamps, of which Four Holes is the most outstanding, are dominated by bald cypress, tupelo and black gums. The black water of the cypress swamps, feared by many people who think of it as dirty, disease carrying and mosquito infested, is, on the contrary, clear, potable, pure and free of fever-causing mosquitoes. It is only those swamps which are altered or virtually destroyed by man which tend to fit the former description.

Of concern to many citizens is the fact that a considerable part of South Carolina's swamps have been lost to the saw, the dragline or to impoundments behind hydroelectric dams. Our coastal zone is fortunate to contain a part of Four Holes swamp, bought by the Nature Conservancy and the National Audubon Society in 1971. This 3,415 acre black-water swamp contains 1,800 acres of virgin cypress and tupelo gum, thought to be the world's

only remaining tract of virgin tupelo-cypress swamp. Today the swamp is a National Audubon Society sanctuary featuring an interpretive/visitors center and a 6,500 foot boardwalk through the forest.

d) Pocosins

Scattered throughout South Carolina's coastal zone are wetlands known as pocosins. A pocosin is a low, flat, swampy area located in a savannah type environment such as those found in the Santee Delta area and in the pine savannahs of the Francis Marion National Forest. Pocosins consist of water-logged, peaty soil and, in wetter sections, contain a ground cover of sphagnum moss. Generally characterized by dense broad-leaved shrubs, small evergreen trees and thorny vines, pocosins form nearly impenetrable thickets.

The water table of pocosins fluctuates considerably and enables them to maintain their special sort of ecosystem. Invading marsh plants are eliminated during dry periods, and bacteria and fungi are destroyed in the surface soil layer during high water levels. The destruction of bacteria results in an absence of decay. Thus, leaves and other debris are preserved and become peat.

Common shrubs found in pocosins and adapted to long periods of waterlogging and drought are: fetterbush, ti-ti, honeysuckle, gallberry, shining inkberry, sweet pepperbush, Virginia willow, chokeberry, blueberry, and huckleberry. A number of endangered and threatened plants including the Venus fly-trap, green-fringed orchid and spring-flowered goldenrod occur in the pocosins of South Carolina's coastal zone.

e) Carolina Bays

Similar in many ways to pocosins, Carolina bays are curious, elliptically shaped, depressions all of which are aligned in the same northwest-southeast direction. There is much speculation as to the geological

origin of the bays which are found scattered throughout the coastal plains region of the Carolinas and northern Georgia. One theory, popular for many years, attributes their original formation to a shower of meteorites which hit the earth's surface thousands of years ago. Another theory has it that the bays were spawning beds for schooling fish at a time when the ocean covered much of the present day coastal plain. Still another theory, which takes more factors into consideration than any of the others, is that Carolina Bays were formed by vast underground movements of water which resulted in a sump action. In spite of much research and study, however, the geological phenomenon of the Carolina Bay remains a tantalizing mystery.

Biologically similar to pocosins, Carolina Bays differ mainly in their water depth, being generally deeper than pocosin communities. Whereas pocosins are relatively uniform and are usually covered by one particular community, Carolina Bays may have several different biological communities within a few yards of each other, and thus exhibit a remarkable range of habitats, for example - marsh, swamp, savannah and sand hills.

2) Barrier Islands and Beaches

Parallel to South Carolina's shoreline lies a very important and dynamic coastal zone resource, the barrier islands and beaches. Called barrier islands because they form a barrier or protection for the mainland against the relentless action of the ocean, these islands are part of an immense chain which stretches from

Maine, down the Atlantic coast and around the Gulf of Mexico to Texas.

Barrier islands are formed by various geologic processes - in most cases, through the transportation and deposition of sand by wind, tide, wave action and ocean flooding. Because they lie parallel to the shoreline and bear the brunt of ocean waves, storms and flooding, barrier islands are constantly being shaped and reshaped, eoriding and accreting in a dynamic, never ending evolution.

A typical South Carolina barrier island is thin and elongate in shape, fringed with extensive salt marsh on the landward side and having a beach and sand dune system on the front side bordering the ocean. Most of the larger, forested islands contain interior waterways and wetlands.

Barrier islands are dominated by energy stresses, that is to say, by wave force, wind and tidal energies and ocean flooding which determine their constantly changing shape. Hurricanes as well as seasonal winter storms have a great impact on barrier islands and play an equally important role in shaping them.

An initial view of the barrier island system may result in the conclusion that barrier islands are very unstable. This is true in terms of human development which is not compatible with erosion and the devastating effect of hurricanes. However, in terms of ecology, the natural stresses brought to bear on barrier islands, by wind, tides, waves and flooding, are the very things which allow them to survive.

It is the dynamic nature of the barrier island system that makes it stable. The island beaches offer little resistance to storm waves, and effectively absorb and dissipate the tremendous forces which confront them.

In the natural system, storm waves frequently breach the island dunes and flood the island. As waves wash over the dunes during

storms, they carry sand and shells onto the island and distribute them across the grasslands, marshes, and even into the estuary behind. Storm overwash, therefore, actually contributes new sediments to the islands. In this fashion, overwash serves to maintain the island by supplying sand from the beach and offshore areas for new dune growth, adding to the island's elevation, and extending the island laterally into the estuary. (BARRIER ISLANDS AND BEACHES, Technical Proceedings of the 1976 Barrier Islands Workshop, Annapolis, Maryland, May 17-18, 1976, p. 2.)

Larger barrier islands contain shrubs and forested woodlands, whereas smaller frequently flooded islands are devoid of trees and are dominated by hardy grasses such as sea oats (Uniola paniculata) and salt meadow cordgrass (Spartina patens). Barrier islands usually lack a complete representation of the fauna found on the mainland. This situation is the result of the distances between the islands and the mainland along with the inability of some species to cross salt water barriers. Characteristic of some barrier islands are special populations or subspecies of animals, especially mammals, which through their isolated situation develop characteristics which distinguish them from their relatives on the mainland.

Of absolute necessity to a barrier island's existence is its beach, dune and offshore sand bar system. The beaches protect and insure the existence of the highland area of the islands by absorbing and dissipating the tremendous forces exerted on them by waves and tidal currents. Just as the highlands depend on the beaches for stability, the beaches depend on the dunes for the replenishment of sand which is washed away from them by the stresses of waves, tidal currents and periodic storms and hurricanes.

Offshore sand bars play a very significant role in the "sand-sharing" system by providing sand for

the replenishment of existing dunes as well as for the forming of new ones. As sand from the bars is washed ashore, it is blown inland where it builds up and strengthens existing dunes and thus lends more protection against hurricanes and storm tides. In areas where no dunes exist, they may begin to form where flotsam and jetsam, grasses or other obstructions on the beach block the wind and cause it to drop its load of sand. In a short time grasses such as sea oats take root and anchor the sand in place with their extensive root systems. Without the anchoring assistance provided by the grasses, dunes would not be able to build up or stay intact.

One of the most important benefits provided by barrier islands is their creation of the proper conditions necessary for the development and continuing existence of salt water wetlands and estuaries. By breaking the force of the ocean waters and creating behind them semi-enclosed, protected areas of low energy stresses, barrier islands permit the mixing of ocean and fresh waters necessary to the development and maintenance of the extensive network of estuaries and wetlands.

South Carolina has a total of some forty barrier islands along its coast. A few of these are protected, state and federally owned lands set aside for conservation and preservation purposes. Some of the islands contain no development or very sparse development; others are heavily developed or are being heavily developed as exclusive, second-home/resort areas.

On islands where development has taken place without consideration or understanding of the natural forces constantly at work, tremendous problems have arisen with erosion and accretion. Slowly we are coming to understand that the forces governing barrier islands are uncontrollable. They may be predicted, but they cannot be subdued, nor should they be. Man must learn to respect and to live in a design with them.

3) Forested Areas

Since the beginning of the first permanent European settlement in South Carolina our coastal zone forests have been of tremendous importance. In the early days of the colony, forest products such as lumber, masts for ships, turpentine, pitch and tar were manufactured for export, and considerable fortunes were made from the forest products industry.

The coastal zone's forests remain commercially important. With 19.2 percent of the forest lands of the state, the coastal zone produced 17.0 percent of the physical volume (cords) of pulpwood and 30.1 percent of the physical volume (board feet) of other forest products produced in South Carolina in 1975. The delivered value of these forest products (at rail yard, truck yard or mill site) was \$52.1 million or, 26.7 percent of the (\$195.1 million) value for the whole State.

In addition to their economic value, which can be established in dollars and cents, is their inestimable value as wildlife habitat, waste treatment plants, producers of oxygen, flood and erosion controllers, and havens where man can retreat from civilization to rationalize and perhaps find his proper place in the scheme of living things.

The eight coastal zone counties contain a total land area of some 4,399,000 acres. The 1968 U.S. Forest Service statistics show that of this total land area, 3,994,000 acres are forested land, and of this total, 2,970,000 acres are commercial forest lands. The coastal zone is endowed with a wide variety and abundance of trees. Below is a list of some of the more important commercial species as well as others which are familiar to residents of the coastal zone.

1. Baldcypress (Taxodium distichum): Most often associated with very watery sites such as swamps. Trunk flares out at base into a swollen, deeply-lobed buttress-like structure. Roots send up woody growths called "knees" which protrude above water; exact function of knees is not known. Fibrous bark ranges in color from light gray to brownish red; its light green leaves are alternate, two-ranked and deciduous. Important commercially. Heartwood is very resistant to decay and is used for things such as docks, bridges, greenhouses, cooling towers, vats, boats and river pilings.
2. Loblolly Pine (Pinus taeda): Has pale green needles 6-9 inches long. Bark is thick and bright reddish-brown in color. Bark divided by shallow fissures into broad, flat-topped plates covered with thin scales. Tree often reaches 100 feet in height. Has tall, straight trunk. Important commercially. Wood is used mainly for building materials such as framing, sheathing, subflooring, joists and interior finish. Also used for pilings, crossties and mine timbers.
3. Slash Pine (Pinus elliotii): Has dark green, lustrous needles. Bark is gray to reddish-brown, rough, separating on the surface into large, thin scales. Commonly grows to 100 feet in height. Tall, straight, tapering trunk. Important commercially. Wood is heavy, hard, durable. Wood used for production of naval stores.
4. Sweetgum (Liquidambar styraciflua): Has star-shaped leaves made up of 5 deeply separated, pointed lobes; round, bur-like, hard, woody fruit. Grows best on rich bottomlands reaching height of 120 feet. Its wood is used for veneer, plywood, boxes, baskets, crates, pulpwood, etc.
5. Water Oak (Quercus nigra): Has variably shaped leaves 2-4 inches long which are broader at apex than at base. Is a bottomland species but also grows on upland soils. Has slender, straight trunk. Important commercially. Wood is used for rough construction lumber.
6. Red Maple (Acer rubrum): Leaves 3-5 lobed and have coarsely-toothed margins. Leaves 2-6 inches long; turn brilliant scarlet, orange or bright yellow in autumn. Bark thick, dark gray on old trunks and is separated by vertical ridges into large plate-like scales. Tree may reach 120 feet in height. Often planted as an ornamental.
7. Live Oak (Quercus virginiana): Has widespread crown and gnarled branches. Is one of the most characteristic trees of the coastal region of the Deep South. Seldom grows to more than 50 feet in height but may have crown-span of 150 feet or more. Wood is very difficult to saw and dry. Was prized for blocks on sailing ships.
8. Southern Magnolia (Magnolia grandiflora): An evergreen tree often planted as an ornamental. Leaves shiny bright green on upper surfaces, leathery, and covered on the lower surfaces with rusty-colored fuzz. Leaves oblong, 5-8 inches long, 2-3 inches wide. Tree has beautiful white, fragrant flowers 7-8 inches across. Tree

often pyramidal with tall, straight trunk and is sometimes 100 feet or more in height. Bark varies from gray to brown. Wood is hard and heavy; used for crates, boxes, rough flooring.

9. Flowering Dogwood (Cornus florida): Is admired for the white drifts of flowers it adds to woodlands in spring; small tree, occasionally up to 40 feet in height. Dogwood berries provide a favorite food for deer, wild turkey, squirrels and songbirds.

10. Palmetto (Indes palmetto): Is the official state tree. Commonly known as the Cabbage Palmetto. Long associated with history of South Carolina. Is represented on State Flag as well as on the State Seal where it is symbolical of the defeat of the British fleet by the colonists stationed in a Palmetto fort on Sullivan's Island. Tree is an attractive feature of coastal S. C. Has long column-like stems with broad crown of leaves first growing upright, later spreading nearly at right angles with the stem, finally hanging downward before shedding. "Wood" made up of strands of heavy fiber cells with the strands scattered in a softer, pith-like tissue. Used for fences, under-water piling. Leaves used for thatch, mats, brooms, brushes.

4) Wildlife

The coastal zone contains a great variety and abundance of wildlife. Aside from hundreds of species of inconspicuous invertebrates, the fauna of the coastal zone is rich in fishes, herptiles, birds and mammals.

South Carolina and especially the low country has produced and has been visited by eminent naturalists who have contributed much to the overall knowledge of the native fauna. In 1664 William Hilton, in his historic trek up the South Carolina coast, wrote the following: "The Country Abounds in Turkey, Quails, Curlews, Plovers, Teale, Heron; and as the Indians say, in Winter, with Swans, Geese, Craines, Duck and Mallard, and innumerable of other waterfowl, whose name we know not, which lie in the Rivers, Marshes, and on the Sands." The

first true ornithologist to study the fauna of South Carolina was Mark Catesby who in 1731 published The Natural History of Carolina, Florida and the Bahama Islands. William Bartram, another famous naturalist, traveled extensively through the Carolinas, Georgia and Florida from 1773 to 1778 making a study of the native fauna.

Born in 1785 in Saint-Domingue, John James Audubon, the great naturalist-artist, spent much time in the South Carolina low country studying its bird life, collecting specimens, sketching and painting. His friend, the Reverend John Bachman, an eminent Lutheran minister as well as a renowned scientist, supported Audubon by offering his home in Charleston as an ornithological research headquarters and by accumulating and writing descriptive material for Audubon's Birds of America as well as his later work, Quadrupeds of North America. The rare Bachman's Warbler is named after this unusual minister/scientist. Other well-known naturalists native to the South Carolina low country include E. Burnham Chamberlain (ornithologist), Alexander Sprunt, Jr. (ornithologist), E. Milby Burton (ornithologist, ichtheologist, historian), Arthur T. Wayne (ornithologist), Robert Hemphill Coleman (mammalogist, mathematician), and Dr. G. Robert Lunz (marine biologist).

The following is a brief overview of wildlife resources, excluding fishes, found in South Carolina's coastal zone.

1. Herptiles

a) Amphibians: A total of five families of frogs and toads are found in the coastal zone of South Carolina - spadefoot toads, "true toads", tree frogs, "true frogs" and narrow-mouthed toads. These five family groups are represented by a total of twenty-two species. Being among the more inconspicuous members of the fauna, these animals, including the green tree frog, the bullfrog, the spring peeper and the southern toad, are

perhaps most familiar to the layman through their loud reproductive chorusing.

In addition to frogs and toads, the coastal zone amphibians include salamanders, more fishlike and less specialized creatures than frogs and toads and having primitive segmentation on their bodies and tails. A total of nineteen species, including mole salamanders, the red-spotted newt and the Congo eel, are found in the coastal zone.

b) Reptiles: Class Reptilia or the reptiles are represented in South Carolina's low country by turtles, lizards, snakes and one member of the crocodilian family, the American alligator.

i) Turtles: Turtles are among the most ancient group of animals in existence today. They are unique in that their bodies are encased in a bony, scale-covered shell to which their vertebral column and ribs are fused. Turtles have no teeth, but a horny beak with a strong cutting edge helps them obtain their food.

Turtles found in the coastal zone of South Carolina include amphibias and terrestrial species. Some of the more familiar species in the area are the snapping turtle, the yellow-bellied turtle, the mud turtle, the eastern box turtle, the diamondback terrapin, and the loggerhead sea turtle. The Atlantic loggerhead is the only sea turtle which consistently nests on the South Carolina coast. (The Atlantic ridley is reported to occasionally nest in South Carolina.) Mating occurs during April and May, and the females begin nesting on the beaches above the mean high tide line in late May or early June. Nesting usually continues until mid-August.

There has recently been a drastic decline in the numbers of loggerheads, mainly due to the high mortality rate among the young and to nest predation by animals such as sand crabs, feral hogs and

raccoons as well as by humans. The Atlantic loggerhead is protected by state law. The capture or molesting of these animals and the predation of their nests is strictly forbidden.

ii) Lizards: Closely related to snakes, the majority of lizards are easily distinguished from their relatives by their limbs, their visible external ear openings, and their movable eyelids. Fewer species of these animals are found in temperate areas of the world than in the tropics. Most familiar to coastal zone residents are the Green Anole (often misnamed Chameleon) which can change color, the various skinks and the glass lizard (sometimes called glass snake) which lacks legs and is often mistaken for a snake.

iii) Snakes: The snake is a reptile characterized by the lack of external and internal ears, an absence of limbs, fixed eyelids, a left lung which is either reduced or absent and a forked tongue which is used in combination with its olfactory organs in the roof of the mouth and which enables the animal to smell its environment.

There are a total of ten families of snakes in the world. Three of these families are represented in South Carolina and the coastal zone. All of the harmless snakes in the coastal zone belong to Family Colubridae which contains the majority of the world's species. Perhaps the most familiar of these snakes to coastal zone residents are the kingsnake, the watersnakes, the garter snake, the grass snake, the yellow rat snake (chicken snake), the red rat snake (corn snake) and the hog nose snake, often called the spreading adder.

The poisonous snakes found in the coastal zone belong to two families, Family Elapidae and Family Viperidae. The former group is represented by the coral snake, probably the most brilliantly colored snake in North America as well as the most deadly. These snakes are fossorial or burrowing and are not readily

observed. They are docile animals and are the least dangerous to man because of this trait as well as the method of injecting their poison. In order to inject a lethal dosage into a human, this small snake must get a good grip and actually chew into the flesh. The coral snake, along with the other members of its family, produces a neurotoxic poison which affects the nervous system.

All other poisonous snakes in South Carolina and the coastal zone belong to Family Viperidae. Those species found in the coastal zone are: the copperhead, the canebrake rattler, the pigmy rattler, the diamondback rattler and the cottonmouth moccasin. All of these snakes are known as Pit Vipers because of a heat-sensitive pit located between the nostril and the eye. This pit enables the animal to locate its warmblooded prey without depending on its eyesight.

Pit Vipers have long, hollow fangs on either side of the upper jaw. When not in use these fangs fold back in the snake's mouth. When striking, the snake opens its mouth, allowing the fangs to become erect. As it strikes its victim, haemotoxic poison, which destroys the red blood cells, is forced from the animal's poison sacs through the hypodermic-like fangs into the victim. Because of their highly specialized fangs, the Pit Vipers are much more dangerous to humans than the docile coral snake.

It is unfortunate that human beings seem to have an innate fear and hatred for snakes. Like all other creatures, snakes play an important role in the balance of nature. Non-poisonous snakes should never be killed. Unless a poisonous snake is found in an area inhabited or frequently used by humans, it also should be allowed to live and play its role in the natural scheme of things.

iv) Crocodylians: Crocodiles and alligators are the only remaining members of the great subclass, Archosauria, which includes dinosaurs, pterosaurs and others which became extinct more than 70 million years ago. The Family Crocodylidae is represented in South Carolina and the coastal zone by the American alligator. In the past this animal has been on the official United States list of endangered species. By receiving this protected status, the alligator has made a comeback in various areas of the country, including South Carolina, and in those areas its status has been changed from endangered to threatened. This change in status does not take away the animal's protection, however; it is still strictly forbidden to capture, molest or disturb these animals.

2. Birds

Arthur T. Wayne, one of South Carolina's most eminent ornithologists, stated that South Carolina "stands easily first among the States of the Union in ornithological history". South Carolina truly does have an impressive ornithological record with seventy-seven birds having been made known to science for the first time from this state.

Approximately 300 species of birds have been recorded in South Carolina, and the majority of these can be seen in the state's coastal zone during the course of a year. Because of the conspicuousness of birds, more is known generally about them than most other animals.

Birds are unique among living creatures in that they are the only animals with feathers, and of all living creatures only birds and mammals are warmblooded, that is to say, capable of retaining a constant body temperature. Some of the other characteristics of birds are: 1) a lack of teeth, 2) an elongated mandible, 3) large, well-developed eyes, 4) hollow, air-filled bones for lightness, and 5) various other physiological

adaptations which allow for and aid in flight.

Birds can be classified ecologically according to their season of appearance as

follows:

1. Permanent resident - Can be seen at a location in any month of the year. Normally breeds in this locality.
2. Winter resident - Migratory. Present at locality only in winter. (Winter residents of the coastal zone arrive from the north in the early to late fall and leave the area in late winter or early spring.)
3. Summer resident - Migratory. (Coming from points farther south, summer residents arrive in coastal zone in spring, breed in area and leave in late summer or early fall.)
4. Transient - Migratory. Passes through a locality in fall and again in spring on its annual migration.

The coastal zone of South Carolina has an abundance of bird life, for a wide variety of habitats attracting a wide variety of species is found in this area - for example; beaches, mudflats, salt marshes, brackish and fresh-water marshes and ponds, swamps, woodlands and open spaces. Some of the best known species and the type habitat in which they are found are listed below.

<u>Habitat</u>	<u>Species</u>
----------------	----------------

1. Beaches	Laughing Gull, Herring Gull, Royal Tern, Eastern Brown Pelican, Common Tern, Willet, Western Sandpiper
2. Mudflats	Black Skimmer, Willet, American Oystercatcher, Wilson's Plover, Laughing Gull, Western Sandpiper, Ruddy Turnstone

3. Salt Marsh

Great Blue Heron, Green Heron, Little Blue Heron, Louisiana Heron, Snowy Egret, American Egret, Clapper Rail, Red-winged Blackbird

4. Brackish and Fresh-Water Marshes and ponds

Anhinga, Pied-billed Grebe, Horned Grebe, Wood Duck, Ring-necked Duck, Canvas-back, Ruddy Duck, White Ibis, Mallard, Blue-winged Teal, Greater Yellowlegs

5. Swamps

Anhinga, Prothonotary Warbler, Swamp Sparrow, Red-eyed Vireo, Carolina Wren, Screech Owl, Pileated Woodpecker

6. Woodlands

Turkey Vulture, Red-tailed Hawk, Red-shouldered Hawk, Bobwhite, Woodcock, Banded Owl, Screech Owl, Chuck-Will's-Widow, Downy Woodpecker, Parula Warbler, Cardinal, Painted Bunting, Crow

7. Open Areas

Boat-tailed Grackle, Common Grackle, Rufous-sided Towhee, Starling, Cedar Waxwing, Robin, Catbird, Brown Thrasher, Mockingbird, Ground Dove, Eastern Bluebird

3. Mammals

Mammals are divided into three main groups: egg laying mammals, which are the most primitive group and are restricted to the Australian Region of the world; marsupials (the pouched-mammals), found principally in Australia but also occurring in South America and represented in North America by the opossum; and the placental mammals to which most living mammals belong.

The following characteristics distinguish mammals from all other animals:

1. Mammary glands - milk producing glands for feeding of the young.
2. Hair
3. Endothermy - the ability to keep a constant body temperature. (This characteristic is also true of birds.)

The first reference to South Carolina's mammals was given by the young English naturalist, Mark Catesby (1743); however, very little material was published before 1830. In the period 1830-1860 the Reverend John Bachman, a Lutheran minister and distinguished scientist residing in Charleston, published several studies on South Carolina mammals. Bachman, who achieved worldwide acclaim as a mammalogist, collaborated with John James Audubon in the collection of specimens and the preparation of the text of their study, Viviparous Quadrupeds of North America, still referred to by present day-zoologists.

Relatively little study was undertaken in South Carolina from Bachman's time until the middle of the Twentieth Century. The most comprehensive, in-depth study on mammals in South Carolina was done by R. H. Coleman (1919-1954). Coleman studied all species but concentrated on the smaller animals. F. W. Sherman and E. B. Chamberlain have also contributed to the knowledge of South Carolina's mammal fauna.

South Carolina, including the coastal zone, contains mammals representing ten groups called Orders which are distinguished mainly on the basis of differences in limb structure, form of the digits, and the teeth.

Order Marsupialia (Pouched Mammals) - This Order is represented by a single species, the opossum, one of the most interesting mammals in the State and related to the kangaroo, wallaby and other marsupials found in Australia and South America. Opossum young are born after a gestation period of about 12-13 days and, like all marsupials, are very poorly developed at birth. The new-born opossums are so small that 17-20 of them will fit in a teaspoon. In order to survive, the tiny babies must crawl into their mother's pouch where they attach themselves to her nipples and remain for three months.

Order Insectivora - This Order includes the moles and shrews whose main diet consists of insects. Moles are adapted to an underground existence by having a torpedo-shaped body, minute eyes and ears, broad forefeet for digging and scrapping and an almost naked tail. The species which are found in the coastal zone are the Eastern Mole and the Star-nosed Mole.

Shrews are tiny, secretive animals found in damp, shady habitats with a thick cover of leaves and vegetation. They are aggressive little animals with a voracious appetite and a very high metabolic rate. A shrew lives for about one year, literally burning itself out in a never ceasing search for food. Those species found in the coastal zone are the Southeastern Shrew, the Short-tailed Shrew and the Least Shrew.

Order Chiroptera - This Order is composed of the bats. Bats are known to have existed 50 to 60 million years ago and are the only mammals which can fly. Those found in South Carolina are insectivorous, but in other areas of the world, bats may eat fruit, nectar, fish or blood. Bats which feed on insects locate their prey by means of a highly sophisticated echo-location system.

Bats have drastically declined in South Carolina and other parts of the United States due to the widespread use of insecticides. Some of the bats found in the South Carolina coastal zone are: the Silver-haired Bat, the Big Brown Bat, the Red Bat, the Big-eared Bat and the Free-tailed Bat.

Order Lagomorpha - Rabbits. Rabbits are one of the most plentiful animals in South Carolina and the coastal zone. Over 1.5 million were estimated to have been killed in the State by hunters in 1964. The two species occurring in the coastal zone are the Eastern Cottontail and the Marsh Rabbit.

Order Rodentia - Rodents. Rodents are the most abundant of the mammals. The characteristic shared by all members of this group is a single pair of chisel-like upper incisors which are used for gnawing. Some of the rodents found in South Carolina's coastal zone are the Gray Squirrel, the Fox Squirrel, the Flying Squirrel, Rice Rat, Eastern Harvest Mouse, Cotton Mouse, Golden Mouse, Cotton Rat, Pine Vole, Black Rat and House Mouse.

Order Cetacea - Whales. This group of mammals contains the largest living animal on earth, the Blue Whale, larger than any dinosaur known to have existed. The cetaceans or whales are included in this discussion because they may be observed swimming in the coastal waters and are occasionally found stranded on our beaches.

Whales may be placed in two main groups: the toothed whales and the baleen whales. Those of the latter group have no teeth and live off plankton and small invertebrates such as krill. As a baleen whale opens its jaws, gallons of sea water containing plankton and thousands of tiny invertebrates rush into its mouth. The whale then pushes its tongue forward, forcing the water through the baleen (a feathery type structure growing from the jaw bones) and out the mouth. The plankton and invertebrate animals are retained in the whale's mouth by the baleen. It is interesting to note that the Blue Whale, the largest living animal, is a baleen whale and makes its living by feeding on some of the smallest of the earth's living things.

Most of the whales which have been observed off the South Carolina beaches are members of the smaller species. The following species are recorded from our state:

1. Goosebeaked Whale
2. Sperm Whale
3. Pigmy Sperm Whale
4. Spotted Dolphin
5. Common Dolphin
6. Atlantic Bottlenose Dolphin - This is the common inshore dolphin of South Carolina's coastal waters.
7. Killer Whale
8. Grampus or Risso's Dolphin
9. False Killer Whale
10. Tropical Pilot Whale or Blackfish
11. North Atlantic Right Whale

Order Carnivora - Carnivores. The name carnivore means meat eater. This term is not an entirely accurate description of the eating habits of all species in this order, however, for many carnivores are omnivorous, eating both plant and animal food. The following carnivores are found in South Carolina's coastal zone.

1. Red Fox - This animal is probably not an original resident but was introduced into the state. It is omnivorous, consuming such food as rabbits, mice, rats, birds and berries.
2. Gray Fox - This animal occurs statewide. It eats a variety of plant and animal food.
3. Black Bear - The Black Bear, which may be black or brown in color, is found in coastal zone swamps as well as in other parts of the state. Bears are omnivorous, eating almost any type of food which is available to them.
4. Raccoon - This species occurs abundantly in the coastal zone and throughout the state. Raccoons are noted for their dexterity and curiosity. They are omnivorous animals and, in the coastal zone, find much of their food in the salt marshes.
5. Long-tailed Weasel - This animal occurs statewide, but there are few records of its occurrence. Weasels feed on small animals such as rats, shrews, mice and rabbits, killing their prey by a well placed bite at the base of the neck or skull.

6. Mink - This semi-aquatic mammal occurs statewide. In the coastal zone, it is found along the rivers and in the salt marshes. Its diet consists of rats, mice, fish, frogs, snakes, birds and aquatic insects.
7. Striped Skunk - This animal probably occurs throughout the state. It frequents open farm land and feeds on such items as small mammals, insects, carrion and fruit.
8. River Otter - This graceful swimmer occurs statewide, frequenting rivers, ponds, lakes and salt marshes. Its diet consists of fish, crustacea, clams, insects and birds.
9. Cougar, Panther, Puma - The outstanding characteristics of this mammal are its size, long tail and short head. A full-grown puma may reach 7 feet in length and may weigh 200 pounds. Although this beautiful cat is considered to be extinct in South Carolina, infrequent reports of sightings of this animal continue to be made. The Puma is on the official U.S. list of endangered species.
10. Bobcat, Wildcat - This cat probably occurs throughout the state but is found in greater numbers in the low country of South Carolina. It frequents swamps, bottomlands and densely wooded areas, feeding on rats, rabbits, grass and small birds.

The Red Wolf, once a part of the coastal zone's fauna, became extinct here by 1850. Found today only in the coastal areas of Louisiana and Texas, it is considered by some to be America's most rare animal. Today a pair of Red Wolves may be found on Bulls Island, South Carolina. Placed there by the U.S. Fish and Wildlife Service in an experiment aimed at saving this rare species, it is hoped that these animals will reproduce and provide offspring to be placed in other areas originally a part of their natural habitat.

Order Pinnipedia - Seals, Sea-Lions, Walruses. The Harbor Seal is the only pinniped recorded in South Carolina's coastal waters. Most typically found in more northerly coastal waters, the Harbor Seal reaches the southern edge of its range in this state. Animals recorded from South Carolina waters were probably scattered individuals.

Order Sirenia - Manatees. The Florida Manatee, an essentially fresh-water animal, occasionally appears in South Carolina's coastal waters. The manatee is a large aquatic mammal with small eyes and an absence of external ears. There is no visible separation of the head and body. Its fore flippers are paddle-shaped, and its tail is flattened laterally. Adults may weigh more than 1500 pounds and may exceed a length of 12 feet. This

animal, which feeds on aquatic vegetation, moves north along the coast from Florida in the warmer months. The Florida Manatee appears on the official U. S. list of endangered species.

Order Artiodactyla - Even-toed Hoofed Animals. Today Feral Swine and the White-tailed Deer are the only two artiodactyls of South Carolina and the coastal zone. Feral Swine are not native mammals like the White-tailed Deer, but they have been established in the coastal zone since the time of the first settlements. Frequenting bottomland swamps, they range into open country to feed at night.

The graceful and very beautiful White-tailed Deer is probably the best known mammal in the coastal zone. Officially designated in 1972 as The State Animal, the White-tailed Deer inhabits a variety of habitats from bottomland swamps to relatively open land. It is believed that this animal is more abundant today than when the State was first settled by Europeans.

Two other artiodactyls, now extinct in South Carolina, were a part of the coastal zone fauna during the colonial era - the Elk and the American Bison. Unfortunately, these magnificent animals were extirpated by hunting and the onward push of civilization.

5) Marine Resources: An extensive, detailed Living Marine Resource Segment for the Coastal Management Program is being prepared by the South Carolina Wildlife and Marine Resources Department, see p. ____.)

6) Soils

Knowledge of underlying soil types is essential for wise land-use planning. It is widely

recognized that not all soil types are suited to all land uses; at the same time, certain soil types are highly desirable for some activities, such as farming, and prudent resource management practices dictate that these soil types should be reserved for their most appropriate use.

Soils are produced by the interaction of natural processes such as wind and water action, temperature, and bioturbation (caused by plant and animal activity) with the underlying rock material. Except for a very small area in Berkeley County, soils in South Carolina's coastal zone fall within the Atlantic Coast Flatwoods land resource area. Soils in this vicinity are a mixture of sand and loam, and are moderately well to poorly drained. Drainage is an important factor to consider when development is undertaken, particularly if septic tanks are to be used. In the areas closest to the shore, soils tend to be poorly drained as a result of clay subsoils. Elevations range from sea level to only 100 feet above, meaning that much of the soil of the coastal zone lies in broad flats or shallow depressions. These depressions, known as Carolina Bays, contain very fertile deposits and are often used by farmers who "find the high organic content of the "bay" floors highly desirable for farming and report yields to be fifty percent higher than in adjacent areas." (Kaczorowski, Raymond

T., "Origin of the Carolina Bays" in Terrigenous Clastic Depositional Environments, Miles O. Hayes and Timothy W. Kana, Eds., Technical Report No. 11-CRD, Coastal Research Division, Department of Geology, University of South Carolina, Columbia, SC, 1976. P. II-19.). The fertility of the soil in the rest of the coastal zone ranges from

low to medium, making it less than ideally suited for agriculture.

Like the inland soils, the sands of South Carolina's beaches vary depending upon the interaction of physical processes with various source materials. The arcuate strand area, stretching from the North Carolina border to Cape Romain, has the most stable structure at the moment, although erosion has been severe in the geologic past. The source of sand is ancient beach ridge, deposited by the oceans of the Pleistocene. The Cape Romain-Bull Bay area sands are more coarse than most along the South Carolina coast since they are close to the Santee River system from which they are derived, and consequently have not been exposed to as much wave action. On the other hand, the sand of the barrier island systems to the south of Cape Romain is relatively fine. These sands are further removed from their river sources and have undergone a great deal of reworking by wind and wave action. Unfortunately, because the barrier islands are receiving very little new sand, erosion is a problem along the southern portion of the coast.

7)

Geology

South Carolina lies in three geographic provinces: 1) the mountainous Blue Ridge province of the northwestern edge of the State; 2) the Piedmont (foothills) province, which stretches from the Blue Ridge to the

Fall line; and 3) the Coastal Plain, reaching from the Fall Line to the seacoast. This Coastal Plain varies in width from 120-150 miles and covers an area of more than 20,000 square miles or nearly two-thirds of the State.

For millions of years this area was probably a part of the ancient continent of Appalachia whose eastern shore may have lain along the outer edge of the present Continental Shelf. It appears that during the Triassic (185 million years ago) the land was shattered by faults, and at the end of the Lower Cretaceous (125 million years ago) a continental warping formed the Appalachian Mountains and tilted down the land lying east, south and southwest of that area. With this downward tilting of land, the sea level rose in the present area of our Coastal Plain and possibly reached as far as the present Fall Line.

A study of the geologic history of South Carolina's Coastal Plain reveals numerous advances and retreats of the sea during which sediments were deposited and planed off over and over again. The entire Coastal Plain area consists of sedimentary deposits, ranging in age from Upper Cretaceous (65 million years ago) to Recent (2 million years ago), laid on top of ancient rocks such as granites, schists and other crystalline rocks. The numerous changes in sea level were partly due to tiltings of the land and partly due to variation of world climate. During a series of "ice ages" when world climate was much colder than at present, the polar ice caps tied up much of the ocean's water, thus causing a drop in sea level. When the climate gradually became warmer, much of the ice melted and returned to the ocean, causing substantial rises in sea level and inundating tremendous land areas.

Most of South Carolina's Coastal Plain deposits are unconsolidated and are soft or soluble. Therefore, they are more easily eroded than the hard crystalline rocks of the Piedmont region. As streams tumble off the more resistant rocks at the edge of the Piedmont into the softer sediments of the Coastal Plain, a series of rapids or falls are formed, thus the term, "Fall Line."

The Coastal Plain is divided into five geographic divisions as follows:

- 1) the marine coastal terraces or "low country,"
- 2) the Aiken Plateau,
- 3) the High Hills of Santee,
- 4) the Richland red hills, and
- 5) the Congaree sand hills.

Because the coastal zone, as defined in South Carolina's Coastal Zone Management Act of 1977, roughly composes the same area as the marine coastal terraces, the remainder of this discussion will be limited to an overview of the geology of that area.

The marine coastal terraces occupy more than two-thirds of the present Coastal Plain. For thousands of years the area of the terraces was a level plain. With the recurrent rising and falling of sea level, deposits were laid down; and during temporary stands of the sea, sand bars were built across mouths of bays. As the sea withdrew, the bars remained to mark the abandoned shoreline. The area between two successive shore lines is treated as a separate terrace, and seven of these terraces have been identified and named in South Carolina's

Coastal Plain. They are, from the oldest to the most recent, the Pamlico, Talbot, Penholoway, Wicomico, Sunderland, Coharie and Brandywine.

The present shore line, which forms the seaward boundary of the most recent terrace, has a total length of 1,241 miles, including 281 miles of mainland and 960 miles around islands. From Cape Fear, North Carolina to South Carolina's Winyah Bay, the coast forms a great arc and is distinguished by miles of fine sand beaches broken by several inlets including Little River Inlet, Murrells Inlet and North Inlet. From Winyah Bay to the Savannah River, the coast line trends to the southwest and is broken by numerous barrier islands, sea islands, bays, inlets and rivers.

8)

Climate

The climate of South Carolina's coastal zone is referred to as a marine subtropical climate in which the winters are short and mild and the summers long, warm and humid. Proximity to the warm Gulf Stream waters which flow northward along the northeast coast of the United States helps to produce this type of climate and moderates temperature extremes of both summer and winter.

The coastal zone's summer season begins in May and lasts until the end of September. In the

summer months, the land heats up more rapidly in the morning than the adjacent ocean water, and warm air masses begin to rise. By afternoon this rising, warm air begins to be replaced by the cooler, more dense ocean air, thus creating a sea breeze. In the evening, the reverse process occurs, creating a land breeze which blows out to sea. Further inland, summer temperatures are higher than those along the shore because the sea breeze's influence lessens with distance from the ocean. Rainfall is relatively heavy during the summer season, most of it coming as showers and thunderstorms. Occasional tornadoes, tropical storms and hurricanes add to the amount of rain received during the summer. The average air temperature along the coast in summer is around 80 degrees F. to 82 degrees F.

The months of October and November are known as "Indian Summer" and are characterized by warm, dry, sunny days and cool nights. Many persons find these months to be the most pleasant time of the year.

The winter months are characteristically mild with an average winter morning temperature of about 40 degrees F. and an afternoon maximum around 60 degrees F. About 18% of the annual precipitation falls in winter, and although frozen precipitation is fairly rare, it does occur occasionally.

March and April are a transition period during which rapid warming takes place. This period is marked by windy and occasionally cold weather in March to generally warm, pleasant weather in April. The ocean temperature during these months rises from about 56 degrees F. to around 70 degrees F.

The coastal zone occasionally experiences tropical storms and hurricanes during a hurricane season which lasts from May to November. The most damaging and memorable hurricanes to hit the South Carolina

coast since its European settlement are those of 1893, 1911, 1940 and 1959. Most hurricanes approach the coast from the southwest after losing some of their force along the Gulf coast. Others arrive directly from the Atlantic and are the most damaging, especially if arriving at flood tide.

D. COASTAL ECONOMY

1. Introduction

The eight counties designated by the General Assembly as the coastal zone of South Carolina have a land area of 6,864 square miles, which is 22.7 percent of the total land area of the State. In 1975, this area was estimated to have 20.9 percent of the State's population, 18.5 percent of the civilian labor force, 18.6 percent of the civilian employment, and 16.8 percent of the State's unemployment. These data reveal that the coastal zone of South Carolina does not differ very much from the State as a whole with respect to population density, labor force participation, and percent of the labor force unemployed. These data also suggest that the coastal zone has sufficient unused human resources to provide a basis for substantial economic growth.

Principal economic activities within the coastal zone are agriculture, silviculture, fisheries, recreation and tourism, government and industry.

In spite of a significant recession in 1974-75, the economy of the State and its coastal zone has grown fairly steadily over the past decade, and indications are that it will continue to do so for at least the next several years.

2. Economic Characteristics

South Carolina's coastal zone is characterized by a very uneven distribution of population and employment opportunities. In 1975, Charleston County alone had 45 percent of the area's total population. The oceanfront counties (Jasper, Beaufort, Charleston, Georgetown and Horry) had 73.0 percent of the coastal zone

population in 1976. The population is even more unevenly distributed during the week, when there is a net flow of commuters from the remaining counties of the coastal zone.

For simplicity's sake, much of the discussion which follows will deal with South Carolina's coastal zone in terms of three broad regions: the Low Country (Jasper, Beaufort and Colleton Counties) the Greater Charleston Area (Berkeley, Charleston and Dorchester Counties) and the Waccamaw region (Georgetown and Horry counties). See Figure 1.

3. Transportation and Utilities

South Carolina's coastal zone has 443.66 miles of main track railroad, and is serviced by Amtrack, Seaboard Coastline and Southern Railways.

Major commercial air traffic in the coastal zone is handled by the Myrtle Beach AFB/Jetport and the Charleston AFB/International Airport. In 1976, the Myrtle Beach facility recorded 72,043 total passenger enplanements, while there were approximately 400,000 enplanements at Charleston. Total commercial vehicle operations at the Charleston Airport in 1977 numbered 22,121, and of these, 2,017 were air taxi operations used to carry passengers over short distances. The Charleston Airport is serviced by Eastern, National, Delta, Southern and Piedmont Airlines.

The only major seaport in the coastal zone is the Port of Charleston, which ranks twelfth in the nation in dollar value of general cargo handled (after ranking thirty-fifth in the 1930's). Much smaller port facilities are also operated by the South Carolina Ports Authority at Georgetown (Waccamaw Region) and Port Royal (Low Country Region). In the 1976-77 fiscal year, a total of 1,392,750 tons of cargo were received at South Carolina's

ports. Cargoes ranged from waste materials to fresh fruit. During the same period, 2,259,445 tons were exported through South Carolina's ports.²

Charleston is the southeast terminus of an Interstate highway (I-26) which connects with a number of other interstate systems serving major population and industrial centers in the eastern half of the United States. Interstate 95, a major north-south route, passes through Horry and Georgetown counties in the Waccamaw region and connects with a four-lane highway leading to Myrtle Beach. After passing through Dorchester County near St. George, it continues through Central Colleton and Jasper counties, and on into Savannah, Georgia.

The South Carolina coastal zone is served by two investor-owned electric utility companies and by six electric cooperatives. The South Carolina Electric & Gas Company of Columbia serves all of the coastal zone counties except the northernmost - Horry - which is served by the Carolina Power and Light Company of Raleigh, North Carolina.

4. Economic Activities

a) Agriculture

A 1967 land-use survey identified 11.9 percent of the land in the coastal zone as cropland and 2.5 percent as pasture. Corresponding figures for the State as a whole were 20.0 and 5.4 percent respectively, indicating that agriculture is of relatively less importance in the coastal zone than in the State as a whole. However, in 1975 agriculture provided 3.3 percent of the total labor and proprietors' income in the coastal zone (see Table 1), while farm income for the State as a whole was 3.2 percent of the total. The high coastal

zone figure was due primarily to the Waccamaw area, which derived 11.3 percent of its income from farm sources. The Low Country area obtained 3.2 percent of its income from agriculture, while the figure for the Greater Charleston region was only .9 percent.

These percentages are likely to increase in the future. In the December 15, 1977 report to the State Budget and Control Board, the South Carolina Division of Research and Statistical Service noted that "with or without a farmers' strike, the long term trend of the decline in prices will keep pace with increases in the prices of other consumer goods and services."³

The Low Country coastal zone accounted for 22.5 percent of the cash receipts from marketing crops by South Carolina farmers in 1975, a share which is almost exactly the same as the coastal zone's 22.7 percent share of the total land area of the State. The State's most valuable crop, tobacco, was also the coastal zone's most valuable crop, with Horry county ranking first among all the counties of the State in tobacco sales. The farmers of the coastal zone marketed only 11.2 percent of the state's second most valuable crop, soybeans, and 20.7 percent of the corn crop, which ranked third in both the coastal zone and the State. In terms of cash value, vegetable crops (produced mostly in Charleston and Beaufort counties) were second only to the tobacco profits of the northern coastal zone region.

The farmers of the coastal zone marketed 25 percent of the hogs and 10.2 percent of the cattle sold by South Carolinians in 1975. In all, the coastal zone's share of crops and livestock was 18.3 percent of the State total.⁴

b) Forestry (Silviculture)

As of 1967, 62.8 percent of the coastal zone was forested land. (See table 7) The Waccamaw Region had by far the most forested land, with 72.0 percent of its total area falling into this category. The Greater Charleston region had only 55.3 percent forest land, while the Low Country fell in between with 63.4 percent forest land. Presumably, the amount of forest land is lower now due to pressure from industrial and residential development. It is, however, important to bear in mind that much of the federally owned land in South Carolina is forest land, making the actual totals higher than they appear to be.

Although large, the quantity of forest in the coastal zone is only 19.2 percent of the total forest land of the State, based on 1975 figures. However, the income derived from coastal zone forests is 26.7 percent of the State's forest - derived income, indicating that silvaculture plays a somewhat more important role in the economy of the coastal zone that it does in some other areas of the State.

The coastal zone produced 17.0 percent of the physical volume (cords) of pulpwood and 30.1 percent of the physical volume (board feet) of other forest products produced in South Carolina in 1975. The delivered value of these products was 52.1 million, or 26.7 percent of the value for the whole State.⁵

c) Fisheries

All commercial fish landings in South Carolina occur within the coastal zone. The total value of the 1976 catch was \$14,069,569, which can be broken down as follows:

	<u>Volume (pounds)</u>	<u>Value (dollars)</u>
Shrimp (heads on)	8,053,006	11,043,381
Crabs Blue, Hard	5,739,936	975,847
Clams Hard, (meats)	172,464	208,686
Oysters (meats)	1,187,077	759,063
Squid	12,454	3,311
All fin fish	5,713,661	1,079,281

It is obvious that the shrimp fishery is by far the most important one in the State. It accounts for 41.0 percent of the volume and 78.0 percent of the ex-vessel value of all catches over the years 1974, 1975, and 1976. In descending order of importance, shrimp is followed by the blue crab, fin fish, and oyster/clam fisheries.

The majority of South Carolina-produced seafood is processed and consumed out of state. In 1976, only six to eight percent of the total harvest was sold at dockside, while South Carolina retailers, chainstores and restaurants received less than five percent of the harvest.⁶

The numerous recreational fishery resources of the coastal zone, including the nationally famous freshwater striped bass fishery of the Santee-Cooper Lakes, are of high quality and are used fairly heavily. In 1977, they included thirteen ocean fishing piers, sixty boat ramps, thirty-three marinas, four boat rental businesses, nine artificial fishing reefs, forty-nine charter boats (which usually carry four to six people) and nineteen "head boats" (which can carry up to 118 anglers.) Recreational crabbing and shrimping are popular, and so is the recreational harvesting of oysters and clams.⁷

d) Recreation and Tourism

The most accessible beaches in South Carolina (and adjacent states, in fact) are located in Horry and Georgetown counties. It is not necessary to cross extensive reaches of marsh and islands to reach these beaches, as is the case for beaches in southern South Carolina and Georgia. Furthermore, these beaches are closer than others to the thickly populated and industrialized Piedmont region of North and South Carolina. As a result, there has been, and continues to be, substantial development of tourist and recreational facilities along most of the coast of Horry County and the northern half of Georgetown County.

When one considers the numerous attractions in South Carolina's coastal zone, it is not surprising that recreation and tourism-related activities make a significant contribution to the region's economy. Since much of the income derived from tourism comes from out of state, it may represent a more significant input into South Carolina's economy than at first appears to be the case. However, this is difficult to assess without detailed knowledge of how much is spent by South Carolinians in other States. In 1977, 36.1 percent of all travelers entering South Carolina were "visitors" whose primary destination was a location within the State. Of the 14,290,619 visitors to the State in 1977, 56.2 percent had destinations within the coastal zone. This figure may be low, however, as 12.2 of the destinations listed were in the undefined "Other" category. It is likely that at least some of the destinations listed in this category fell within the coastal zone.

Geographical breakdown reveals that 33.2 percent of the visitors to the coastal zone headed to the "Grand Strand" in Horry County, and 18.3 percent went to the Charleston Area, while only 4.7 percent listed destinations in the Low Country region.

Expenditures by visitors to South Carolina in 1977 totaled \$1,085,332,894. The importance of tourism to the economy of the coastal zone is indicated by the fact that 77.6 percent of all visitor expenditures in the State were made within the coastal area. Again, geographical breakdown reveals that a disproportionate share of expenditures in the coastal zone (45.3 percent) were made in the Grand Strand area followed by 22.5 percent in the Charleston area and 9.8 percent in the Low Country region. Of this last category, 8.6 percent was spent at Hilton Head alone.

As might be expected, the largest expenditures are made for lodging (31.9 percent) followed closely by those for food (28.7 percent). Gifts and miscellaneous items account for 15.3 percent of the tourist dollar, while 13.6 percent is spent on auto-related needs and only 0.5 percent is spent on entertainment. Since these figures apply to the entire State, the percentages may vary within the coastal zone, but the ranking of expenditures undoubtedly remain constant.⁶

Recreation and tourism depend to a large degree on a number of factors unrelated to the coastal zone per se, such as the weather, national economy, and the season. Seasonality in the coastal zone is fairly easy to predict: tourism peaks in the summer quarter and is at its lowest point in the winter quarter. The effect of seasonal changes on related industries should be kept in mind, although in 1976 tourism and recreation showed such an upsurge that growth in lodging and recreational services continued after the close of the season.⁷

e) Industry and Government

Employment in the six major industry groups plus government is reported in Table 2. Total employ-

ment in the industries listed was 178,570 for the coastal zone, which was 18.3 percent of the total for the State. (The coastal zone has 20.9 percent of the State's population.) Worthy of special notice among the industry employment figures in the various regions is the relatively low level of manufacturing employment in all but the Waccamaw region. Georgetown, with 41.4 percent employed in manufacturing, was the only coastal county which exceeded the State percentage of manufacturing employees. It was also the only coastal county for which the average annual wage (7,975 in 1974) was above the State's average.

Also noteworthy are the large percentages employed by government in the Low Country and Greater Charleston regions. This is especially significant because the figures include only the civilian employees of military facilities. Large public sector employment may be both an advantage and a liability to the economy of the coastal zone. The coastal zone withstood the rather severe 1975 recession better than other areas of the State, yet remains highly vulnerable to economic shocks from political decisions regarding the nature, level, and location of government expenditures - especially military expenditures.

Data on 1974 employment, payrolls and numbers of establishments in the coastal zone and the State as a whole are summarized in Table 3. The coastal zone had 21.2 percent of the establishments, 15.3 percent of the employees (in the week of March 12) and 14.3 percent of the payrolls of those industries covered by the survey. The average number of employees per establishment was considerably lower in the coastal zone than in the State as a whole, and only one county (Georgetown, with an average of 15.2 employees/establishment) was even close to the State average of 16.5. The coastal zone, therefore, is characterized by a number of small business establish-

ments rather than by larger industrial centers.

3. Income and Employment Trends

At the outset, it is important to note that any discussion of the economy of the coastal zone must include an awareness of the economy of the State as a whole as well as the national economy. South Carolina was identified as one of six states most sensitive to national economic developments by the Bureau of Economic Analysis and the Department of Commerce. This means that swings of the business cycle are larger in the State and the coastal zone than elsewhere.

Data on population, labor force, employment and unemployment in the coastal zone and its three major subdivisions are given in Table 4. It should be noted that these data, unlike the employment data in Tables 2 and 3, are based on county of residence rather than place of work, and that agricultural, self-employed, unpaid family, and domestic workers are included. The data in Table 4, therefore, are not strictly comparable with the data in Tables 2 and 3. Also, in 1975 (the year covered by Table 4) there was a significant economic recession as compared with the previous year (covered by Table 3).

South Carolina's economy has maintained a steady recovery rate since the 1974-75 recession, and a growth rate above that of the South Atlantic Region and the rest of the nation is predicted. According to the 1977 Economic Report, prepared by the South Carolina State Budget and Control Board, "this trend is expected to continue for the next four years as South Carolina narrows the gap between the region and the nation in jobs and especially in incomes."⁸

Unemployment

The rate of unemployment for the State in 1975 was 8.7 percent as compared with 4.1 percent in 1973 and 5.9 percent in 1974. Thirteen of the forty-six counties had over 11 percent of their labor force unemployed and in three, the rate of unemployment in 1976 was above 15 percent. In contrast, only two of the eight coastal counties had above 10 percent unemployment in 1975, and for the zone as a whole, the rate was only 7.9 percent. It is clear from these figures that the relative impact of the recession was less in the zone than in the rest of the State. Recent data from the Division of Research and Statistical Services indicate that the State unemployment rate in December of 1977, 4.7 percent, was the lowest since December of 1973. A downward trend in unemployment in South Carolina (which presumably would affect the coastal zone) may be underway, since the adjusted rate for 1977 was 5.4 percent, down from 6.9 percent in 1976.

Labor Force Participation

Labor force participation is defined as the percentage of the total population sixteen years of age or older in the labor force at a given point in time. Georgetown and Horry Counties had labor force participation rates more like those in the rest of South Carolina than the other coastal counties, both having over 40.0 percent labor force participation. Horry county, with a labor force participation rate of 40.5 percent, exceeded the South Carolina rate of 41.9 percent. None of the other six coastal counties had as much as 39.0 percent of the population in the civilian labor force.

Income

Income produced in South Carolina's coastal zone in 1975 was \$2.14 billion, which was 21.4 per cent of the total produced in the State. The percentage increase from 1970 to 1975 (not adjusted for inflation) was somewhat higher for the coastal zone (61.7) than for the State (56.2) or the nation (55.0). Although these figures are in part a reflection of the relatively low levels of development in the coastal zone prior to 1970, they do demonstrate that the coastal zone economy is healthy.

The amounts and relative importance of income from farms, private non-farm enterprise and activities, and from government are summarized in Table 1 for the State, and the coastal zone and its three major regions.

A comparison of the income data in Table 1 with the employment data in Table 2 reveals that in the coastal zone, incomes per worker are much higher in government work than in the private sector of the economy.

The relative importance of government as a source of income is probably due to the large proportion of federal, as opposed to State or local, employers. (see Table 5). It also is a reflection of the seasonal and/or irregular nature of many recreation and tourism-related jobs. A third factor contributing to the relative importance of government employment is the low wage rate of many jobs in the private sector of the coastal zone.

A more detailed breakdown of the sources of income in the State, the coastal zone and its three major regions is presented in Table 5. Except for the government-related distortion discussed above, industry groups in the coastal zone are similar in importance as employment and income sources. One major exception is wholesale and retail trade, which is less important as a source of income than as a source of employment. Presumably, this reflects the low wage structure of retail trade and the seasonality of some coastal zone enterprises.

The employment and income data presented in Tables 1, 2, and 5 are based on the worker's place of employment, rather than place of residence. Such data may be a poor indication of the income and welfare of the residents of a particular county or area. This is true because workers commute across county lines to work, and because personal income includes income from capital and land (dividends, interest and rent) and "transfer payments" such as pensions, annuities (including Social Security) and welfare payments. All of these adjustments were made to produce the personal income data of Table 6.

The State average per capita income was 84.3 percent of the national average of \$5,460 reported by the Department of Commerce in the Statistical Abstract of the United States, and the ratio for the coastal zone was approximately the same. For the various counties, the per capita incomes in 1976 were the following percentages of the U.S. average:

<u>Low Country:</u>	Beaufort 118.7%
	Colleton 66.3%
	Jasper 58.4%
<u>Greater Charleston:</u>	Berkeley 68.0%
	Charleston 90.1%
	Dorchester 76.7%
<u>Waccamaw:</u>	Georgetown 75.1%
	Horry 85.0%

When a large proportion of the total income goes to a relatively small percentage of the total population, the average income per person or per family is a poor indication of the welfare of most of the people.

()

A much better indicator is the median family income, the amount which is midway between the lowest and highest incomes in the county. In 1969, (the most recent year for which such data are available), Beaufort County, with the highest average income per capita in the State, ranked only fourth among the eight coastal counties and twenty-sixth among the State's forty-six counties in median family income. For median family income of Black families, Beaufort County ranked thirty-sixth in the State and fourth in the coastal zone. Thus, it is apparent that Beaufort County's unusually high per capita income is concentrated within a small segment of the population, and cannot be viewed as typical.

FOOTNOTES

1. From the Charleston Air Force Base International Airport Yearly Report, 1976, compiled by the South Carolina Aeronautics Commission.
2. From the 1977 South Carolina Statistical Abstract South Carolina Budget & Control Board. Prepared by the Division of Research and Statistical Services.
3. South Carolina Division of Research and Statistical Services Report to the State Budget and Control Board, December 15, 1977, p.4
4. These data were obtained from the S. C. Crop and Livestock Reporting Service in cooperation with the Department of Agricultural Economics and Rural Sociology, Clemson University.
5. These data were compiled by the Forestry Department of Clemson University.
6. Theilling, Dale, Catch and Effort Data for Commercial Fisheries in South Carolina, prepared for the National Marine Fisheries Service, January 4, 1978.
7. Data obtained from a 1977 report by David M. Cupka, Marine Resources Division, South Carolina Wildlife and Marine Resources Department, Charleston, SC.
8. From data compiled by the South Carolina Department of Parks, Recreation and Tourism.
9. Economic Report of the State of South Carolina, prepared by the State Budget and Control Board, August, 1977, page 23.
10. Ibid, p.45.
11. Report to the State Budget and Control Board by the Division of Research and Statistical Services, February 16, 1978, page 2.

FIGURE 1

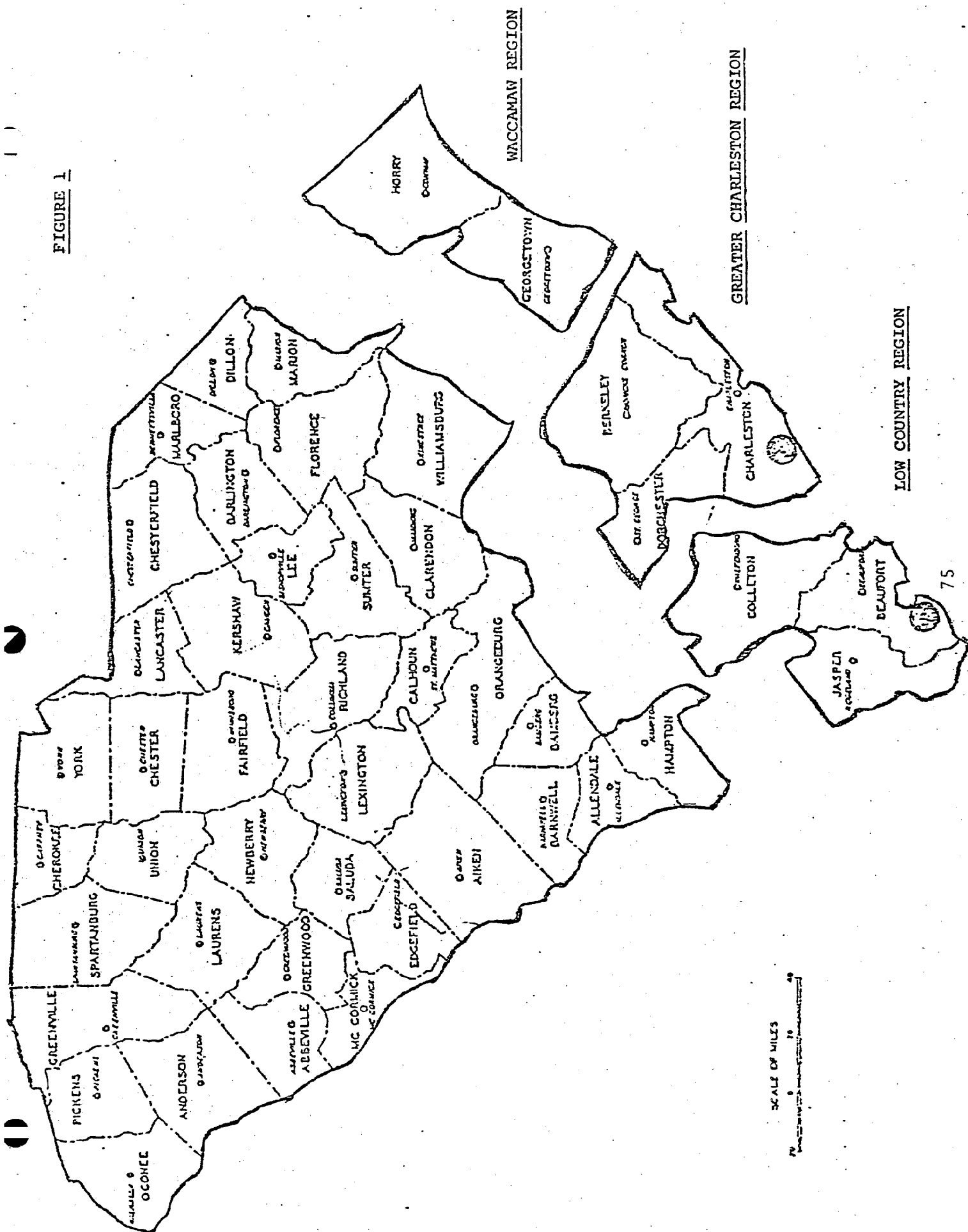


TABLE 1

Labor and Proprietors' Income by Major Source,
Three Economic Areas of South Carolina Coastal Zone, 1975a/

Source	Low Country		Greater Charleston		Waccamaw		Coastal Zone		State	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
(-----Thousands of Dollars-----) (Millions)										
Farm	\$ 11,587	3.2	\$ 12,843	0.9	\$ 46,892	11.3	\$ 71,322	3.3	\$ 325.6	3.2
Private Nonfarm	148,513	41.3	751,460	55.0	283,145	68.2	1,183,118	55.3	7,429.0	74.
Government	199,881	55.5	601,599	44.1	85,262	20.5	886,742	41.4	2,271.1	22.
Total	359,981	100.0	1,365,902	100.0	415,299	100.0	2,141,182	100.0	10,025.7	100.

a/ Reported by place of work.

SOURCE: Regional Economics Information System, Bureau of Economic Analysis, U. S. Department of Commerce, Special Tabulation.

TABLE 2

Average Annual Nonfarm Wage and Salary Employment, a/ South Carolina Coastal Zone,
by Economic Area and Industry Group, 1975

Industry Group	Low Country		Greater Charleston		Waccamaw		Coastal Zone		Sta
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Manufacturing	3,920	16.4	14,300	12.5	10,320	25.7	28,540	16.0	336,300 3
Contract Construction	1,730	7.3	9,000	7.9	2,220	5.5	12,950	7.3	61,800
Transp., com., & pub. ut.	810	3.4	6,700	5.8	1,100	2.7	8,610	4.8	40,300
Wholesale & ret. trade	4,290	18.0	24,400	21.3	9,030	22.4	37,720	21.1	175,600 1
Fin., ins. & real estate	1,890	7.9	4,900	4.3	1,470	3.7	8,260	4.6	39,100
Miscellaneous	4,200	17.6	16,100	14.1	9,290	23.1	29,590	16.6	124,600 1
Government	7,010	29.4	39,100	34.1	6,790	16.9	52,900	29.6	200,100 2
Total	23,850	100.0	114,500	100.0	40,220	100.0	178,570	100.0	977,800 1

a/ Employment reported by place of work.

SOURCE: South Carolina Statistical Abstract, 1976. S.C. Division of Research and Statistical Services,
Columbia, SC, p. 68.

TABLE 3

Number of Establishments, Employment and Payrolls
South Carolina Coastal Zone, 1974 a/

Economic Area	Number of Estab	Employees week of March 12, 1974		Annual Payroll, 1974	
		Number	Per Estab.	Total (\$1000's)	Per Worker (Dollars)
Low Country	1,568	17,172	11.0	107,775	6,276
Greater Charleston	5,966	76,207	12.8	533,528	7,001
Waccamaw	2,746	28,887	10.5	197,925	6,852
Coastal Zone	10,280	122,266	11.9	839,228	6,864
State	48,743	799,046	16.5	5,863,565	7,338

a/ Does not include: self-employed persons, agriculture and domestic service, government and railroads.

SOURCE: U. S. Bureau of the Census, County Business Patterns, 1974: South Carolina. U. S. Government Printing Office, Washington, D. C., 1976, p. 63

TABLE 4

Estimated Population, Labor Force, Employment a/ and Unemployment
in South Carolina Coastal Zone, 1975, with Comparisons a/

	Population (provisional) No.	Civilian Labor Force		Unemployed		Percent Pop. in Labor force
		Total No.	Employed	Number	Percent	
Low Country	94,700	34,120	13,170	21,950	8.6	36.0
Greater Charleston	371,600	127,300	117,700	9,600	7.5	34.3
Waccamaw	122,900	56,480	51,740	4,740	8.4	46.0
Coastal Zone total	589,200	217,900	200,610	17,290	7.9	37.0
State	2,818,000	1,180,000	1,077,000	103,000	8.7	41.9

a/ Reported by place of residence. Total employment includes agricultural workers and nonagricultural self-employed, unpaid family and domestic workers.

SOURCE: South Carolina Statistical Abstract, 1976. S. C. Division of Research and Statistical Services, Columbia, SC, p. 63.

TABLE 5

Labor and Proprietors' Income by Industry Group,
Three Economic Areas of South Carolina Coastal Zone, 1975 a/

Industry Group	Low Country		Greater Charleston		Waccamaw		Coastal Zone		State	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount (Millions)	Percent
	-----Thousands of Dollars-----									
Farm	\$ 11,587	3.2	\$ 12,843	0.9	\$ 46,892	11.3	\$ 71,322	3.3	\$ 325.6	3.2
Manufact.	29,024	8.1	167,214	12.2	95,767	23.1	292,005	13.6	3,193.8	31.9
Construction	15,950	4.4	90,655	6.6	19,877 ^{b/}	4.8	126,482 ^{b/}	5.9	634.4	6.3
Mining	---	---	---	---	---	---	---	---	20.1	0.2
Trade	31,826	8.8	193,576	14.2	65,757	15.8	291,159	13.6	1,424.0	14.2
Fin., Ins. & Real Estate	21,600	6.0	46,913 ^{c/}	3.4	12,707	3.1	78,220 ^{c/}	3.7	401.2	4.0
Transportation & Pub. Util.	9,406	2.6	76,995	5.6	12,058	2.9	98,459	4.6	510.7	5.1
Services	36,688	10.2	168,739	12.4	66,280	16.0	271,707	12.7	1,211.5	12.1
Other Ind.	---	---	---	---	7,749	1.9	---	---	33.2	0.3
Government	199,881	55.5	601,599	44.0	85,262	20.5	886,742	41.4	2,271.1	22.6
Fed. Civil	23,656	6.6	241,537	17.7	11,195	2.7	276,388	12.9	461.7	4.6
Fed. Milit.	49,480	41.5	204,378	15.0	36,359	8.7	390,217	18.2	696.1	6.9
St. & Local	26,745	7.4	155,684	11.4	37,708	9.1	220,137	10.3	1,113.3	11.1
Total	\$359,981		\$1,365,902		\$415,299		\$2,141,182		\$10,025.7	
Fed. %	48.1		32.7		11.4		31.1		11.5	

a/ Reported by place of work.

b/ Includes \$2.4 million allocated to Georgetown

c/ Includes \$2.0 million allocated to Berkeley and Dorchester counties.

SOURCE: Regional Economics Information System, Bureau of Economic Analysis, U. S. Department of Commerce.
Special Tabulation.

TABLE 6

Personal Income ^{a/} of Residents of South Carolina Coastal Zone,
by Economic Area & Major Source of Income, 1975

	<u>Low Country</u>		<u>Greater Charleston</u>		<u>Waccanaw</u>		<u>Coastal Zone</u>		<u>State</u>	
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
	-----Thousands of Dollars-----									
Labor & Proprietors	361,108	73.8	1,299,387	75.6	391,568	71.2	2,052,063	74.4	\$ 9,622.4	74
Div., Int. & Rent	63,350	13.0	182,560	10.6	75,788	13.8	321,698	11.7	1,502.5	11
Transfer Payments	64,657	13.2	236,385	13.8	82,693	15.0	383,735	13.9	1,881.4	14
Total	489,115	100.0	1,718,332	100.0	550,049	100.0	2,757,496	100.0	13,006.3	100
Population	94,700		371,600		122,900		589,200		2,818,200	
Income Per Capita	\$ 5,165		\$ 4,624		\$ 4,476		\$ 4,680		\$ 4,615	
Percent of U.S.	94.6		84.7		82.0		85.7		84.5	

^{a/} Reported by county of residence.

SOURCE: Regional Economics Information Bureau of Economic Analysis, U.S. Department of Commerce. Special tabulation.

E. POPULATION

The coastal zone contains approximately one-fifth of the population of South Carolina.

Table 1 summarizes population data for the eight coastal counties, the coastal zone, and the State for census years 1960 and 1970, with provisional data for 1976. In 1960, the population of the coastal zone was 19.6 percent of the total population of the State, but by 1976, the coastal zone's share of the State population had risen to 21.2 percent. Fully 75 percent of this increase took place within the Charleston Standard Metropolitan Statistical Area.

In 1975, the Charleston SMSA (comprised of Berkeley, Dorchester, and Charleston Counties) had a slightly larger population than the mid-state Columbia SMSA, but a substantially smaller population than the Greenville - Spartanburg SMSA, located in the northwestern part of the State. The Charleston SMSA ranked 97th among the nation's 159 "large" Standard Metropolitan Statistical Areas (populations of 200,000 or more) listed in the 1977 Statistical Abstract of the United States.

a). Trends As is evident from Table 1, the population of Charleston County itself increased very little relative to that of Berkeley and Dorchester counties, which showed increases of 44.9 percent and 25.2 percent respectively for the six year period. Horry county also showed a relatively large percentage of growth during this period (2.5 percent). In fact, only

Charleston and Colleton counties were below the State as a whole in their percentage of population increase between 1970 and 1976. Figure 1 illustrates the changes in coastal county population relative to that of other areas of the State.

b). Age Structure Table 2 summarizes the age structure of the coastal counties, based on the most recent (1970) census data available. Since the Census of Population counts people where they are living at the time of the census rather than where they make their permanent residence, the presence of large groups of military personnel and/or college students can noticeably distort the age distribution of the population. Thus, Beaufort County's unusually high percentage of eighteen to twenty year olds (15.9%) can be explained by the basic training facilities at Parris Island, which process large numbers of young adults. The Ship Yard and other U. S. Navy facilities in Charleston, on the other hand, include a larger percentage of mature adults. Like Beaufort County, Charleston County has relatively high percentage of young adults (eighteen to twenty year olds). This is probably explained by the presence of the Medical University, the College of Charleston, Baptist College and the Citadel, all of which are located in Charleston County.

c). Sex -Race Distribution Sex and racial distributions are presented in Table 3. In 1970, the total State population of 2,590,516 included only 7,045 individuals who were not classified as either white or black. Therefore, the term "blacks" may appropriately be used to refer to the non-white population of the coastal zone and of South Carolina.

The male/female distribution within the coastal zone is, by and large, typical of the State as a whole. The only exception is the unusually high percentage of white males in Beaufort County, which is probably a result of Marine and Navy training facilities located there.

d). Geographical Distribution Details of the geographical distribution of South Carolina's population are presented in Table 4. In 1970, only Charleston and Beaufort Counties had an urban population greater than the State average of 47.6 percent, although Berkeley County was close, with 45.8 percent of its population classified as urban. Since Table 4 is based on 1970 data, it does not take into account the recent population growth in Berkeley and Dorchester Counties; the present urban/rural ratios would undoubtedly be quite different from the 1970 data. This also holds true for the population density figures in Table 4. The populations of Berkeley, Dorchester and Horry Counties, in particular have increased dramatically since 1970, causing concomitant increases in the population per square mile.

e). Housing The housing characteristics presented in Table 5 reveal that in all but Charleston and Horry Counties, the population per occupied dwelling unit exceeds the State's mean. With the exception of Georgetown, Jasper, and Colleton Counties, the median value for owner-occupied dwelling units exceeds the State average. As is to be expected, the values for Jasper and Colleton counties are considerably lower than for the rest of the coastal zone, due

to their rural character and relatively low per capita incomes.

f). Education A final aspect of interest is the quantity and quality of education available to residents of the coastal zone. Table 6 presents data on the number of schools in each county, total enrollment (excluding kindergarten), and the median school years completed by persons twenty-five years of age or older.

Unfortunately, the last category is based on 1970 census data, and as a result is not strictly comparable with the rest of Table 6. However, it does call attention to a serious disparity between the levels of education attained by blacks and whites in the coastal zone. While the gap between the two groups may have narrowed since 1970, it has not disappeared, and is deserving of attention.

F. COASTAL LAND USE

All of the Coastal counties are beginning to develop comprehensive land use plans. However, at the present time, existing land uses are of far greater importance than projected land uses, for in many cases they define the limits within which planning must occur. Land use in the coastal zone will be discussed in terms of the three regional planning districts - Lowcountry, Waccamaw and Berkeley-Charleston-Dorchester. Unfortunately, land use categories are not strictly comparable for the three regions; therefore, care must be exercised in interpreting the land use tables in this section.

Low Country Region

Land use in the Lowcountry (Beaufort, Colleton and Jasper counties), perhaps more than in any other region, has been shaped by the natural setting. Because much of the region's land is covered by marsh or dense forest, development of any kind is precluded. Added to this constraint is the fact that the region is criss-crossed by waterways, making transportation difficult. Thus, only agricultural enterprises (particularly timber farming) have been possible until very recently, when improved accessibility made economic development possible.

Agricultural

Approximately three-fourths of the land in the Lowcountry region of the coastal zone is devoted to agricultural uses. Over 70% of the land in Colleton and Jasper counties is timberland, and even Beaufort County, the most developed of the three, has over 40% forested land. Because of the extensive development of forestry, a number of related businesses have located in the vicinity. Agricultural development depends to a large degree on factors such as soil conditions, topography and drainage, as well as transportation. Unfortunately, some areas which are suitable

for agricultural development are also prime sites for urbanization, leading to potential conflicts between interest groups.

Residential

The Lowcountry region is characterized by a large number of municipalities with very small populations. In fact, with the exception of three, all of the region's municipalities had populations under 2,500 in 1970. Port Royal's 1970 population was 2,865, while Walterboro and Beaufort are considerably larger, with 1970 populations of 6,257 and 9,434 respectively.

The Beaufort - Port Royal area is the largest industrial - population center in the region and has the greatest potential for future growth. Walterboro is also a potential center for rapid growth, as is Bluffton. Bluffton's potential, however, is dependent upon the ultimate development of the Victoria Bluff area as a deep water port. (The Victoria Bluff site has been called "the last natural deep water port on the east coast"; but because of its extraordinary natural beauty it is also a prime site for preservation.) The completion of I-95 has opened the way for tourist-related development in the towns of Ridgeland, Hardeeville and Yemassee, although whether this actually occurs remains to be seen.

Commercial and Industrial

Because of the importance of agricultural and forestry-related ventures, commercial and industrial development is limited. What little there is occurs primarily on the outskirts of the urban centers of Beaufort - Port Royal and Walterboro. Urban development related to the tourist industry

has grown rapidly on several of the sea islands in recent years. Hilton Head, and, to a lesser extent, Fripp Island, are becoming prominent resort areas.

The Port Royal Sound area has been designated as the Growth Center for the Lowcountry region, meaning that it will be the focal point for economic stimulus in the area. Thus, the Port Royal Sound area should provide new jobs and better services - commercial, industrial, educational and public. The city of Beaufort is at the hub of this activity, having the necessary population and services required by business. In the past four years, nine firms have located within the Growth Center, creating 500 new jobs. (The source of this information is The Lowcountry Overall Economic Development Program Update: 1976-1980, prepared by the Lowcountry Council of Governments.)

Public and Semi-Public

The Lowcountry region has a great deal of public and semi-public land in three major categories: military, water and wetlands, and recreation, open-space and historic areas. All three of the area's military installations are in Beaufort County. They are the Parris Island Marine Base, the U. S. Marine Air Station and the U.S. Naval Hospital in the City of Beaufort. Although the Hospital has a negligible effect on land use patterns, the remaining two are significant land users.

While only 8.5% of Colleton and 8.8% of Jasper county consist of wetlands, Beaufort county's wetlands cover 36.1% of the total land area. Obviously then, wetlands are a significant factor in development, especially in Beaufort County. Because they are extremely sensitive to disruption from development and attendant pollution, wetlands require special planning and preservation efforts

so that their ecological, aesthetic and recreational values remain unimpaired.

The final category of public lands is a large and diverse one, encompassing recreation, open space, and historic sites. Many of the latter are centered around the Beaufort and Port Royal areas, since that is where some of the earliest colonization took place. Beaufort boasts a special district, Historic Beaufort, designed to protect sites of special historic significance within the city.

Open spaces within the region are extensive, due to the vast expanses of wetlands, timberland and land in agricultural production. Many large private land holdings have been designated as wildlife refuges or game management areas, adding to the quality, as well as quantity, of open space.

There are two state parks in the region: Hunting Island State Park in Beaufort County and the Colleton Wayside State Park in Colleton County. In addition, the James Webb Wildlife Refuge and the Savannah River Wildlife Refuge in Jasper County are publicly owned. Nearly thirty public boat landings and a number of privately owned concerns augment the recreation potential of the area.

Waccamaw Region

The Waccamaw region, consisting of Horry and Georgetown Counties, is somewhat more developed than the Lowcountry region, with most development centering around Myrtle Beach and Georgetown. Like the Lowcountry, the Waccamaw region is dependent to a large degree on agriculture and the tourist industry, although there is far more manufacturing activity in this region than in the Lowcountry. (See table 2)

Agriculture and Undeveloped Land

By far the greatest percentage of land in the Waccamaw region is devoted to agricultural uses,

or is left undeveloped. In Georgetown County, approximately 97.6% of all land falls into this category, while in Horry County the figure is 94%. The greatest portion of this land is devoted to forestry, with the figure in Georgetown County being 54% of all undeveloped land. Georgia Pacific, International Paper Co., and Westvaco are engaged in profitable timber - producing ventures in the region. This land-use category also includes wetlands, which are particularly prevalent along the Waccamaw, Pee Dee and Santee Rivers. Beaches, dunes and vacant land all contribute slightly to the total in this category.

Residential

There are nine incorporated areas within the Waccamaw Region, although most are small. All but three have (1975 estimated) populations of less than 3,000, and even the "large" cities are relatively small. Georgetown, with a population of 11,200 is the largest, followed by Myrtle Beach (10,370) and Conway (9,845) in Horry County. Conway, termed the "gateway to the Grand Strand", benefits greatly from its location on major thoroughfares, and from the beach-bound tourist traffic which stops there. Georgetown is the county seat of Georgetown County, and is also important as an industrial and historic site. Myrtle Beach is the focal point of the Grand Strand, and is, in addition, one of the primary tourist centers in the Southeastern United States.

The majority of residential development consists of single-family units, although some condominium and apartment development has occurred. In addition, a number of mobile homes, most on individual lots, are found in the region. The Grand Strand area, predictably, has a great deal of seasonal housing.

Residential development in Georgetown and Horry counties is limited by a number of physical

factors, such as the large quantity of fresh and salt water present, the poor drainage, and soil which is unsuited for buliding foundations. Because of the drainage problems, septic tank use is curtailed; sewage treatment facilities are limited in rural areas, and as a result, housing construction is slowed.

Commercial - Industrial

There is very little commercial development per se in the Waccamaw region - in fact, "commercial" is the smallest category of developed land. With several exceptions (notably Myrtle Beach) commercial activity is widely scattered so as to serve the widely scattered population of the region. Neighborhood stores and highway - related development make up the bulk of all commercial centers. Industrial development is not only more prevalent, but more concentrated. It represents the third largest land-use category in the Waccamaw region, yet is confined almost entirely to the city of Georgetown and environs. Such a situation results from the availability of adequate water and sewage facilities, public utilities, and rail and highway transportation systems.

Public and Semi-Public

As is the case in the rest of the coastal zone, much of the public and semi-public land in the Waccamaw region is devoted to recreation. In Georgetown county, the public is served by Brookgreen Gardens and Huntington Beach State Park, as well as by a number of public boat landings and community recreation facilities. There are also a number of wildlife preserves and state game management areas. Finally, private facilities open to the public include Brown's Ferry Park, Rocky Point Park, and various golf courses. Horry County also has a number of golf courses - twenty-one to be exact - most of which are in the Grand Strand area. Myrtle Beach State Park is also located in Horry County.

Public and Semi-public lands also include church-owned land and educational facilities. Churches and cemeteries make up the bulk of non-recreational public land in Horry County, followed by local parks, clubs and schools. Coastal Carolina and Horry-Georgetown TEC are significant facilities in the Waccamaw region, as they generate secondary commercial and residential development in addition to providing educational opportunities.

Berkeley-Charleston-Dorchester Region

Of the three major divisions in the coastal zone, the Berkeley-Charleston-Dorchester region is the most highly developed. The peninsular portion of the city of Charleston is almost totally developed, and is the focal point of the region for government, health, education, financial, legal, commercial and cultural activities. The tri-county area is anticipating rapid growth in the coming years, making land-use planning an essential task of local government.

Agriculture and Resource Production

Nearly three out of four acres in Charleston County are devoted to resource production, mainly in the form of forests or marshland. A great deal of this land lies within Francis Marion National Forest. Dorchester county also has a large amount of marsh (25% of the total land area) and forestland, as well as a greater proportion of farmland than Charleston County. Most of the farms in Dorchester county are located in the northern half of the county, which is still predominantly rural. Berkeley County has less land available for development than either Charleston or Dorchester counties - nearly 45% of the total land area is covered by water, wetlands, or National Forest. 13.2% of the county's land area is devoted to agricultural uses, which have long been the economic mainstay of the area. Primary products include tobacco, cotton, corn, soybeans and truck vegetables, livestock

and dairy products, and timber. As is the case in the rest of the Berkeley-Charleston-Dorchester region, farms are becoming larger and fewer in number, while the value of both investments and products sold is increasing.

Residential

As in the rest of the coastal zone, construction in the Berkeley-Charleston-Dorchester area is limited by soil type and drainage. Residential development accounts for 3.6% of all developed land in Charleston County, 30.2% in Dorchester and 25.0% in Berkeley county. Berkeley county residential development is centered around the Goose Creek and Hanahan areas, with some growth in and around Moncks Corner. Resort areas at Lakes Marion and Moultrie have attracted a large number of mobile home parks, many of which are of poor quality.

Residential development in Dorchester county centers around Summerville, is largely suburban in character and generally blends into the Greater Charleston area. Charleston, of course, is the major population center in the region. In addition to the city of Charleston, significant resort development has occurred on some of the neighboring sea islands.

Commercial and Industrial

The center of industrial development in the region is located along the deep water channels of the Cooper River on the Charleston peninsula. North Charleston is the largest employment source in the industrial area. In all, industrial/manufacturing, transportation, communication and utilities, and trade and services make up 4.6% of Charleston county's total land area. The corresponding figure for

Dorchester County is 2.8%, while in Berkeley it is only 1.9%. Commercial uses in Berkeley county are concentrated in the Goose Creek, Hanahan and Moncks Corner vicinities, while industry is more scattered. Industrial usage in Dorchester county, on the other hand, is concentrated in the northwest portion of Summerville; commercial and service activities are also concentrated primarily in Summerville and St. George. In all cases, commercial activity tends to follow transportation corridors.

Public and Semi-Public

Federal, State, Municipal and County government entities own approximately 22% of all Charleston county land. This unusually high total can be explained by the presence of Francis Marion National Forest, the Cape Romain National Wildlife Refuge, State-managed Capers Island and Santee Coastal Preserve; military installations; and a number of educational facilities including College of Charleston, The Citadel, and the Medical University; and, finally, the State Ports Authority property.

Both Berkeley and Dorchester counties suffer from a dearth of recreational facilities, particularly in rapidly growing urban areas. Thus, Dorchester County's .8% and Berkeley County's .3% of public and semi-public properties consist largely of schools, churches, libraries and the like. Berkeley county has a great deal of federally-owned land, some of which is as yet undeveloped.

TABLE 1

1977 Existing Land Use Inventory by County

Low Country Region
(In acres)

	<u>Beaufort</u>	Percent of Total	<u>Colleton</u>	Percent of Total	<u>Jasper</u>	Percent of Total
Residential	20,160	5.4 %	9,734	1.4 %	5,326	12.7 %
Commercial	602	.16%	1,670		1,555	.37%
Industrial	798	.21%	576	.09%	403	.10%
Forestry	139,787	37.2 %	466,757	69.5 %	311,544	74.7 %
Agricultural	54,993	14.6 %	125,150	18.6 %	48,599	11.6 %
Public	21,160	5.6 %	8,128	1.2 %	9,535	2.3 %
Wetlands	135,816	36.1 %	56,893	8.5 %	36,673	8.8 %
Water	2,260	.60%	3,029	.45%	3,645	.87%
TOTAL	375,576	100 %	671,937	100 %	417,280	100 %

Source: Lowcountry Council of Governments, 1977.

TABLE 2

1977 Existing Land Use Inventory by County

Waccamaw Region
(In acres)Percent
of CountyGeorgetownPercent
of CountyHorryPercent
of County

Residential	9,245	2.0	13,956	1.9
Commercial	256	---	299	---
Industrial	1,803	.35	1,632	.22
Public or Semi-Public	1,022	.20	5,786	.78
Agricultural or Undeveloped	502,103	97.0	695,467	94.2

TOTAL	519,680	100.0	738,560	100.0
-------	---------	-------	---------	-------

Source: Waccamaw Regional Planning - Development Council, 1977.

Table 3

1974 EXISTING LAND USE BERKELEY COUNTY

DEVELOPED LAND

<u>Land Use</u>	<u>Acreage</u>	<u>Percentage of County</u>	<u>Percentage of Developed Land Area</u>
Residential	8,957.4	1.27	24.75
Commercial	694.2	0.10	1.92
Industrial	3,395.7	0.48	9.38
Public & Semi-Public	2,116.1	0.30	5.85
U.S. Government	12,250.0	1.74	33.85
Transportation	8,775.6	1.25	24.25
			<u>100.00</u>

UNDEVELOPED LAND

<u>Land Use</u>	<u>Acreage</u>	<u>Percentage of County</u>	<u>Percentage of Developed Land Area</u>
Agricultural	92,811.0	13.18	x
Marshes & Swamps	107,700.0	15.30	x
National Forest	143,500.0	20.38	x
Water Bodies	66,300.0	9.42	x
Vacant	<u>257,500.0</u>	<u>36.58</u>	
	704,000	100.00	

Source: Berkeley-Charleston-Dorchester Regional Planning Council. Based upon field survey, 1974, and resulting Existing Land Use Maps.

Table 4

1974 EXISTING LAND USE CHARLESTON COUNTY

Type of Use	Acres	% of County
Productive Land	514,300	77.8
Vacant Land	86,200	13.0
In-Land Water	60,200	9.1
Total	660,700	100.0
Productive Land	514,300	77.8
Developed	66,700	10.0
Resource Production	447,600	67.7
Developed Land	66,700	10.1
Residential	23,800	3.6
Industrial/Manufacturing	1,800	0.3
Trans. Comm. & Utilities	14,200	2.1
Trade & Services	14,400	2.2
Social & Cultural	12,500	1.9
Resource Production	447,600	67.7
Land Area	301,700	45.6
Marsh	145,900	22.1

*Source: Land Use Survey and Analysis, Charleston County, S.C., BCDRPC, 1975

Table 5

1974 EXISTING LAND USE DORCHESTER COUNTY

Land Use	Acreage	Percentage of County	Percentage of Developed Land Area
<u>Developed Land</u>			
Residential	5719.0	1.57	30.23
Commercial	473.0	0.14	2.50
Industrial	818.7	0.22	4.33
Public & Semi-Public	2876.0	0.80	15.20
Transportation	9030.0	2.48	47.74
<u>Undeveloped Land</u>			
Marshes and Swamps	91986.4	25.26	-----
Agricultural	65050.0	17.86	-----
Vacant	188186.9	51.67	-----
	<u>364,140.0</u>	<u>100.00</u>	<u>100.00</u>

Source: Berkeley-Charleston-Dorchester Regional Planning Council.
Based upon field survey, 1974, and resulting Existing Land
Use Maps.

chapter two
coastal zone planning process

A. THE SOUTH CAROLINA COASTAL MANAGEMENT ACT

"An Act To Establish The South Carolina Coastal Council And Provide For Its Powers And Duties For The Protection And Improvement Of Coastal Tidelands And Wetlands Under A Coastal Zone Management Plan; Provide For Enforcement of Policies Of The Council And Penalties For Violations; And Authorize Legal Proceedings For The Determination Of Title To Tidelands Properties." (Act 123 of the 1977 South Carolina General Assembly.)

Introduction

This is the title to South Carolina's coastal management law. The Coastal Management Act, as it is called, declares certain findings about the value, scarcity and current management of South Carolina's coastal resources. The variety and richness of coastal resources are recognized in light of the diversity of uses, and, therefore, of demands that threaten to exhaust these resources. The need for a State management effort to regulate the use of the valuable resources of the State's coastal zone is a key finding of the legislature and sets the stage for the management program outlined in the Act.

Specific policies and directives to guide the implementation of the management program are declared to be based on one general policy, that being "to protect the quality of the coastal environment and to promote the economic and social improvement of the coastal zone and of all the people of the State." (§2(A)) In general, the policies call for the development of coastal resources in a planned and environmentally sensitive manner through the development of a comprehensive tidelands protection program and through the coordination of comprehensive programs of

other levels of government (municipalities, counties, other state agencies, Federal Agencies and regional agencies). The formulation of a comprehensive beach erosion and protection program and the protection and, where possible, the restoration or enhancement of the resources of the State's coastal zone are specific policies declared by the legislature. In addition, it is declared that the combination of uses of coastal resources shall be of maximum benefit to the people and not necessarily the maximum measurable dollar benefit. The exclusion of some uses of coastal resources inconsistent with such policies is also expressed a guide to implementation of the coastal management program effort.

In the following discussion, the basic provisions of the S. C. Coastal Management Act are explained.

S. C. Coastal Council

The legislature has created the South Carolina Coastal Council to implement the Coastal Management Act and to initiate the coastal management effort for the people of the State. The Council is composed of eighteen members. Eight are chosen by the governing bodies of the eight counties which comprise the coastal zone, each county having one representative. Six members are chosen from the six congressional districts of the State by the members of the General Assembly who represent those districts, each district having one representative on the Council. The remaining four members of the Council serve ex-officio. Two State Senators, one chosen by the Senate Fish, Game and Forestry Committee and one appointed by the President of the Senate, and two members of the House of Representatives,

appointed by the Speaker of the House, are the ex-officio members. Council members serve for four year terms, except that the ex-officio or legislative members shall serve as long as they remain members of the General Assembly.

The Coastal Council has been granted a variety of powers and duties to enable it to formulate and implement a comprehensive coastal management plan for the State's coastal zone. The employment of a professional staff is a basic power granted the Council by the legislation. Professionals in administration, biology, planning, civil and hydrological engineering, environmental law and environmental engineering are specifically mentioned. The Council may apply for, accept and spend money from public and private sources to support activities undertaken to implement the Coastal Management Act and the Federal Coastal Zone Management Act of 1972. Rules and regulations may be promulgated by the Council to carry out the provisions of the State Act. The Council has the duty of administering the provisions and enforcing the provisions of the Act and its own rules and regulations through orders or by seeking enforcement through the courts. Besides these general powers and duties granted to the Council, other duties include serving as a coordinating agency for any program of tidal surveying conducted by the federal government and coordinating the efforts of all public and private agencies engaged in making tidal surveys of the coastal zone. The Council also is directed to encourage and promote the cooperation and assistance of State agencies, regional councils of government, local governments, Federal agencies and other interested persons. Other powers and duties of the Council are granted by the legislature under the management program and permit program.

The Coastal Management Program

The bulk of the Coastal Management Act outlines the essential elements of a coastal management program based on comprehensive planning and the coordination of existing resource management or regulatory programs.

The legislation requires the Council to hold public hearings or community forums and afford participation in the development of the management program to all interested citizens, local governments and relevant State and Federal agencies. Furthermore, the cooperation of State and local agencies in the administration and enforcement of the Act is mandated. A cooperative process for the development and implementation of the management program in combination with the authorities granted the Coastal Council insures the development of a comprehensive and detailed program for the management of the State's coastal resources.

The scope of the coastal management program and of the Coastal Council's authority is defined by definitions of the geographic areas and specific resources which must be considered in program development. Two types of management authority are granted for two specific areas of the State. The Council has direct control through the permit program over critical areas, which are defined as coastal waters, tidelands, beaches and primary ocean-front sand dunes. Direct permitting authority is specifically limited to these critical areas. Indirect management authority of coastal resources is granted to the Council in counties containing one or more of the critical areas. This area is called the coastal zone and consists of the following counties along the South Carolina coast: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry and Jasper. The coastal zone includes coastal waters and submerged lands seaward to the State's jurisdictional limits, as well as the lands

and waters of the eight coastal counties.

Upon approval by the General Assembly and the Governor, the management program developed under the cooperative process outlined by the Act becomes the final management program for the State. The policies and rules and regulations and other tools of the management program thus become official State policies which will manage the use of the State's coastal resources. Section 7 (A) of the Act requires state and local agencies to exercise their authority in accordance with these policies.

The mandate to the Coastal Council includes several specific elements the Council should consider in the program's development. An inventory and designation of areas of critical state concern is one of these elements. Significant natural and environmental, industrial, port and recreational areas are mentioned. An identification of coastal resources and uses of land in the coastal zone and an evaluation of the quantity, quality and capability for use now and in the future is another element of the program development process outlined in the Act. The Coastal Council must also consider the use of critical areas for nature-related activities such as aquaculture, mariculture, game and non-game habitat protection projects, endangered flora and fauna protection projects and waterfowl and wading bird management.

All of the lands and waters of the coastal zone are to be considered in developing a comprehensive management program. A mandate to conduct necessary studies required to develop the management program directs the Council to gather expertise and knowledge of the State's coastal resources, their use, and the effects of their use. Such expertise is very significant since the Council is directed to establish broad guidelines on priority of uses in critical areas and to determine present and potential conflicts in the use of coastal resources. The

Council must resolve such conflicts through the development of policies and criteria which are the main parts of the coastal management program.

The management program as developed by the Council must provide for the consideration of the local, regional, State and national interest in the siting of energy, transportation and other public facilities. A review process of the management program that involves local, regional, State and federal agencies and interested citizens must be developed, as well.

Specific management authority concerning several resources and activities is granted to the Council in the Coastal Management Act. The Council is directed to manage those estuarine and marine sanctuaries designated by the Secretary of Commerce. The Act mandates the establishment, control and administration of pipeline corridors by the Council, and control over the location in critical areas of such pipelines used for transporting fuel is also the responsibility of the Council. In coordination with the South Carolina Wildlife and Marine Resources Department, the Coastal Council must monitor the waters of the State for oil spills and report spills to the South Carolina Department of Health and Environmental Control, the United States Coast Guard and the Environmental Protection Agency. The Council must also direct the State clean-up operations of oil spilled in the State's territorial waters in coordination with the Department of Health and Environmental Control. The Department of Health and Environmental Control and the Coastal Council must also work together in the planning and review of existing water quality standards and stream classifications in the coastal zone.

An important feature of the management program which is specifically outlined is the development of comprehensive beach erosion control policies. The Act mandates research about the effects of erosion control methods and the dynamic drift systems of sand

and sand dunes, as well as grants the Council the authority to permit erosion control activities in the critical areas. The Council may remove public erosion control structures it deems adverse to the public interest. Critical erosion areas must be identified by the Council, and specific policies for the prevention of beach and sand dune erosion may be implemented through the rules and regulations of the permit program. The Act makes the Coastal Council responsible for the management of the State's beach resources and the activities which affect those resources.

The South Carolina State Ports Authority is directed to develop a management plan for port and harbor facilities and navigation channels. Upon approval of the plan by the Coastal Council, the management plan for the ports of the State will become part of the coastal management program. The plan must include a designation of areas appropriate for use by public and private port and harbor facilities as well as military and naval facilities.

In addition to the mandate for State and local agencies to cooperate in the development, administration and enforcement of the Coastal Management Act, the legislation provides a means for local governments to submit local plans and regulations to the Council for consideration of whether they are consistent with the management program. The Council may also offer technical assistance and support to local and regional governments in developing local plans and regulations which better manage coastal resources. The cooperative process outlined by the Act applies equally to local governments as it does to State agencies.

The Permit Program

A fundamental part of the coastal management program is the authority granted to the Council to issue or

deny applications for alterations of critical areas. The authority is exclusive to the Coastal Council. The Council is directed to issue rules and regulations to run the permit process and mandates public involvement in the development of these rules and regulations. The policies declared in the Act are to guide development of this permit program, and certain specific considerations are to guide the Council's evaluation of each permit application.

The Act requires Council consideration of the effects of a proposed critical area alteration on the production of fish, shrimp, oysters, crabs or any marine life or wildlife or other natural resources. The effects on endangered or rare species habitats must also be considered. The Council must weigh the extent of the effects of proposed alterations on public access to tidal and submerged lands, navigable waters, beaches and other recreational resources. Also to be considered is the extent of impact on irreplaceable historic and archeologic sites in the coastal zone.

More generally, the effects of proposed alterations on the flow of navigable waters and the extent to which erosion, shoaling of channels or areas of stagnant water would occur must be considered by the Council. The extent to which the activity requires a waterfront location and the extent of the economic benefits as compared with benefits from preservation in a natural state are other factors to be weighed by the Council. Adverse environmental impacts which cannot be avoided through reasonable safeguards must be considered in deciding whether or not an alteration will be permitted in the critical areas.

The legislation provides applicants or affected parties with a permit appeals process. Direct appeals

are made to the Coastal Council. Appeal to the circuit court of the county where the project would be developed is provided as a last resort.

The Council is granted authority to issue orders and seek court action to enforce the rules and regulations and any conditions made part of a permit approval. The legislation has authorized the Council or any person adversely affected by any violation of the Act to bring suit in the circuit court of the county where the violation occurs. For such violations that destroy critical areas, the Council may complete restoration of the area and then sue in the appropriate circuit court. Violations of the Act are deemed misdemeanors and are punishable, upon conviction of the violation, by imprisonment of not more than six months or by a fine of not more than five thousand dollars, or both, for the first offense. Imprisonment for one year of a fine of ten thousand dollars, or both are applicable to each subsequent offense.

Determination of Ownership

The Coastal Management Act provides persons claiming an ownership interest in tidelands with a process to determine the validity of such claims. A person may institute a court action against the State of South Carolina for the purpose of determining such claims, and a jury trial may be demanded if desired. Nothing contained in the Act shall be construed as changing any rights or interests in any tidelands. The only responsibility of the Coastal Council under this provision of the Act is to publish the outcome of such suits in the State Register.

B. THE FEDERAL COASTAL MANAGEMENT PROGRAM

The Federal Coastal Zone Management Act (P.L. 92-583) was signed into law in October, 1972, in response to a growing recognition of the importance of and the growth pressure on the coastal zone of the United States. The results of a series of studies on coastal areas and their environment and resources alerted Congress to the need for legislation to promote a comprehensive approach to wise management of these resources. Amendments to the Act in 1976 (P.L. 94-370) substantially expanded and refined the coastal program.

The Congressional findings of this Act begin by stating that, "There is a national interest in the effective management, beneficial use, protection, and development of the coastal zone," (Section 302(a)) The diversity of coastal zone resources and the increasing pressure from competing demands for their use are also emphasized. To achieve the national policy of preserving, protecting, developing, and where possible, restoring or enhancing coastal resources (§ 303), Congress selected the following approach:

The key to more effective protection and use of the land and water resources of the coastal zone is to encourage the states to exercise their full authority over the lands and waters in the coastal zone by assisting the states, in cooperation with Federal and local governments and other vitally affected interests, in developing land and water use programs for the coastal zone, including unified policies, criteria, standards, methods, and processes for dealing with land use decisions of more than local significance.

(§ 302(h))

The Act authorizes Federal grants-in-aid, administered through the Secretary of Commerce. The National Oceanic and Atmospheric Administration (NOAA), Office of Coastal Zone Management (OCZM) has been delegated the

responsibility to guide this program of grants to the coastal states.

The Governor of each eligible state (30 states bordering the Atlantic, Pacific, Gulf of Mexico and Great Lakes, and four U.S. territories) designates a state agency to take the lead role in developing a coastal program. Broad, general guidelines for the framework of these programs are expressed in Section 305 of the Act. Further guidance in development of a coastal program is offered in regulations from OCZM, dated March 1, 1978 (15 CFR Part 923, Federal Register 43 (41), 8395-8432) which explain the procedure for a state to qualify, the policies which must be followed in drafting the state program, and the requirements for a state program to receive approval.

During its planning process each state must address certain general items, specified in § 305 of the Act.

1. Identification of coastal zone boundaries.
2. Inventory and designation of areas of particular concern.
3. Guidelines on priority of uses in particular areas.
4. Permissible land and water uses that could have direct and significant impact on coastal waters.
5. Management proposals to control these uses, and,
6. Organizational structure to implement the program.

Cooperation and consultation with Federal, state and local units of government, and opportunity for public input are also required.

It is significant to note, that while guidelines and certain minimum requirements are provided, OCZM

allows flexibility and encourages each state to develop its own approach to meet the needs and coastal resource problems of that particular state. Also, there are no regulatory powers or sanctions associated with the Federal Coastal Zone Management Act - it is a voluntary program providing financial assistance to states which choose to participate.

Once a state program is completed, it is submitted to OCZM for approval. Upon approval, the state becomes eligible for funding, authorized in Section 306 of the Act, to implement or administer the state coastal program.

The requirements which State programs must meet in order to receive program approval (in other words, the guidelines by which each state effort is reviewed by OCZM have been revised recently and issued in final form in April, 1978 (15 CFR Part 923, Federal Register 43 41: 8378 - 8432). In addition to program approval requirements, they include the procedures for submission of the state program, qualification to receive 306 administrative grants, and policy guidance for administration of the approved program.

The Federal Coastal Zone Management Act stipulates that Federal activities affecting the coastal zone shall be, to the maximum extent practicable, consistent with an approved State coastal management program. This provision of Section 307, is referred to as the "Federal consistency" requirement. Section 307 further provides for voluntary mediation guided by the Secretary of Commerce in the event of disagreements between a Federal agency and a State with respect to administration of the state's program.

Section 308 of the Act provides for a Coastal Energy Impact Program (CEIP) to provide funding for states and local governments to deal with the impacts resulting from development of energy resources in the coastal zone. There are several types of Federal funding available under this program:

- Formula grants based on specific impacts of Outer Continental Shelf (OCS) energy activity.
- Planning grants to study and plan for economic, social and environmental impacts associated with energy facilities.
- Loans and bond guarantees to States and local governments to improve public facilities and services needed as a result of energy activity (plus provision for grants if they are unable to meet the loan or bond obligations because the energy activity does not generate sufficient tax revenues).
- Grants for mitigating unavoidable loss of environmental or recreational resources.

Section 309 enables states to obtain grants, to coordinate, study, plan, and implement interstate coastal management programs. Section 310 deals with Federal research programs and grants to states for studies and training that will support coastal management. Finally, Section 315 of the Act authorizes grants for acquisition of lands for access to beaches and other public recreational, environmental or cultural resources; for preservation of islands; and for the estuarine sanctuary program.

chapter three
management of coastal resources

goals and objectives

A. GOALS AND OBJECTIVES

The policy of the State of South Carolina in the Coastal Zone Management Act of 1977 is

to protect the quality of the coastal environment and to promote the economic and social improvement of the coastal zone and of all the people of the state.

In an effort to guide the State's coastal management program in keeping with this policy, the following goals and objectives have been developed by the South Carolina Coastal Council:

Goal:

Development of a management program that will achieve a rational balance between economic development and environmental conservation of natural resources in the coastal zone of South Carolina.

Objectives:

- 1.) To protect and conserve coastal land and water areas of a significant resource value, including those of scientific, geologic, hydrologic and biologic importance.
- 2.) To encourage and assist in research pertaining to coastal natural resource systems, economics and social impacts, in order to develop a comprehensive data base to aid in making rational decisions.
- 3.) To protect and sustain the unique character of life on the coast that is reflected in its cultural, historical, archeological, and aesthetic values.
- 4.) To promote increased recreational opportunities in coastal areas and increased public access to tidal

waters in a manner which protects the quality of coastal resources and public health and safety.

- 5.) To develop and institute a comprehensive beach erosion policy that identifies critical erosion areas, evaluates the long-term costs and benefits of erosion control techniques, seeks to minimize the effects on natural systems (both biological and physical), and avoids damage to life and property.
- 6.) To encourage new coastal development to locate in existing developed areas capable of accommodating additional growth, and in areas determined to be more environmentally and economically suitable for development.
- 7.) To resolve existing use conflicts and minimize potential conflicts among activities through improved coastal management reflecting the public's desires, natural resource capacity, and expected costs and benefits.
- 8.) To encourage new water-dependent activities to locate in shoreline areas where adverse social, economic, and environmental impacts can be minimized and encourage the inland siting of facilities which are not water dependent.
- 9.) To promote employment of thorough assessments of probable energy benefits, positive and negative economic effects and probable social and environmental impacts as the basis for decisions on development of energy resources; and to ensure that affected local governments obtain sufficient financial and technical assistance to adequately cope with these impacts.

10.) To develop a coastal program with the flexibility for revision and improvement with the evolution of increased knowledge and experience in managing coastal resources.

Goal:

To develop a permitting system for activities in critical areas of the coastal zone (beaches, primary sand dunes, tidelands, and coastal waters) that will serve to implement the goals and objectives of the management program and promote the best interests of all citizens of South Carolina.

Objectives:

- 1.) To develop and implement for activities in critical areas a streamlined and simplified permitting system which maintains the integrity and purpose of the management program.
- 2.) To include conditions and stipulations in permits for activities approved for critical areas in order to minimize negative impacts on water quality, marine productivity, beach and shoreline stability, and other environmental aspects.
- 3.) To give full consideration to the Rules and Regulations for Permitting, as promulgated by the Coastal Council, in thorough and comprehensive reviews of all permit applications.
- 4.) To specify environmentally suitable methods of design, construction and development in critical areas and assist permit applicants to incorporate these environmentally suitable alternatives in their proposals.

Goal:

To promote intergovernmental coordination and public participation in the development and implementation of the coastal management program for South Carolina.

Objectives:

- 1.) To provide full opportunity for participation by relevant Federal, State, and local government agencies, concerned organizations, and the general public in the development, implementation, and updating of the Coastal Management Program.
- 2.) To increase public awareness and encourage public participation in the development of the Coastal Council's management program and decisions made pursuant to that program.
- 3.) To strengthen the planning and decision-making capabilities of cities and counties in the coastal zone through provision of financial, technical and other assistance, and provide for coordination of local comprehensive plans and ordinances with the policies and rules and regulations of the coastal management program.
- 4.) To promote coordination and use of existing State programs to minimize duplication of efforts, conflicting actions and permit processing delays, and to achieve coastal management objectives and policies.
- 5.) To provide adequate representation of the interests of the State of South Carolina in Federal agency decisions and actions affecting the coastal zone.

coastal zone boundary

B. COASTAL ZONE BOUNDARY

The Federal Coastal Zone Management Act and the guidelines promulgated thereunder require 4 elements to a state's coastal zone boundary:

- 1) inland boundary
- 2) seaward boundary
- 3) areas excluded from the boundary
- 4) interstate boundaries

(Sections 923.30-923.34, Federal Register, Volume 43, No. 41, March 1, 1978)

The South Carolina Coastal Council employs a two-tier approach to management of activities having a direct and significant impact on coastal resources. The "critical areas" will receive more intensive attention through the direct permitting system while the remainder of the coastal zone will be managed through cooperation with other State and local agencies.

The South Carolina coastal zone is defined in Section 3(B) of the South Carolina Coastal Management Act of 1977 as:

(A) 11 coastal waters and submerged lands seaward to the State's jurisdictional limits and all lands and waters in the counties of the State which contain any one or more of the critical areas. These counties are Beaufort, Berkeley, Charleston, Colleton, Dorchester, Horry, Jasper and Georgetown.

The critical areas are defined in Section 3(J) as coastal waters, tidelands, beaches and primary ocean-front sand dunes. The meaning of each of these four terms is detailed in Section 3 of the Act as shown in Appendix B.

With biological field surveys and aerial photography, the Council has found the point on the upper reaches of the estuarine systems where tideland vegetation changes from predominately brackish to predominately fresh and has established a coastal water and tideland boundary using the nearest recognizable physical features within this area. This boundary is graphically depicted in Appendix M and verbally depicted in Appendix L, with a further discussion of the basis for its determination.

For beaches and sand dune critical areas, the Council employs the definition of the Act in making a case-by-case determination of the critical area boundary.

The seaward boundary of the coastal zone is the State's jurisdictional limits, the three mile outer limit of the United State's territorial sea. The inland boundary is the inland boundary of each of the eight counties having critical areas. These lines are described in Title 4, Chapter 3 of the Code of Laws of South Carolina (1976) and are outlined in Appendix C.

Within the South Carolina coastal counties there is considerable federally controlled land excluded from the coastal zone boundary under Section 304(1) of the Federal Coastal Zone Management Act of 1972, as amended. Appendix M is a site-specific map indicating, under current OCZM interpretation, those lands which are "by law subject solely to the direction of or which is held in trust by the Federal government, its officers or agents and are, as such, to be excluded from the coastal zone." Chapter IV (C) (1), addressing Federal government coordination, provides more specific discussion of Federally excluded lands.

In Georgia, the Coastal Resources Division of the Department of Natural Resources (the Department) is charged with developing a statewide coastal management program. At present, the Department administers the Coastal Marshlands Protection Act of 1970, an Act which requires permits for alterations in marshlands. Marshlands are statutorily defined by tidal fluctuation as areas below the ordinary high tide line and functionally as that point below which ordinary cultivation cannot take place. The jurisdictional scope of the Department for permitting in marshlands is similar in scope to the tidelands and coastal waters critical areas of Council jurisdiction. The State of Georgia has not completed a draft management program. The Department is charged with developing the program and at present, the Department is defining the inland boundary of the coastal zone by rail rights-of-way, highway rights-of-way and County lines. Adjacent to the South Carolina-Georgia line, the Chatham County-Effingham County line is the inland boundary. Chatham County appears to include all areas of direct salt water influence. Although the geographical extent of the Georgia Coastal Zone is less than that of the South Carolina Coastal Zone along the state border, the Council considers the two boundaries to be compatible in coordinating interstate activities.

The interstate boundaries separating South Carolina from Georgia on the south and North Carolina on the north are described in Section 1-1-10 of the Code of Laws of South Carolina (1976).

The State of North Carolina also utilizes the two-tier approach to management, as described in the Final Draft, The North Carolina Coastal Plan (November, 1977). The first tier Areas of Environmental Concern include Coastal Wetlands, Estuarine Waters, Public Trust Areas, Estuarine Shoreline, Ocean Beaches, Frontal Dunes, Ocean Erosion Areas, Inlet Lands, Small Surface Water Supply Watersheds, Public Water Supply Well-Fields and certain Fragile Natural Resource Areas. These areas coincide closely with the critical areas in scope. In addition, the North Carolina coastal area includes Brunswick County, the coastal county adjacent to the South Carolina-North Carolina line. Therefore, similar regulatory programs will be employed on either side of the border and it appears that the North Carolina coastal zone boundary is compatible with that of South Carolina.

uses of management concern

1. RESOURCE POLICIES FOR ACTIVITIES SUBJECT TO MANAGEMENT

INTRODUCTION

In addition to controlling activities in the critical areas of the coastal zone and preserving and protecting the priority use(s) of Special Management Areas (including Geographic Areas of Particular Concern), a comprehensive coastal management program must also include policies for management of the full range of activities which have a "direct and significant impact" on coastal resources. The need for this form of resource management was recognized in the Congressional findings of the Federal Coastal Zone Management Act of 1972, as amended, which describe the value of our coastal resources and the pressures for development from often competing uses. To achieve the National goals of this Act, Section 305 (D)(2) requires that to prepare an acceptable management program each state must include the following requirement:

"A definition of what shall constitute permissible land and water uses within the coastal zone which have a direct and significant impact on the coastal waters."

The South Carolina Coastal Council also is mandated by State legislation to consider these various land and water activities. Section 8 (B) of the South Carolina Coastal Management Act of 1977 lists the following items to be considered in devising the State's comprehensive coastal management program:

- "(1) Identify present land uses and coastal resources.
- (2) Evaluate these resources in terms of their quality, quantity and capability for use both now and in the future.

- (3) Determine the present and potential uses and the present and potential conflicts in uses of each coastal resource."

Man's uses of the coastal zone are opportunities available for the benefit of all South Carolinians. They necessarily result in certain economic, social and environmental impacts which may have positive and/or negative effects. It is the resolution of possible conflicts and the guidelines and policies which must be considered in decision-making in order to reduce possible negative impacts which constitute the need for sound, logical planning and management of coastal resources.

Activities with a "direct and significant impact"

The South Carolina Coastal Management Act of 1977 recognizes that there are specific parts of the coastal environment which are more vulnerable to the effects of man's activities than others. Experience and scientific research have demonstrated these ecosystems to be more fragile, such that almost any activity has the potential to have a significant effect on coastal waters. These "critical areas" are defined by the Act as coastal waters, tidal wetlands, beaches and primary sand dunes. To adequately manage these resources, the Act gives direct authority for issuance of permits in these areas to the Coastal Council.

"Ninety days after the effective date of this Act no person shall fill, remove, dredge, drain or erect any structure on or in any way alter any critical area without first obtaining a permit from the Council." (Section 13 (C))

The initial criteria for activities in the critical areas is location, followed by consideration of the specific project standards as presented in the Rules and Regulations for Permitting.

The South Carolina coastal program recognizes that in other parts of the coastal zone, some large-scale activities or particular aspects of man-made developments also can significantly impact coastal resources. In development of the comprehensive coastal management program, Section 8 (B) of the 1977 State legislation directs the Council to consider "all lands and waters in the coastal zone for planning purposes."

While the Council has no direct regulatory authority outside the critical areas of the coastal zone (Section 20, S.C. Coastal Management Act, Act 123 of the 1977 General Assembly) adequate management is provided through the Council's review and certification of permits for projects and actions of other State agencies. (Section 8 (B)(11), S.C. Coastal Management Act) (The legal basis for this management approach will be explained in detail in another section of the program document, "Implementation Authorities"). The Federal consistency provisions of the Federal Coastal Zone Management Act of 1972, as amended, afford another mechanism for management throughout the coastal zone.

Identification of the activities which might have significant impacts has been based on the resource inventory and planning efforts of the coastal program staff since 1974; input from other participating local, State and Federal agencies; citizen working groups in the eight coastal counties; and the policy direction of the eighteen-member Coastal Council.

The following definition has been interpreted for activities with "direct and significant impact" on coastal resources:

An activity is considered to have direct and significant impact on coastal resources and therefore is subject to management in the coastal zone if it meets one or more of the following:

- 1) location in a critical area;
- 2) environmental impact upon a critical area (for example, water pollution upstream from an inland source which would then reach and result in degradation of the estuarine system);
- 3) potential consequences which affect the quality or quantity of coastal resources -- natural, economic, social or historical;
- 4) disruption of public access to a coastal resource.

Performance Standard Approach

As part of the Uses Subject to Management Segment, "States must develop policies and procedures by which uses, determined to be subject to the management program, will be allowed, conditioned, modified, encouraged or prohibited." (§ 923.12, Federal Register, March 1, 1978) This refers to the Federal requirement that each state first identify the coastal activities which are considered significant enough to warrant management, and then identify the policies and the legal authority or review process which will govern each of these activities.

The South Carolina coastal program has selected an approach that might be called "performance standards" which deals with the impacts of an activity on coastal resources rather than with the activity itself. It is

an indirect method of managing activities in the coastal zone by assessing the impacts of a proposed action on coastal resources. With this approach, policies need not be developed for all aspects of a type of activity but only for those which would have direct and significant coastal impacts.

Review and discussion on individual projects or proposals will be determined on a case-by-case, site-specific basis, with consideration for the effects on the marine and estuarine environment, based on the following policies. This process will be implemented through the Council's direct authority of critical area permit applications and review and certification of the permits of other State and Federal agencies.

(The alternative approach of designating which activities are permissible in different geographic areas of the coast is seen in the context of the South Carolina coastal program as an option for local governments to regulate land development and use. This type of approach by local governments is fully encouraged and supported by the Coastal Council. However, in terms of its details and the organization necessary for its implementation, it is thought to be a cumbersome and ineffective method for developing a management system for the entire coastal zone of the State. This type of plan would not allow flexibility for future decision-making as technology changes and as different development proposals are presented which might offer ways to reduce environmental or other impacts.)

The performance standard approach seems best suited to the needs for management of coastal resources in South Carolina. It meets the overall intent of the South Carolina Coastal Management Act -- "to protect the quality of the coastal environment and to promote the economic and social improvement of the coastal zone..."

ACTIVITIES SUBJECT TO MANAGEMENT

Below is a list of activities determined to have a "direct and significant impact" in the coastal zone.
In the next section are the policies of the South Carolina Coastal Council for each activity.

I. RESIDENTIAL DEVELOPMENT

II. TRANSPORTATION

- A. Ports
- B. Roads and highways
- C. Airports
- D. Railways
- E. Parking facilities

III. COASTAL INDUSTRIES

- A. Agriculture
- B. Forestry (Silviculture)
- C. Mining
- D. Manufacturing
- E. Fish and seafood processing
- F. Aquaculture (Mariculture)

IV. COMMERCIAL DEVELOPMENT

(For example: location of retail businesses, shopping centers, service activities, restaurants and hotels, etc.)

V. RECREATION AND TOURISM

- A. Parks
- B. Marinas
- C. Boat ramps
- D. Docks and piers
- E. Wildlife and fisheries management
(including refuges, impoundments, etc.)
- F. Artificial reefs

G. Tourist attractions

VI. DREDGING

- A. Dredging
- B. Dredged material disposal
- C. Underwater salvage

VII. PUBLIC SERVICES AND FACILITIES

- A. Sewage treatment -- plants and their associated transmission systems, lagoons, impoundments, and outfalls; septic tanks
- B. Solid waste disposal
- C. Public/Quasi-public buildings and structures
- D. Dams and reservoirs
- E. Water supply

VIII. EROSION CONTROL

- A. Bulkheads, seawalls and revetments
- B. Jetties and groins
- C. Floating and stationary breakwaters
- D. Renourishment or establishment of vegetation

IX. ENERGY AND ENERGY-RELATED FACILITIES

(For example: electric generating facilities and transmission systems; oil and gas pipelines; energy storage and production facilities.)

RESOURCE POLICIES

In the following pages are the Resource Policies for each of the identified Activities Subject to Management.

A brief statement of findings describes why each activity is of coastal management concern. These policies are organized in three separate sections:

1) Policies for the Critical Areas, where the Coastal Council has direct permit authority. These policies are extracted from the Rules and Regulations for Permitting (R.30-1 through 30-11, S.C. Code of Laws of 1976). Each policy or group of policies appears with a citation ("R. 30-___") for the corresponding regulation.

2) Policies for the coastal zone, specifically, including that portion outside the critical areas.

3) Recommended policies or guidelines, which are generally endorsed by the Coastal Council.

Policies 1) and 2) are those which the Coastal Council will seek to enforce through the authority of the coastal program and the S.C. Coastal Management Act of 1977. These policies are highlighted in the text.

Following the policies for each activity is a brief discussion of the management authority which will implement these policies. A matrix and a listing in the Appendices further document the existing legal authorities.

I. RESIDENTIAL DEVELOPMENT

Findings

Paralleling the national pattern, more than 20 percent of the State's residents live in the coastal zone of South Carolina. Recently there has been a substantial increase in the building of both permanent and second-homes or seasonal housing in coastal counties by residents and non-residents of South Carolina who have purchased coastal land for residential development.

With expanding industry and commerce and related employment opportunities, plus the increasing attractiveness of the southeastern "sun belt" states as a place to work and play, this residential growth can be expected to continue. Adequate, sound housing is a basic need for residents of the coastal zone. There are still many suitable locations for this type of development; however, there can be negative, environmental impacts from residential growth if it is not properly managed.

Large scale housing projects can have adverse effects on coastal water resources and ecosystems. Of primary concern is adequate treatment and disposal of domestic sewage from the residences, which if not properly handled can degrade water quality and impact marine and aquatic species. Uncontrolled development patterns can also have effects of increased soil erosion, sedimentation and contamination of coastal waters and possible flooding problems from rapid stormwater runoff. Another potential impact of residential growth is associated with loss of vital wetland areas if extensive dredging and/or filling are included in site preparation or construction.

An almost infinite number of potential resource conflicts exist, and one development may have several effects. For example, a residential development may provide badly needed housing but in so doing disrupt commercial fishing by degrading water quality due to improperly controlled sewage effluent and increased storm water run-off. This same housing development if located on beach front property could conflict with recreation by restricting public access to the beach.

These potential conflicts are addressed in the following policies for residential growth, which provide guidance on reaching and maintaining a balance between development and conservation of coastal resources.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

- a) "The creation of residential lots strictly for private gain is not a legitimate justification for the filling of wetlands. Permit applications for the filling of wetlands and submerged lands for these purposes shall be denied." (R-30-12, (G)(2)(a))
- b) "Nonwater-dependent structures such as apartment,.....(and other residences) have been constructed in the past on pilings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are available should consideration be given towards approval of the pro-

posed structure." (R. 30-12(M))

- c) "Nonwater-dependent structures such as residential buildings have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternatives exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged. (R. 30-13(D))

2) In the coastal zone, Council review and certification of State and Federal permits and residential development projects will be based on the following policies:

- a) Adequate sewage disposal service (septic tanks or treatment systems) which meet Federal Environmental Protection Agency, South Carolina Department of Health and Environmental Control, (Appendix) and local health department standards must be provided in major residential developments. Septic tanks should be permitted, where feasible, in low density residential developments when they are designed properly and soils are adequate to insure against pollutants leaching into surface or groundwater resources. Septic tanks should be situated a safe distance from the shoreline to ensure proper drainage and filtering of tank effluents before they reach the water's edge. Policies for sewage treatment plants and associated facilities appear in VII (A) of this section (p.113).

- b) Residential development which would require dredge, fill or other significant alteration of salt, brackish or freshwater wetlands will be prohibited, unless no feasible alternatives exist. These marshes are valuable habitat for wildlife and plant species and serve as hydrologic buffers, providing for absorption of stormwater runoff and aquifer recharge, and therefore, their destruction for residential purposes must be avoided whenever possible.
- c) Location of new residential development in flood-prone river or other hazard areas is discouraged. When development does occur in floodplains, the inclusion of natural, vegetated buffers between developed areas and the shoreline is encouraged to help absorb flood water surges. Within designated flood zone areas of participating communities residential development must meet existing Federal Flood Insurance Administration (Department of Housing and Urban Development) national building standards and insurance requirements. Local governments in the coastal zone are urged to actively participate in the National Flood Insurance program.
- d) Drainage plans and construction measures for residential development should be designed to lessen or eliminate erosion, water quality degradation and other negative impacts on adjacent waters and wetlands. Example techniques include buffering and filtering run-off water; use of permeable surfacing materials for roads, parking and other paved areas within a subdivision; and grass ditching, surface drainage contours, or catchment ponds rather than direct stormwater discharge. Policies or techniques for non-point source runoff developed at the local level as part of the Area-wide 208 Water Quality Planning process should be implemented through the management of major new housing projects. Developers proposing major residential activities are encouraged to contact and work closely with the local Soil and Water Conservation District in their county for assistance in developing subdivision and site plans which reduce sedimentation and drainage problems.

- e) Residential development proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- f) Residential developments which would significantly impact the following aspects of quality or quantity of these valuable coastal resources are discouraged:
- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.
- g) Other activities associated with a residential development or subdivision will be subject to the policies for that activity, for example, docks and piers, marinas, commercial buildings, parking or transportation access.

3) The Council recommends that the following policies be considered in planning residential development in the coastal zone:

- a) Local governments are encouraged to develop local plans and procedures which promote clustering of residential development where growth has least significant impacts on coastal resources and

can be more easily provided with necessary public services. Criteria to judge those areas most capable of accommodating new growth with minimal impact on coastal resources should be included in local plans.

- b) Developers are encouraged to incorporate common-use recreational areas in proposals for large-scale residential developments. With regard to water and boat access, "developers of subdivisions, motels and multiple family dwellings will be encouraged to develop single, joint-use moorage facilities while their plans are in the development stage" (R. 30-12 (A)(2)(f)) combined with building covenants to limit the proliferation of individual docks and piers.
- c) Residential developments which include a mix of densities, housing types and price ranges are encouraged.

Management Authority

If located in the critical areas, as defined by the S.C. Coastal Management Act, proposed new residential uses would require a permit from the Coastal Council before beginning construction.

Outside the critical areas, the Coastal Council will review a number of State agency permits required for certain residential developments to determine that issuance of these permits is consistent with the preceding coastal management policies. This review and certification process is mandated in Section 7(A) and 8(B)(11) of the Coastal Management Act.

A S.C. Budget and Control Board permit is required for the filling of waters or wetlands below mean high water (MHW) (in that part of the State outside Coastal Council permitting jurisdiction). Residential development might

propose filling in such wetland areas in some instances to prepare suitable building sites.

S.C. Department of Health and Environmental Control (DHEC) permits are required for the construction of subdivision water supply and waste disposal systems. (R. 61-57). Because of the rural and suburban character of much of the coastal zone, there are large areas not served by public water or sewer systems. This DHEC authority will bring a majority of new residential developments under the Council certification process.

DHEC is the State agency responsible for administration of the National Pollution Discharge Elimination

System (NPDES) permit process. This permit is required not only for effluent discharges, such as from sewage treatment, but in some instances for such point-source discharges as storm drainage pipes. DHEC is also the S.C. agency responsible for "401" water quality certifications (Section 48-1-50 (15), 1976 S.C. Code of Laws), which are determinations of allowable water pollution levels required for any activity involving another Federal permit.

The State Housing Authority, authorized to operate in all counties, may acquire land by eminent domain for construction of housing projects. The State Housing Authority also has jurisdiction over redevelopment. All projects of either a local or State Housing Authority are still subject to the planning, zoning and laws or ordinances applicable in that locality. Housing projects conducted by the State Housing Authority in the coastal zone will be included under the review and certification process of the Coastal Council, as mandated by Sections 7(A) and 8(B)(11) of the S.C. Coastal Management Act.

(A detailed legal analysis of the authority of each agency and of the Council certification procedure will be contained in the Implementation Authorities chapter of the program document.)

In addition to State management authority, major residential developments receiving some form of Federal financial assistance will be subject to the A-95 review process for which the Coastal Council is a commenting agency. Some projects will also require the submittal of Environmental Impact Statements, thereby having further Council review. Federal permits will be required for any proposed housing construction in the wetland or water areas under jurisdiction of Section 404 (33 CFR § 323) of the Federal Water Pollution Control Act, as amended in 1976.

II. TRANSPORTATION FACILITIES

The construction and maintenance of all forms of transportation service are a vital part of the economic and social character and viability of the coastal zone. Almost always involving the expenditure of large sums of public money, investment in these facilities meets a definite need in the coastal zone, serving both coastal and State residents. Transportation systems are an important element in an overall coastal management program because they provide access to a variety of public resources - economic as well as historic, social and recreational. There can be, however, potential environmental impacts from construction, maintenance and operation of transportation facilities. These negative effects, then, must be balanced with the need for adequate transportation in order to achieve the Goals and Objectives of South Carolina's coastal program.

A. PORTS

The State Ports Authority (SPA) is currently developing a management plan for port and harbor facilities and navigation channels in the coastal zone. This plan, mandated in Section 11 of the Coastal Management Act of 1977, shall be submitted to the Council for approval and subsequent incorporation into the coastal management program. Final policy development for port and harbor facilities is dependent on the results of this plan, and policies will be based, at least in part, on its contents. A consultant contract is underway by the SPA to produce this plan, with an anticipated due date of late August, 1978.

B. ROADS AND HIGHWAYS (including bridges and transit facilities)

Findings

Roads and highways play a major role in shaping the growth patterns of the coastal area, as they do

in other parts of the State. The motor vehicle is still the primary mover of people and goods, and access to and from the roadway network is a key factor in the economic gain of a community. Intersections, curb cuts and highway interchanges are often the site of extensive development.

In addition to these secondary effects, the construction, operation and maintenance of a roadway involve engineering and construction activities which may have direct negative environmental impacts if not properly managed. First and foremost is location of the facility itself, which may be routed along or through sensitive wetland areas or water bodies. The primary concern is destruction or significant deterioration of the ecological system mainly through dredge and fill operations. This is why bridges are favored in these areas over filling to create roadbeds or embankments which would result in loss of marsh habitat and disruption of waterflow or circulation.

Also associated with road and highway construction are possible impacts on drainage and sedimentation, through land clearing and grading, slope stabilization. Changes in the natural drainage pattern may increase flooding hazards and stormwater runoff may become a problem. Water quality may also be affected due to heavy loads of toxic pollutants and nutrients from the road surface and adjacent embankments if care is not taken in design of roadways to handle stormwater runoff.

Navigation presents another potential conflict when roads are planned to cross water bodies. Adequate clearance under bridges, rather than causeway construction, can ameliorate this problem.

Policies

The South Carolina Department of Highways and Transportation is currently revising the State Highway Action Plan, pursuant to U. S. Department of Transportation, Federal Highway Administration guidelines. This updated document, focusing on State policy and long-term development programs for highway systems, is due in late fall, 1978.

1) In critical areas of the coastal zone, it is Council policy that:

"a) Major highways, expressways should be located inland from coastal wetland areas to the extent feasible.

b) In cases where wetlands cannot be avoided, bridging should be employed, to the maximum extent possible, rather than filling and embankment to create roadbeds.

c) Where wetlands will be destroyed, the productivity of these lands should be identified and weighed against public need in consideration of the project by the Council.

d) Structures over water should be designed so as not to alter the natural waterflow and circulation regimes or create excessive shoaling. Adequate clearance for commercial and pleasure craft should be provided.

e) Maximum care shall be taken to prevent concentrated roadway runoff from entering adjacent water bodies.

f) Where appropriate, bridges and approaches should be designed to provide for the enhancement of public access by the utilization of fishermen catwalks, boat launching ramps and other structural features.

g) "During the planning of a multi-lane widening or road improvement project, it is usually preferable to follow the existing alignment in wetland areas. Existing causeway and fill areas should be utilized wherever possible. The widths of medians of divided highways should be reduced as much as possible wherever they cross wetland areas.

h) Roadway embankments and fill areas shall be stabilized by utilizing appropriate erosion devices and/or techniques in order to minimize erosion and water quality degradation problems.

i) The Council will encourage applicants for transportation permits to design such facilities to accommodate other public utilities, thus avoiding unnecessary future alteration such as that caused by the laying of cables or transmission lines in wetlands adjacent to an existing roadway." (R. 30-12(F)(2)a-i)

2) In the coastal zone, Council review and certification of road or highway permit applications and projects will be based on the following policies:

a) Road and highway routes should be aligned to avoid salt, brackish and freshwater wetlands as much as possible. Where they cannot be avoided, bridging of these wetlands and all navigable waterways, rather than filling to create roadbeds, will be required wherever feasible. The use of existing fill areas or embankments for widening or improvement projects will also be encouraged. Whenever feasible, median and right-of-way widths

should be limited where they will impact salt, brackish and freshwater wetlands.

- b) Road structures through salt, brackish or freshwater wetlands or water bodies must be designed so as not to alter natural waterflow or circulation. Where bridging is not feasible, provision of adequate culverts or other means for water to flow through or under the structure will be required.
- c) Bridges over navigable water bodies must provide adequate clearance for commercial or pleasure craft, where appropriate.
- d) Maximum care should be taken in design of roads to prevent direct drainage of roadway runoff into adjacent water bodies. Inclusion of techniques for filtering run-off water, such as grass ditching or vegetative buffers should be considered. During construction and in later maintenance, roadway embankments should be stabilized to minimize erosion and water quality degradation due to sedimentation problems.
- e) Road, highway and bridging projects in wetland or water areas are encouraged to include provision for placement of other utilities, such as cables or transmission lines, in their design to reduce the need for future disruption of adjacent wetlands or waterways.
- f) Road or highway proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- g) Roads or highways which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;

- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.
- h) Construction of private roadways for private access should be aligned to avoid salt, brackish and freshwater wetlands and must provide culverts or other means to maintain circulation and water flow. When practicable, permeable surfaces such as gravel should be used rather than pavement.

3) The Council recommends that the following policies be considered for road and highway projects in the coastal zone:

- a) Encouraging construction of bicycle and foot paths along and across or over roadways, and fishing catwalks and platforms on new bridges;
- b) Encouraging comprehensive study of potential secondary impacts of road and highway construction;
- c) Study of mass transit alternatives to road or highway construction in urban areas.

Management Authority

In the critical areas, roads and highways, both public and private, are under the direct permitting authority of the Coastal Council and subject to the Rules and Regulations thereunder.

While not a permit agency for highway construction, the authority for planning, construction, maintenance and operation of the State's highway system rests with the South Carolina Department of Highways and Public Transportation. Roadway projects by the Department are covered under the Section 8 (B)(11) certification process outlined in the Memorandum of Agreement and, thus, are subject to review and comment by the Coastal Council based on the preceding policies.

Cooperative efforts between the Coastal Council and the Highway Department, not only on project proposals, but also on long-range planning and policy development, are the best means to implement sound coastal management policies. The Memorandum of Agreement (MOA) between these agencies is written so as to allow such cooperation. The legal mandate for cooperative and consistent implementation of the two agencies' programs is found in the Coastal Management Act of 1977 (Section 7(A), 8(B)(11)) and is further explained in the Implementation Authorities section of the program document.

The State Development Board, with the mandate of improving trade, commerce and employment opportunities in South Carolina, also has the authority to build or acquire roads and highways as part of the promotion of transportation systems in the State. Any projects proposed by the Development Board in the coastal zone would involve coordinated planning efforts and certification by the Coastal Council based on the preceding policies, as mandated by the Act and outlined in the MOA. (Further legal analysis of this authority is provided in the Implementation Authorities segment of the management program.)

A majority of road and highway projects also require Federal permits, and these permit reviews are subject to the Federal consistency provisions of the coastal program. Those projects involving Federal funding are subject to the Federal Office of Management and Budget (OMB) Circular A-95 review, and frequently to EIS review, under the National Environmental Policy Act.

C. AIRPORTS

Air transport is an increasingly important mode for the transportation of passengers and cargo, as will be highlighted in the discussion of coastal economy. Airport facilities are generally of coastal zone management concern only when their construction or expansion may have significant impacts on coastal resources, for example, if extensive encroachment is proposed into productive wetland areas.

In addition to potential direct loss of unique natural habitats or valuable wetlands, the construction and operation of major airport facilities might result in water quality degradation if not properly managed, due to direct stormwater discharge from paved parking or landing areas or from sedimentation and erosion. The development of adjacent land can pose a secondary concern if it may conflict with noise impact zones.

The Coastal Council supports the following goals and objectives of the South Carolina Aeronautics Commission, as summarized from the South Carolina State Airport Systems Plan, (second revision); March, 1975:

- 1) Provision of improved airports;
- 2) Expansion of scheduled air carrier service to and within the State;
- 3) Cooperation among State agencies with respect to airport-related highway and road access, recreation use and activity, environmental management, zoning, Federal regulation aid, and planning and plans implementation.

Policies

1) In the critical areas of the coastal zone it is Council policy that:

- 1) "Airports should be located inland from coastal wetland areas to the extent feasible." (R. 30-12 (F)(2)(a))
- 2) "Where wetlands will be destroyed, the productivity of these lands should be identified and weighed against public need in consideration of the project by the Council." (R. 30-12(F)(2)(c))

2) In the coastal zone, Council review and certification of airport permit applications and projects will be based on the following policies:

- a) To the extent feasible, new airport facilities should not encroach into salt, brackish or freshwater wetlands. Permit applications involving dredge or fill to construct these facilities in wetland areas will generally be denied, unless no feasible alternatives are available and clear public need is demonstrated.
- b) The best available techniques and methods should be used during design, construction and maintenance of airports to avoid erosion or sedimentation problems and prevent concentrated run-off water from aircraft use areas, parking areas and support facilities from directly entering and degrading adjacent surface

water bodies or underground resources.

c) Airport proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

d) New airport facilities which might significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

i) unique natural areas -- destruction of endangered wildlife or vegetation or significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;

ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;

iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

e) Proposals for airport facilities must demonstrate that they will meet applicable Federal and State air quality and noise control guidelines.

3) The Council also recommends that the following policies be considered for airport projects in the coastal zone:

- a) Consideration of the existing and planned transportation system or network in the area, for example, relationship to other airports and access to adequate transportation service by other modes.
- b) Encouragement of joint-use or regional airport facilities where feasible (for example, joint military and civilian airports).
- c) Compatibility with character and use of the area; local governments are encouraged to develop plans and procedures which maintain appropriate, compatible use areas around existing airports.

Management Authority

The South Carolina Coastal Council has permit authority for all activities or alterations in the critical areas of the coastal zone. This jurisdiction would include any proposed airport facilities located in the critical areas - beaches, primary sand dunes, coastal waters and tidal wetlands (salt and brackish).

The Aeronautics Commission has direct regulatory authority over the design, layout, location and other aspects of landing fields and landing strips for the State. Certificates of approval are required from the Commission in order to operate or establish an airport. After approval of the coastal management program by the Governor and General Assembly, a system of review and certification of other State agency permits and actions will be implemented. Aeronautics Commission certificates that affect the coastal zone will be reviewed by the Coastal

Council, based on the preceding policies, as mandated in Section 7(A) and 8(B)(11). A Memorandum of Agreement facilitates the cooperative efforts of the two agencies.

Most airport facilities also involve Federal Aviation Administration (FAA) approval and/or financing, so these activities will be subject to A-95 review by the Coastal Council, and in some instances, Environmental Impact Statement (EIS) review.

D. RAILWAYS

Findings

Railroads are a principal means of transporting industrial, commercial and agricultural goods to market in coastal areas of South Carolina. They serve as an important supplement for other transportation modes, for example, linking industrial and manufacturing sites to port facilities. While passenger travel has diminished and railroads, generally, have declined in other parts of the nation, to a large extent they retain their economic importance in South Carolina.

The possible negative environmental effects associated with development of new railroads are similar to the impacts of roads and highways. These include:

- 1) loss of valuable wetland habitats if extensive dredge or fill is required;
- 2) disruption of water flow and circulation if properly designed bridges are not utilized wherever feasible;
- 3) degradation of adjacent water quality if storm water run-off and sedimentation are not adequately controlled during construction and operation.

Sound management practices and implementation of the following policies will reduce the potential for these environmental problems when important new railroad corridors are selected and developed.

Policies

- 1) In the critical areas of the coastal zone, it is Council policy that:
 - a) ". . . Railways should be located inland from coastal wetland areas to the extent feasible.
 - b) In some cases where wetlands cannot be avoided, bridging should be employed to the extent possible, rather than filling and embankment to create roadbeds.
 - c) Where wetlands will be destroyed, the productivity of these lands should be identified and weighed against public need in consideration of the project by the Council.
 - d) Structures over water should be designed so as not to alter the natural waterflow and circulation regimes or create excessive shoaling. Adequate clearance for commercial and pleasure craft should be provided.
 - e) Embankments and fill areas shall be stabilized by utilizing appropriate erosion devices and/or techniques in order to minimize erosion and water quality degradation problems." (R. 30-12 (F) (2) a-d, h)

2) In the coastal zone, Council review and certification of railway permit applications and projects will be based on the following policies:

a) Railways should be located away from salt, brackish or freshwater wetlands, to the extent feasible. In cases where these wetlands cannot be avoided, bridging rather than filling to create roadbeds will be required, wherever feasible.

b) Railroad structures through salt, brackish or freshwater wetlands or water bodies must be designed so as not to alter natural waterflow or circulation. Where bridging is not feasible, provision of adequate culverts or other means for water to flow through or under the structure will be required.

c) Bridges over navigable water bodies must provide adequate clearance for commercial or pleasure craft, where appropriate.

d) Railway projects in wetland or water areas are encouraged to include provision for placement of other utilities, such as cables or transmission lines, in their design to reduce the need for future disruption of adjacent wetlands or waterways.

e) Design of railways should include techniques to prevent direct drainage of runoff water into adjacent water bodies. Construction in wetland areas should include stabilization of embankments to minimize erosion and water quality degradation due to sedimentation.

f) Railway proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will

be made in each case with reference to the specific priorities of use for each type of GAPC.

g) Railways which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine

Resource segment), degradation of existing water quality in the area;

ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;

iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

h) Conversion of abandoned railroad tracks, bridges and rights-of-way in the coastal zone to recreational uses, such as fishing piers or bicycle trails, is encouraged.

- 3) The Council also recommends that the following policies be considered for railway projects in the coastal zone:
- a) Minimizing possible aesthetic impacts from placement of rail lines and bridges,
 - b) Integrating railroad planning and development with other transportation facilities, in order to provide adequate transportation systems; for example, where feasible, new highway bridges might be designed to include railways (especially in urban areas where land is more limited and transportation needs are greatest).
 - c) In floodplain areas railway alignment should parallel the path of water flow, to the extent feasible, in order to minimize disruption of the floodplain ecosystem.

Management Authority

New railroad construction activities located in any critical areas will require a permit directly from the Coastal Council. These projects would be reviewed according to the Rules and Regulations for Permitting, which are restated here as Council policies for the critical areas.

Outside the critical areas, but within the eight-county coastal zone, the Council will review and certify permits or activities of other State agencies involved in railroad projects, based on the preceding policies. The Memoranda of Agreement with these agencies outline the review process as mandated under Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act of 1977.

The Budget and Control Board retains permit authority in State waters below mean high water (MHW) in

those portions of the coastal zone beyond the critical areas. Any dredging and/or filling or placement of facilities below MHW for railroad construction will have to receive this Budget and Control Board permit. As addressed in the MOA between these two agencies, the Coastal Council then reviews and certifies the permit for compliance with coastal policies.

The Public Railways Commission is authorized to acquire land, including through condemnation, for construction and operation of railroads and related facilities in South Carolina. Activities of the Railways Commission are subject to the terms of the MOA between the Commission and the Coastal Council. (Private railroad companies have the same condemnation powers and authority to construct railroads and associated facilities. Railroad company projects would be subject to Coastal Council, Budget and Control Board, and other applicable permit requirements.)

The State Development Board may also build or acquire railroads as part of its mandate to promote the transportation systems of the State for improved trade, commerce and employment. Any Development Board railway projects in the coastal zone would be subject to review and certification by the Coastal Council.

In some instances, railway projects may also require Federal permits, subject to review and comment and to the Federal consistency provisions of the Coastal Council.

E. PARKING FACILITIES

Findings

Parking lots or garages and other parking structures are of coastal management concern only if they might infringe on valuable wetland areas, degrade water quality in adjacent wetland or water areas, or negatively impact a Geographic Area of Particular Concern (GAPC) or other unique and significant coastal resource. While provision of adequate parking areas is an important and necessary aspect of public and private commercial, residential and industrial development, these facilities need proper location and design to minimize possible negative impacts on coastal resources.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

- a) "Nonwater-dependent structures such as parking garages have been built in the past on pilings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are available should consideration be given towards approval of the proposed structure." (R.30-12(M))
- b) "Nonwater-dependent structures have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternatives exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged." (R.30-13(D))

- 2) In the coastal zone, Council review and certification of permit applications for parking lots, garages or other parking facilities will be based on the following policies:
- a) Parking facilities are nonwater-dependent activities and where feasible alternatives exist, filling or other direct impacts on productive salt, brackish or freshwater wetlands will be prohibited for those purposes.
 - b) Proposed parking facilities must demonstrate compliance with applicable Federal and State water quality standards, specifically those addressing drainage and discharge of stormwater runoff.
 - c) Parking facilities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
 - d) Parking facilities which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;

- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following policies be considered in location and design of parking facilities:

- a) Use of permeable surface materials such as gravel rather than pavement, where feasible,
- b) Retaining the maximum possible natural drainage and vegetative cover between parking spaces,
- c) Provision of visual buffer areas around parking areas.

Management Authority

The Coastal Council has permit jurisdiction over any activity altering a critical area of the coastal zone. Any parking facility draining directly into and significantly altering a critical area must be permitted by the Council. As stated in R.30-12(M) of the Permitting Rules and Regulations, parking facilities are nonwater-dependent and are discouraged from being sited in critical areas.

The Budget and Control Board regulates the use of land below mean high water out of the critical areas of the coastal zone. A permit to construct parking facilities on such land is required from the Budget and Control Board. The Department of Health and Environmental Control permits the construction and use of parking facilities if the storm water discharge from such a facility has been identified as a significant contributor to pollution. (Otherwise such facilities are exempt from the Department's National Pollutant Discharge Elimination System permit program.) The Council reviews and certifies the permits of these two agencies for compliance with the preceding coastal management policies, pursuant to Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act of 1977.

III. COASTAL INDUSTRIES

The South Carolina Coastal Management Program is concerned with promoting and maintaining a healthy coastal economy, as well as safeguarding coastal natural resources. To achieve this balance of development and environmental protection, there is need for sound management of the wide variety of coastal industries.

The coastal zone is unique in many of the resources necessary for particular water-dependent industrial activities, as well as its recreational and residential potential. But suitable site locations are limited, and many of the resources are finite. Competition for use of the coastal zone intensifies with growth and development.

This growth and development is increasing in South Carolina, with positive economic benefits. The importance of the following policies on coastal industries lies in the need to accommodate these diverse industrial interests, thereby furthering the economic well-being of coastal residents, while still protecting and conserving the unique, often fragile natural resources.

A. AGRICULTURE

Findings

The per acre value of farmland in the U. S. increased 9% in the year ending February, 1978. (Land Use Planning Report, May 1, 1978) Changing global weather patterns and resulting food shortages, increasing world population, inflationary pressures on food prices, the U.S. balance-of-payments and possible offsetting role of farm products, low farm income, and loss of prime agricultural land to other uses have made agriculture a serious

concern for coastal management.

Agriculture is a significant economic pursuit in South Carolina's coastal zone. In 1975, the eight county area had a 23 percent share of the State's crop lands, and a 23 percent of the cash receipts earned by South Carolina farmers from marketing crops. (Stepp, James; The Coastal Economy of South Carolina, 1978). This contribution indicates the need to accommodate this industry in the coastal zone, which boasts favorable soils and climate for a variety of crops and livestock. Much of the land area suitable for farming is also highly desirable for development, so as the coastal zone continues to grow there will be increasing pressure for conversion of agricultural areas.

While agriculture is a positive benefit to the economy and provides a source of food and fiber for citizens of the coastal zone, the State and the nation, there are potential negative effects on the coastal environment unless best management practices are employed:

(W)ater is also a significant output. With the exception of wind erosion and pesticide drift from aerial application, almost all agricultural pollution is associated with runoff from land being used for agricultural purposes..... By volume, sediment is the most important agricultural non-point source pollutant. The process of erosion has been identified as the single most significant reaction that directly affects the coastal environment.

(Hart, Robert D., "Cropland Pollution Control" in Clark, Coastal Ecosystem Management, 1977, p. 595)

The other potential water pollution sources include nutrients, such as nitrogen and phosphorous, which occur naturally in soil and are added as fertilizers. Elevated nutrient levels may result in oxygen depletion and

resulting eutrophication of coastal waters.

In this State, the U.S. Department of Agriculture, the S.C. Land Resources Conservation Commission, and the local Soil and Water Conservation Districts have for years realized that conserving soil not only leads to more productive land, but also ensures higher water quality in our streams and reservoirs.

Policies

1) In critical areas of the coastal zone it is Council policy that:

- a) Alteration for direct agricultural use is not anticipated to occur frequently in the critical areas. By definition (beach, primary sand dunes, tidelands and coastal waters) these areas are generally unsuitable for cultivation. Where direct effects from agricultural activities from upland areas significantly impact critical areas, the policies contained below in A(2) shall apply.
- b) The policies for dredging and filling (R.30-12(G)) and construction of canals and pipelines (R.30-12(D) and (1)) shall be applied where appropriate.

2) In the coastal zone, Council review and certification of permits related to agriculture will be based on the following policies:

- a) The Council supports the utilization of coastal resources for productive agriculture in the coastal zone, particularly on prime agricultural lands (as defined by the U.S. Department of Agriculture and South Carolina Land Resources Conservation Commission), as a positive element of coastal economy and to provide sources of food and fiber products to citizens of the State and nation.

- b) To reduce negative impacts on productive salt, brackish and freshwater wetlands:
- i) The drainage, dredging, filling or other major alteration of these wetlands for agricultural purposes will not be approved where feasible alternatives exist;
 - ii) Ditching for drainage from uplands should avoid passing through productive wetlands to the extent feasible.
- c) To minimize potential negative impacts on water quality from sedimentation and erosion, applicants for permits relating to agricultural activities are encouraged to work closely with the local Soil and Water Conservation District to obtain assistance in reducing sedimentation and erosion problems. Modern conservation techniques recommended by the local Soil and Water Conservation Districts and the U.S. Department of Agriculture Soil Conservation Service should be utilized, including:
- i) Methods or techniques such as contouring should be used to reduce direct surface water runoff into adjacent wetlands or water bodies;
 - ii) Maintenance and utilization of the natural drainage pattern of the land is encouraged as much as possible;
 - iii) Use of buffer strips of natural vegetation as an edge along the area between watercourses and cultivated soils is encouraged.
- d) Agricultural proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- e) Agricultural activities which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following policies be considered with regard to agricultural use and practices in the coastal zone:

- a) Encouraging the utilization of detailed soil surveys by the National Cooperative Soil Survey, (which includes Clemson University Extension Service, U.S. Department of Agriculture - Soil Conservation Service and U.S. Forest Service);
- b) That local land use plans include considerations for protecting agricultural lands from premature or undesirable conversion to other development activities;

- c) That Section 12-43-220 of the Code of Laws of South Carolina (1976) be fully implemented within the coastal zone to allow property tax incentives to protect farmlands from conversion to other uses.
- d) That the soil testing facilities of Clemson University be utilized to determine the correct types and amounts of fertilizers to be applied to agricultural lands.

Management Authority

The Coastal Council has permit jurisdiction over any activity which in any way alters a critical area of the coastal zone. Therefore, any agricultural activity that directly alters a critical area must have a permit from the Council.

Outside of the critical areas of the coastal zone there are a few direct controls over agricultural activities. The Soil and Water Conservation Law (§§48-9-1210-1320), administered by the S.C. Land Resources Conservation Commission empowers local Soil and Water Conservation Districts to adopt rules and regulations, after public referenda, to control soil erosion. As mandated by Section 7(A) and 8(B)(11) this authority will be administered in conformance with policies of the approved coastal program.

Local Area-wide Waste Treatment Management Plans, under Section 208 of the Federal Water Pollution Control Act (Public 92-500) are also authorized to address agricultural management in terms of non-point source

water pollution. Development and implementation of these planning and regulatory efforts is closely coordinated with the Coastal Council.

The South Carolina Budget and Control Board retains direct regulatory authority over activities below mean high water in the coastal zone outside the critical areas. These permits are reviewed and certified by the Coastal Council, as mandated in Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act.

B. FORESTRY

Findings

Commercial forestry is an important coastal industry, with the coastal zone producing 17 percent of the State's pulpwood production and 30 percent of the physical volume of other forest products in 1975. (Stepp, The Coastal Economy of South Carolina, 1978). Forest areas also serve numerous important natural functions, such as preventing soil erosion and stabilizing runoff, maintaining high surface-water quality, and providing significant wildlife habitat and recreational areas.

If not properly managed, timber harvesting can have severe impacts on coastal ecosystems primarily from disrupting hydrologic systems, and it is these aspects which are of coastal management concern. The erosion of soil and nutrients, and the alteration of runoff cycles can degrade water quality and cause increased flooding. The processing of forest products also can cause environmental damage if proper controls are not observed for air and water effluent discharges.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

Direct commercial forestry activities are not anticipated in the critical areas because they are naturally unsuitable areas for timber production. Where related or indirect activities such as drainage ditches or access road construction are proposed for critical areas, the appropriate policies for that activity will apply.

2) In the coastal zone, Council review and certification of permits or projects related to timber production will be based on the following policies:

a) Productive forest lands should be managed for maximum resource utilization in order to maintain a supply of good quality timber into the future. The value of the non-timber aspects of forest lands to the owner, the public and the coastal ecosystem should be stressed. The Coastal Council will cooperate with and support the State Forestry Commission and local Soil and Water Conservation Districts in encouraging good forest management practices on private and public lands.

b) The disruption of salt, brackish or freshwater marshes for timber related activities such as drainage or access ways is discouraged. Where no feasible alternatives exist, project designs should include the mitigation measures as identified in the policies for each related activity for example (roads, dredging, etc.)

c) Erosion control methods are encouraged for all phases of timber operations in order to reduce

i) excessive erosion and sedimentation;

ii) detrital, nutrient and chemical or toxic runoff; and

iii) disruption of hydrologic cycles.

Logging operations should be managed so that drainage characteristics through forested and swampland areas remain at the pre-existing water quality, volume and rate of flow, to the extent feasible.

d) Commercial timber activities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

e) Forestry activities which could significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;

ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;

iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without

opportunity for adequate professional examination and/or excavation, or preservation.

- f) The policies applicable to the processing of timber products are those for manufacturing activities

(III (D)).

3) The Council also recommends that the following policies be considered in forestry activities in the coastal zone:

- a) Limiting clear-cutting in areas of significant aesthetic, watershed, wildlife or recreational value;
- b) Provision of vegetated buffer areas along coastal water bodies and tributary watercourses;
- c) Development of restoration plans for watershed areas after timber cutting;
- d) Encouraging local land use plans which provide for protection of forest areas from development encroachment and conversion pressures.

Management Authority

Any alteration of a critical area requires a permit from the Coastal Council. Forestry activities that alter a critical area must be permitted by the Council.

Outside of the critical areas of the coastal zone the State Forestry Commission, through the Department of Forestry, performs forestry activities in State Forests, and offers guidance and technical assistance to private

timber operations including fire prevention and control practices. The Department of Forestry's authority will be administered in conformance with the approved coastal management program and the Coastal Management Act, as mandated by Sections 7(A) and 8(B)(11), and through the Memoranda of Agreement (MOA) executed between the Department and the Coastal Council.

C. MINERAL EXTRACTION

Findings

Many mineral resources of great economic value may be found in the coastal zone, in tidal rivers and coastal waters and on the continental shelf under Atlantic Ocean waters. In addition to oil and gas, which are addressed separately under Energy and Energy-related Facilities, these minerals include sand, gravel, shell, salt and phosphates. They can be found on the surface, subsurface or in solution in the water.

If not properly managed, disturbances from mining activities can have physical, chemical and biological effects on coastal resources. These potentially adverse impacts are primarily associated with the loss of wetlands by dredging and/or filling, degradation of water quality, production of vast amounts of sediments and possible contamination of groundwater resources. The following table lists specifically the types of impacts which make mineral extraction activities of concern for coastal management.

Topographic effects:

- (1) removal of natural cover,
- (2) removal and burial of topsoil,
- (3) exposure of vast areas of substratum,
- (4) creation of many linear miles of high vertical walls, which may seep,
- (5) creation of open pits, quarries and spoil depressions which may fill with seepage,
- (6) creation of large areas of spoil piles which seep and erode and are physically unstable,
- (7) acceleration of surface runoff,
- (8) increased erosion,
- (9) increased stream sediment load,
- (10) watercourse modification, and
- (11) lowering of ground water table.

Physical effects:

- (1) drainage of wetland areas,
- (2) filling of wetlands or covering bottoms with spoil or sediment flumes,
- (3) alteration of watercourses through channelization, division and impoundment,
- (4) widening of stream beds,
- (5) increased sediment load and the corresponding increase in turbidity and decrease in light penetration, and
- (6) reduction of wetland habitat diversity.

Chemical effects:

- (1) addition of large amounts of chemical elements into wetland habitats, such as, sodium, calcium, sulfur, chloride, etc.,
- (2) increased salt content of bottoms and waters,
- (3) addition of large quantities of chemically reduced materials, ie., sulfides,
- (4) addition of metallic oxides and hydroxides and heavy metals as well as large quantities of sulfuric acid,
- (5) drastic lowering of PH due to reduction and elimination of carbonates which comprise the natural buffering system,
- (6) reduction of dissolves oxygen, and
- (7) contamination of groundwater and aquifers.

(from Impacts of Construction Activities in Wetlands
of the U.S., EPA #600/3-76-045, 1976)

(Existing, active mining sites have been designated as Geographic Areas of Particular Concern (GAPC) in the coastal zone, because of their unique mineral resource value and potential as development activities dependent on locating in the coastal zone.)

Policies

1) In critical areas of the coastal zone, it is Council policy that:

Policies for dredging activities shall apply to mining operations.(VI(A)(1) in this section and

R.30-12(G)).

2) In the coastal zone, Council review and certification of mining permit applications will be based on the following policies:

a) Applicants for mining permits must demonstrate compliance with an approved reclamation plan, as required by the Land Resources Conservation Commission under the S. C. Mining Act.

b) Dredge or strip mining operations are discouraged in wetland areas, where feasible alternatives exist. If all or part of a mining site must involve water bodies or wetland areas, policies for dredging (VI (A)) shall apply.

c) To minimize negative impacts on water quality, the prevention of direct stormwater discharge from upland sites into adjacent wetlands or water bodies is encouraged, through inclusion of such techniques as use of vegetated buffer areas, silt curtains and other erosion or sedimentation control methods. Negative effects on groundwater resources should also be avoided.

d) Mining proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will

be made in each case with reference to the specific priorities of use for each type of GAPC.

e) Mining proposals which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends the following policies be considered in mining activities in the coastal

zone:

- a) Provision of scenic buffer areas around active mining sites;
- b) That study of mineral resources be made before land is committed to development, and those areas found to contain significant mineral resources be identified in local land use plans.

Management Authority

The Coastal Council has authority for a direct permit requirement for mining operations in critical areas of the coastal zone, based on Sections 5(E)-(I), and Section 13 of the S. C. Coastal Management Act of 1977.

In the coastal zone, within and outside the critical areas, the S. C. Land Resources Conservation Commission is responsible for implementation of the S. C. Mining Act. A permit, terms of which include a complete site reclamation plan, is required for any mining operation. The Coastal Council's review and certification of these permits, as required by Sections 7(A) and 8(B)(11) of the Coastal Management Act, is confirmed by the Memorandum of Agreement between these two agencies.

Where mining operations extend below mean high water (MHW) outside the critical areas, the Budget and Control Board also has permit jurisdiction.

D. MANUFACTURING

Findings

Coastal areas are attractive to five major types of industrial manufacturing:

- 1) Industries that benefit from location near low-cost water transportation systems;
- 2) Industries that derive power from water or use water for manufacturing processes or cooling purposes;
- 3) Industries that benefit from location near coastal population centers, but do not have direct dependence on water use or access;
- 4) Marine transportation industries;
- 5) Industries that depend directly on the marine environment for raw materials. (from Clark, J., 1978,

Coastal Ecosystem Management

The growth and development of manufacturing uses is increasing in the South Carolina coastal zone, with positive economic benefits. Manufacturing plants are a source of both employee payrolls and property tax revenues. New and existing industries can provide a diversified economic base, complimenting government employment (military) and the long-standing importance of agriculture, forestry and fishing.

While potential benefits exist, so do possible negative impacts associated with manufacturing uses if they are not properly managed. "Waste disposal, oil spills and the escape of toxic materials in aquatic ecosystems are all unfortunate by-products of industry which affect the coastal environment." (Ketchum, B., 1972, The

Water's Edge, p. 107)

In addition to water and air pollution discharges, the possible environmental impacts of industrial development in the coastal zone include:

- possible destruction of wetlands and the associated flora and fauna, by filling, dredging and/or draining for site preparation;
- impacts on soil erosion and flood control as effects of site preparation;
- effects of site preparation and facility operation on the quality and quantity of surface and groundwater resources;
- impacts of related secondary development, such as transportation access facilities, sewage treatment plants or port development.

Not only do possible conflicts exist between industrial growth and natural systems, but between industrial activities themselves, which vary widely in the coastal zone. For example, commercial fishing depends on the same natural resource of coastal water that also is vital to some manufacturing uses for transportation, cooling water or effluent discharge. There may be resulting negative impacts on quality from the manufacturing uses that therefore severely limit the viability of fishing enterprises.

The coastal zone is unique in many of the resources necessary for particular water-dependent industrial activities, as well as its recreational and residential potential. But suitable site locations are limited, and many of the resources are finite. Competition for use of coastal zone resources intensifies with growth and development

At this juncture, the State's coastal zone still retains many miles of unspoiled coastline, and acres

of productive marshes and forest and farmlands. Heavy manufacturing is relatively limited in the coastal zone. The importance of the following policies on coastal manufacturing lies in the need to accommodate diverse industrial and economic interests, thereby furthering the economic well-being of coastal residents, while at the same time protecting and conserving the unique, often fragile natural resources.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

a) "Nonwater-dependent structures have been built in the past on pilings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are available should consideration be given towards approval of the proposed structure." (R.30-12(M))

b) "Nonwater-dependent structures have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternatives exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged." (R.30-13(D))

c) "The creation of commercial lots strictly for private gain is not a legitimate justification for the filling of wetlands. Permit applications for the filling of wetlands and submerged lands for these purposes

shall be denied, except for erosion control (see R.30-12(C)) or boat ramps (see R.30-12(B)). All other dredge and fill activities not in the public interest will be discouraged." (R.30-12(G)(a)).

d) Where other activities are associated with manufacturing development, such as construction of navigation channels, boat docks, or transportation access, the policies for that particular activity shall apply.

2) In the coastal zone, Council review and certification of permit applications for manufacturing and related activities will be based on the following policies:

a) In locations immediately adjacent to the shoreline, priority will be given to those industries which can demonstrate a dependence on use of or access to the water. Nonwater-dependent industries will be encouraged to locate in inland areas.

b) The filling, dredging and/or drainage of productive fresh, brackish and saltwater wetland areas for purposes of manufacturing will be prohibited, unless no feasible alternatives exist. Heavy industry should be directed away from ecologically sensitive areas such as marshes, forested wetlands, pocosins, etc.

c) Manufacturing operations and sites should be designed and constructed to reduce erosion and sedimentation, and to limit the impacts from direct stormwater discharge into adjacent water bodies and wetlands.

Persons proposing to develop manufacturing activities are encouraged to contact and work closely with the local Soil and Water Conservation District in the county for assistance in developing site plans which reduce sedimentation and drainage problems. The following considerations should be included in manufacturing site location, construction and design whenever feasible:

- i) Provision of a buffer strip of natural vegetation between the facility and the water's edge. This vegetated area provides a visual screen, a purification system for stormwater runoff, and a protective area for the more ecologically sensitive shoreline areas, especially fringing wetlands;
- ii) During site preparation, care should be taken to control storm runoff, soil erosion, and accidental placement of sediments in wetland areas;
- iii) The use of permeable surfaces in parking lots and bulk storage areas to provide water recharge areas and minimize the effects of stormwater runoff;
- iv) Retain open space or natural (undisturbed) areas around manufacturing sites as buffer zones and recharge areas.
- d) Manufacturing facilities must meet the applicable water quality and effluent limitation standards of the U. S. Environmental Protection Agency and the South Carolina Department of Health and Environmental Control, under the National Pollution Discharge Elimination System, Sections 401 and 402 of the Federal Water Pollution Control Act Amendments (Public Law 92-500). In some cases, pre-treatment of industrial wastes before introduction

into public waste treatment systems may be required, based on local 201 and 208 Waste Treatment Management Plans, as developed under the Federal Water Pollution Control Act. Siting of industrial facilities is encouraged in areas where waste discharges present the least ecological threat, for example, away from wetland areas, in areas with good tidal flushing and water circulation and along watersources with relatively low water quality classifications.

e) Manufacturing facilities must meet applicable State and Federal air pollution standards and controls, as based on the National Clean Air Act, as amended (P.L. 91-604).

f) In instances where groundwater resources will be utilized either in the processing or effluent discharge stages of the production process maximum care should be exercised to:

i) meet existing standards and/or management programs of the Water Resources Commission,

ii) prevent saltwater intrusion and land subsidence,

iii) where feasible provide natural vegetated areas on the site where aquifer recharge can occur to mitigate the impacts of groundwater withdrawals.

g) When located in flood zone areas, manufacturing sites and structures must meet applicable floodplain management and construction requirements, as based on the Federal Flood Insurance Program. Where feasible, industry should set back above the annual flood elevation.

h) Manufacturing proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

i) Manufacturing uses which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

i) unique natural areas -- destruction of endangered wildlife or vegetation or significant marine

species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;

- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

j) To the extent possible, new water-dependent industries should locate on already maintained channels or rivers to reduce the need for dredging of new channels. Where no presently maintained channel exists and one becomes necessary, the policies for dredging (p.) will apply.

k) Dock or pier and berthing facilities associated with a manufacturing activity should be designed to minimize possible negative impacts. The policies for the activities will apply (p. 101).

3) The Council also recommends that the following policies be considered in planning for or siting manufacturing uses in the coastal zone:

- a) Siting of industrial plants where they are served with existing well-developed road and railroad links to port areas and to major arterial transportation routes;
- b) Development of local plans which direct manufacturing growth into areas committed to industrial use where services can be most readily provided.

- c) Development of local plans which encourage comprehensive-type industrial parks, to facilitate well-planned, well managed manufacturing and industrial centers that promote the advantages of locating in South Carolina;
- d) Encouraging manufacturing that will provide significant new employment opportunities for coastal residents;
- e) Considerations for minimizing noise and aesthetic impacts of manufacturing activities.

Management Authority

Any manufacturing use or related activity proposed for the critical areas of the coastal zone would be required to obtain a permit from the Coastal Council. The policies for any related activity, and the procedures of the Rules and Regulations for Permitting would apply.

In the coastal zone outside the critical areas, the Council will review and certify the permits and projects of other State agencies to insure compliance with the Coastal Management program, as mandated in Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act of 1977.

The Budget and Control Board has authority for issuance of permits for activities below mean high water. Applications for these permits are reviewed and certified by the Council for compliance with the coastal management program.

Throughout the coastal zone, the Department of Health and Environmental Control is the State implementing agency for water quality and air quality standards. Permit applications for water and air discharges are subject to certification and review by the Council.

While not a permit agency, the State Development Board has the responsibility for planning and

coordination to promote improved trade, commerce and employment opportunities in the State. Included in the Board's specific authority is promotion of industrial development. The Coastal Council will coordinate and support programs and projects of the Board to insure continued opportunities for manufacturing growth and development while at the same time maintaining sound coastal management policies.

Federal permits are required where any aspects of a manufacturing project fall under jurisdiction of Section 10 of the Rivers and Harbors Act; Sections 401, 402 and 404 of the Federal Water Pollution Control Act Amendments; and the National Clean Air Act (P.L. 91-604, amend.). These permit applications are reviewed and certified by the Coastal Council, and are subject to Federal consistency provisions.

E. FISH AND SEAFOOD PROCESSING

Findings

Commercial fisheries are a most significant industry in the South Carolina coastal economy. The 1975 data for dock-side value of commercial fish landings was over \$13 million. (Stepp, The Coastal Economy of South Carolina). Development and use of fisheries resources certainly are water-dependent activities which can only take place in coastal waters and adjacent areas. The "Living Marine Resources" segment of the management program document will detail the finfish and shellfish resources of the coast, the vital link to marsh and other ecosystems and the policies for their management. For purposes of the Coastal Industries Category, only seafood processing activities are identified.

Seafood processing can have negative impacts on coastal resources, particularly water quality. While the dumping of waste fish or parts of fish can be viewed as a return of nutrients or energy to the ecosystem, the high concentrations of nutrients may result in eutrophication of near-shore waters if adequate water circulation is not present. Also, wastewater discharges must be monitored to insure that by-products of the processing operation do not degrade water quality. Because of the necessity for proximity to the shoreline, seafood processing can pose loss of wetland habitat if extensive dredging or filling are proposed for these facilities.

(The Living Marine Resource segment of the management program now being developed by the Coastal Council and the Wildlife and Marine Resources Department will address the issues and policies for actual fisheries resources.)

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:

a) Drainage or discharge from any seafood packing or processing operations must meet applicable State and Federal Water quality standards.

b) If dredging or filling is required for construction or maintenance at a seafood processing plant, policies for dredging activities (VI(A), p. 101 ; R. 30-12(G)) shall apply.

c) Policies for docks and piers (V(D), p. 90 ; R. 30-12(A)) shall apply to these industrial/commercial facilities, where applicable.

d) "The creation of commercial lots strictly for private gain is not a legitimate justification for the filling of wetlands. Permit application for the filling of wetlands and submerged lands for these purposes shall be denied, except for erosion control or boat ramps." (R. 30-12(G)(a))

e) Where marina or dock and pier-type construction is included, project proposals shall include facilities for the proper handling of petroleum products, sewage, litter, waste and other refuse..." (R. 30-12(E)(H)).

2) In the coastal zone, Council review and certification of permit applications and seafood processing plant proposals will be based on the following policies:

a) Drainage or discharge from any seafood packing or processing operations must meet applicable State and Federal water quality standards.

b) Proposed seafood processing operations must comply with policies for docks and piers, and dredging

and filling, where applicable.

- c) Fish and seafood processing operations are discouraged where there may be significant long-term negative impacts on salt, brackish or freshwater wetlands, associated with dredging or filling for construction or operation of the facilities.
- d) Adequate facilities for proper handling of sewage, litter and other waste products must be provided at the site of new docking areas associated with seafood processing.
- e) Seafood processing facilities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- f) Seafood processing which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resources segment), degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without

opportunity for adequate professional examination and/or excavation,
or preservation.

- 3) The Council also recommends that the following policies be considered in fish and seafood processing operations in the coastal zone:
- a) Care should be exercised in the discharge of water used to pump out the holes of fishing vessels so that water quality is not unnecessarily degraded and so that such discharges comply with any applicable Department of Health and Environmental Control and U.S. Coast Guard regulations.
 - b) Consideration should be given to the utilization of fish wastes or by-products for meal or fertilizers.

Management Authority

In the critical areas of the coastal zone, the Coastal Council has direct permit authority over sea-food processing plants and related facilities.

In the rest of the coastal zone, the Council will review and certify the permit applications of several other State agencies. The first is the Budget and Control Board, which has jurisdiction outside the critical areas for activities below mean high water, in wetland areas and submerged bottoms.

The Department of Health and Environmental Control (DHEC) has permit authority for direct wastewater discharges, and for "401" water quality certifications for projects which require Federal permits. Through coordinated, joint efforts of both agencies, the Council will review and certify DHEC permits for their compliance with coastal policies.

Federal permits may also be required for dredging or filling, construction of docking areas, and for wastewater discharges associated with seafood processing.

F. AQUACULTURE

Findings

Continuing world population growth and the associated increasing demand for food resources recently have focused more attention on one of the least-tapped sources of protein - the oceans. Traditional fishing activities, however, are encountering problems with best use of this resource, including lack of adequate research to improve knowledge of and techniques for long-term management, lack of capital for development of more efficient fishing methods, and government regulations which may be ineffective in their attempt to regulate this public resource for private use. Also, unrestricted development of coastal areas with its associated

water pollution has led to destruction of some productive habitats and fishing areas and more limited harvests.

To expand the potential of fisheries resources, increase protein production and reduce the cost per pound for the product, land-based or near-shore culturing of fish or shellfish - aquaculture - is receiving increased attention. At present, the technology and cost of cultured seafood products is not competitive. However, with increasing energy and labor costs, aquaculture of some species, as an important coastal industry, may be a reality in the near future.

There are potential impacts associated with aquaculture activities which qualify them as having a direct and significant impact on coastal resources. Since most aquaculture systems require large amounts of flowing water and surface area to be cost effective, tidal wetlands may be earmarked for diking to create impoundments for culture activities. This diking, while essential for proper culture management, may be more detrimental to the ecosystem as a whole since the function of the wetlands as biological filters and nursery areas for a variety of species and not just a "cultured" few will be lost. Therefore, it is important to carefully weigh food supplied by intensified management against food supplied by natural processes.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

- a) Policies for dredging and filling and for marsh impoundments will be applied to aquaculture projects, where appropriate (R. 30-12(G) and (K)).

2) In the coastal zone, Council review and certification of aquaculture permit applications will be based on the following policies:

a) The impoundment of previously undisturbed, productive salt, brackish or freshwater wetlands for aquaculture activities is discouraged.

b) Aquaculture proposals must demonstrate compliance with applicable State and Federal water quality standards for discharge or drainage.

c) Aquaculture proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

3) The Council also recommends that the following policies be considered in planning and research for aquaculture projects in the coastal zone:

a) Provision of comprehensive management plans for each aquaculture operation;

b) Encouraging research efforts for "passive aquaculture" as opposed to use of artificial impoundments, including:

i) fixed structure aquaculture (for example, setting supports and lines. This should be limited to open water areas where they can be placed on the periphery and not interfere with navigation);

ii) tray culture for clams;

- iii) penning areas for soft shell crabs;
- iv) trap culture for fish;
- v) bottom culture, to avoid navigational problems;
- vi) "agrarian" approaches, such as mechanized harvesters, seed beds, and restocking.

Management Authority

Any aquaculture activity that alters a critical area requires a permit from the Coastal Council. The Final Rules and Regulations for Permitting apply to the aquaculture activities which alter a critical area.

Outside of the critical areas in the coastal zone the Budget and Control Board permits uses of land below mean high water. Permit applications for aquaculture activities are subject to review and certification for coastal management program compliance by the Coastal Council. This certification authority extends to permitted impoundments or any other activity requiring a Board permit.

The Department of Health and Environmental Control and the Department of Wildlife and Marine Resources have regulatory authority over the health and living marine resource management aspects, respectively, of aquaculture. In addition, the Wildlife and Marine Resources Department leases coastal bottoms for shellfish production. This regulatory authority must be administered in compliance with the approved coastal management program and the Coastal Management Act. The Council is granted enforcement authority for such compliance by the Act.

IV. COMMERCIAL DEVELOPMENT

Findings

The increasing number of commercial activities in the coastal zone is an integral part of growth. As population density increases, the commercial activities associated with residential and industrial development and coastal recreational activity will constantly expand to serve the varied needs of the people who live in and visit the coastal zone. South Carolina follows the typical pattern of higher population densities along the immediate coast than inland. In addition, the South Carolina beaches and barrier islands attract large numbers of visitors each year.

When evaluating the impacts associated with commercial activity, both the large-scale development and the cumulative effect of many small activities must be carefully considered. Commercial development requires not only buildings but also roads, parking lots, storm drain systems, water treatment facilities, etc., all of which have potential negative impacts. For example, increased development of buildings in flood prone areas or storm hazard areas which are not constructed adequately can raise the flood height and increase the loss of life and property. Disturbance of the natural drainage system by excessive clearing of vegetation, large areas of impermeable surfacing, etc. can cause soil erosion, sedimentation, contamination of coastal waters and a lowering of the water level in freshwater aquifers.

The solution to these and many other varied problems and potential negative impacts is not to stop development. Instead, the encouragement of certain types of construction, site preparation, and development

standards can allow coastal resources to function naturally and regenerate themselves. In this way, commercial development which the people need and want can take place with minimum negative effects on coastal resources. Because much of South Carolina's coastal zone is still undeveloped, the State has a unique opportunity to develop in the least disruptive manner.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

- a) "Nonwater-dependent structures such as parking garages, apartments, restaurants, and shops have been built in the past on pilings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are available should consideration be given towards approval of the proposed structure." (R.30-12(M))
- b) "Nonwater-dependent structures such as commercial and residential buildings have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternative exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged." (R.30-13(D))

2) In the coastal zone, Council review and certification of permit applications for commercial buildings will be based on the following policies:

- a) For locations immediately adjacent to the shoreline, the water dependent nature of the activity must be demonstrated. Water-dependent is interpreted here to include activities which functionally require access to the shoreline, for example, ship and boat repair or fishing; or economically are significantly enhanced by proximity to the shoreline, for example, motel or restaurant activities.
- b) Commercial proposals which require dredge, fill or other alteration of salt, brackish or freshwater wetlands will be denied unless no feasible alternatives exist. Since these wetlands are valuable habitat for wildlife and plant species and serve as hydrologic buffers, providing for storm water run-off and aquifer recharge, commercial development is discouraged in these areas. The cumulative effect of the commercial activity which exists or is likely to exist in the area should be considered.
- c) Location of new commercial development in riverine and coastal areas where flooding has been a recurring, serious problem is discouraged. Within the 100-year flood plain of coastal waters, commercial development must meet the existing Federal Insurance Administration (Department of Housing and Urban Development) national building standards. Inclusion of buffer areas and protection of salt, brackish and freshwater wetlands will help absorb flood water surges and is encouraged in commercial development plans.
- d) Drainage plans and construction measures for commercial development should be designed to lessen or eliminate erosion, water quality degradation and other negative impacts on adjacent waters and wetlands, for example, through buffering and filtering run-off water, use of naturally vegetated and permeable surfaces

rather than paving to the extent feasible, and grass-ditching and surface drainage rather than direct storm-water discharges. Policies or techniques developed at the local level as part of the Areawide 208 Water Quality Planning Process should be implemented through the management of major new commercial developments.

e) Adequate sewage disposal systems (septic tanks or treatment systems), meeting Federal Environmental Protection Agency, South Carolina Department of Health and Environmental Control, and local health department standards must be provided in new commercial development.

f) Shorefront commercial development that limits public access is discouraged. Developers of commercial property on immediate beach or river-front are urged to provide some area for general public use in their plans.

g) Commercial development proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC. Commercial development which will significantly impact one of the following aspects of quantity or quality of these valuable coastal resources is discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation
or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation

of environmental quality in these areas;

- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

Management Authority

Any commercial activities and associated development which alter a critical area require a permit from the Coastal Council. Commercial buildings and structures must meet the requirements of the Final Rules and Regulations for Permitting to obtain a Council permit.

Outside of the critical areas in the coastal zone the Budget and Control Board has permit authority over the use of land below mean high water for any activity, including commercial developments. Council review and certification of these permits pursuant to Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act is based on the preceding coastal management policies. Similarly, permits required for certain air pollution, sewage treatment or other associated support facilities by the Department of Health and Environmental Control are also subject to Council review and certification.

V. RECREATION AND TOURISM

Recreation is physically and mentally important for people of all ages. As the leisure time of Americans continues to increase, recreation becomes an even more significant aspect of our daily lives. With expanding growth and development, the availability of open space or natural areas and of locations with adequate recreational facilities or equipment becomes a larger concern.

"More than half of all Americans vacation on the coasts and with current population trends, this use of the coasts will no doubt continue to expand." (Ketchum, The Water's Edge, 1975, pp. 12-13). Intensive studies in the early 1960's by the Outdoor Recreation Resources Review Commission indicated that 44% of outdoor recreation participants favored water-based activities over any others. Swimming, boating and fishing were ranked the highest. (U. S. Department of Commerce, NOAA, OCZM, Coastal Recreation Handbook, January, 1976).

Recreation is most certainly a booming coastal industry in South Carolina. There are a wide variety of recreational opportunities ranging from swimming, sailing and sport fishing to observing wildlife or scenic vistas. There are intensive amusement park-type recreational activities such as those of the Myrtle Beach-Grand Strand area. And there are opportunities for more passive, contemplative recreation, such as walking or sitting alone on a wide expanse of beach. There are potential conflicts between these types of recreation and, hopefully, there will always be some of each type available to both citizens of South Carolina and her visitors. (Problems of Beach and Shoreline Access will be discussed specifically in another segment of the final management program draft.) The inevitable increasing demand for recreation in the coastal area makes the following policies for management of

recreational resources even more vital to the future of South Carolina's coastal zone.

A. PARKS (AND OPEN SPACES)

The following State objectives as expressed in the State Comprehensive Outdoor Recreational Plan, 1970/1984, by the S. C. Department of Parks, Recreation and Tourism, have been incorporated by the Coastal Council.

To establish State recreation regions and districts and create a hierarchy of recreation facility types to serve a wide range of recreation needs for urban centers, counties and non-residents.

To relate recreation land needs to other Statewide land needs with special relationships to urban/ industrial areas and those of significant natural and historic value.

To safeguard the ecological balance of recreation areas.

To aid the development of the cultural potential of South Carolina by developing its historic heritage and unique natural attractions for the enjoyment of residents and non-residents.

To create pleasure driving, sightseeing, horseback riding, hiking and pedal cycle routes and provide methods for their aesthetic protection and improvement.

To establish special facilities for the handicapped and senior citizens in existing and new locations.

Policies

(A number of State parks in the coastal zone have been identified as Geographic Areas of Particular Concern (GAPC) because of their unique value as natural areas and as important recreational use areas. The priority of uses for these specific parks is addressed in the GAPC segment of the management program document.)

1) Any park facilities which would require construction or alteration of a critical area would be reviewed for a Council permit on the basis of the Rules and Regulations for that particular type project, for example, dock and pier, or walkway. It is not expected that filling of wetlands or other alterations of critical areas would be involved with the general location aspects of park areas.

In critical areas of the coastal zone, it is Council policy that:

Applicants for Council permits for any development contiguous to publicly-owned or operated parks shall be called upon to demonstrate no significant interference or damage to recreational uses or natural resource values.

2) In the coastal zone, Council review and certification of park projects will be based on the following policies:

- a) Water-dependent recreational uses will be given priority consideration over other types of recreational development in locations immediately adjacent to shoreline, wetlands or open water. For example, boating or swimming oriented parks would be considered water-dependent and receive priority over golf courses or tennis courts.
- b) Parks and open spaces are preferred uses in wetland areas, flood prone areas, beaches, and other environmentally significant or sensitive natural areas, with due consideration for types and intensity of development which reflect the "carrying capacity" of the area, and therefore, do not destroy or disrupt natural systems.

c) Park plans and designs should incorporate the following design where appropriate:

- i) preservation of a maximum of existing natural vegetation and open space,
- ii) maximum use of permeable surfaces (rather than paved surfaces),
- iii) provision of adequate parking (based on "carrying capacity" of the park) or alternative transportation access,
- iv) construction methods that mitigate erosion and other environmental damage.

d) Park proposals with potential negative impacts on other Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

e) Park proposals with potential negative impacts on the following aspects of quantity or quality of these valuable coastal resources are discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
- ii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends the following policies be considered in the planning and design of parks and open space areas in the coastal zone:

- a) Provision of nature interpretation areas and nature-oriented facilities;
- b) Park structures and facilities which provide for elderly and handicapped visitors;
- c) Provision of new scenic vistas to the ocean, beaches, wetlands and other natural areas, and protection and enhancement of existing scenic areas;
- d) Consideration of energy use, with preference to non-motorized recreational access and activities;
- e) Analysis of the recreational potential of surplus State and Federal lands;
- f) Cooperative local, State and Federal efforts to maintain superior air and water quality in and near valuable recreational resource areas.
- g) Maintenance of a nominal cost or fee charged for use of public recreational facilities.
- h) Encouraging park development along utility easements and abandoned rights-of-way, and on dredge material disposal areas - especially intensive-type or active parks since these are areas of previously altered natural environment.
- i) Structures which are visually compatible with natural surroundings, in terms of scale, building materials, color, etc.

Management Authority

The Coastal Council has direct permitting jurisdiction over any proposed park facilities located in the

critical areas -- waters, wetlands, beaches, primary sand dunes. This is a very important aspect of park management since recreation at the water's edge is expected to be the most significant recreational demand.

Outside the critical areas, but within the coastal zone, the Department of Parks, Recreation and Tourism (PRT) will cooperate in implementation of the preceding policies of the Coastal Management Program. PRT is the lead State agency with respect to the development and maintenance of the State park system. The Memorandum of Agreement between these two agencies confirms and outlines this cooperative recreational planning effort, as mandated in Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act.

Where any part of a proposed recreational area outside of critical areas will involve encroachment below mean high water (MHW) a permit would be required from the Budget and Control Board. These permits are reviewed and certified by the Coastal Council for their compliance with the coastal program.

The majority of public recreational facilities in the coastal zone (as throughout the State) will be financed in full or in part by the U. S. Department of the Interior, Heritage Conservation and Recreation Service. These project proposals will be subject to A-95 review as well as the Federal consistency provisions of the coastal program.

MARINAS, BOAT RAMPS, and DOCKS and PIERS

Findings

Marinas are facilities that provide boat launchings, storage, moorage, supplies and service. They along with ramps and docks and piers support an important form of water-dependent recreation and by definition must

locate along shorefront areas. Recreational boating is a significant economic enterprise, as well as a leisure time activity for its participants.

All marinas, boat ramps, and docks and piers will affect aquatic habitat to some degree, due simply to their location, the action of boats in the water and associated spills or discharges of oils and other waste materials. However, adverse effects can be minimized by utilizing proper location and design features.

B. MARINAS

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:
 - a) "Marinas should be located in areas that will have the least adverse impact on wetlands, water quality, wildlife and marine resources, or other critical habitats;
 - b) Marinas should not be located within 1,000 feet of open productive shellfish harvesting areas;
 - c) Marinas should be located in areas where maximum physical advantages exist and where the least initial and maintenance dredging will be required;
 - d) Marinas should avoid or minimize the disruption of currents;
 - e) Marina design should minimize the need for the excavation and filling of shoreline areas;
 - f) Open dockage extending to deepwater should be considered as a preferable alternative to the excavation of boat basins;

- g) Turning basins and navigation channels shall be designed to prevent long-term degradation of water quality. Dead-end or deep canals without adequate circulation should be avoided. For example, the depth of boat basins and access canals shall not exceed that of the receiving body of water;
- h) Project proposals shall include facilities for the proper handling of petroleum products, sewage, litter, waste, and other refuse with regard to the South Carolina Department of Health and Environmental Control (DHEC) specifications.

The following minimal on-shore restroom and shower facilities will be required as a condition of any marina permit so as to protect water quality of the affected waters.

No. Slips or Moorings	Toilet (Head)		Urinals	Lavatories		Showers	
	Men	Women		Men	Women	Men	Women
1 - 20	1	1	1	1	1	1	1
21 - 40	1	2	1	2	2	2	2
41 - 60	2	3	2	2	2	2	3
61 - 80	3	4	2	3	3	3	3
81 - 100	4	5	3	3	3	3	3

If there are more than 100 slips, there shall be provided one additional toilet (head), lavatory and shower for each sex for each additional 40 slips or fraction thereof and one additional men's urinal for each 100 additional slips or fraction thereof.

Additional facilities are required by DHEC where restaurants, motels, laundries, and other non-water dependent structures are provided.

()

All pump-out and sewage facilities should be included in the public notice and certified by DHEC before permit approval. Also, DHEC can provide advice regarding the necessity of having hose connections from boats to shore-based sewage facilities where these boats are used as residences.

Trash receptacles or similar facilities should be plentiful and convenient for the proper disposal of trash, waste and noxious materials such as paints, rags and oil cans required for normal boat maintenance and repair.

Boat maintenance areas should be designed so that all bottom scraping and painting be accomplished over dry land allowing for proper control and deposition of residues, spills and storm water runoff.

i) Dry storage type marinas should be encouraged wherever possible;

j) Applications for construction of marina and commercial dock facilities will be considered by the Council only after demonstration by the applicant of public demand for the facilities.

k) Applications for marinas should include maintenance dredging schedules and dredged material removal sites when applicable." (R. 30-12 (E) (a-k))

2) In the coastal zone, Council review and certification of permit applications and marina proposals will be based on the following policies:

a) Marinas are encouraged in areas that will have the least adverse impact on salt, brackish or

freshwater wetlands and water quality.

- b) Marinas should be located in areas where maximum physical advantage exists and where the least initial and maintenance dredging will be required.
- c) Marinas should avoid or minimize the disruption of currents. Dead-end or deep canals without adequate circulation or tidal flushing should be avoided in order to promote better water quality.
- d) Marina designs which minimize the need for excavation and filling of shoreline areas are encouraged.
- e) Provision of facilities for the proper handling of petroleum products, sewage, litter, waste and other refuse must be made in new marinas, with regard to South Carolina Department of Health and Environmental Control (DHEC) specifications.
- f) Marina proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- g) Marina proposals which would negatively impact one of the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas - destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;

- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following policies be considered in marina location and design:

- i) Adequacy of transportation access from landward side,
- ii) Adequacy of parking facilities,
- iii) Upland facilities which are compatible with and enhance recreational boating opportunities.

Management Authority

In critical areas of the South Carolina coastal zone, permits are required from the Coastal Council

for all new marina projects, including associated dredging and construction of docks, piers or other structures. (The Council's direct permit responsibility is explained in detail in the legal analysis in the Implementation Authorities segment of the management program document.)

Beyond the critical areas, the creation of new marinas in the coastal zone is subject to the permit requirements of the Budget and Control Board for activities below mean high water (MHW). These permits are subject to the provisions of Sections 7(A) and 8(B)(11) of the 1977 Coastal Management Act by which the Coastal Council reviews and certifies each permit application in the coastal zone for compliance with provisions of the coastal program.

Permits may also be required from the Department of Health and Environmental Control (DHEC) if sewage treatment facilities are included as part of a marina project proposal or if 401 Water Quality Certification is required. Permits issued by DHEC in the coastal zone are subject to review and certification by the Coastal Council.

Marina facilities also require permits pursuant to certain Federal statutes which receive review and comment by the Coastal Council and its staff and will be subject to the Federal consistency provisions of the South Carolina coastal management program.

C. BOAT RAMPS

Policies

- 1) In critical areas of the coastal zone it is Council policy that:

- (1)
- a) "Boat ramp construction materials should consist of environmentally acceptable materials such as concrete or oyster shell. Environmentally unacceptable materials include, but are not limited to, asphalt roofing shingles, asphalt, and rubble;
 - b) Justification for boat ramp construction in environmentally sensitive areas shall be considered using the following priorities:
 - i) public use - open to all citizens,
 - ii) restricted use - open to citizens of a particular area or organization only,
 - iii) private use - use for one citizen or family;
 - c) In cases where private use is necessary, siting of ramps should be in areas where the least environmental impact will accrue to that area. Locations requiring dredging of productive wetlands to provide deep-water access to the ramp are discouraged;
 - d) The siting of "public use" boat ramps is encouraged in easily accessible areas such as bridges and deadend causeways." (R. 30-12(B) (a-d)).

- 2) In the coastal zone Council review and certification of applications for boat ramps will be based on the following policies:

a) Filling of productive salt, brackish, or freshwater wetlands for boat ramp construction is discouraged, and will only be approved when no feasible alternatives exist in adjacent non-wetland areas.

b) The following priorities are considered when justifying boat ramp location in sensitive

areas:

i) public use - open to all citizens,

ii) restricted use - open only to citizens of a particular area or organization,

iii) private use.

c) Boat ramps with potential negative impacts on Geographic Areas of Particular Concern (GAPC)

will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

d) Proposed boat ramps which would significantly impact one of the following aspects of quantity or quality of these valuable coastal resources are discouraged:

i) unique natural areas -- destruction of endangered wildlife or vegetation
or of significant marine species (as identified in the Living Resource segment),

degradation of existing water quality in the area;

ii) public recreational lands -- conversion of these lands to other uses without
adequate replacement, interruption of existing public access, or degradation of
environmental quality in these areas;

- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends the following policies be considered in location and design of public boat ramps in the coastal zone:

- (1) Provision of adequate transportation access from the landward side;
- (2) Provision of adequate parking;
- (3) Incorporation with other public recreational and boating facilities to improve recreation opportunities;
- (4) Adequate facilities, for example, trash receptacles, restrooms, drinking water fountains, lighting;
- (5) Provision for continuing maintenance.

Management Authority

In critical areas of the coastal zone, a permit from the Coastal Council is required for any

boat ramps which are proposed. (All boat ramps must involve filling in periodically inundated areas, in fact, below mean high water, in order to provide boats with access to the water. This filling is defined by the South Carolina Coastal Management Act as an alteration to a critical area - in this case, tidelands and/or coastal waters).

Boat ramps located in other than critical areas of the State are subject to permit requirements of the Budget and Control Board for activities on State-owned submerged bottoms (below MHW). In the coastal zone, these permit applications are also reviewed and certified by the Coastal Council for consistency with the coastal management program, pursuant to Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act.

In some areas a Federal agency permit may be required. These permit applications must be reviewed and certified by the Coastal Council and are subject to Federal consistency provisions.

D. DOCKS AND PIERS

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:
 - a) "Docks and piers shall not impede navigation or restrict the reasonable public use of waters;
 - b) Docks and piers shall be constructed in a manner that does not restrict waterflow;
 - c) The size and extension of a dock or pier should be limited to that which is reasonable for the intended use;

- d) To preclude the adverse effects of shading marsh vegetation, walkways which are built over vegetated marsh and lead to the dock or pier shall not exceed four feet in width (unless the applicant can justify a need for a wider structure) and should be elevated at least three feet above mean high water;
- e) Dry storage in uplands will be encouraged in preference to moorage in crowded areas;
- f) Developers of subdivisions, motels, and multiple family dwellings will be encouraged to develop single, joint-use moorage facilities while their plans are in the development stage.
- g) Project proposals shall include facilities for the proper handling of litter, waste, refuse, and petroleum products, where applicable;
- h) Where docks and piers are to be constructed over bottoms under lease by the State for shellfish culture or other mariculture activity, the Council will consider rights of the leasee prior to approval or denial." (R.30-12 (A) (a-h))

2) In the coastal zone, Council review and certification of dock and pier proposals will be based on the following policies:

- a) Docks and piers will not be approved where they interfere with navigation or reasonable public use of the waters.
- b) Docks and piers should not restrict waterflow or circulation, in order to maintain existing hydrologic characteristics and water quality.

- ()
- c) Docks and piers must be limited to a reasonable size and extension for the intended use.
 - d) Docks and piers should be located and designed to minimize disruption and shading out of salt, brackish or freshwater marsh vegetations.
 - e) Docks and piers with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
 - f) Docks and piers which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional

examination and/or excavation, or preservation.

3) The Council also recommends that the following policies be considered in location and design of docks and piers:

a) Developing joint-use or community piers in future subdivisions rather than the proliferation of individual structures;

b) Use of construction materials which are easily maintained and repaired, for safety and aesthetic considerations.

c) Attention be given when property is subdivided to provide waterfront lot-owners with riparian access, so that conflicts over the alignment of docks or piers will be avoided.

Management Authority

A permit directly from the South Carolina Coastal Council is required for docks or piers in the critical areas of the coastal zone. The Rules and Regulations governing permitting and the process specified therein are applied to docks and piers.

Outside the critical areas, a permit from the Budget and Control Board is required for activities involving State-owned submerged bottoms (below mean high water), including docks and piers. The Coastal Council reviews and certifies these permit applications in the coastal zone for their compliance with the coastal

management program, based on the preceding policies, as mandated by Sections 7(A) and 8(B)(11) of the Coastal Management Act.

Docks and piers may also be subject to Federal agency permit authority based on Section 10 of the Rivers and Harbors Act and Section 404 of the Federal Water Pollution Control Act. The Coastal Council is involved in review and certification of such permit applications.

(Private docks and piers which meet certain size specifications are covered under the provisions of a general permit to the citizens of South Carolina from the U.S. Army Corps of Engineers. This is discussed in detail in the appendix on permitting which is a later segment of the program document.)

E. WILDLIFE AND FISHERIES MANAGEMENT

The Coastal Council in conjunction with the Wildlife and Marine Resources Department is preparing an extensive "Living Marine Resource" segment for the management program. Policy development for wildlife and fisheries management activities in the coastal zone will be based on the data research, and conclusions and recommendations of this study which is scheduled for completion in fall, 1978.

F. ARTIFICIAL REEFS

The Coastal Council, in conjunction with the Wildlife and Marine Resources Department is preparing an extensive "Living Marine Resource" segment for the management program. Policy developments for the construction and operation of artificial reefs in the coastal zone will be based on the data, research, and conclusions and recommendations of this study which is scheduled for completion in fall, 1978.

G. COMMERCIAL RECREATION (tourist attractions, including but not limited to amusement parks, boardwalks, and theme parks)

Findings

Commercial recreation or so-called "tourist attractions" are a significant economic enterprise and contribute to the success of many coastal areas in appealing to vacationers and travelers. While their construction and operation may be debatable for public safety or aesthetic reasons, these are primarily of local concern, in terms of local plans and building codes.

Commercial recreation facilities are of State-level coastal management concern only when they might alter a critical area, disrupt public access or significantly degrade water quality or other environmental factors. Observance of the following policies can ameliorate or reduce these possible negative impacts of tourist activities.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

"a) Nonwater-dependent structures such as parking garages, apartments, restaurants, and shops have been built in the past on fillings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are available should consideration be given towards approval of the proposed structure.

b) Nonwater-dependent structures such as commercial and residential buildings have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternatives exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged."

(R. 30-12(M) and 30-13(D))

2) In the coastal zone, Council review and certification of permits for commercial recreation will be based on the following policies:

- a) Proposals which include dredging, filling, or other significant alteration of productive salt, brackish or freshwater wetlands will not be approved unless no feasible alternatives exist.
- b) For locations immediately adjacent to the shoreline, the water-dependent nature of the project should be demonstrated, particularly if adjacent wetlands or water bodies will be significantly impacted.
- c) Construction methods and design features which minimize the possible degradation of adjacent water quality from erosion or stormwater drainage are encouraged, for example, use of silt screens and curtains, berm and swale drainage systems rather than direct discharge, and maintaining permeable surfaces rather than extensive pavement as much as possible.

- d) Commercial recreation centers must demonstrate compliance with applicable State and Federal standards for sewage treatment facilities.
- e) Commercial recreation facilities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- f) Commercial recreation activities which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation
or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in
the area;

- 3) Further, the Council recommends that the following policies be considered in planning for tourist attractions in the coastal zone:
- a) Minimizing negative aesthetic impacts, for example, disruption of scenic vistas or significant alteration of the character of an area;

- b) Development of local planning and zoning controls which address the location and design of tourist attractions;
- c) Locating tourist activities in areas convenient to existing population centers rather than placement in remote areas which may encourage strip-development.

Management Authority

The South Carolina Coastal Council has direct permit authority over any activity in the critical areas of the coastal zone, including tourist-oriented or commercial recreation facilities. Therefore, the proposed construction of such structures on beachfront or primary dunes or in wetland areas is subject to permit requirements of the Council. Possible impacts on the critical areas are the major concern of these tourist developments.

In the rest of the eight county coastal zone, State permits are required from the Budget and Control Board for construction below mean high water (MHW). These permits are reviewed and certified by the Coastal Council for their compliance with policies of the coastal management program. This review and certification authority is mandated by Sections 7 (A) and 8 (B) (11) of the South Carolina Coastal Management Act of 1977.

The Department of Health and Environmental Control permits certain aspects of facilities open to the public, including sewage systems and other sources of environmental pollution. These permit applications are subject to the review and certification process of the Coastal Council.

In some cases where dredge or fill in waters or wetland areas would be required, such commercial recreation areas are under the jurisdiction of Federal permit authority on the basis of Sections 10 of the Rivers and Harbors Act and 404 of the Federal Water Pollution Control Act of 1972, as amended. These permits are subject to the Federal consistency provisions of the coastal management program, and to the review and certification process of the Council.

VI. DREDGING

Findings

Dredging is the removal of sediments from waterways or wetland areas for the purposes of maintaining or deepening and extending navigable channels, harbors or marinas; for laying cables or pipelines; or for obtaining suitable fill and construction material (sand and aggregate). All of these activities may at times be necessary, economically justified projects in coastal areas, but there also are potential negative impacts associated with dredging. These impacts may present conflicts not only with preservation of environmental quality, but with other economic interests dependent on the same resources - for example, shellfishing and recreational boating, both dependent on good water quality.

The most obvious effect is direct destruction of the natural habitat provided in submerged bottoms or coastal wetlands, the importance of each of these resources being increasingly recognized (Chapter I (C) and Chapter III (C) (4) of the program document). In addition, the removal, transportation and consequent disposal of these sediments can result in problems of siltation, increased turbidity and pollution which degrade water quality.

Marine and estuarine organisms may be severely impacted with uncontrolled dredging. Perhaps the most vulnerable life forms are oysters, because they are sedentary creatures. "A deposit of 1/20 inch of silt or shell or rocks from dredging is enough to make attachment impossible for young oysters", (Clark, John C. Coastal Ecosystem Management, p. 93). Harvesting of oysters is a significant recreational as well as commercial fishing enterprise in the South Carolina lowcountry.

Dredging upstream, beyond the reach of saline or brackish waters (defined in the South Carolina Coastal Management Act as "critical areas") also can have significant negative impacts on estuarine areas. Since freshwaters drain into the estuary, their quality and quantity play important roles in the function of the estuarine system.

Disposal of the dredged material is another major concern. The need for providing adequate disposal areas is vital to maintaining navigation in the S. C. coastal zone, while avoiding potential environmental impacts. For example, suitable upland disposal sites would be necessary for a channel deepening project as an alternative to disposal in adjacent waters or wetlands.

Underwater salvage is a very specialized activity, which would only have significant impacts in coastal waters if dredging were associated with a particular salvage operation. Therefore, the concerns and policies for this activity are limited in nature.

The need exists for maintaining navigational access in the coastal zone, for both commercial shipping and recreational boating. Pipeline and cable construction also meet economic needs, for commercial, industrial and residential growth. But serious environmental consequences present a potential problem and make the following policies for dredging, dredge material disposal and underwater salvage vital for South Carolina's Coastal resources.

A. DREDGING

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:

- "a) Dredging for public projects in wetland areas should be undertaken only if that activity is water-dependent and there are no feasible alternatives;
- b) Dredge activities should be restricted in nursery areas, in public and private shellfish grounds; during periods of migration, spawning, and early development of important sport and commercial species;
- c) Dredging and excavation shall not create stagnant water conditions, lethal fish entrapments, or deposit sumps or otherwise contribute to water quality degradation;
- d) Designs for dredging and excavation projects shall, where reasonable, include protective measures such as silt curtains, diapers, and weirs to protect water quality in adjacent areas during construction by preventing the dispersal of silt materials;
- e) Dredged materials shall be deposited and contained in such a manner so as to prevent dispersal into adjacent wetland areas;
- f) In general, excavation of materials from productive submerged and wetland areas for fill purposes shall be denied;
- g) Wetlands shall not be utilized as depositories for waste materials except as discussed in R.30-12 (I).
- h) A specialized form of dredging activity involves the creation and maintenance of navigation channels and access canals. These activities have a potential for severe environmental impacts and should meet a demonstrated public need.
- i) To the extent feasible, project plans should utilize piers or catwalks, rather than channels or

"canals, to reach deeper water areas.

j) Access canals shall be designed to insure adequate flushing and shall not create dead-end water or stagnant pockets. Open-ended, U-shaped, or semicircular canals are generally preferred over dead-end canals, since they usually provide better water circulation;

k) Highland waterway construction that is slated to be tied into wetland areas should be constructed in the dry, if possible, so that sloping and stabilization of the banks can be completed before the plug is removed for the connection to open waters. Where dry construction is not possible, temporary plugs or silt curtains at the end of canals connected to waterways should be maintained until all sediment settles out;

l) The sides of navigation channels and access canals should be gently sloping rather than vertical to facilitate biological as well as physical stabilization of the canal banks;

m) When several landowners are to be served by a project, dredging for navigation channels and access canals should be well planned to prevent unnecessary excavation. Tributary canals in the highlands leading to a central navigation channel should be utilized rather than separate channels for each waterfront landowner;

n) The berm of access canals should be raised so that there is a gradual slope away from the canal edge. This will help prevent introduction of contaminants into adjacent wetland areas;

o) Alignment of channels and canals should make maximum use of natural or existing channels. Alignment of channels and canals should avoid shellfish beds, nursery areas, and spawning areas in highly productive wetlands." (R. 30-12(G) and (D))

- 2) In the coastal zone, Council review and certification of permit applications for dredging projects will be based on the following policies:
- a) To the extent feasible dredging should be performed only during closed shell fishing season, and when there are no major migrations of other significant marine resources through the area.
 - b) Suspended sediments should be kept to a minimum through use of weirs, silt curtains, etc. to minimize water quality degradation. Where highly toxic sediments are encountered, dredging will be discouraged.
 - c) Dredging should not reduce water circulation, water currents, mixing, flushing or salinity in the immediate area.
 - d) Dredging for establishment of new canals should not go through or across valuable wetland habitats, especially for the purposes of creating waterfront lots from inland property and for creating dead-end canals.
 - e) Dredging activities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
 - f) Dredging activities which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water

quality in the area;

- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

Management Authority

In the critical areas of the coastal zone, a permit from the Coastal Council is required for any dredging activity. The Final Rules and Regulations of the Council (Appendix) outline the conditions that must be satisfied for such permits to be issued.

Outside of the critical areas of the coastal zone, the Budget and Control Board has permit authority for dredging activity below mean high water. The Coastal Council must review and certify applications to the Budget and Control Board as being in compliance with the preceding policies, as mandated by Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act, and as outlined in the Memorandum of Agreement between the two agencies.

In certain locations, permits from Federal agencies will be required for dredging operations. The Council will review and certify these permit applications for their consistency with the coastal program.

B. DREDGE MATERIAL DISPOSAL

Policies

1) In critical areas of the coastal zone, it is Council policy that:

"a) Upland disposal of dredged material should always be sought in preference to disposal in wetlands. Where upland disposal is not possible, areas of relatively low productivity above the mean high water mark should be utilized. Highly productive wetland areas or bottoms situated below the mean high water mark should not be utilized for disposal of dredged materials when other alternatives exist;

b) Open water and deep water disposal should be considered as an alternative if highland alternatives are not feasible. However, open and deep water disposal sites should be seriously considered only after careful consultation with the Council and other relevant State and Federal agencies;

c) Toxic and highly organic materials should be disposed of in highland areas behind impervious dikes;

d) Dikes surrounding disposal areas should be shaped and vegetated immediately to minimize erosion, with outfalls positioned to empty into non-wetland areas;

e) Future disposal sites shall be reviewed on a case-by-case basis;

"f) Existing disposal areas should be utilized to the fullest extent possible; this would include raising the height of the embankment to increase the holding capacity of the disposal area;

g) In evaluating potential sites for dredged material disposal, attention must be given to possible "adverse impacts on public health and welfare as well as on critical fish and wildlife areas such as endangered species habitats, waterfowl wintering areas, and shellfish harvesting areas." (R.30-12(U))

2) In the coastal zone, Council review and certification of permit applications and dredge material disposal projects will be based on the following policies:

a) To the extent feasible, spoil should not be placed on high value natural habitats such as salt, brackish or freshwater wetlands; submerged vegetation; oyster reefs; tidal guts, etc. Where upland disposal is not possible, areas of relatively low productivity should be utilized.

b) Upland dredge material disposal sites should be stabilized and maintained to prevent erosion and direct water run-off.

c) Where water disposal is necessary, natural channels and existing water circulation should not be blocked with dredge material. Spoil deposition in water areas of higher flushing rate will decrease damage due to suspended sediments and oxygen depletion.

d) Consideration should be given to the temporal aspects of spoil deposition, such as impacts

on spawning seasons, fish migrations and other biological factors.

e) Dredge disposal proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

f) Dredge material disposal which would significantly impact the following aspects of quantity or quality of these valuable coastal resources is discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water quality in the area;
- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following policies be considered in planning for dredge material disposal:

- a) Consideration for future maintenance of the spoil area, for example, development of spoil is-lands which have been found to be beneficial for terrestrial habitat and migratory waterfowl.
- b) Abandoned sand or gravel pits in proximity to a dredge site, where spoil can be more adequately contained, should be used for disposal areas.
- c) Consideration for reuse of spoil disposal sites, such as development of public parks or recreational areas.
- d) Consideration for the mining of spoil areas so as to extend their life expectancies.
- e) Prior to major dredging projects, the economic and environmental feasibility for alternative use of the dredged material should be studied. The physical and chemical characteristics of the spoil should be determined in order to decide the most appropriate disposal options. Spoil suitable as fill material for residential, commercial or industrial development should be utilized for such uses. Spoil shells can be used to stimulate oyster production or for dike construction. Beach renourishment and spoil disposal are related issues and should be addressed concurrently.

Management Authority

In the critical areas of the coastal zone, the Coastal Council has direct permitting authority for

location of disposal sites for dredged material.

Outside of the critical areas in the coastal zone, the Budget and Control Board has permitting authority for dredged material disposal sites which are below mean high water. Permit applications to the Budget and Control Board are reviewed and certified by the Coastal Council as being consistent with the Coastal Management Program, as mandated by Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act.

In most areas a Federal agency permit will be required for dredge material disposal. Permit applications to appropriate Federal agencies must be reviewed and certified by the Coastal Council, under Federal consistency provisions of the coastal management program.

C. UNDERWATER SALVAGE

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:
Any dredging associated with a salvage operation will be subject to the policies for dredging, as expressed in the Rules and Regulations for Permitting, R.30-12(G), and VI (A)(1) of this section.
- 2) In the coastal zone, Council review and certification of underwater salvage permits will be based on the policies for dredging activities when applicable, VI (A)(2), p. 107.

Management Authority

Underwater salvage operations are subject to the permitting authority of the Coastal Council if such operations will alter or disturb a critical area. If such operations will not alter or disturb a critical area of the coastal zone, the Institute of Archeology and Anthropology controls such operations through a permitting program. Application for such permits will be reviewed and certified for consistency with the Coastal Management Program, as mandated by Sections 7(A) and 8(B)(11) of the South Carolina Coastal Management Act.

Outside of the critical areas in the coastal zone, underwater salvage operations may be subject to Budget and Control Board authority, in addition to the Institute of Archeology and Anthropology. Council review and certification of permit applications to the Budget and Control Board are required.

In some areas a permit for underwater salvage operations may be required by a Federal agency. Applications for these permits must be reviewed and certified by the Coastal Council.

VIII. PUBLIC SERVICES AND FACILITIES

Findings

The range of services and facilities provided by the public sector continues to increase with growing population and complexity of life-styles, especially in urbanized areas. In many instances, consideration of economics, efficiency or environmental constraints have led the way to government provision of these services, for example, sewer and water services which are very expensive for private concerns to construct and maintain. Individual systems such as wells and septic tanks are adequate where development is limited, but can have major environmental impacts in densely populated areas. For example, a proliferation of wells in some areas can seriously draw-down or drain the aquifer, reducing the groundwater resources, and possibly resulting in saltwater intrusion.

The continuing commercial and industrial expansion of the coastal zone in South Carolina will mean increasing populations which demand new and improved services. As rural areas are developed, the need to extend services to these areas will grow. The full range of public services must be supplied in order to provide for the needs of coastal residents, maintain economic interest to stimulate badly needed jobs, and at the same time conserve the environmental quality of coastal resources.

There also are potential negative impacts from these public facilities if they are not adequately planned and managed. Several activities are addressed under other headings, by specific type of activity, for example, recreation and transportation. For this section, public facilities include the following:

- A. Sewage treatment
- B. Solid waste disposal
- C. Public/Quasi-public buildings
- D. Dams and reservoirs
- E. Water supply

In South Carolina's coastal zone, many of the benefits and the potential negative effects of provision of public services have not yet been felt because growth was relatively slow in the past and most of the coastal zone is rural and undeveloped. Thus the following policies for coastal management of public services definitely will effect the future. In this State there is a unique opportunity to encourage positive growth and development while preserving and protecting coastal resources.

- A. SEWAGE TREATMENT (treatment plants and associated transmission systems, lagoons, impoundments, and outfalls; septic tanks)

Findings

The provision of adequate sewage in coastal communities becomes increasingly important with growing populations and urban densities in order to protect public health and welfare, as well as environmental quality. The importance of these issues was stressed in the Federal Water Pollution Control Act Amendments

of 1972, which provided for Section 201 Facilities Construction Grants and 208 Areawide Waste Treatment Management planning.

Other than actual location of facilities in sensitive areas, the major negative impact associated with sewage disposal systems is potential water quality degradation from effluent discharge - either septic tanks or treatment plants. Septic tanks are only effective in treating sewage in areas where soils are suitable for proper drainage, where they are spaced adequately and where ground plus surface water are sufficient distance away. The provision of central treatment plants also can present environmental problems. Eventual disposal of the effluent or sludge may degrade the quality of coastal waters, and possibly disrupt wetland systems, recreational activities and fish and shellfish resources. The same issue involved in the laying of other pipelines can be present in construction of sewer transmission systems.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

a) "Normal repair and maintenance of sewer facilities are exempted from Council permit requirements by Section 13(D) of the Act. The discharge of treated effluent is also exempted provided, however, that the Council shall review and comment on these discharges. The Council is concerned primarily with wetland degradation problems which could involve commercially important shellfish, recreational fisheries, and critical wildlife habitats. Standards applicable to these installations are as follows:

- i) Applications for the construction of lagoons or impoundments for waste treatment facilities, and similar activities should be denied when adverse effects on productive tidelands will result;
- ii) Such facilities should not be constructed in or immediately adjacent to wetland areas and must be designed in such a manner that no effluent will be discharged into areas open for shellfish harvesting." (R.30-12(J))
- b) "Excavating activities in critical areas are sometimes required for the installation of transmission lines. These installations should be designed to minimize adverse environmental impacts. In addition to standards for dredging and filling, the following standards are applicable:
 - i) Creation of permanent open water canals to install pipelines is discouraged since such projects generally interfere with drainage patterns and may adversely affect water quality through accelerated bank erosion;
 - ii) Dimensions of excavated canals for cables and pipelines should be minimal. Silt curtains are recommended for all excavations;
 - iii) All excavations in wetland areas should be backfilled with the excavated material after installation of the appropriate structure, while being careful to maintain the original marsh elevation;
 - iv) The appropriate erosion control measures shall be employed during the crossing of

wetland areas. Where appropriate, revegetation with suitable wetland species will be required;

v) Alignments of new projects should be designed to utilize existing rights-of-way and topographic features wherever possible." (R.30-12(D)).

c) The Coastal Council will coordinate with the Department of Health and Environmental Control (DHEC) and the designated 208 Areawide Waste Management and 201 Construction Grants implementation agencies to ensure that protection of critical areas is given priority in their programs and that processes are developed to prevent adverse effects from sewage treatment facilities and discharges.

d) The Coastal Council will coordinate with the Department of Health and Environmental Control and local health departments or other implementing agencies to ensure that septic tank standards and regulatory enforcement are adequate to avoid adverse effects on critical areas.

2) In the coastal zone, Council review and certification of sewage treatment and disposal permit applications and projects will be based on the following policies:

a) Sewage treatment facilities and transmission systems in the coastal zone must meet applicable Federal, State and local construction and water quality standards. (The Federal and State standards will be

contained in appendices to the program document). Adopted, final 208 Areawide Waste Treatment Management Plans should be adhered to and supported in other planning efforts (local zoning, subdivision regulations, etc.)

- b) Construction of such facilities in productive salt, brackish or freshwater wetlands will not be approved where feasible alternatives exist. For locations adjacent to such sensitive habitats, priority consideration will be given to major public facilities over smaller, private package plants.
- c) Sewage treatment facilities should be constructed to limit effluent discharge into areas which are open for shellfish harvesting as much as possible. Construction of the facilities and associated transmission systems should be timed so as not to disrupt spawning seasons or migrations of significant marine resources.
- d) Outfall locations should consider water depth, circulation and mixing in order to protect water quality. Effluent should not be discharged into confined or poorly flushed estuarine areas.
- e) Sewage treatment plants with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- f) Sewage treatment plants which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water

quality in the area;

- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

g) Maximum study and analysis should be given to alternatives to conventional treatment methods, for example, land disposal, water conservation techniques, land application and overland flow.

h) The Coastal Council will coordinate with the Department of Health and Environmental Control and local health departments or other implementing agencies to ensure that septic tank standards and regulatory enforcement are adequate to protect coastal resources.

3) The Council also recommends that the following policies be considered in planning and design of sewage treatment facilities:

- a) Providing visual buffer areas around sewage treatment facilities;
- b) Private package treatment plants proposed in subdivision areas and other developments

should either be contained in the existing 208 Waste Treatment Management plan or receive 208 program approval before they are constructed;

c) Excess capacity in treatment facilities should not be approved unless the projects are contained in 208 plans and meet population projections for the area.

Management Authority

In the critical areas of the coastal zone, construction of any new structure or facility to treat sewage must be permitted by the Coastal Council. This authority extends to any placement of pipes, lagoons or other activity which alters a critical area. Normal maintenance and repair and actual effluent discharge are exempted, however, the Council has the opportunity for review and comment on these activities.

In the coastal zone outside of the critical areas, there is an overlap of State agency authorities for sewage treatment facilities. Both the Budget and Control Board and the Department of Health and Environmental Control have regulatory authority over several aspects of sewage treatment facility placement and operation, (discussed in detail in the Implementation Authorities chapter of the program document.) The permits of these agencies, whether issued jointly or independently, are subject to review and certification by the Coastal Council to ensure compliance with the preceding policies, as mandated by Sections 7(A) and 8(B)(11).

B. SOLID WASTE DISPOSAL

Findings

Solid waste disposal may be a crucial problem in the future, since about 9 pounds of solid waste is collected per day for each person in the U.S. (1972 data). In coastal areas where populations are concentrated, demand for disposal sites can be greatest while ecosystems are very fragile. The need for suitable upland disposal sites is clear since today it is recognized that productive wetlands are valuable habitat and should not be filled indiscriminately.

In addition to their direct loss from filling with solid wastes, wetland and lower flood plain dump sites have high potentials for causing water pollution. In these areas there is a high rate of leaking of toxic chemicals, nutrient chemicals, and dissolved organic matter from the town dump into the groundwater, combined with the washoff of the same pollutants during rainstorms and flooding. Coastal waters may be adversely affected by the downstream flow of polluted water from dump or landfill sites located far inland on coastal tributaries. (Clark, Coastal Ecosystem Management, 1977, p. 527)

The following policies for solid waste disposal are important for guiding the location and operation of disposal sites in the future in order to meet the need while protecting coastal resources.

Policies

- 1) In critical areas of the coastal zone, it is Council policy that;

- ()
- a) "Wetlands shall not be utilized as depositories for waste materials." (R. 30-12(G)(h))
 - b) Policies for deposition of dredged material shall also apply to solid waste disposal activities (excluding incineration).
 - c) Solid waste disposal sites and methods must meet applicable State and Federal water and air quality standards.

2) In the coastal zone, Council review and certification of permit applications for solid waste disposal sites and facilities will be based on the following considerations:

- a) All solid waste disposal sites in the coastal zone must meet applicable Federal, State water and air quality standards and local regulations for siting and operation.
- b) Locating solid waste disposal, or landfill, sites in salt, brackish or freshwater wetlands will not be approved unless no alternatives exist and an overwhelming public need can be demonstrated. Solid waste disposal sites should be located in appropriate upland sites, where they will not pollute surface waters, coastal waters, or ground waters. Site specific evaluations are made in each case by the Department of Health and Environmental Control to determine the suitability of the site, considering variables such as soil permeability, the characteristics of the leached refuse, and the distance from the groundwater.

- c) Solid waste disposal proposals with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- d) Solid waste disposal facilities which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S. C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following be considered in solid waste disposal planning in the coastal zone:

a) Maximum study and analysis should be given to alternative means or techniques for refuse disposal such as recycling, reuse, burning for generation of electrical power, etc.

Management Authority

The alteration of a critical area, which includes filling or draining, requires a permit from the Coastal Council. The Final Rules and Regulations for Permitting apply to proposed solid waste disposal sites or facilities for critical areas (see R.30-12(G)).

Outside of critical areas in the coastal zone the Budget and Control Board requires permits for any use, including filling, of lands below mean high water. Permit applications for solid waste disposal in such areas must be reviewed and certified by the Coastal Council for compliance with the coastal management program. The Department of Health and Environmental Control issues permits for and otherwise regulates solid waste disposal outside of critical areas. Such permit applications are also subject to Council review and certification. The administration of these regulatory authorities must be in compliance with the rules, regulations and policies of the coastal management program as specified in Sections 7(A) and 8(B)(11) of the

South Carolina Coastal Management Act.

C. PUBLIC/QUASI-PUBLIC BUILDINGS (structures including but not limited to churches, governmental administration buildings, public park information centers, police and fire stations, public beach restroom facilities)

Findings

Public and quasi-public buildings have potential negative impacts along similar lines to those associated with other developments, such as residential or commercial construction. They are of coastal management concern only if they involve problems of proposed dredging or filling in productive wetlands or impacts on water quality from erosion, stormwater run-off or sewage discharges. There may also be conflicts with other potential uses for the same site locations. Public or government buildings should set an example for sound resource management in terms of location decisions, construction methods and building and site design.

Policies

- 1) In critical areas of the coastal zone, it is Council policy that:
 - a) "Nonwater-dependent structures such as parking garages, apartments, restaurants, and shops have been built in the past on fillings over wetland areas. Such construction presents unnecessary encroachment on the aquatic ecosystem by shading out the underlying vegetation. Nonwater-dependent structures shall be discouraged from being sited over water and/or wetland areas. Only when public need is demonstrated and no feasible alternative sites are

"available should consideration be given towards approval of the proposed structure." (R.30-12(M))

- b) "Nonwater-dependent structures such as commercial and residential buildings have been constructed on primary sand dunes or beach areas in the past. Such construction may seriously disrupt the dune/beach system and its vegetation, hampering their effectiveness as a storm and erosion buffer. The siting of nonwater-dependent structures on the primary dunes or the beaches will be discouraged where other feasible alternatives exist. Design and construction options which minimize destruction of the dunes and dune vegetation will be encouraged." (R.30-13(D))

2) In the coastal zone, Council review and certification of permit applications for public/quasi-public buildings will be based on the following policies:

- a) For locations immediately adjacent to the shoreline, the water-dependent nature of the structure should be demonstrated before such sites are committed to development;
- b) Major alterations to productive salt, brackish or freshwater wetlands, from either dredging or filling for the construction of public buildings will not be approved unless no feasible alternatives exist.
- c) The use of construction methods and site drainage plans which reduce erosion hazards and limit the direct discharge or stormwater runoff are encouraged in order to protect coastal water quality. To the extent feasible, public buildings should not be located in high risk flood zone areas, as designated under the Federal Flood Insurance Program. Where public buildings must be located in these zones, they must meet applicable Flood Insurance criteria and/or building standards.
- d) Plans for major public buildings or complexes must include adequate sewage disposal systems (septic tanks

or treatment systems), meeting Federal Environmental Protection Agency, South Carolina Department of Health & Environmental Control, and local health department standards.

- e) Public or quasi-public buildings with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- f) Public or quasi-public buildings which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
 - i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) Further, the Council recommends that the following policies be considered with respect to public/quasi-public buildings in the coastal zone:

- a) Encourage visual compatibility, in terms of scale, height, materials, color, texture, and geometry

of building and site design, with surrounding development and natural resources, to the maximum extent practicable.

- b) Development of local plans and development regulations that address the location and design of public/quasi-public buildings.

Management Authority

The construction of any public/quasi-public building in a critical area requires a permit from the Coastal Council. Any alteration of a critical area requires a permit under the Council's direct permit authority as implemented through the Final Rules and Regulations for Permitting.

Outside of the critical areas of the coastal zone, the S.C. Department of Health and Environmental Control has permit authority for any septic tank or sewage system associated with such buildings. These permit applications are subject to review by the Coastal Council for certification of compliance with the preceding policies of the coastal management program, based on Sections 7(A) and 8(B)(11) of the Coastal Management Act of 1977.

If fill below the mean high water is proposed for site preparation, a permit would be required from the Budget and Control Board. These permit applications also are subject to the review and certification process of the Council prior to their issuance.

D. DAMS AND RESERVOIRS

Findings

Dams and reservoirs are not foreseen as a major issue for the South Carolina coastal zone because

the nature of coastal rivers - which are broad, relatively slow-moving and pass through flat, low-lying areas, with little flooding problems - gives them limited suitability for hydroelectric or related flood control projects. Most of the possible impacts of dams, reservoirs and diversions which might locate in coastal waters are associated with the alteration of normal stream flow. These include water quality degradation, changes in salinity, loss of aquatic species habitat or adequate spawning periods, alteration of the character of downstream coastal marshes (Clark, Coastal Ecosystem Management, p. 602), and interdiction of upland sediments, in particular sand destined for coastal sediment budgets. Reservoirs or impoundments also may inundate areas of special geological significance, archeological importance or historic interest.

While many of the adverse environmental effects of dams and reservoirs cannot be avoided, there are management policies and techniques which can reduce the impact.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

a) "Impoundment of previously undisturbed saline and brackish water marshes shall be discouraged as these areas are among the most valuable and productive of our coastal wetlands." (R.30-12(K)(a)).

2) In the coastal zone, Council review and certification of permit applications or project proposals for dams and reservoirs will be based on the following policies:

a) Floodplain and ecosystem management and other non-structural solutions are preferred to the erection of dams or flood control structures.

- b) Water control structures and water management programs should be designed to preserve existing water quality. Best management practices should be used upstream of the dam or reservoir to reduce agricultural and construction runoff and sedimentation thereby reducing the threat of eutrophication in the reservoir. This will also reduce the load of sediments deposited behind the dams, thereby prolonging the life of the facility.
- c) To the extent feasible, dams should not completely halt the flow and circulation of waters nor interdict all sediment flow. This will help preserve water quality and aquatic habitats downstream, and maintain the sediment budget, which is so important to related erosion problems in beach and shoreline areas downstream.
- d) Dams or reservoirs with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.
- e) Dams or reservoirs which would significantly impact the following aspects of quantity or quality of these valuable coastal resources are discouraged:
- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment) degradation of existing water quality in the area;
 - ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access or degradation of environmental quality in these areas;
 - iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

3) The Council also recommends that the following additional policies be considered for dams and reservoirs in the coastal zone:

- a) Installation of fish ladders where appropriate to facilitate the migratory passage of fish,
- b) Design of release gates to allow water to be let out from different depths in the reservoir for control of temperatures at appropriate levels for downstream aquatic life.
- c) When wildlife habitats are inundated or otherwise disturbed by construction of dams or flood control structures, lands suitable for wildlife management should be acquired elsewhere.

Management Authority

Any dam or reservoir proposed to alter a critical area would be under direct permit jurisdiction of the S.C. Coastal Council.

Outside of the critical areas of the coastal zone, the S.C. Land Resources Conservation Commission has permit authority over the construction of dams and reservoirs. Permit applications for this activity will be reviewed by the Coastal Council for certification of their compliance with the preceding policies. This review and certification process is mandated by Sections 7(A) and 8(B)(11) of the S.C. Coastal Management Act.

The S.C. Public Service Authority (PSA) has authority to construct dams for certain purposes in the Cooper and Santee Rivers in the coastal zone. Coordination of the activities and policies of the two agencies, as mandated by Section 7(A) of South Carolina's coastal legislation, will be accomplished through provisions of the Memorandum of Agreement between PSA and the Coastal Council.

E. WATER SUPPLY

Findings

The provision of public drinking water supplies to residents and commercial and industrial users is a positive asset to the economic character of an area. This public service can, however, have negative effects, largely associated with the transmission of the freshwater. The laying of water pipelines can cause environmental damage where they cross productive wetlands or submerged bottoms. Withdrawal of water resources, whether public or private, can negatively impact groundwater resources, if not properly managed.

Policies

1) In critical areas of the coastal zone, it is Council policy that:

- a) "Dredging and filling for public projects in wetland areas should be undertaken only if that activity is water-dependent and there are no feasible alternatives." (R.30-12(G)(2)(b))
- b) "Excavating activities in critical areas are sometimes required for the installation of submerged cables, pipelines, and transmission lines. These installations should be designed to minimize adverse environmental impacts.
- c) In addition to standards for dredging and filling, the following standards are applicable:
 - i) Creation of permanent open water canals to install pipelines is discouraged since such projects generally interfere with drainage patterns and may adversely affect water quality through accelerated bank erosion;
 - ii) Dimensions of excavated canals for cables and pipelines should be minimal. Silt curtains are recommended for all excavations;
 - iii) All excavations in wetland areas should be backfilled with the excavated material after installation

of the appropriate structure, while being careful to maintain the original marsh elevation;

- iv) The appropriate erosion control measures shall be employed during the crossing of wetland areas.

Where appropriate, revegetation with suitable wetland species will be required.

- v) Alignments of new projects should be designed to utilize existing rights-of-way and topographic features wherever possible." (R.30-12(D))

2) In the coastal zone, Council review and certification of permit applications for water supply facilities will be based on the following policies:

- a) The Coastal Council will coordinate with the Water Resources Commission in its efforts to ensure that groundwater is adequately managed, and that proposed withdrawals will not cause saltwater intrusion, land settling or other negative impacts.

- b) The Coastal Council will coordinate with designated 208 Areawide Waste Treatment Management implementation agencies (pursuant to Section 208 of the Federal Water Pollution Control Act) and other agencies with responsibility for implementing comprehensive plans affecting water supply, to ensure that proposed projects are compatible with growth and development plans and that alternative locations for water supply facilities are considered.

- c) Water supply facilities and transmission systems in the coastal zone must meet applicable Federal, State, and local construction and water quality standards.

- d) Construction of such facilities in or adjacent to productive salt, brackish, or freshwater wetlands will

be prohibited unless no feasible alternatives exist. Construction activities should be timed so as not to disrupt spawning seasons or migratory fish populations.

e) Water supply facilities with potential negative impacts on Geographic Areas of Particular Concern (GAPC) will not be approved unless no feasible alternatives exist. The determination of significant negative impacts will be made in each case with reference to the specific priorities of use for each type of GAPC.

f) Provision of water supply which would significantly impact the following aspects of quantity or quality of these valuable coastal resources is discouraged:

- i) unique natural areas -- destruction of endangered wildlife or vegetation or of significant marine species (as identified in the Living Marine Resource segment), degradation of existing water quality in the area;
- ii) public recreational lands -- conversion of these lands to other uses without adequate replacement, interruption of existing public access, or degradation of environmental quality in these areas;
- iii) historic or archeological resources -- irretrievable loss of sites identified as significant by the S.C. Institute of Archeology and Anthropology, without opportunity for adequate professional examination and/or excavation, or preservation.

Management Authority

Water supply activities, including the use of pipelines, pumping stations, and treatment plants, in a critical area require a permit from the Coastal Council.

Outside of the critical areas of the coastal zone, the Department of Health and Environmental Control (DHEC) and the Water Resources Commission have regulatory authority and issue permits concerning water supply. DHEC requires

a permit for construction, expansion, or modification of water supplies. Permit applications for this activity must be reviewed and certified by the Council for compliance with the coastal program as mandated by Sections 7(A) and 8(B)(11) of the S.C. Coastal Management Act. In capacity use areas, as declared by the Water Resource Commission, permits are required for the extraction of more than 100,000 gallons per day of groundwater. These permit applications are also subject to the review and certification authority of the Council.

VIII. EROSION CONTROL

The policies and planning program for this new planning element will be found in the Erosion Control Program segment of the management program document. This part of the management program is being developed and should be completed after an erosion study of the South Carolina coast is completed in the early Fall, 1978.

IX. ENERGY AND ENERGY-RELATED FACILITIES

The policies and planning process for this new planning element will be found in the Energy Facility Planning Process element of the management program document. This element is being developed and should be completed in the late summer, 1978.

Appendix A
AGENCY MANAGEMENT OF
ACTIVITIES WITH A DIRECT
AND SIGNIFICANT IMPACT

ACTIVITY	Coastal Council	Aeronautics Comm.	Arch. & Anthropology	Budget & Control Bd.	DMHC	Development Bd.	Forestry Comm.	Highway Dept.	Land Resources	PRT	Patriot's Point	Railways Comm.	PSA	PSC	State Housing Auth.	SPA	Water Resource	Wildlife/Marine Resources	LOCAL	FEDERAL
RESIDENTIAL DEVELOPMENT	X			X	X										X				X	X
TRANSPORTATION																				
Ports	X			X												X				X
Roads & Highways	X		X	X		X		X											X	X
Airports	X	X		X		X													X	X
Railways	X			X		X						X							X	X
Parking Facilities	X			X	X														X	
COASTAL INDUSTRIES																				
Agriculture	X								X											X
Forestry	X						X													
Mineral Extraction	X		X						X										X	
Manufacturing	X				X															
Fish & Seafood Processing	X																			

ACTIVITY	(Continued...)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Coastal Council	Aeronautics Comm.	Arch. & Anthropology	Budget & Control Bd.	DHEC	Development Bd.	Forestry Comm.	Highway Dept.	Land Resources	PRT	Patriot's Point	Railways Comm.	PSA	PSC	State Housing Auth.	SPA	Water Resources	Wildlife/Marine Resources	LOCAL	FEDERAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	X	X	X	X	X													X	X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
COMMERCIAL DEVELOPMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
RECREATION & TOURISM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Parks	X									X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

Appendix B

Following is a chart listing State agencies and the activities under their authority with the applicable citations from 1976 South Carolina Code of Laws. Further information regarding such authority and its relation to the coastal program will be found in the Implementation Authorities section appendices.

South Carolina Coastal Council *

Residential developments - Sections 48-39-80 (B) (11), 130; R30-11; **R30-12

Ports - Sections 48-39-110, 130

Roads and highways - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Airports - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Railways - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Parking facilities - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Agriculture - Sections 48-39-80 (B) (11), 130; R30-11

Forestry - Sections 48-39-80 (B) (11), 130; R30-11

Mining - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Manufacturing - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Aquaculture - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Fish and seafood processing - Sections 48-39-80 (B) (11), 130; R30-11;

R30-12

Commercial Activities - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Parks - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

South Carolina Coastal Council....(continued)

Marinas - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Boat ramps - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Tourist Attractions - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Artificial reefs - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Wildlife and fisheries management - Sections 48-39-80 (B) (11), 130; R30-11;

R30-12

Docks and Piers - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Dredging - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Dredge material disposal - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Underwater salvage - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Sewage treatment - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Solid waste disposal - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Public/Quasi-Public Buildings - Sections 48-39-80 (B) (11), 130; R30-11;

R30-12

Dams and reservoirs - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Water supply - Sections 48-39-80 (B) (11), 130; R30-11; R30-12

Bulkheads, seawalls, revetments - Sections 48-39-80 (B) (11), 130; R30-11;

R30-13

Jetties and groins - Sections 48-39-80 (B) (11), 130; R30-11; R30-13

Breakwaters - Sections 48-39-80 (B) (11), 130; R30-11; R30-13

Renourishment - Sections 48-39-80 (B) (11), 130; R30-11; R30-13

Energy activities - Sections 48-39-80 (B) (11), 130; R30-11; R30-12; R30-13

*(citations are to the 1976 South Carolina Code of Laws)

** (South Carolina Coastal Council Regulation citations are to the Final Rules and Regulations for Permitting in Critical Areas of the Coastal Zone, May 29, 1978.)

South Carolina Aeronautics Commission

Airports - Section 55-5-120

South Carolina Institute of Archeology and Anthropology

Underwater salvage - Sections 54-7-220 (A), 230 (A); R9-1 through 21

South Carolina Budget and Control Board

Residential developments - Sections 1-11-70, 80, 90

Ports - Section 1-11-70

Roads and Highways - Section 1-11-90

Airports - Section 1-11-70

Railways - Section 1-11-80

Parking facilities - Section 1-11-70

Mining - Sections 10-9-130, 180

Manufacturing - Section 1-11-70

Aquaculture - Section 1-11-70

Commercial - Section 1-11-70

Marinas - Section 1-11-70

Boat ramps - Section 1-11-70

Tourist attractions - Section 1-11-70

Artificial reefs - Section 1-11-70

Docks and Piers - Section 1-11-70

Dredging - Section 1-11-70

Dredge material disposal - Section 1-11-70

Sewage treatment - Section 48-3-140; Section 48-5-30

Solid waste disposal - Section 1-11-70

Energy - Section 1-11-80

South Carolina Department of Health and Environmental Control

Residential developments - Section 44-1-100; Section 44-1-140 (11); Section

44-55-610 through 700; Sections 44-55-820, 830; R61-9; R61-40;

R61-56; R61-57

Parking facilities - Section 48-1-40; Section 48-1-90 (a); R61-9

Manufacturing - Section 48-1-40; Section 48-1-140; R61-62; R61-62.1;

R61-62.6; R61-66

Aquaculture - Section 44-1-140(5); R61-47

Fish and Seafood processing - Section 44-1-140(5); R61-47

Commercial - Sections 44-1-140(2), (11); Section 48-1-40; Section 48-1-140;

R61-25; R61-41; R61-62

Tourist attractions - Section 44-1-140; Section 48-1-140(7); R61-9; R61-62

Sewage treatment - Section 44-1-140; Section 44-55-1410; Sections 48-1-90(a),

100, 110; Sections 48-3-60, 140; Sections 48-5-20; R61-9; R61-56;

R61-57

Solid waste disposal - Section 44-1-140(11); R61-59; R61-60; R61-61;

R61-70

Public/Quasi-Public Buildings - Section 44-1-140(11); Sections 48-1-100,

110; R61-9; R61-62

Water supply - Section 44-55-40

South Carolina Development Board

Roads and Highways - Section 13-3-20(3); Section 13-3-100 (4) (d)

Airports - Section 13-3-20(3); Section 13-3-100(4) (d)

Railways - Section 13-3-20(3); Sections 13-3-100(4) (c), (d), (e)

Parks - Section 13-3-100(4) (h)

Dredging - Sections 13-3-40, 50; Sections 13-3-320, 330

Energy - Sections 13-3-100 (4) (c); (d)

South Carolina Forestry Commission

Forestry - Sections 48-23-80, 90, 120, 200

South Carolina Department of Highways and Public Transportation

Roads and Highways - Sections 57-3-10, 610, Section 57-5-1330

Bulkheads, seawalls, revetments - Section 57-3-40

Jetties and groins - Section 57-3-40

Breakwaters - Section 57-3-40

Re nourishment - Section 57-3-40

South Carolina Land Resources Conservation Commission

Agriculture - Section 48-9-1270(9); Sections 48-9-1510, 1570

Mining - Section 48-19-40

Dams and Reservoirs - Sections 49-11-200, 210, 240

South Carolina Department of Parks, Recreation and Tourism

Parks - Sections 51-1-60(b), (f); Sections 51-3-10, 80

Tourist Attractions - Section 51-1-60(c)

Public/Quasi-Public Buildings - Section 51-1-60(b)

Patrol's Point Development Authority

The authority's jurisdiction covers Hog Island in Charleston Harbor. See

Sections 51-13-710 through 850.

South Carolina Public Railways Commission

Railways - Section 56-19-30

South Carolina Public Service Authority

Dams and Reservoirs - Section 58-31-30(5)

Energy - Sections 58-31-30(7), (8)

South Carolina Public Service Commission

Energy - Section 58-27-1230; Section 58-11-110

South Carolina State Housing Authority

Residential developments - Section 31-3-140

South Carolina State Ports Authority

Ports - Sections 54-3-110, 130, 140

Docks and Piers - Section 54-3-620

Bulkheads, Seawalls, Revetments - Section 54-3-610

Breakwaters - Section 54-3-130(9)

South Carolina Water Resources Commission

Wildlife and fisheries management - Sections 51-5-60, 100

Water supply - Sections 49-5-40, 50, 60, 70

South Carolina Wildlife and Marine Resources Department

Aquaculture - Sections 50-5-20, 50; Sections 50-15-50; Section 50-17-710

Boat ramps - Section 57-5-870

Artificial reefs - Section 50-3-90

Wildlife and fisheries management - Section 50-3-100; Section 50-11-2610;

Section 51-5-140

2. ACTIVITIES OF REGIONAL BENEFIT

INTRODUCTION

Section 306(e)(2) of the Federal Coastal Zone Management Act of 1972, as amended, requires that South Carolina make provision within its coastal zone management program to assure that local government regulations do not unreasonably restrict or exclude land and water uses of regional benefit. The initial step of this requirement is identification of those activities which are determined to be of regional benefit. Once selected, each state coastal management program must demonstrate the State legal authority which will assure that these activities are not unreasonably excluded from locating in the coastal zone by local government actions.

DEFINITIONS

Tracking the language of the Federal regulations for achieving program approval (15 CFR 923.13), activities are considered to be of regional benefit in the South Carolina coastal zone if they:

(1) have been identified as Activities Subject to Management, that is, those determined to have direct and significant impact on coastal resources;

AND

(2) result in a multi-county environmental, economic, social or cultural benefit.

Unreasonable local restriction of an activity is that which is arbitrary or capricious. It involves a local decision not based on rational or legal factors, and implies an exclusion which works to the detriment of the region.

FINDINGS

Because of the rural character of much of South Carolina's coastal zone, ample suitable site locations remain available for most proposed uses now and in the foreseeable future. This limited urbanization also presents less need and demand for regional-type facilities. Most public services are provided on a county-wide basis. Local or county governments in the coastal zone have not exhibited any trend toward excluding particular types of activities, particularly those which offer benefits to an area of greater than local concern.

Therefore, at this time, a limited number of activities have been identified to be of regional benefit. The focus is on those uses of coastal lands and waters which by their nature might require extension through more than one county, or which meet a clearly recognized need, not only for the coastal region, but the State as a whole.

THE ACTIVITIES

Activities of Regional Benefit in the South Carolina coastal zone are:

- 1) Transportation facilities -
including highways, airports, railroads, ports and transit;
- 2) Parks -
recreational areas of State or regional significance;
- 3) Energy facilities -
including facilities for gas, oil, electrical generation, and renewable resources.

MANAGEMENT AUTHORITY

Section 8 (B) (6) of the South Carolina Coastal Management Act states that the Council, in developing the management program, shall

(P) provide for adequate consideration of the local, regional, state and national interest in the siting of facilities for the development, generation, transmission and distribution of energy, adequate transportation facilities and other public services necessary to meet requirements which are other than local in nature.

Consistent with the general networking scheme for South Carolina's coastal program, the present authority of other State agencies will be utilized to comply with requirements for Activities of Regional Benefit. Assurances that these State agencies are cognizant of their authority and are willing to employ it to implement the program will be provided through memoranda of agreement. Section 7 (A) of the Act requires the cooperation of other State agencies and compels the respective agencies to administer their authority in accord with the Act and the Rules and Regulations promulgated thereunder.

Section 923.43 of the Federal Register, March 1, 1978, paragraph (C) provides illustrations of techniques which may be utilized in assuring that uses of regional benefit are not restricted. The Coastal Council intends to develop a system under (C) (2) to assure that adequate sites are or can be set aside for different uses of regional benefit. The legal basis for this system is already in place through the present powers vested in State agencies to acquire sites as the need arises for particular uses of regional benefit.

The State of South Carolina has a Public Works Eminent Domain Law. Section 28-5-30, Code of Laws of South Carolina (1976) allows any federal agency, State public body or authorized corporation to acquire real property necessary for any public works project. Section 28-5-20 (1976 Code) defines public works project as "any work or undertaking which is financed in whole or in part by a federal agency or a State public body." This

all-encompassing power of public domain is supplemented by specific acquisition powers of various State agencies.

The Development Board is authorized in Section 13-3-100 (1976 Code) to:

Acquire by purchase, gift, condemnation or in any other manner any lands, waters, water rights, riparian rights, flowage rights, rights of way, easements, licenses, franchises, engineering data, maps, construction plans or estimates or any other property of any kind, real, personal or mixed, necessary or useful in carrying out its powers.

This Board may also employ the eminent domain power pursuant to laws for railroads, telegraph and telephone companies, power companies and highways.

At present, the primary function of the Development Board is to encourage and assist industrial and commercial development within the State. The Development Board, under Section 13-3-100 (1976 Code) is also empowered to acquire, build and maintain among other items, railroads, highways, pipelines, dams, tunnels and bridges. The Board may also construct and establish parks and playgrounds for the use of the State's citizens as well as take proper steps to prevent and control soil erosion and floods. These powers may be exercised through its own efforts and resources or may be accomplished jointly with the United States, other states, private corporations or private individuals.

In addition to the Development Board's ability to acquire recreational areas, the Parks, Recreation and Tourism Commission through Section 51-1-60 (1976 Code) is responsible for managing, developing and expanding recreational areas and for developing a coordinated plan to utilize the state's natural resources as tourist

attractions. Upon approval of the State Budget and Control Board, this Commission is able to acquire land by gift or purchase in carrying out its mandate.

The State Budget and Control Board is also vested with broad authority. It is the State agency responsible for management of State-owned lands and waters. It may, under Section 1-11-80 (1976 Code), grant easements and rights of way for construction and maintenance of power lines, pipelines, water and sewer lines and railroad facilities over or under vacant lands and marshlands owned by the State, upon payment of reasonable value. This Board has the authority under Section 1-11-110 (1976 Code) to acquire real property for the State by gift, purchase, or condemnation. Finally, the Board has been granted authority to lease any State lands for the purpose of drilling for and producing oil and gas and other minerals, subject to the approval of the Attorney General (Section 10-9-10 and 48-43-390, 1976 Code).

Acquisition of sites for electric generating plants, related facilities and water impoundments for electricity production are covered in Section 58-27-130 (1976 Code). If a purchase of needed property can not be agreed upon, electric lighting and power companies legally operating in the State, State Authorities and rural electric cooperatives may acquire fee simple title or an easement in land through eminent domain. The Public Service Authority is given specific powers of eminent domain in Section 58-31-30 (1976 Code).

Under the Utility Facility Sitings Act (Sections 58-33-10 through 58-33-430, 1976 Code), the chief executive officer of each municipality and the head of each local government agency charged with the duty of protecting the environment or of planning land use in the county in which any portion of a facility is to be located,

may become a party to the certification proceedings. Section 58-33-160 (1976 Code) grants the Public Service Commission the power to refuse to apply any local law or regulation if it finds that the law or regulation would be unreasonably restrictive in view of the existing technology or of economic factors or of consumer needs both inside and outside of the locale.

The State Ports Authority is charged with the promotion, development and maintenance of harbors and sea-ports and related facilities and is provided condemnation powers in Section 54-3-150 (1976 Code). In addition, the Department of Highways and Public Transportation may implement its broad powers of planning, construction and maintenance of the State highway system through eminent domain proceedings under Sections 57-3-610, 57-5-32 and 57-5-1340 (1976 Code).

3. CONSIDERATION OF NATIONAL INTEREST

Section 306 (c) (8) of the Federal Coastal Zone Management Act and Section 923.52 of title 15 of the Code of Federal Regulations (April 1, 1978) require that the national interest receive adequate consideration in planning for and siting of facilities which are necessary to meet requirements more than local in nature. This requirement calls for an identification of the national interest associated with facilities that may be required in the South Carolina coastal zone to meet requirements more than local in nature, for an identification of the national interest in the conservation of coastal resources potentially affected by such facilities, and for a description of the process which allows consideration of the national interest in the implementation of the Coastal Management Program (CMP). In addition, Section 8 (B) (6) of the South Carolina Management Act requires the Coastal Council to provide for adequate consideration of the national interest in developing and implementing the coastal management program.

Section 302 of the Federal Coastal Zone Management Act states that:

- (a) There is a national interest in the effective management, beneficial use, protection, and development of the coastal zone.
- (b) The coastal zone is rich in a variety of natural, commercial, recreational, ecological, industrial, and esthetic resources of immediate and potential value to the present and future well-being of the Nation.

()

Thus, the primary focus for the consideration of national interest is the balancing between the provision of facilities which are in the national interest and the protection of coastal resources which are also in the national interest.

Where national interest consideration of facilities and resource conservation conflict, the Coastal Management Program resolves the conflict through the policies contained in the Resource Policies for Activities Subject to Management and the rules and regulations applicable to the specific facility or associated activity. These potential conflicts were considered in the development of the Coastal Council's policies and regulations.

The regulations and policies for activities in the coastal zone embody considerations of the relative values of resources and their uses in particular ways. With energy facilities and other facilities or activities in which there is a national interest, the value of the facility is evaluated in relation to the value of the coastal resources affected by such facilities or activities. The regulations and policies balance these values within the framework of the purpose of the management program. Consideration of the national interest for particular types of facilities and resources is thus reflected in the applicable policies and regulations governing activities associated with such facilities or resources.

The identification of facilities and coastal resources which are in the national interest was guided by Federal laws and regulations; executive policy statements; Federal agency studies

and reports; interaction between the Coastal Council and staff; interstate agency information and plans; and response to a National Interest - Federal Consistency Questionnaire.

The following concerns are considered by South Carolina to be of such long-range, comprehensive importance as to be in the national interest:

1. National Defense
2. Energy production and transmission
3. Coastal Resources:
 - a) Significant fish species and habitats
 - b) Threatened wildlife habitats
 - c) Public recreation areas (for example, shoreline access and undisturbed natural areas)
 - d) Drinking water supply
 - e) Historical, cultural and archeological sites
 - f) Barrier islands

The process for considering the national interest in program implementation is the permit application review and certification process of the Coastal Council. Applications for facilities or activities in critical areas are placed on public notice, which Federal agencies also receive. Coastal Council review of these applications will consider the national interest as balanced in regulations and policies, and will also consider the comments from the public and

()

Federal agencies concerning national interests involved in making a decision on the permit application. National interest considerations may also be raised for Coastal Council deliberation by Federal agencies at any time. Such deliberation may result in changes or additions to Coastal Council regulations or policies. Applications for permits from other agencies in the coastal zone are reviewed by the Coastal Council for certification of compliance with the Coastal Management Program. The national interest is considered during this review, and the policies embodying national interest considerations must be complied with by the proposed facility or activity to receive certification.

MANAGEMENT FOR FACILITIES AND RESOURCES IN THE NATIONAL INTEREST

National Defense

All of the Resource Policies of the Management Program apply to National Defense facilities if such facilities are not on federal lands, which are excluded from the program (pending litigation between the U.S. and Washington State). The Resource Policies of particular interest for national defense are:

II. Transportation

- a) Ports
- b) Roads and Highways
- c) Airports
- d) Railways

VI. Dredging

- a) Dredging
- b) Dredge Material Disposal

Energy Production and Transmission

Resource Policies for Energy and Energy Related Facilities will, when completed in late summer 1978, apply to Energy Production and Transmission facilities in which there is a national interest.

Significant Fish Species and Habitats

When completed in the fall of 1978, the Resource Policies for Recreation and Tourism, Wildlife and Fisheries Management and the "Living Marine Resources" of the management program will describe significant fish species and their habitats for coastal South Carolina. Resource Policies affecting the resources associated with significant fish species and their habitats include all policies affecting wetlands and waters, especially:

- VI. Dredging
 - a) Dredging
 - b) Dredge material disposal
- I. Residential Development, and
- VIII. Erosion Control

Threatened Wildlife Habitats

Resource Policies, in conjunction with the priorities for use of Geographic Areas of Particular Concern (GAPC), govern the activities that affect threatened wildlife and their habitats. Of particular interest are Resource Policies: Residential Development; Transportation; Recreation and Tourism; and Public Service and Facilities. As specific policies under these and several other areas indicate, activities that disturb threatened or endangered wildlife and vegetation, including their habitats, are discouraged in the coastal zone.

Public Recreation Areas (such as beaches, undisturbed natural areas)

In addition to the special management given GAPC's that contain Public Recreation Areas, several resource policies governing activities associated with recreational resources are also applicable. Of particular interest are Resource Policies: Recreation and Tourism; Erosion Control; Transportation; Coastal Industry; Dredging; and Public services and Facilities. Any Resources Policy, however, which affects an activity associated with such a resource applies and can be used to manage these resources in the national interest.

Drinking Water Supply

Drinking water supply is affected by several factors, including adequacy of recharge areas, amount of extraction from supply, and purity of supply. Resource Policies in general seek to direct activities affecting these factors in such a way as to protect this invaluable resource. Of particular interest are Resource Policies: Coastal Industries; Commercial Development; Public Services and Facilities; and Residential Development. In addition, designated ground water recharge areas will be GAPC's and will be managed according to the priorities of use specified in the GAPC section.

Historical, Cultural, and Archeological Sites

Historical, Cultural, and archeological sites may be included in the special management given GAPC's if so designated. Priorities of use for those areas will govern the activities affecting these resources. Resource Policies generally discourage activities that would disturb such resources. Of particular interest are Resource Policies: Transportation; Coastal Industries; Residential Development; and Recreation and Tourism. These policies will aid in preserving those resources in which there is a national interest.

Barrier Islands

The national interest in barrier islands is reflected in several Resource Policies and will be especially reflected in VIII (Erosion Control) when that section of the management program is completed in early fall 1978. In managing activities affecting these valuable natural resources, Resource Policies must balance sensitive ecological needs with increasing pressures for their development. Resource Policies: Residential Development; Transportation Commercial Development; Recreation and Tourism; Dredging and Public Services and Facilities are of particular concern for protecting the national interest in these resources. In addition, where GAPC designations are on part or all of a barrier island, the areas will be managed according to the priorities of use for the GAPC.

4. ENERGY PLANNING PROCESS

The first draft of the Energy Planning Process is expected to be completed by late August, 1978 and will be a part of South Carolina's final management program. The Energy Planning Process will be composed of:

(1) A description of the varied types of energy planning which now exist in South Carolina and the likely future for those planning processes.

(2) Information about the Technical Advisory Committee on Energy which the Coastal Council recently began and the role it will play in the sharing of information and energy planning in the future. The members and the organizations and agencies which they represent are found in Appendix J and will soon be expanded to include several representatives from the Department of Energy.

(3) An analysis of both the present and future energy needs and energy facilities in South Carolina and the impacts which are likely to be associated with the picture in the future.

(4) A detailed legal analysis of the existing regulatory authority for energy facilities in South Carolina and the access points for the Coastal Council to evaluate and certify the energy facility decisions. In addition, an explanation of how the Coastal Council will deal with the impacts associated with the overall complex of energy facilities in the State.

(5) The energy policies of the South Carolina Coastal Council which will be used when the Council makes decisions in the future regarding energy facilities.

An initial working paper on the planning process, regulatory authority and the energy policies has been developed, evaluated and is being rewritten at present.

special management areas

1. GEOGRAPHIC AREAS OF PARTICULAR CONCERN

Preface

In May, 1977, the South Carolina General Assembly enacted a Coastal Zone Management Act for the State, finding that the rich variety of natural, commercial, recreational and industrial resources of the South Carolina coastal zone are facing increasing, competing demands. The State's lawmakers recognized the need to regulate and plan for preservation, protection and development of these valuable and fragile resources. Among the State policies expressed in this Act, the basic, overall objectives are as follows:

- Section 2(B)
- (1) To promote economic and social improvement of the citizens of this State and to encourage development of coastal resources in order to achieve such improvement with due consideration for the environment and within the framework of a coastal planning program that is designed to protect the sensitive and fragile areas from inappropriate development and provide adequate environmental safeguards with respect to the construction of facilities in the critical areas of the coastal zone;
 - (2) To protect, and, where possible, to restore or enhance the resources of the State's coastal zone for this and succeeding generations.

This draft report has been prepared by staff of the South Carolina Coastal Council in keeping with these objectives. It is the initial draft of a segment which will later become part of the comprehensive coastal zone management program for the State.

Geographic Areas of Particular Concern are sites or areas in the coastal zone which offer such unique or important features that they warrant special attention within the context of the management program. These areas are identified and described, the existing management mechanisms determined, and policies and guidelines developed for their preservation and protection.

INTRODUCTION

STATUTORY REQUIREMENTS

Federal

The Federal Coastal Zone Management Act of 1972, while recognizing the entire coastal zone of each state as an important and vital resource, also declares that certain areas are of even more, special significance, and warrant particular attention to their preservation and development. The Act requires, in Section 305(B)(3), that each state inventory and designate the "Areas of Particular Concern" within its coastal zone as part of the state's program.

Section 923.13 of the Rules and Regulations for implementation of the Federal program by each state further defines the Federal requirements for Geographic Areas of Particular Concern (GAPC's). The subsection reads as follows:

(a) Requirement. In order to fulfill the requirements contained in section 305(B)(3), the management program must show evidence that the State has made an inventory and designation of areas of particular concern within the coastal zone. Such designations shall be based upon a review of natural and man-made coastal zone resources and uses and upon consideration of State-established criteria which include, at a minimum, those factors contained in 15 CFR 920.13, namely:

(1) Areas of unique, scarce, fragile or vulnerable habitat, physical features, historical significance, cultural value and scenic importance;

(2) Areas of high natural productivity or essential habitat for living resources, including fish, wildlife and the various trophic levels in the food web critical to their well-being;

(3) Areas of substantial recreational value and/or opportunity;

(4) Areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters;

(5) Areas of unique geologic or topographic significance to industrial or commercial development;

(6) Areas of urban concentration where shoreline utilization and water uses are highly competitive;

(7) Areas of significant hazard if developed, due to storms, slides, floods, erosion, settlement, etc; and

(8) Areas needed to protect, maintain or replenish coastal lands or resources including coastal flood plains, aquifer recharge areas, sand dunes, coral and other reefs, beaches, offshore and sand deposits and mangrove stands. (Federal Register, Vol. 40, No. 6 January, 1975)

The "comment " subsection of these regulations expands the discussion of GAPC's to indicate that:

It should be emphasized that the basic purpose of inventorying and designating areas of particular concern within the coastal zone is to include them within the purview of the management program. Therefore, particular attention in reviewing the management program will be directed toward development by the State of implementing policies or actions to manage the designated areas of particular concern. *
(emphasis added).

The major emphasis in the GAPC segment of a coastal management program, from the Federal viewpoint, is on the adequacy of the State's authority to manage those areas or sites which have been identified. To a lesser extent, the reasons specific areas are significant as coastal resources, and the criteria which establish this significance are also important for inclusion. The individual states may inventory and identify those areas which are significant given the coastal problems or issues which are characteristic of that particular state. Guidance for this designation process is provided in the coastal legislation passed in South Carolina in 1977.

State

The South Carolina Coastal Zone Management Act (Act 123 of the S.C. Legislature of 1977; also called the "Tidelands Act") established an eight county coastal zone, to consist of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry and Jasper Counties.

This legislation created an eighteen-member Coastal Council, charged with two major areas of responsibility:

- (1) State permitting authority in certain critical areas (coastal waters, tidelands, beaches and primary sand dunes); and (2) development of a comprehensive coastal management program for the full eight-county coastal zone.

Section 8(B)(4) of the Act mandates that this comprehensive program include the identification of special management areas. It reads as follows:

In devising the management program the Council shall:

- (a) Inventory and designate areas of critical state concern within the coastal zone, such as port areas, significant natural and environmental, industrial and recreational areas.

These "areas of critical state concern" parallel the geographic area of particular concern requirements mandated by the Federal legislation. The designation process and the areas identified as GAPC's can be devised so as to be consistent with policies for preservation and development of South Carolina's coastal resources, as stated in the South Carolina Coastal Zone Management Act.

SELECTED APPROACH

In order to meet both the Federal and State requirements, this report identifies, maps, and describes the Geographic Areas of Particular Concern in the eight-county coastal zone. (As a point of clarification, many of these areas lie beyond the critical area boundaries as defined in the S.C. Act, since the management program is directed to include all of the eight-county coastal zone.)

South Carolina has defined Geographic Areas of Particular Concern in its coastal zone in terms of four broad categories:

- Areas of unique natural resource value, including those exhibiting scarce or vulnerable natural habitats and physical features; those offering substantial recreational value; and those of vital importance in protecting and maintaining coastal resources.
- Areas where activities, development, or facilities depend on proximity to coastal waters, in terms of use or access.
- Areas of special historical, archeological or cultural significance.
- Hazard areas, including severe erosion areas, where intensive or improper development can increase the risk of damage to life and property.

For each of these categories, standards or criteria are defined, priority of uses within the area are specified, and the specific geographic sites or areas within the coastal zone are identified. Detailed descriptions of each designated site are found in the Appendix F.

In the earliest phases of coastal zone management in South Carolina, an extensive National Resource

Inventory was completed. This inventory, the pertinent State and Federal regulations, and considerable assistance from the Heritage Trust Program were the initial basis for designation of Geographic Areas of Particular Concern (GAPCs) within each of the four categories.

When a first draft of the GAPC segment was completed and adopted in draft form by the South Carolina Coastal Council, it was mailed to the many individuals, and State and Federal agencies on the Council mailing list. Numerous comments, corrections, and additions were received as a result and subsequently these have been incorporated.

In addition, the County Citizens Working Groups, organized in each of the eight coastal counties, (described in the section on Public Involvement, p.437) received copies of the first draft of the GAPC document. Meetings were held to discuss the Geographic Areas of Particular Concern in detail with staff and Council members. As a result, substantive input from every section of the coastal zone was received in the designation of South Carolina's Geographic Areas of Particular Concern.

The areas included in this draft are of such special importance and concern to the State that the State has established regulatory and/or management controls over them. The authority which assures adequate management of GAPC's is Sections 7(A) and 8(B)(11) (described fully in the Legal Analysis section) of the South Carolina Coastal Management Act. This coordination and certification authority is affirmed by Memoranda of Agreement (MOAs) executed between the South Carolina Coastal Council and each of the State commissions with authority over GAPC's. These MOAs specify the type and level of coordination and specify that programs will be administered consistent with Council policies for the coastal zone of South Carolina. Their management in the future will be coordinated to ensure consistency with the policies of the Coastal Council for Geographic Areas of Particular Concern.

DESIGNATION OF GEOGRAPHIC AREAS OF PARTICULAR CONCERN IN THE FUTURE

As development and implementation of the coastal zone program continues, other areas which may deserve particular attention will be further studied. Nominations of potential GAPCs can be made to the South Carolina Coastal Council by other State agencies, local governments, organizations, and interested private citizens. A new designation would be possible under any of the four existing GAPC categories.

When these potential areas of concern are identified, they will be reviewed by the South Carolina Coastal Council to determine the nature of concern, if they satisfy the appropriate designation criteria, and what type of management needs exist to ensure adequate preservation or control of the areas. The South Carolina Coastal Council can designate additional GAPCs after the Management Program has received final approval without requiring formal amendment to the Management Program. Future designations can be accomplished by a majority vote of the Council once the required management authority is determined and executed.

New GAPCs would be added, for example, when Heritage Trust Preserves and Scenic Rivers are designated as parts of the Heritage Trust Program or as a result of the Scenic Rivers Act in South Carolina. In addition, if a new natural resource area is developed or if a significant new coastal dependent activity needs special attention, application to the South Carolina Coastal Council for designation as a new GAPC would be appropriate. As new GAPCs are designated in South Carolina, the South Carolina Coastal Council will specify the priority of uses for each new area.

()

POLICIES FOR GEOGRAPHIC AREAS OF PARTICULAR CONCERN

The South Carolina Coastal Council has designated the Geographic Areas of Particular Concern discussed in this document because of their unique importance as natural, aesthetic, recreational, scientific, or economic resources in the coastal zone. The existing State management authority for each GAPC is identified, and the priority of uses within each area is specified. In addition, management policies and permitting rules and regulations of the South Carolina Coastal Council for certain specified activities or alterations shall apply to designated GAPCs, where relevant.

GOALS

The goals of the South Carolina coastal zone management program for preservation and development of

GAPCs are:

To give highest priority to the identified primary use or value of a GAPC when considering the preservation of development of that area.

To ensure management of GAPCs consistent with other policies of the South Carolina coastal zone management program.

POLICY OBJECTIVES

The management of GAPCs shall be carried out in such a manner as to:

prevent, where possible, the disruption of valuable coastal resources;
protect the integrity of natural resource areas and preserve the unique and fragile areas;

protect the habitats of wildlife and marine species, particularly those with special commercial, recreational or ecological value;

to improve access to and management of recreational areas;

increase the usefulness of and access to economically important resources, without undue restrictions on the activities, while minimizing negative environmental impacts;

avoid preemption of appropriate commercial growth where it is consistent with the use of the areas;

encourage environmentally sound growth patterns and development practices where growth and development are priority uses of the area;

discourage development in high-risk areas, where damage to life, property, and coastal resources is likely to be severe.

GEOGRAPHIC AREAS

I. AREAS OF UNIQUE NATURAL RESOURCE VALUE

Unique resource areas include those exhibiting scarce or vulnerable natural habitats, living marine resources, and physical features; those offering substantial recreational value; and those of vital importance in protecting and maintaining coastal resources.

This category of Geographic Areas of Particular Concern (GAPCs) is especially significant because South

Carolina's natural environmental attributes are a resource of great value, for ecological, aesthetic, recreational and commercial reasons. In the past, development has been relatively slow, so there are still unspoiled natural areas and abundant wildlife in the coastal zone to enjoy and protect. For example, over 400,000 acres of tidal marsh represent a vital link in the life cycle of a majority of commercial and sport fish species. The forests, marshes, streams, beaches, and coastal waters warrant critical attention in the State's coastal management program because of both their ecological and economic importance. It has become increasingly evident that these are finite and limited resources which need careful preservation and thoughtful management.

Management Authorities

Several different programs which involve State ownership, regulatory or management authority over natural resource areas currently exist in South Carolina. The specific authority is described in detail for each individual program in the following pages.

Criteria for Designation

The criteria for designation of a natural area as a GAPC are that the area offers unique or important natural features which warrant special attention in the coastal management program.

To indicate the resource values which make these areas particularly significant, general criteria have been developed, drawing from the objectives contained in each of these programs. (Certain of the individual programs have further, specific criteria which are used to quality areas for inclusion within that program; and these will be identified where such exist.)

The South Carolina Coastal Council recognizes the following criteria for designation of natural resource areas as Geographic Areas of Particular Concern:

1. The area consists of representatives of one or more coastal ecosystem types or habitats, is intact in the sense that essentially all of the expected species and ecological processes are present in normal numbers and vigor, and meets one of the following conditions:
 - a. Alteration or destruction of the area would substantially impair the ability of one or more ecosystem types to perpetuate themselves;
 - b. The area has qualified as critical habitat for an endangered or threatened species, under the Endangered Species Act of 1973;
 - c. The area is unusually large or undisturbed in comparison to others of a similar kind, thus affording a unique opportunity for scientific observations or recreation.
2. The area represents superior habitat for species, which, while not endangered or threatened, are of vital importance as commercial or sports-oriented coastal resources.
3. The area affords maximum recreational opportunities in the coastal zone because of access to beaches or other waterfront, presence of unique physical or cultural features or natural habitats (see #1 above), and/or wide range of active and passive recreation opportunities in a natural setting.

A. The Heritage Trust Program
Management Authority

The South Carolina Heritage Trust Program was established by passage of State Legislation in April, 1976, (Act 600 of 1976). (An Advisory Board and initial staff efforts had begun subsequent to an Executive Order in 1974.) The Heritage Trust Advisory Board and Wildlife and Marine Resources Commission administer a system which

provides for inventory, preservation, use and management of unique and outstanding natural or cultural areas.

The public policy stated within the Act is:

(T)To secure for the people, both present and future generations, the benefits of an enduring resource of natural and cultural areas and features by establishing a system of Heritage Preserves and Sites.

This program provides for dedication of areas or sites by the owner to the Trust, through transfer of fee simple title, or lesser forms of ownership interest, such as open space easements. The advisory Board and Wildlife and Marine Resources Commission review the proposed areas, which are nominated by the Staff of the S.C. Wildlife and Marine Resources Department, other State agencies, and citizens of the State.

A major requirement of the program is provision of management criteria, rules and regulations, and "allowable use" guidelines for Heritage Preserves. A management plan must be developed for each property in the Heritage Trust. These management mechanisms are intended "to preserve the primary natural character of such areas or features and to provide the maximum public usage thereof which is compatible and consistent with the character of the area". (Section 4 (7))

Inventory

Staff of the Division of Natural Area Acquisition and Resource Planning of the South Carolina Wildlife and Marine Resources Department, with support from other experts in the field, have been actively engaged in thorough investigative surveys of the natural areas of the State. The objectives of this search are identifying "significant elements of the natural environment such as unique and outstanding features, rare and endangered plant and animal species, and natural areas representing the range of biological diversity found in the State". These

data have been made available to the Office of Coastal Planning. As the Heritage Trust Program identifies priority areas for preservation or acquisition efforts, this information will also be reviewed by Coastal Council staff and considered for designation as GAPCs, or as future or potential GAPCs.

Priority of Uses

The following are the uses of priority for areas deeded into the Heritage Trust Program beginning with the use of highest priority:

- 1) Uses which are consistent with the management plan developed for each property;
- 2) Uses which allow public enjoyment of the area as long as the primary natural character of the area is not disrupted;
- 3) Uses which are compatible with the area's wildlife and wildlife management.

Prohibited uses are any which jeopardize the integrity of the Heritage Trust Program.

Designated Sites

Because of their unique value as wildlife habitats and natural areas, Heritage Trust lands have been designated as Geographic Areas of Particular Concern.

Capers Island is the only site which has been deeded into the Heritage Trust Program to date.

B. State Wildlife Preserves

The extensive system of wildlife preserves and game management areas owned or leased by South Carolina Wildlife and Marine Resources Department are irreplaceable resources, as both protected wildlife habitats and recreational hunting and fishing areas. Because of their value to residents and visitors of the South Carolina coastal area, they have been identified as Geographic Areas of Particular Concern.

Management Authority

The South Carolina Wildlife and Marine Resources Department (WMRD) is empowered to acquire land areas, and enter into agreements with landowners and with the Federal government for purposes of managing wildlife species, and establishing specific sanctuaries and game management areas. (§ 50-3-100, Code of Laws of South Carolina, 1977) The areas owned and managed by WMRD are vital resources of the coastal zone, for conservation of the State's wildlife and also for recreational hunting and fishing opportunities. As part of this management responsibility, a full management plan is prepared for each preserve, identifying short and long-term uses and guidelines for protection and use of the area.

Where critical areas, as defined in the South Carolina Coastal Management Act (Act 123 of 1977), occur within these preserves, additional control is afforded, since Coastal Council permits would be required for any alterations within the critical areas of these preserves.

Inventory

A complete listing of the wildlife and game management areas under ownership and/or management authority

of the WMRD in the eight coastal counties was obtained through consultation with WMRD and by reference to S.C. Public Land Ownership Inventory (S.C. Land Resources Conversation Commission, 1977). These areas have been mapped into the Office of Coastal Planning's overlay mapping system, which is being converted to a computer mapping format.

Priority of Uses

The following are the uses of priority for areas designated as State Wildlife Preserves beginning with the use of highest priority:

- 1) Uses which are consistent with the management plan developed by WMRD for each preserve;
- 2) Uses which are compatible with the preserve's wildlife, wildlife habitats and wildlife management and simultaneously provide public recreational opportunities, such as hunting and fishing.

Designated Sites

Because of their significance as natural habitats and their inclusion under ownership and/or management authority of WMRD, the following areas are designated as GAPCs.

Berkeley County: 1) Moultrie Game Management Area
 2) Francis Marion Game Management Area
 3) Hatchery Game Management Area

Charleston County: 1) Santee Coastal Reserve

2) Alexander Sprunt, Jr. Wildlife Sanctuary

Colleton County: 1) Bear Island Game Management Area

Georgetown County: 1) Cedar Island
2) North Island and South Island Plantation
3) Pee Dee Game Management Area
4) Santee Delta Game Management Area

Horry County: 1) Buist Game Management Area

Jasper County: 1) Turtle Island

As new acquisitions are made into the State system of wildlife preserves and game management areas, these will be designated as GAPCs in the South Carolina coastal zone.

C. State Parks

State park facilities in the coastal zone are valuable resources for the recreational, scenic and educational enrichment of residents and visitors alike. Because of this significance, major existing parks have been recognized as Geographic Areas of Particular Concern.

Management Authority

The South Carolina Department of Parks, Recreation and Tourism (PRT) is mandated to control and maintain

the State parks system, and can accept or purchase lands for this purpose, with approval of the State Budget and Control Board (§ 51-71, S.C. Code of Laws, 1976). PRT must prepare a master plan for each major park facility, identifying plans for development of facilities, and the preservation and use guidelines for the park.

On a more long-range basis, PRT is developing an update to the South Carolina State Comprehensive Outdoor Recreation Plan (SCORP). The function of SCORP is to provide a guide for statewide recreation planning and development, and to maintain eligibility for Land and Water Conservation funds from the Federal Bureau of Outdoor Recreation.

Where critical areas form part or all of State park facilities, the Coastal Council will also have regulatory control. Any alterations within critical areas must obtain a Coastal Council permit. This authority will aid in assuring that the use and development of these cherished recreational resources remain consistent with policies and guidelines of the State's coastal zone program.

Inventory

The organization of studies for SCORP centers on six volumes, covering public and private outdoor and indoor recreation systems. Volume I of this planning process was a complete inventory of the State's physical characteristics, natural resources, and existing recreation facilities. This information has been made available to the Office of Coastal Planning. Consultation with staff of PRT has identified the existing major parks in the eight county coastal zone (roadside parks, small neighborhood parks, and the like, have been exempted), and these have been mapped on 7½" U.S.G.S. quadrangle overlays.

Priority of Uses

The following are the uses of priority for State Parks beginning with the use of highest priority:

- 1) Varied recreational activities open to the public;
- 2) Non-intensive uses which require minimal feasible alteration and maintain the natural functions of the area;
- 3) Provision of educational opportunities to visitors of the parks.

Designated Sites

The following existing State parks are designated GAPCs, and are shown in the map appendix.

Beaufort County:	1) Hunting Island State Park
Charleston County:	1) Charlestowne Landing
Colleton County:	1) Givhan's Ferry State Park 2) Edisto Beach State Park
Dorchester County:	1) Givhan's Ferry State Park
Georgetown County:	1) Huntington Beach State Park
Horry County:	1) Myrtle Beach State Park

As PRT and the Coastal Council identify other recreational resources which warrant particular State concern in the coastal program, these will be reviewed for designation. Proposed park sites should be included as priority or potential GAPCs. When new sites are added to the State parks system, these will be designated automatically.

D. Scenic Rivers

South Carolina is fortunate to have many river segments that still remain in a natural or near natural state. As such, these areas represent an important historical, cultural, and recreational resource. Rivers were the primary transportation system for early America, both for Indians and the later explorers and settlers. Consequently, archeological sites are found at waterfront locations.

Bounded by large expanses of swamp, several Lowcountry river segments have witnessed little development pressure and remain in primarily wilderness conditions. Other segments are good representatives of natural areas with wide species diversity.

As recreational resources, the rivers serve as a "one-way water trail", offering boaters a unique sense of adventure. The silent movement of a canoe affords the opportunity to observe numerous wildlife species which it would not be possible to approach in other modes of transportation. The recreational potential of South Carolina's coastal rivers is both impressive and unique.

In recognition of this tremendous resource, the Coastal Council recognizes river segments which have been designated as Scenic Rivers as Geographic Areas of Particular Concern.

Management Authority

In an effort to preserve and protect South Carolina's rivers, the 1974 South Carolina General Assembly passed the Scenic Rivers Act (Act 1106), which authorized the Water Resources Commission to designate scenic rivers. Proposals for designation may be made by State agencies, local governments, or citizens groups. To qualify, a river must possess unique and outstanding scenic, recreational, geologic, fish and wildlife, historic or cultural values,

in addition to relatively unpolluted waters.

The Water Resources Commission is mandated to develop a comprehensive water and related use plan for designated rivers, with emphasis on protecting the significant resources of these scenic rivers. The Wildlife and Marine Resources Department assists the Commission in formulating and enforcing these plans and regulations.

The management plans for each river segment must address the following:

Class I -- Maintenance of the wilderness character, with camping and river access allowed only at designated public access areas. Prohibiting new roads or buildings, mining and commercial timber harvesting.

Class II -- Preservation of the scenic values, with riparian landowners allowed customary agricultural activities, silviculture, and construction of compatible farm-use buildings. Mining and construction of roads paralleling the river are prohibited.

Class III -- Preservation of the scenic values, with landowners allowed agricultural, residential, recreation, commercial, and light industrial activities. Mining and construction of new roads paralleling the river are prohibited.

Where all or portions of a designated scenic river is located in the critical areas of the coastal zone, the South Carolina Coastal Council will also have management authority. A permit would be required for any activities or alterations in such a river segment.

The Federal Wild and Scenic Rivers Act (P.L. 90-542) was enacted in 1968. The three basic river classifications in that Act are 1) wild; 2) scenic; and 3) recreational. These classifications generally parallel the three categories in the South Carolina Act, however, rules for management in the Federal law are more rigorous.

There are presently no national wild and scenic rivers in the coastal zone of South Carolina. However,

the Federal Bureau of Outdoor Recreation has inventoried numerous rivers in the coastal zone of South Carolina.

Criteria for Designation

The following criteria are those established for a river segment to qualify under the South Carolina

Scenic Rivers program:

Class I -- Natural river

- i) it must be free-flowing (no impoundments or diversions)
- ii) the shorelines and scenic vistas must be essentially unchanged by man
- iii) there must be no extensive paralleling roads closer than one mile
- iv) in river gorges, there must be no extensive paralleling roads within one-quarter of the rim
- v) there must be only a limited number of road crossings and spur roads

Class II -- Pastoral river

May be partially or predominately used for agriculture, silviculture and other dispersed human activities which do not substantially interfere with public use and enjoyment of rivers and the shores.

Class III -- Partially developed

The adjacent areas may be affected by works of man, but still possess actual or potential scenic, recreational or historic values.

Inventory

The Water Resources Commission has inventoried several rivers in the eight coastal counties. They are: the Little Pee Dee, Black, Edisto, Combahee, Salkehatchie, and Ashley Rivers. These same rivers have been inventoried by the Federal Bureau of Outdoor Recreation and are being considered as potential designations under the Federal program. Information collected by the Commission includes flow characteristics, water quality, vegetation

and wildlife data, and recreational amenities.

Priority of Uses

The following are the uses of priority for Scenic Rivers beginning with the use of highest priority:

- 1) Uses which are consistent with the management plans developed by the Water Resources Commission with the assistance of WMRD. Each plan will be a comprehensive water and related use plan designed to protect the significant resources of each river section designated;
- 2) Uses which maintain long-term natural functions of the river while affording public recreational activities, especially those of a passive nature.

The lowest priority uses would be those not related to the goals of the Scenic Rivers Program but which do not alter, reduce, or degrade the river resources or the integrity of the Scenic Rivers Program.

Designated Sites

To date, there are no Scenic River segments in the coastal zone. When designations are made and easements or titles donated, these rivers automatically will be considered to qualify as GAPCs.

NOTE: The Ashley River, in Dorchester and Charleston Counties, has been named as eligible for designation. It appears to meet the Class II qualifications, but various segments may be given different classifications. If and

when donations are made, individual management plans will be formulated for each donation. Since this river segment is particularly rich in historical resources, the South Carolina Department of Archives and History is assisting the Commission in assessing the intentions of adjacent landowners regarding donation.

E. Marine and Estuarine Sanctuaries

The coastal waters and wetlands of the State are valuable natural resources which have yet to be spoiled by development or real estate speculation. The preservation and protection of these resources is paramount in determining the growth of the seafood, as well as the tourist industries. There are many citizen groups active in pursuing these goals; and State governmental agencies, in particular, the South Carolina Wildlife & Marine Resources Department, have instituted research programs to document and inventory the marine environment. On this basis, the Coastal Council feels that any area designated by the State of South Carolina, in conjunction with the U.S. Department of Commerce, as a marine or estuarine sanctuary will be a Geographic Area of Particular Concern (GAPC).

1. Marine Sanctuaries

Management Authority

Title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1061), provides the Secretary of Commerce, with approval from the President, the power to designate those areas of ocean

waters as far seaward as the outer edge of the Continental shelf, and all other coastal waters where the tide ebbs and flows, as marine sanctuaries. These sanctuaries are intended to preserve or restore such areas for their conservation, recreational, ecological or aesthetic values. The Secretary of Commerce, prior to designating a marine sanctuary, must consult with the Secretaries of State, Defense, Interior, and Transportation and give due consideration to the views of the responsible officials of the affected state. The designation becomes effective sixty days after it is published, unless the governor of the state involved certified to the Secretary of Commerce the designation, or specified portion, which is unacceptable to his/her state. In this case the designated sanctuary will not include the certified unacceptable areas or become final until such time as the governor withdraws his certification of unacceptability.

On March 13, 1974, the Secretary of Commerce authorized the Administrator of the National Oceanic and Atmospheric Administration to exercise the authority granted under Title III. With this authority, NOAA has to develop proposed objectives, guidelines, criteria and procedures for designation of marine sanctuaries.

Potential marine sanctuary sites, where development seems imminent, are screened by the Federal Office of Coastal Zone Management (OCZM) and the National Marine Fisheries Service. Development includes potential offshore as well as onshore sites, and is considered "imminent" if it is likely to occur within 18 months, or if actions to be taken within 18 months will establish the likelihood of development. OCZM offers the opportunity for state coastal zone management offices, commercial fishing organizations, development interests, environmental groups and the public-at-large to submit recommendations for marine sanctuary sites.

If any marine sanctuary areas are designated by the Secretary of Commerce, the S.C. Coastal Council is mandated under the State coastal zone management law (sec. 5(j) Act #123 of 1977) "to manage estuarine and marine

sanctuaries and regulate all activities therein, including the regulation of the use of coastal waters located within the boundary of such sanctuary". The primary management authority would rest with the S.C. Coastal Council. Its regulatory authority would also apply since any marine sanctuary would be located within the State's critical areas.

To date, the general management principles for marine sanctuaries mainly address regulation of development to be harmonious with the overlying principles of preservation and protection of the sanctuary. The classification of these areas will not affect multiple use which may be permitted to the extent the uses are compatible with the primary purpose(s) for which each sanctuary is established. The establishment of marine sanctuaries may be to complement public or private, local, State or Federal government lands, which have been set aside for similar purposes. The overall management of the sanctuary must include an initial and comprehensive environmental assessment (this should complement the original EIS which must be submitted upon nomination). A continued monitoring program and guidelines to enforce the policies also must be formulated.

Criteria for Designation

The program objectives for marine sanctuaries emphasize the idea of preserving, restoring or enhancing these areas for their conservational, recreational, ecological, research or aesthetic values. Examples of coastal waters which might meet designation status include:

- (a) Areas necessary to protect valuable, unique or endangered marine life, geological features, and oceanographic features;
- (b) Areas to complement and enhance public areas such as parks, national or state monuments and other preserved areas;

- (c) Areas important to the survival and preservation of the nation's fisheries and other ocean resources;
- (d) Areas to advance and promote research which will lead to a more thorough understanding of the marine ecosystem and the impact of man's activities.

2. Estuarine Sanctuaries

Management Authority

Section 315 of the Federal Coastal Zone Management Act of 1972 addresses the subject of estuarine sanctuaries and states that the Secretary may "make grants to any coastal state for the purpose of acquiring, developing, or operating estuarine sanctuaries...". Thus, the initiative for participating in the estuarine sanctuary program lies with the state, whereas nominations for marine sanctuaries can come from local, state or federal agencies or any interested persons.

The term "estuarine sanctuary", as defined in the Act, means "a research area which may include any part or all of an estuary and island, transitional area, and upland in, adjoining, or adjacent to such estuary, and which constitutes to the extent feasible a natural unit...". The purpose of establishing an estuarine sanctuary is to set aside an area which would serve as a natural field laboratory where studies of "natural and human processes occurring within the estuaries of the coastal zone" can be made by scientists and students. (Federal Register, Vol. 39, No. 108, Part IV, June 4, 1974).

These sanctuaries would be areas which are relatively undisturbed by man at the time of acquisition and, therefore, could be used to make baseline ecological measurements. The designation of these areas would provide them with long term protection, and multiple use of the sanctuaries would be allowed to the extent that such use or uses

are compatible with the primary uses of research and education.

The estuarine sanctuary program is intended to provide research data which would assist in coastal zone management decision-making. The State's coastal zone management program must be designed to protect the estuarine sanctuary. Management of estuarine sanctuary, and land and water use regulations and planning considerations must be applied to adjacent lands. Management of estuarine sanctuaries is the responsibility of the applicant state, and the sanctuaries are intended to be incorporated into the state coastal zone management program. However, designation does not have to await the development and approval of a state's management program where operation of the sanctuary would aid in program development.

In South Carolina, the Coastal Council and the management program, which is its responsibility, would have authority for estuarine sanctuary planning and implementation of the necessary management policies and techniques. At this time, there are no designated estuarine sanctuaries in the S.C. coastal zone.

Criteria for Designation

State applications for grants to establish estuarine sanctuaries are carefully reviewed and judged on the following criteria:

1. Benefit to the coastal zone management program;
2. The ecological characteristics of the ecosystem, including its biological productivity, diversity and representativeness.
3. Size and choice of boundaries (should approximate a natural ecological unit);
4. Cost (Federal share of the cost for each sanctuary is limited to \$2,000,000.);

5. Enhancement of non-competitive uses;
6. Proximity and access to existing research facilities.
7. Availability of suitable alternative sites already protected which might be capable of providing the same use or benefit;
8. Conflict with existing or potential competing uses;
9. Compatibility with existing or proposed land and water use in contiguous areas.

Inventory (1 and 2)

Inventories and studies have been accomplished, or are in the process of being completed, for most of the natural resources present in the coastal zone. Presently, "An Environmental Base Line Study of South Carolina Estuaries" is underway. Begun in February, 1973 by the S.C. Wildlife & Marine Resources Department (WMRD), this research is to determine basic biological, chemical and physical characteristics, and their interactions over a several year period. This study is funded by the Coastal Plains Regional Commission, WMRD and the U.S. Army Corps of Engineers. An inventory of S.C. coastal marshes has recently been completed by WMRD personnel, and research to determine major wetland plant species productivity is nearing completion. Both of these studies were funded, in part, by the S.C. Coastal Council, Office of Coastal Planning.

Additionally, WMRD is funding studies dealing with recreational fishing, over-wintering shrimp management, shellfish resources and anadromous and ground fish stock assessments. The College of Charleston, under a grant from the U.S. Environmental Protection Agency, is beginning a study to document food webs, populations and productivity in a southeast coastal marsh. The University of South Carolina has recently finished and published a report through

the Environmental Protection Agency entitled "The Dynamics of an Estuary as a Natural Ecosystem". The National Marine Fisheries Service has published a recent investigation by staff from WWRD and the College of Charleston entitled: "The Macrofauna of the Surf Zone off Folly Beach, South Carolina." The S.C. Water Resources Commission has funded many past studies including the "Port Royal Sound Environmental Study," "Wando River Environmental Quality Study," "The Cooper River Environmental Study," "The Tidelands Report," "Lower Santee River Environmental Quality Study," "Wando River Aerial Imagery and Marsh Productivity Study," "Volumetric and Related Characteristics of the Back River Reservoir near Charleston, S.C." Finally, the U.S. Fish & Wildlife Service is funding a 21 month study to characterize the sea islands of the S.C. and Georgia coasts through WWRD.

Priority of Uses

Priority of uses will be determined for each sanctuary as it might be designated in the future. The priority of uses would be developed in accord with the Federal guidelines and monitoring program affecting the sanctuary and the Coastal Council's regulatory authority over sanctuaries.

F. Shellfish Areas

1. Commercial Leases

Commercial harvesting of oysters and clams produced approximately one million dollars of direct revenue

to the State of South Carolina in 1976. The annual catch of oysters was over 1,100,000 pounds of meat, and the clam harvest for the year totalled 172,000 pounds of clam meat. These constitute extremely important economic resources of the coastal zone, and as such, the areas suitable for shellfish production in the coastal waters of the State are very significant. The Coastal Council recognizes those bottom areas leased for commercial shell-fishing as Geographic Areas of Particular Concern.

Management Authority

Section 28-811 of the Code of Laws of South Carolina, covering the Marine Fisheries Laws for the State, authorizes the Wildlife and Marine Resources Department to lease portions of the water bottoms owned or controlled by the State, for the purposes of commercial shellfishing. Any State resident licensed to do business and who makes his/her livelihood primarily or largely through the commercial shell-fishing industry, may lease shell-fish bottoms, in areas totalling not more than 1,000 acres to any one individual. (Leases for other than commercial uses may be made to State residents for areas totalling as many as two acres. The adjacent upland landowner has preference for a two acre lease in adjoining tidewaters, if this application is made before other leases are granted.) These lease agreements are valid for a five year period. Once an application has been made, and the Division of Marine Resources had determined the area capable of producing shellfish, the boundaries are surveyed and established within the terms of the lease. No other leases for gathering shellfish can be granted within the perimeter boundaries.

Each leasee is required to plant 65 bushels of shell or seed oysters for each acre, in an effort to prevent over-harvesting and depletion of this valuable resource. "Each lease or portion of a lease from which oysters are harvested must be replanted during the following planting season." (Section 28-822, S.C. Code of Laws, 1976).

State permits for activities affecting State-owned bottoms are issued by the S.C. Budget and Control Board. For proposed activities within 1,000 feet of productive shellfish lease areas, leasees are given an opportunity to comment on permit applications. And through memoranda of agreement between the Budget and Control Board and the Department of Health and Environmental Control (DHEC), all activities such as discharges or dredging and fill within 1,000 feet of lease areas are carefully controlled. (DHEC determines water quality criteria and health standards for shellfishing, and the 1,000 feet criterion is a generally accepted standard).

The South Carolina Coastal Council has authority over coastal waters and tidelands to mean high water, and above mean high water where wetlands are contiguous to coastal waters and integrally a part of estuarine systems. A Council permit is required for all activities or alterations in these "critical areas", as defined in Section 3 of Act 123 of 1977. In assessing permit applications, the Council must consider "The extent to which the applicant's completed project would affect the production of fish, shrimp, oysters, crabs or clams or any marine life or wildlife, or other natural resources in a particular area." (Section 15 (3)) The Interim Rules and Regulations for the Permit Process (Chapter 28, r. 32-1 through 32-11, State Register), state specifically that consideration will be given to the rights of the leasee when permits are being evaluated for construction

of docks or piers over shellfish lease areas.

2. Recreational Shellfish Grounds

Recreational shellfishing is a popular outdoor activity along the coast of South Carolina. Gathering oysters and clams is not only a unique form of recreation, but a source of fresh seafood for families of the area. As a valuable coastal resource and habitat of a significant living marine resource, recreational shellfish grounds are recognized as Geographic Areas of Particular Concern.

Public oyster grounds are areas along the South Carolina coast where State residents may gather shellfish for their personal use, and these areas must be designated with metal signposts. State shellfish grounds, also marked with signs, are open to all recreational shellfishermen, and by permit to commercial shellfishermen (who may obtain their shells or seed oysters from these State-owned beds).

Management Authority

The Division of Marine Resources is mandated to keep open shellfishing areas for the personal use of S. C. residents, with approval by the County legislative delegations. These public shellfish beds are not to exceed 50 acres in any one county, and their maintenance and adequate marking is the responsibility of the Division. (Section 28-792, S. C. Code of Laws, 1976).

The regulations for shellfishing, Section 28-761 of S.C. Code of Laws, apply to recreational shellfishing, and establish the season and the limits for gathering. The Marine Resources Division, Office of

Conservation & Management of the S. C. Wildlife and Marine Resources Department (WMRD) has jurisdiction over these areas, and conducts numerous management activities, including maintenance of markers; planting of shell and seed oysters, and thinning of over-crowded beds; and periodic surveying of additional productive areas.

The same management authorities of the Budget and Control Board, Department of Health and Environmental Control, and the South Carolina Coastal Council, apply to public and State shellfish grounds as are applicable in commercial lease areas. A detailed discussion is offered in Part 1 of G. Shellfish Areas.

Inventory

Shellfish areas have been included on the Office of Coastal Planning's 7½" U.S.G.S. quadrangle overlay map system, and the information can be computerized readily. This data was made available partly through cooperation with the Division of Marine Resources. In addition, commercial leases must be recorded with the Clerk of the Court in the county of jurisdiction, and this was another source of detailed inventory information. As new areas are leased or assigned for public use, or as shellfish grounds are removed from production or closed to shell-fishing, these changes can be made in the mapped data.

Priority of Uses

The following are the uses of priority for all shellfish areas beginning with the use of highest priority:

- 1) Water-dependent uses which do not reduce or degrade the quality of shellfish lease area or limit access to the area;
- 2) Water-enhanced activities or nonwater-dependent uses which do not reduce or degrade the quality of the shellfish lease area or limit access to the area.

Designated Sites

There are 64 commercial shellfish leases, totalling approximately 5,500 acres in the S.C. coastal zone. There are seven State shellfish grounds and another fifteen public grounds along the coast. The map appendix depicts these shellfish areas. The commercial leases are listed by county in Table I as follows, the State shellfish grounds in Table II, and the public grounds in Table III in Appendix

G. Groundwater Resources

Groundwater is an abundant resource in the coastal zone of South Carolina, however, there are potential problems of quality and quantity. Proper management can ensure the continuing productivity of groundwater resources, but data collection and extensive study are necessary because this is a complex resource. Groundwater can flow vertically, as well as horizontally, and vertical wells can pass through several aquifers. The water

in each aquifer is likely to vary in quantity and quality. In such a case, it is difficult to determine which aquifer(s) might be responsible for the poor water quality or if the capacity of one of the aquifers might be exceeded, at the expected pumpage, to the detriment of other wells in the area.

Because groundwater serves as the vital water supply source for many coastal communities, and the resource may suffer from over-use or waste disposal problems (ie, septic tanks, and seepage from landfills), it is an extremely significant resource of the coastal zone. Those regions which have been identified as potential problem areas, requiring special regulation and coordination of groundwater use, are recognized as Geographic Areas of Particular Concern.

Management Authority

The Groundwater Use Act of 1969 (Section 70-31, S.C. Code of Laws, 1976) authorizes the Water Resources Commission to designate "capacity use areas" (CUA). The South Carolina Coastal Council supports the implementation of this act and designation of CUA's by Water Resources as significantly important. The designation process is as follows: A county, municipality or sub-division of State government may request a review by the Commission if it is believed that a situation exists, or is emerging, where the use of groundwater may require coordination or regulation to protect the interests and rights of residents, property owners or the general public. The Executive Director will then conduct an investigation and submit the findings and recommendations to the Commission. Recommendations will include identification of area groundwater problems, appropriate conservation measures, and boundaries of a CUA.

Based on the report, the Commission may adopt an order declaring a CUA, give public notice of the declaration, and hold at least one public hearing. After the public hearing, the Commission will take final action on the CUA designation and publish that action as part of its official regulations.

Once a CUA has been designated, the Commission instructs the Executive Director to prepare proposed regulations commensurate with the degree of control which is needed. The Commission must hold at least one public hearing on the proposed regulations and publish the final action as part of the official rules. These regulations may be modified or revoked, subject to a public hearing.

These regulations may include the following provisions:

- 1) provisions requiring water users to submit reports concerning quantity and source of waters withdrawn and nature of use;
- 2) provisions concerning timing of withdrawals, to abate unreasonable adverse effects and salt water encroachment; and
- 3) provisions concerning well depth, spacing controls, prescribed pumping levels, and maximum pumping rates.

When adopting or modifying the regulations and when reviewing permit applications, the Commission will consider the following:

- 1) number of persons using an aquifer and their respective withdrawals;
- 2) nature and size of the aquifer;

- 3) physical and chemical nature of any impairment of the aquifer;
- 4) probable severity and duration of such an impairment;
- 5) injury to public health, safety or welfare which may result if such impairment were not prevented or abated;
- 6) kinds of businesses or activities related to groundwater uses;
- 7) the importance and necessity of the uses claimed by permit applicants and the extent of any injury or detriment expected to be caused to other water users; and
- 8) diversion or reduction in flows in other water courses or aquifers.

The South Carolina Department of Health and Environmental Control (DHEC) also has legal authority to protect groundwater resources, with regard to surface pollution. This is accomplished through a statewide permitting system for septic tanks and waste disposal by earth burial. (Acts 1157, 1094, 203 and 1492; Sections 32-8, 1202 and 1251, S.C. Code of Laws, 1976; regulations PC-SW-1 and 2; SCPCA-SWG-1, 2 and 3).

Criteria for Designation

The decision to designate a capacity use area is based on the report of the Executive Director of the Water Resources Commission, which describes the groundwater situation and trends. If the situation is poor or deteriorating such that the public interest is in jeopardy, a CUA is likely to be declared. Once this happens, no person shall withdraw, obtain or utilize groundwater in excess of 100,000 gallons per day (gpd) without

first obtaining a permit from the Water Resources Commission. All permits will be subject to the CUA regulations adopted by the Commission.

Inventory

Presently, the Water Resources Commission is undertaking three capacity use area investigations in the coastal zone.

CUA Investigation

Lowcountry Area
Trident Area
Grand Strand Area

Counties

Colleton, Hampton, Jasper, Beaufort,
Charleston, Berkeley, Dorchester,
Horry, Georgetown

The CUA studies are funded jointly by the Water Resources Commission, the U.S. Geological Survey, and the Coastal Plains Regional Commission. Reports for the Lowcountry and Grand Strand areas should be submitted to the Water Resources Commission by February, 1978. The Commission will then designate CUA's, if deemed necessary. Progress reports indicate groundwater problems do exist in these areas, thus CUA designation seems likely. The major problem in the Lowcountry area seems to be salt water intrusion; in the Grand Strand area, the main problem seems to be a high fluoride content, stemming from a mineral which occurs in phosphate rock.

The study of the Trident area may not be completed until 1980. Drinking water is not as serious a concern here because the majority of the population is served by a large surface water source; however, shallow wells in rural areas are still a concern. Also, subsidence and landsurface collapse have occurred in areas under-

lain at shallow depths by the Santee Limestone aquifer. This area is a potential CUA.

Priority of Uses

The following are the uses of priority for all areas designated by the Water Resources Commission as "capacity use areas" (CUA) under the Groundwater Use Act of 1969, beginning with the use of highest priority:

- 1) Uses which do not reduce the groundwater reserves within a designated CUA;
- 2) Uses which are consistent with all provisions and the regulations developed by the Water Resource Commission pertaining to each CUA;
- 3) Uses which are compatible with the long-term resources within each CUA. When evaluating long-term capability, both individual uses and the cumulative effect of the current patterns of individual uses within the CUA must be considered;
- 4) Uses which would not result in irretrievable commitment of groundwater reserves in CUAs.

Designated Sites:

Currently, there are no CUAs in the coastal zone. Studies being conducted by the Water Resources Commission may result in CUA designation in the near future. At such time as areas in the coastal zone become CUAs, either the entire capacity use area or parts of the capacity use area (depending upon the "degree of seriousness"

evaluation by the Water Resources Commission) will be designated as GAPC's.

H. Threatened or Endangered Species Habitats

Policy has been affirmed by both the Federal government and State government in South Carolina that conservation of the natural ecosystem upon which endangered and threatened species depend is a high priority. Untempered economic growth and development can result in the depletion or extinction of various species of fish, wildlife and plants. These species of fish, wildlife and plants are esthetic, ecological, educational, historical, recreational, and scientific value to our people, our Nation, and to the international community.

The United States has committed itself through numerous treaties with other countries to a pledge of conservation involving migratory birds, fisheries and wildlife preservation, for example. The scope of our responsibility as people and a Nation to protect the delicate balance of the natural ecosystem is demonstrated by these treaties of Federal and State legislation. As a result, the South Carolina Coastal Council will recognize all designated threatened and endangered species habitats as Geographic Areas of Particular Concern.

Management Authority

In view of the National and State concern for endangered species, the South Carolina legislature passed

the Non-game and Endangered Species Act in 1974 (Chapter 15, Section 50-15-10 through 50-15-90, S.C. Code of Laws, 1976). The Act instructs the Wildlife and Marine Resources Commission to conduct investigations on non-game wildlife to determine population distribution, habitat needs, limiting factors, and management measures necessary for their continued existence. Based on such investigations, the Commission must issue appropriate regulations and develop management programs. The regulations may establish proposed limitations relating to taking, possession, transportation, exportation, processing, sale, offering for sale, or shipment of particular wildlife species.

The Commission is charged with the responsibility to establish programs necessary for the management of non-game and endangered wildlife. The programs may include research, census taking, law enforcement, education, and acquisition of land or aquatic habitats. The Endangered Species Program is coordinated closely with the Heritage Trust Program which allows donations of land or easements.

The Commission must issue a list of State endangered species, including the United States List of Endangered Native Fish and Wildlife and the United States List of Endangered Foreign Fish and Wildlife. The list will be reviewed and updated at least every two years. It is unlawful to take, possess, transport, export, process, sell, offer for sale, ship, or receive any of the identified species. The South Carolina Wildlife and Marine Resources Department (WMRD) is directed to enforce the Act and may issue special permits for scientific, educational, or other purposes.

The State lists current endangered species and, where appropriate, may designate critical habitat areas. Critical habitat areas are specific land tracts that are necessary for the survival of an endangered species, according to the Federal Endangered Species Act. The State Heritage Trust Program and Endangered Species Program

work in close coordination in assessing, acquiring and managing sites that constitute endangered species habitat. If a critical area is formally designated, the effects of any Federally funded program in that area must be more carefully considered. This review by the State clearinghouse is an indirect extension of State management authority effectuated under the Federal Endangered Species Act of 1973. The Secretary of Interior makes the final conflict resolution in such a situation.

The Federal Endangered Species Act of 1973 (PL 92-205, December, 1973, amended by PL 94-32, June, 1976, and PL 94-359, July, 1976) was passed with the purpose of providing

a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species (Sec. 2, (b)).

The national policy is stated as follows:

all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.

The Secretary of Interior is authorized to publish a listing of endangered and threatened species based on the best available scientific data, and, thereafter, to establish rules and regulations regarding the control of taking, sale, import, export, or other disruption of each species. Endangered species are those in danger of extinction throughout all or a significant portion of their range. Threatened species are defined as those likely to become endangered within the foreseeable future.

The bases of the South Carolina and national programs are parallel, and the protective mechanisms similar in that impact on endangered species is considered. In addition, as previously mentioned, the species identified

on the Federal list are included on the S.C. Endangered Species list.

The South Carolina Coastal Council is mandated to consider impacts on wildlife species in granting of permits or activities in critical areas of the coastal zone. The Council will also review and comment on other permits, applications, environmental impact statements and Federally-funded projects (A-95 process) throughout the coastal zone. The Council comments will include an evaluation of the potential impacts on any designated critical habitats for rare or endangered species.

Criteria for Designation

South Carolina Endangered Species are any species of wildlife whose prospect for survival or recruitment within the State are in jeopardy or likely to become so in the foreseeable future. The causes may be;

1) destruction or modification of habitat; 2) species over-utilization for scientific, commercial, or sporting purposes; and 3) other natural or man-made factors. Species on the Federal endangered species lists for native or foreign fish and wildlife are included.

Inventory

An initial Endangered Species Symposium was held in Charleston in November, 1976, at which time Committees of knowledgeable experts and concerned individuals were established. A list of endangered species and "species of special concern" was developed with the aid of these committees. These committees and the ongoing endangered species programs constitute the inventory required for periodic update of the State listing. The

South Carolina Endangered Species list is attached as an appendix.

Priority of Uses

The following are the uses of priority for all areas identified or designated as critical habitats for threatened and endangered species beginning with the use of highest priority:

- 1) Uses which are compatible with all regulations and management programs developed to protect any designated habitat area under the Federal or State Endangered Species Acts;
- 2) Uses which maintain the natural functions of areas identified or designated as critical habitat areas of species listed on the State or Federal threatened or endangered species lists;
- 3) Non-structural, non-intensive uses which do not create irretrievable damage to any species listed as a threatened species.

Within an area officially designated as a critical area habitat under the State or Federal Endangered Species Acts, uses are prohibited which violate the integrity of the State or Federal legislation.

Designated Sites

Certain critical habitats areas have been identified but no formal designations have been made to date since most of these areas have already been a part of Federal or State preserves or refuges on the coast. At such time as specific habitat areas are designated and management guidelines or rules and regulations are promulgated, these will be adopted as GAPCs.

II. ACTIVITIES OR FACILITIES DEPENDENT ON COASTAL LOCATION

This category includes those activities which are dependent on their proximity to coastal waters, in terms of use or access; or on proximity to specific coastal resources, such as minerals or other raw materials. (For initial purposes, port facilities and actively operating mining sites have been identified.)

Industrial and commercial uses are crucial to the economy of the South Carolina coastal zone. In addition to preservation and protection of natural areas, the State's coastal zone management program must address the development of coastal resources. It must provide the citizens of the State with guidance on the best manner in which to capitalize on development opportunities while minimizing negative environmental effects, disruption of other coastal resources, or infringement on the rights of other coastal property owners.

In subsequent portions of the coastal zone management program, industrial activities and energy production facilities which may have direct and significant impact on coastal waters must be identified, and the Council must develop policies and guidelines for these activities in the coastal zone.

Uses and facilities dependent on coastal location, for water access or proximity to other coastal resources, are recognized as Geographic Areas of Particular Concern, due to their unique dependence on coastal location, and because of the economic importance and possible environmental impacts of these activities.

Criteria for Designation

To qualify as a GAPC under this category, an area or facility must meet one or more of the following criteria:

- 1) Significant quantities of water, such that it can only be obtained in a coastal location, are an absolutely necessary component of the process for a particular industrial or commercial activity;
- 2) Access to coastal waters, primarily for transportation purposes, not only enhances, but is fundamental to the given activity; or
- 3) Minerals, energy-related resources, or other coastal resources occurring in the coastal zone are the primary purpose of an activity, which is the major source of income for a given individual or company, and proximity to that resource is vital to success of the operation.

A. State Ports

Economists at the University of South Carolina estimate that the State Ports have an impact throughout the State of almost \$600 million per year, representing direct and indirect employment of about 35,000 jobs. State Ports facilities are a major attraction of industrial investments, and also play an important role for South Carolina agriculture, which exports 29 percent of its total production value.

These valuable economic assets are, by definition, dependent on their coastal location for access to the transportation corridor provided by coastal waters. While their maintenance and further development are vital to the South Carolina economy, these activities can have significant environmental impacts, and also secondary

development effects, particularly on other industrial and commercial uses and on public services, such as transportation.

Because of their importance as an economic resource and their dependence on a coastal location, the port facilities in South Carolina have been recognized as Geographic Areas of Particular Concern.

Management Authority

The South Carolina State Ports Authority (SPA) was created by Act 626 of the 1942 South Carolina General Assembly (Sections 54-1, -12, -15, and -20, S.C. Code of Laws, 1976). Under direction of a seven member board appointed by the governor, the SPA has the responsibility for development, construction, operation, and promotion of the State's ports. The SPA has jurisdiction over waters, shores, and tidal tributaries of the harbor at Charleston, Georgetown and Port Royal. It has the power to sue and be sued; the power of eminent domain; the power to acquire and dispose of property, and to take State property not otherwise in use; and the authority to issue revenue bonds.

Section II of the South Carolina Coastal Zone Management Act (Act 123 of the 1977 South Carolina General Assembly) has mandated another requirement for the SPA. It reads as follows:

The South Carolina State Ports Authority shall prepare and submit to the Council a management plan for port and harbor facilities and navigation channels. Upon approval by the Council of such management plan it shall become part of the comprehensive coastal management program developed by the Council. The South Carolina State Ports Authority shall include in the management plan a design-

nation of the geographical area appropriate for use by public and private port and harbor facilities and military and naval facilities and submit this to the Council for approval.

Joint development of this required port and harbor management plan, coupled with the Coastal Council's permit authority in the critical areas, including coastal waters and wetlands that might be part of a harbor area, will result in coordinated efforts between the SPA and the Coastal Council. And it will ensure that port modifications or expansion activities, and management of the ports system remain consistent with the goals of coastal zone planning.

Inventory

Information on existing SPA properties and facilities was obtained through consultation with SPA staff and the publications which were made available. When submitted, the required ports plan will provide extensive data on existing port facilities and on likely, potential sites for future ports development, which will be considered in identifying and designating additional port-related GAPCs.

Priority of Uses

The following are the uses of priority for all state ports created and operated by the South Carolina State Ports Authority (SPA) beginning with the use of highest priority:

- 1) Uses which require water access or uses for which the water orientation is the central purpose of the activity, such as maritime shipping, fishing,

marine industry, recreational boating and tourist facilities. Included in the uses of highest priority for state ports are provisions to assure safety within the ports. These water-dependent uses should have no prudent or feasible alternative;

- 2) Water-related uses which do not reduce or degrade the natural value or resources within the port;
- 3) Nonwater-dependent or nonwater-related uses which retain future flexibility of the port for water-dependent needs.

Designated Sites

The South Carolina Ports Authority owns and manages the following facilities, which are designated as

GAPCs: Beaufort County: Port Royal-State Pier 21; Charleston County: Port of Charleston; Georgetown County: State Piers 31 and 32.

B. Mining Operations

There are over 344 active mines in South Carolina, which in 1974 had an estimated mineral commodity value of \$120,000,000. Extraction of minerals by mining is a basic and essential activity, making an important contribution to the economic welfare of this State and the Nation.

While it is not practical to extract minerals required by society without distributing the earth's surface and producing waste materials, it is possible to conduct mining in such a way as to minimize its effects on the surrounding environment. Proper reclamation of mined land is necessary to prevent undesirable land and water conditions that would be detrimental to the environment, and to the general health, safety, and welfare, and property rights of the citizens of the State.

As such, areas of ongoing mining operations qualify as Geographic Areas of Particular Concern (GAPCs), due to their geologic, economic, and environmental significance, and their dependence on a coastal location for access to particular mineral resources.

Management Authority

The provisions of Act 274 of the 1973 General Assembly are intended to allow the mining of valuable minerals and provide for the protection of the State's environment with the subsequent beneficial use of the mine and reclaimed land. The expressed purposes of the South Carolina Mining Act are as follows:

- a) That the usefulness, productivity, and scenic values of all lands and waters involved in mining within the State will receive the greatest practical degree of protection and restoration.
- b) That from the effective date of the Act, no mining shall be carried on in the State unless plans for such mining include reasonable provisions for protection of the surrounding environment and for reclamation of the area of land affected by mining.

The Act states that after January 1, 1975, mine operators must obtain an operating permit from the Land Resources Conservation Commission (LRCC). The permit application must be accompanied by a reclamation plan which must be approved by the LRCC, and the permit applicant must file a performance bond to ensure compliance with this reclamation plan.

As an advisory body to the LRCC, the South Carolina Mining Council serves to promulgate rules and regulations necessary to implement the S.C. Mining Act, and also serves as an appeal body for any LRCC decisions. Also serving in an advisory capacity are:

- a) the State Technical Advisory Committee which is composed of State and Federal agencies, universities, and mining industry representatives; and
- b) the County Technical Advisory Committee, which is composed of local members of the Soil and Water Conservation Districts, Soil Conservation Service, Clemson University, the S.C. Forestry Commission, and local government officials.

Assistance from these committees helps insure that the administration of the Mining Act is effective, reasonable, and technically sound.

The required reclamation plans must include:

1. practices to protect adjacent surface resources;
2. specifications for surface gradient restoration;
3. manner and type of re-vegetation;
4. method to prevent conditions hazardous to fish or animal life;

5. method of compliance with State air and water pollution laws;
6. method of rehabilitating settling ponds;
7. method of control of contaminants and mining refuse;
8. method of restoring stream channels and banks to minimize erosion, siltation and pollution;
9. maps as required; and
10. time schedule to be followed.

The LRCC shall deny a permit application if:

1. the operator violates the Act or regulation;
2. the operation has unduly adverse effects on wildlife or freshwater, estuarine, or marine fisheries;
3. the operation violates air quality, surface water quality, or ground water quality standards;
4. the operation constitutes a substantial physical hazard;
5. the operation has a significant adverse effect on a public owned park, forest, or recreation area; or
6. the operator has violated commitments under the permit.

The LRCC may approve a permit application only when it meets the following minimum standards:

1. the final slopes have been minimized;
2. safety provisions to adjoining property are provided;
3. placement of soil complies with accepted conservation practices;

4. no noxious, odious, or foul pools of water remain;
5. methods of re-vegetation and reforestation conform to practices established by the Agricultural Experiment Station of Clemson University and the South Carolina Forestry Commission.

The operator shall file an annual report with the LRCC that describes the reclamation carried out and estimates the acreage to be actively mined in the next twelve months.

The basic idea of the reclamation plan is to develop a strategy for mining a resource and returning the land to an economically useful, environmentally sound, and aesthetically pleasing form. In the coastal zone, ponds or lakes are the main reclamation practice. This is because of availability of water from streams or a high water table. These water bodies must have certain shoreline construction for long-term safety and stability, a certain percent shallow area for spawning, and certain minimum depths to control vegetation. The potential exists for a mining company to turn this reclamation process into a profitable real estate enterprise.

Inventory

Presently all mining operation in the coastal zone of South Carolina are required to have a mining permit and a reclamation plan filed with the Land Resources Conservation Commission. These mining operations have been located on aerial photos by the Coastal Council staff with assistance from LRCC personnel and the U.S. Bureau of Mines. The mine locations have been plotted on U.S.G.S. 7½ minute quadrangle map overlays. The data can readily be entered into computer mapping system. As new mining operations are proposed or discovered, the inventory file can be updated.

Priority of Uses

The following are the uses of priority for all active mining sites within the coastal zone in South Carolina beginning with the use of highest priority:

- 1) The extraction of minerals in a manner consistent with all permit conditions and reclamation plans pertaining to the mining site;
- 2) Uses which do not interfere with the extraction of minerals for which mining permits have been acquired or interfere with the reclamation plans for the site.

Specific Sites

Currently there are five minerals that are mined in significant amounts in the South Carolina coastal zone. They are sand, gravel, limestone, peat, and clay.

A listing of mining operations presently permitted in coastal counties are found in the appendices.

III. AREAS OF SPECIAL HISTORIC, ARCHEOLOGICAL OR CULTURAL SIGNIFICANCE

The coastal zone of South Carolina is rich in historic, archeological, and cultural features. The coastal area was the location of early colonial settlements and, prior to this, the territory of various Indian tribes. Both residents and visitors, alike, perceive these resources as valuable assets and their preservation

and protection as an important issue in the growth and development of the Lowcountry. Historic societies are very active throughout the area, and the value placed on the South Carolina heritage by its citizens cannot be overemphasized. On this basis, areas of specific historic, archeological and cultural significance are felt to be important as Geographic Areas of Particular Concern (GAPCs) in the coastal zone.

Management Authority

To date, there is no specific legislation for historic preservation in South Carolina. However, since 1960, the State, through its Historic Preservation Officer, has developed "a program recognized nationally as an innovative and exemplary type of state-federal partnership in preservation and implementation." (South Carolina Historic Preservation Plan, Vol. III, 1977). Through 1975, this State led all others in annual amount of federal funds received for preservation programs.

The National Historic Preservation Act of 1966, states that,

"The Secretary of the Interior is authorized to expend and maintain a national register of districts, sites, buildings, structures and objects significant in American history, architecture, archeology and culture, hereinafter referred to as the National Register...."

Executive Order 11593, of May 13, 1971, further emphasized the leadership of the Federal government in historic preservation efforts.

The National Register program is implemented and administered by State Historic Preservation Officers (SHPOs), who are responsible for the survey and nomination process, in conjunction with a review board of pro-

professionals in the field. Also, the SHPO and the State review board are responsible for preparation and review of the State's historic preservation plan, which includes background information on the State (Volume III).

Properties and sites listed on the National Register receive full consideration of their historic or archeological values through the CMB Circular A-95 review process, whereby Federal, State, and local agencies comment on proposed Federal activities or funding. Section 106 of the National Historic Preservation Act of 1966 provides that:

The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally-assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking of any district, site, building, structure, or object that is included in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation...a reasonable opportunity to comment with regard to such undertaking.

In South Carolina, both the Department of Archives and History, Historic Preservation Division, and the Institute for Archeology and Anthropology, as well as the South Carolina Coastal Council, are involved in the State Clearinghouse process for project proposals subject to A-95 review and also review Environmental Impact Statements (EIS), pursuant to the National Environmental Policy Act of 1969. The Historic Preservation Division estimated that they annually review over 500 A-95 project clearances, project notifications, and environmental impact statements for possible impact on the historic environment. While the review and comment process for Federal, federally-assisted, or federally-licensed projects affecting a National Register property does not provide a veto power, it

does ensure that historic values are thoroughly considered. Experience with the process has shown ample regard is given to relevant comments or objections by State agencies.

The S.C. Coastal Council is mandated to consider historic and archeological resources in implementation of its permitting authority in critical areas of the coastal zone. In evaluating applications for alterations in the critical areas, the Council must consider, among other factors, "the extent to which the development could affect....irreplaceable historic and archeological sites of South Carolina's coastal zone" (§15 (6), Act 123 of 1977).

Because of the scope of jurisdiction and the requirement for management authority for GAPCs, only those historic and archeological sites which have been named to the National Historic Register can be designated as GAPCs. The Coastal Council's inventory will provide staff at the Office of Coastal Planning with complete information on all known historic and archeological sites for permit assessments and project evaluations. As those sites listed achieve National Register status, they will automatically be designated as GAPCs.

Inventory

The State of South Carolina has had an active Statewide Historic Preservation Program since 1969, based on the National Historic Preservation Act of 1966. One of the major functions of the Historic Preservation Division of the Department of Archives and History has been an inventory identifying more than 6,000 sites in the State, reflecting 300 years of State history and over a thousand years of prehistory. Under contract with the Department of Archives and History, as well as the Coastal Council, the regional Councils of Government also have

been contributing to this inventory and research effort.

The University of South Carolina Institute of Archeology and Anthropology has an on-going statewide survey and mapping program for identification of both archeological and historic sites. (The Institute operates under contract to the Interagency Archeological Program, as mandated by the Federal Archeological and Historic Preservation Act of 1960, amended in 1974. This program under responsibility of the Department of Interior contracts with qualified state and private educational and scientific institutions to perform necessary research and surveys to meet program needs identified by work with other federal agencies).

All of this data for the eight coastal counties has been made available to the Office of Coastal Planning, and the historic and archeological sites have been added to the coastal map overlay system on U.S.G.S. 7½" quadrangle maps. For reasons of confidentiality, to protect unmanaged sites from looting or destruction, the majority of this information will be limited to in-house use, for review and evaluation of permits and project proposals. From this thorough inventory, sites which have been named to the Historic Register will be designated as GAPCs.

Criteria for Designation

The following criteria are those adopted by the Secretary of the Interior and are used in nominating sites to the National Register. These evaluation criteria are recognized by the Coastal Council for designating GAPCs under this category.

The quality of significance in American history, architecture, archeology, and culture is present in

districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and;

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;

D. that have yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

A. a religious property deriving primary significance from architectural or artistic distinction or historical importance; or

B. a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person

or event, or

- C. a birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his productive life; or
- D. a cemetery which derives its primary significance from graves or persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- E. a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- F. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance; or
- G. a property achieving significance within the past 50 years if it is of exceptional importance.

Priority of Uses

The following are the uses of priority for areas of special historic, archeological, or cultural significance which have been named the National Historic Register, beginning with the use of highest priority.

- 1) Uses which preserve the historical or cultural values for which the site was placed on the National Historic Register;
- 2) Educational opportunities for the public regarding the historical, archeological or cultural significance of the sights as long as the site is not disturbed.

Designated Sites

The following historic and archeological sites are on the National Register of Historic Places in the South Carolina coastal zone. They are designated as Geographic Areas of Particular Concern:

- Beaufort County:
- 1) Hilton Head Shell Ring
 - 2) Sea Pines Shell Ring
 - 3) Hassell Point Shell Ring
 - 4) Little Barnwell Island Shell Ring
 - 5) Chester Field Shell Ring
 - 6) The Anchorage
 - 7) William & Elizabeth Barnwell House
 - 8) John A. Cuthbert House
 - 9) Sheldon Church
 - 10) Tabby Manse
 - 11) John Mark Verdier House
 - 12) Tombee Plantation
 - 13) Coffin Point Plantation
 - 14) Auldbrass Plantation
 - 15) Barnwell-Gough House
 - 16) The Marshlands
 - 17) Robert Smalls House
 - 18) Charles Forte
 - 19) Hunting Island State Park Lighthouse
 - 20) Fort Frederick

- Berkeley County:
- 1) Midway Plantation
 - 2) St. Thomas Episcopal Church
 - 3) Middleburg Plantation
 - 4) Pompion Hill Chapel
 - 5) Strawberry Chapel
 - 6) Lewisfield Plantation
 - 7) St. James Goose Creek Church
 - 8) Thomas Broughton Plantation
 - 9) St. Stephen's Episcopal Church
 - 10) Lack Du Plantation

- Charleston County:
- 1) Willtown Bluff/Willtown Town Site
 - 2) Sewee Shell Ring
 - 3) William Aiken House & Associated Railroad Structures
 - 4) Bethel Methodist Church
 - 5) William Blacklock House
 - 6) Daniel Blake Tenement
 - 7) Branford-Horry House
 - 8) Miles Brewton House
 - 9) Robert Brewton House
 - 10) Charleston Historic District
 - 11) Charleston's French Quarter District
 - 12) Citizens & Southern National Bank of S.C. Building
 - 13) College of Charleston
 - 14) Dock Street Theatre
 - 15) The Exchange & Provost
 - 16) Farmers' & Exchange Bank
 - 17) Fireproof Building
 - 18) Fort Sumter
 - 19) William Gibbs House
 - 20) DuBose Heyward House
 - 21) Heyward-Washington House
 - 22) Hibernian Hall
 - 23) Huguenot Church
 - 24) McCrady's Tavern & Long Room
 - 25) McLeod Plantation
 - 26) Joseph Manigault House
 - 27) Market Hall & Sheds
 - 28) Clark Mills Studio
 - 29) James Nicholson House
 - 30) Site of Old Charles Towne
 - 31) Old Marine Hospital
 - 32) The Circular Congregational Church
 - 33) Powder Magazine
 - 34) Robert Barnwell Rhett House
 - 35) Robert William Roper House
 - 36) Thomas Rose House
 - 37) Nathaniel Russell House

- 38) Edward Rutledge House
- 39) Governor John Rutledge House
- 40) St. Michael's Church
- 41) St. Philip's Church
- 42) Simons-Edwards House
- 43) South Carolina National Bank of Charleston
- 44) South Carolina State Arsenal
- 45) Stiles-Hinson-Thompson House
- 46) Col. John Stuart House
- 47) Sword Gates House
- 48) Unitarian Church
- 49) U.S. Customhouse
- 50) U.S. Post Office & Courthouse
- 51) Castle Pinckney
- 52) John Drayton House
- 53) Fenwick Hall Plantation
- 54) Fort Johnson/Powder Magazine
- 55) Magnolia Gardens
- 56) St. Andrews Parish Church
- 57) Arnoldus Vander Horst House
- 58) Fairfield Plantation
- 59) St. James Santee Episcopal Church
- 60) Marshlands Plantation House
- 61) Hampton Plantation
- 62) Mt. Pleasant Historic District
- 63) Old Court House
- 64) Auld Mount
- 65) Buzzards Island Shell Ring
- 66) Christ Church
- 67) Paul Pritchard Shipyard
- 68) Snee Farm
- 69) Stono River Slave Rebellion Site
- 70) Village of Rockville Historic Districts
- 71) Fig Island Shell Ring
- 72) Hanckel Mound Shell Ring
- 73) Horse Island Shell Ring
- 74) John Seabrook Plantation Bridge

- 75) Battery Gadsden
- 76) Battery Thomson
- 77) U.S. Coast Guard Historic District
- 78) Harrietta Plantation
- 79) Johns Island Presbyterian Church
- 80) Ashley Hall Plantation
- 81) Central Baptist Church
- 82) Oakland Plantation
- 83) St. Mary's Roman Catholic Church
- 84) Old Bethel United Methodist Church
- 85) Kahal Kadosh Beth Elohim Synagogue

Colleton County:

- 1) Colleton County Courthouse
- 2) Walterboro Jail
- 3) Walterboro Little Library
- 4) Issac Haynes Hall
- 5) Pon Pon Chapel
- 6) Presbyterian Manse
- 7) William Seabrook House
- 8) Trinity Episcopal Church

Dorchester County:

- 1) Middleton Place
- 2) Indian Fields Methodist Church Campground
- 3) Old Dorchester
- 4) Carroll Place
- 5) Summerville Historic District
- 6) Cypress Methodist Campground

Georgetown County:

- 1) Hopsewee Plantation
- 2) Prince George, Winyah, Episcopal Church House
- 3) Old Market Building
- 4) Annandale Plantation
- 5) Chicora Wood Plantation
- 6) Georgetown Lighthouse
- 7) Prince Frederick's Chapel
- 8) Brookgreen Gardens

Horry County: 1) Old Horry County Jail

Jasper County: 1) Gillisonville Baptist Church
2) Robertson Baptist Church

IV. HAZARD RISK AREAS

The shorelines of the coastal zone are part of a dynamic system, subject to the influences of tides, waves, and wind, and the impacts of storm conditions and flooding. The processes of erosion and accretion of the shorelines are most dramatic along the barrier islands and exposed oceanfront shorelines, particularly at the mouths of inlets and bays.

The beaches, dunes, vegetation, and flood plains of these coastal areas are very important as buffers to possible storm damage in adjacent, more inland areas. At the same time, their proximity to the water makes them popular locations for residential and recreational/commercial development. Extensive development along the shoreline can place both property and lives at stake. In addition, improper development practices can disrupt the natural dynamics which maintain these shoreline areas as effective storm barriers.

Specific parts of the coastline are more susceptible to erosion forces than others, and these high hazard erosion areas warrant even more careful management. Because of the value of South Carolina's coast-

line, as an economic and recreational resource, and as a unique physical feature and natural buffer, those areas which are least stable and have been identified as high erosion areas are recognized as Geographic Areas of Particular Concern.

Management Authority and Inventory

The South Carolina Coastal Zone Management Act (Act 123 of the 1977 South Carolina Legislature) mandates the South Carolina Coastal Council to develop a beach erosion control program. Section 12 of the Act reads as follows:

- (A) The Council shall develop and institute a comprehensive beach erosion control policy that identifies critical erosion areas, evaluates the benefits and costs of erosion control structures funded by the State, considers the dynamic littoral and off-shore drift systems, sand dunes and like items.

The Council's responsibility includes State permitting authority for all construction activities or alterations on the beach and primary sand dune critical areas. The Council also has authority to remove erosion control structures which are deemed to have an adverse effect on the public interest; to receive and expand federal funds for beach or shore erosion control in areas with full public access; and to declare a beach or shore erosion emergency and expend all available State funds to alleviate the acute erosion situation.

The erosion control program and its policies will become a part of South Carolina's overall coastal zone management program, as it is developed and finalized. An inventory of erosion and accretion trends and

shoreline processes will be conducted as part of the planning effort. This comprehensive erosion study will provide information on those segments of the State's shoreline which are most severely eroding. While not yet completed, the study will identify those coastline areas which later will be designated as Geographic Areas of Particular Concern, as well as developing the designation criteria for critically-eroding shorefront.

Priority of Uses

The following are the uses of priority in hazard risk areas beginning with the use of highest priority:

- 1) Water-dependent uses which are warranted by an overriding public need and which do not impose immediate or future substantial costs due to geological, soil or flood conditions. Any construction should be carried out in such a way so as to avoid increasing existing hazards or creating new hazards.
- 2) Non-structural, non-intensive uses which follow the natural contour of the hazard risk area.

Lowest priority uses are public works and structural protective measures which encourage development in hazard risk areas.

REFERENCES

- Bayne, James N. and Rodger W. Mudd. South Carolina Public Land Ownership Inventory State and Federal Owned Lands - 1977 Update. Columbia, S. C.: S. C. Land Resources Conservation Commission, (1977)
- Berkeley-Charleston-Dorchester Regional Planning Council Historic Preservation Plan. Charleston, S.C.: Berkeley-Charleston-Dorchester Regional Planning Council, June 1972.
- Cupka, David, and Margaret Pridgen. Recreational Shellfish Guide. Columbia, S.C.: South Carolina Wildlife and Marine Resources Department, Marine Resource Division, Office of Conservation and Management, Recreational Fisheries Section, September, 1976.
- Greeter, Stuart E., Jr. "Groundwater in the Coastal Plain of South Carolina." Internal Report, S.C. Wildlife Department, 1975.
- Hartzog, Lader & Richards. Public Beach Access and Recreation in South Carolina. Columbia, S.C.: South Carolina Department of Parks, Recreation and Tourism, 1976.
- Lowcountry Regional Planning Council. Preservation Plan and Survey. Lowcountry Region. Yemassee, S.C.: Lowcountry Regional Planning Council, June, 1973.
- Pender, David and Ronald Wilder. Impact of State Ports Authority Upon the Economy of South Carolina.
- Spigner, B.C. "Ground Water Capacity-Use Area Investigation of Lowcountry Area, South Carolina -- a Mid-Term Progress Report." Submitted to Coastal Plains Regional Commission by S.C. Water Resources Commission, 1975.
- South Carolina Department of Parks, Recreation, and Tourism. Executive Summary: South Carolina Outdoor Recreation Plan, 1970/1984. Columbia, S.C.: South Carolina Department of Parks, Recreation and Tourism, 1970.
- South Carolina Land Resources Conservation Commission. Mining and Reclamation in South Carolina. Columbia, S.C.: Land Resources Conservation Commission, 1977.
- South Carolina Land Resources Conservation Commission. South Carolina Mining Act No. 274 (1973). Columbia, S.C.: Land Resources Conservation Commission, 1977.

- South Carolina State Ports Authority. "State Ports Impact on South Carolina's Economy", September, 1977.
- South Carolina State Ports Authority. Port News: "Port Ranking", October, 1977.
- South Carolina Water Resources Commission. "Capacity Use Area Investigation of Lowcountry Area (Colleton, Hampton, Jasper, and Beaufort Counties) South Carolina -- a Six Month Progress Report." Geology-Hydrology Division, S.C. Water Resources Commission, August, 1977.
- South Carolina Water Resources Commission. South Carolina Scenic Rivers Program. Columbia, S.C.: Water Resources Commission.
- South Carolina Wildlife and Marine Resources Department. The South Carolina Heritage Trust, 1976 (Brochure).
- South Carolina Wildlife and Marine Resources Department. "Francis Marion Game Management Area", August, 1976 (Brochure).
- U.S. Department of Interior, Bureau of Outdoor Recreation and U.S. Department of Agriculture, Forest Service. Wild and Scenic Rivers. Washington, D.C.: Government Printing Office, revised 1975.
- U.S. Department of Interior, Fish and Wildlife Service. "Endangered and Threatened Wildlife and Plants." Federal Register Part V (July 14, 1977): 36420-36431.
- U.S. Department of Interior, U.S. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife. "Savannah National Wildlife Refuge." Government Printing Office: 1960-0-333-353. Refuge Leaflet 33-R. (Brochure).
- U.S. Department of Interior, U.S. Fish and Wildlife Service. Final Environmental Statement: Operation of the National Wildlife Refuge System. Government Printing Office: 1976-0-222-029.
- U.S. Department of Interior, U.S. Fish and Wildlife Service, "National Wildlife Refuge System," Washington, March, 1977 (Brochure).
- U.S. Forest Service. Francis Marion National Forest Land Management Plan: Final Environmental Statement. Columbia, S.C., USDA-FS-R8-FES ADM 77-10, August, 1977.
- University of South Carolina, College of Business Administration, Bureau of Business and Economic Research, Division of Research; Occasional Studies Series, No. 6, October, 1974.

Waccamaw Regional Planning and Development Commission. Survey of Historic Places. Georgetown, S.C.: Waccamaw Regional Planning and Development Commission, September, 1971.

The Junior League of Charleston, Inc. Historic Charleston Guidebook, (Compiled and Originally Published as Across the Cobblestones), 1965.

Chamberlain, Samuel and Narcissa Chamberlain. Southern Interiors of Charleston, South Carolina. Hastings House Publishers, New York, 1956.

"Antiques at Charleston". Reprinted from Antiques Magazine, April, May, June, and November, 1970.

2. EROSION CONTROL PROGRAM

The first draft of the Erosion Control Program is expected to be completed by mid October, 1978, and will become part of the final coastal program for South Carolina. This segment of the program will include:

- (1) Brief discussion of the geology and natural shoreline processes of the South Carolina coastline;
- (2) Statistical information on the mileage and acreage of South Carolina beaches and shorelines;
- (3) Identification of erosion problem areas, based on research and long-term trends;
- (4) Analysis of the various erosion control methods and their impacts;
- (5) A legal analysis of the regulatory authority for erosion prevention in South Carolina, and the implementation of the erosion control program;
- (6) Conclusions and erosion policies of the South Carolina Coastal Council.

3. BEACH AND SHORELINE ACCESS

The following is an outline of the Beach and Shoreline Access element which will be completed in the fall of 1978 and will be a part of South Carolina's final coastal management program.

I. Definitions of "beach" and "public beach".

A. "Beach" physical characteristics.

1. S.C. Coastal Zone Management Act statutory and S.C. Coastal Council regulatory definitions.
2. S.C. Coastal Council regulations applying the definition.

B. "Public beach": public ownership or demonstrated public interest.

1. Common law theories applicable to a definition of "public beach" easement by prescription, dedication, customary rights.
2. S.C. case law addressing the level of public use required to confirm public right in beaches.
3. S.C. statutory and regulatory provisions requiring a determination of what constitutes a public beach or public access.

II. Identification of public beaches in South Carolina.

A. Lands owned by the State or held in trust.

B. Lands owned by municipalities.

C. Privately-owned property subject to public use for hunting, fishing, camping, bathing, picnicking.

III. Assessment of existing public access to public beaches and of present and projected needs for greater access and protection.

A. State-held property.

1. State parks.
2. Other State-owned shorefront land.
3. Trust lands.

B. Municipally-owned beaches.

C. Privately owned property subject to public use.

1. Developed commercial property.
2. Developed residential and resort property.
3. Developing communities.
4. Undeveloped property.

IV. Identification of legal authorities, funding programs and management techniques useful for protecting public access to shorefront areas.

A. Delegation of local authority.

1. S.C. Coastal Council statutory authority over local ordinances affecting beaches as critical areas.
2. S.C. Coastal Council duty to cooperate with local governments and to recommend appropriate modifications of ordinances that do not directly involve critical areas.
3. Local police power over safety, traffic, and sanitation regulation and services.
4. S.C. enabling law for municipal regulation of subdivisions.

B. Public funding.

1. Federal CZMA Section 315 matching funds for acquisition of lands to provide for access to public beaches.

2. Eminent domain powers of South Carolina State agencies other than the Coastal Council, which has no powers of eminent domain.
3. Proposed state funding to assist shorefront communities in providing necessary services.
- V. Identifying existing enforceable state policies pertaining to access and protection.
 - A. South Carolina Coastal Council authority over permitting on beaches as "critical areas".
 - B. South Carolina Coastal Council erosion control policy and procedure limiting funding to beaches accessible to the public.
 - C. South Carolina statutory authority supporting recreation as the highest and best use of shorefront areas.

4. LIVING MARINE RESOURCES

The Living Marine Resources segment of the Coastal Management Program is presently being prepared by the Marine Resources Division of the South Carolina Wildlife & Marine Resources Department and should be completed by October of 1978. The text of this segment will follow this outline:

I. Statement of Objectives and Policies

II. General Introduction

A. Wetlands Section

1. Define wetlands
2. Physiography, and geomorphology and hydraulics
3. Classification and environmental parameters
4. Ecology
5. Emergent vegetation
6. Primary production
7. Wetland fauna
8. Energy flow
9. Impacts of construction activities

B. Estuarine - Nearshore waters section

1. Define estuaries and nearshore waters
2. Classify estuaries (According to Hansen & Rattray (1966) and Folger (1972))

3. Environmental Parameters

- a. physical oceanography
- b. hydraulics
- c. physiography
- d. sedimentology

4. Ecology, Resource Assessment and Energy Flow

- a. benthic
- b. mid water layer
- c. surface layer
- d. mud flat
- e. oyster reef
- f. brackish waters
- g. impoundments
- h. beaches and dunes
- i. polluted waters

5. Fisheries Resources

- a. important species to the fishery
- b. capsule life histories of important species

6. Birds, Mammals, Reptiles and Amphibians, and Endangered Species

7. Impacts of Construction Activities

Additionally, an executive summary of this Living Marine Resources segment will be prepared using the following format:

- I. Introduction
- II. Geomorphology
- III. Physical Oceanography
- IV. Shorelines
- V. Wetlands
- VI. Estuarine and Nearshore Waters
- VII. Vegetation
- VIII. Benthos
- IX. Invertebrates
- X. Fishes
- XI. Bird, Mammals, Reptiles, and Amphibians
- XII. Rare and Endangered Species
- XIII. Man's Impacts

chapter four
management authorities
and organization

A. LEGAL AUTHORITIES AND NETWORKING

Purpose of South Carolina's Coastal Management Act

The chief purpose of South Carolina's Coastal Management Act (§48-39-10 et seq. of the 1976 S.C. Code) is the proper management of the natural, recreational, commercial and industrial resources of the State's coastal zone - resources of present and potential value to all citizens of the State. The Act acknowledges the growth of the human population and the resulting demands on the lands and waters of the coast for residential, recreational and economic developments as well as services such as transportation and waste disposal. A specific State policy contained in the Act is that of promoting the economic and social improvement of the State's citizens while protecting and, where possible, restoring or enhancing the rich variety of coastal resources.

S.C. Coastal Council - Coastal Management Program

To effectively achieve these goals for protection and development of coastal resources, the Act establishes the S.C. Coastal Council and directs it to develop and implement a comprehensive management program to achieve wise use of coastal resources. A part of this management program consists of the permitting authority of the Council over the "critical areas".

Critical Areas

Four areas of the coastal zone are very fragile and easily damaged or destroyed by manmade alterations. Those areas, designated "critical areas" by the Act, are the coastal waters, tidelands, beaches, and primary ocean front sand dunes. In order to protect them from inappropriate uses, the Council has been

given the responsibility of permitting alterations of these resources. (Section 13)

Permitting Authority

As stated in Section 21 of the Act, the Council is "the only state agency with authority to permit or deny any alteration or utilization within the critical area". The Act further states "no person shall utilize a critical area for a use other than the use the critical area was devoted to on such effective date (of the Act) unless he has first obtained a permit from the Council". (Section 13) Finally, Section 8 (A) mandates the Coastal Council to develop a regulatory system to provide for "the orderly and beneficial use of the critical areas". This regulatory or permitting system, contained in the Rules and Regulations pursuant to the Coastal Management Act, is enforceable by the authority of the courts. (Section 5 (E), (I))

Section 13 (D) of the Act lists activities which are exempted from the Council's permit process - activities such as hunting, fishing, erecting duckblinds, the discharging of treated effluent as permitted by law, and normal maintenance and repair of certain facilities. Management input from the coastal program in decisions on these activities is still ensured, however, through coordinated efforts with other state agencies and the authority of the Coastal Council to review, comment on, and certify the permits and actions of the other agencies in the critical areas. Section 7 (A) of the Act provides that all other state and local agencies should administer their authority in accordance with the Coastal Management Act and the policies and rules and regulations which are developed under the Act. In the event the coordination breaks down and any conflicts cannot be resolved, this authority of the Council could be enforced through the courts.

Authority Outside Critical Areas

The scope of authority of the S.C. Coastal Council in the remaining portions of the coastal zone, i.e. those areas other than critical areas within the eight coastal countries, is established in Section 20 of the Act which states: "Notwithstanding any other provisions of this act, the Council shall have no direct regulatory authority over any area outside the critical areas in the coastal zone". However, through several provisions contained in the Act, the Council is clearly given authority of an indirect nature, which extends to the full coastal zone.

Section 8 directs the Council to develop a comprehensive coastal management program and provides that "the Council shall consider all lands and waters in the coastal zone for planning purposes". The significance of and authority for this coastal management program is emphasized through the language of Section 9 (D), which reads: "Upon review and approval of the proposed management plan by the Governor and the General Assembly, the proposed plan shall become the final management plan for the State's coastal zone."

Section 7 (A) provides one measure of enforcement for the management objectives of the Coastal Council.

All other state and local agencies and commissions shall cooperate with the Council in the administration or enforcement of this Act. All agencies currently exercising regulatory authority in the coastal zone shall administer such authority in accordance with the provisions of this act and rules and regulations promulgated thereunder. (Section 7 (A))

In addition, Section 5 (I) provides that the Council may seek enforcement of the provisions of the Act, including the rules and regulations and the policies of the management program, through legal court proceedings.

The OMB Circular A-95 Review Process is a significant addition to the State's coastal management effort as outlined by the Act. Applications, comments and other material circulated in the A-95 process may be coordinated with specific policies through review and comment by State and Federal agencies involved in the process. Coastal management efforts will better encompass other applicable policies as other agency efforts are incorporated with coastal management policies through the A-95 Review Process.

Networking

The burden of implementing the South Carolina Coastal Management Program rests not only with the Coastal Council, but also with all other state and local agencies and commissions. (§7(A) Even though such agencies are statutorily mandated to carry out their own policies, the effort of networking is to tie the implementation of these individual authorities into a comprehensive framework that addresses more than the individual responsibilities of each agency and that makes these authorities part of an overall, unified strategy for managing coastal resources. Section 7 (A)'s mandate to the other state and local agencies broadens the scope of their legal responsibilities to include the implementation of the policies and rules and regulations of the Coastal Management Program. Section 7 (A), along with (9(D), (8(B) (11) and other general provisions of the Act, binds all agencies and commissions to the Coastal Management Program. Two methods of cooperation are needed between the Council and other State and local agencies in giving effect to the Act: 1) a cooperative process of permit service and certification; and 2) memoranda of agreement.

Certification

Seventeen (17) State agencies exercise authority over: (1) the use of coastal resources, (2) specific areas in the coastal zone, or (3) activities in the coastal zone. This authority is granted by the statutes of South Carolina, most of them enacted prior to the Coastal Management Act.

Some of the authority granted by these statutes is implemented through permit or license procedures. Through Section 8 (B) (11) of the Coastal Management Act, the Council is required to review and certify the compliance of these permits with the policies of the coastal management program. This section states that the Council shall "develop a system whereby the Council shall have the authority to review all state and federal permit applications in the coastal zone and to certify that these do not contravene the management plan".

Memoranda of Agreement

Memoranda of agreement are used to effectively coordinate all state agency activities with the Coastal Management Program. The specific authorities and activities of the agencies that are networked by Section 7 (A) are outlined in the memoranda along with the cooperative efforts of the agencies in implementing the program. Besides §7(A)'s general mandate, the Act specifically requires coordination with other state agencies in regard to: (1) beach and shoreline erosion, (2) oil spill monitoring and removal, (3) energy facility siting, (4) determination of water quality standards and (5) determination of port and navigational needs and standards. The memoranda between the Council and other agencies are based on the mandate of §7(A) and on §5(N) which grants

the Council the duty "to encourage and promote the cooperation and assistance of state agencies, coastal regional council of government, local governments, federal agencies and other interested parties." Memoranda of agreement provide a convenient means for establishing the cooperative process necessary to fulfill the purposes of the Coastal Management Act.

There is no case law or statutory language in South Carolina concerning the enforceability of memoranda of agreement between units of government. However, in the case of these memoranda, the question of such enforceability per se does not arise. Since the content of the memoranda are (1) based on language in the Act and (2) because policies and rules and regulations of the final management program document as approved by the Governor and General Assembly and (3) seek to outline specifically the responsibilities delegated by the Act. The provisions of the memoranda are enforceable by the Council through §5(1). Section 5 (1) grants the Council the power to enforce the provisions of this act and all rules and regulations promulgated by the Council and institute or cause to be instituted in courts of competent jurisdiction legal proceedings to compel compliance with the provisions of this act." As discussed in the conflict resolution section (following this section) a failure of coordination efforts under the memoranda would result in the Council ultimately seeking enforcement of the provision of the program in dispute in court on the basis of the provision of the Act, and not on the basis of the memoranda alone. Memoranda in effect as of the date of this document are found in Appendix .

Resolution of Conflicts

If either method of coordination fails and a conflict between the Coastal Council and another agency occurs over the issuance of a permit (by the other agency) or adequacy of conformance with the Coastal Management Program, the Council may take several actions to resolve the conflict. The Council could (1) attempt to set a meeting of executive directors or other staff members of both agencies at a convenient location to discuss, outline and attempt to resolve the conflict; (2) attempt to set a meeting between the Council and the governing body of the other agency to solve the conflict through their direct negotiation; or (3) petition for an injunction and declaratory judgement under §15-53-10 et seq. (Declaratory Judgement Act) of the 1976 S.C. Code. Section 5 (I) of the Coastal Management Act and §15-53-30 of the Declaratory Judgement Act allow the Council to seek resolution of the conflict in court. Section 5 (O) allows the Council to attempt the other actions of direct mediation and grants the Council the power to exercise all incidental powers necessary to carry out the provisions of the act. "If the Council ultimately sought a court resolution of a conflict, the courts' judgement would be binding on all of the parties. This analysis of the Councils' ability to resolve conflict applies to all of the networked agencies discussed in Appendix .

B. AMENDMENT PROCEDURE

Subsection 306(g) of the Federal Coastal Zone Management Act states that:

"Any coastal state may amend or modify the management program which it has submitted and which has been approved by the Secretary,..."

South Carolina's coastal zone management program will not be static; changes in public priorities, expectations, or issues of concern will necessitate changes in the original plan. These changes may take the form of (modifications) or refinements, depending upon the extent of the proposed alteration.

Proposals for a change in the management plan may originate within the Coastal Council or its staff, within a Federal, State or Local government unit, or with members of the general public. In the last instance - that is, changes proposed by members of the general public - a suggestion will be acted upon by the Council if twenty or more people so request in writing. In all cases, the Council will consider the proposal for a period of at least 30 days, before determining whether modification procedures should be initiated.

If taken, Council action must begin with a determination of the nature and extent of the proposed change. Procedures to be followed will vary depending upon whether the change is classified as an amendment or as a refinement.

Section 923.81 (Federal Register Vol. 43, No. 41, March 1, 1978) states that amendments or modifications to an approved management program will represent one of the following cases:

- "(1) Changes in basic program goals, objectives or policies,
- (2) Changes in techniques (for achieving goals, objectives or

policies) that result in an environmental impact significantly altered intergovernmental relationships not reviewed by and concurred with by affected agencies or units of government at the time of the proposed modification."

South Carolina's Coastal Management Act of 1977 (Act 123), Section 9, states that "any change in or amendment to the final management plan shall be implemented by following the procedures established in Subsections (A), (B), (C) and (D) of this section and upon the review and approval of the Governor and the General Assembly." Accordingly, the same notice, public hearing, and review and comment procedures employed during initial approval of the management plan shall be followed in the case of amendments thereto.

Once the amendment has been approved by the Governor and General Assembly, a formal request for its adoption shall be made to the Assistant Administrator by the Chairman of the Coastal Council. The request shall include a description of and justification for the change, evidence of adequate public notice and the degree and nature of public interest, and an environmental impact assessment (unless it has been determined that there will be no significant departure from the impacts of the previously approved management program.)

The Assistant Administrator will evaluate the proposed change according to the requirements of Subsection 306(g) of the Federal Coastal Zone Management Act, and will determine the need for an Environmental Impact Statement. If an Environmental Impact Statement is deemed necessary, normal review/approval procedures (See Section 923.72, Federal Register Vol. 43, No. 41, March 1, 1978) will be followed. If an

EIS is not necessary, the proposal will be forwarded to relevant federal agencies for review and comment. Notice of the Assistant Administrator's decision will be published in the Federal Register. In the case of amendment disapproval the State will be advised in writing of the reasons for the decision.

In addition to amendments, a number of minor adjustments may have to be made during the implementation of the management plan. These changes will not require formal amendment proceedings but can be made after consultation with and approval by the Assistant Administrator.

Refinements are defined in Section 923.82 (b) Federal Register Vol. 43, No. 41, March 1, 1978) as: "Changes relating to programs or techniques for attaining particular goals or objectives or for implementing particular policies (but not changes in these goals, objectives or policies themselves)." In addition, refinements cannot alter the environmental impact of the previously approved plan, nor can they alter intergovernmental relations.

Proposals for refinements to the management plan may originate in any of the ways noted above. Depending upon the scope and effect of the changes, the Coastal Council may at its discretion hold public hearings on the proposed refinement, or may simply circulate copies of the proposal to all relevant agencies and interested parties after proper public notice. The Council will consider all comments and proceed if sufficient public support for the change is evident.

After consultation with the Assistant Administrator to determine that the proposed change is, indeed, a refinement and not an amendment, the Chairman of the Coastal Council shall submit a written request for the refinement. The request shall include a description of and justification for the change, and indication that the public has been informed of the proposal and a discussion of their reactions and

a determination that there will be no significant alteration of previously approved environmental impacts or intergovernmental relations. The Assistant Administrator will evaluate the materials submitted, consult with relevant Federal Agencies and interested parties as appropriate, and publish his decision in the

Federal Register.

C. WATER AND AIR QUALITY STANDARDS

Section 307(f) of the Federal Coastal Zone Management Act requires States to incorporate all requirements established pursuant to the Federal Water Pollution Control Act and the Clean Air Act into their management plans. In order to derive the maximum benefit from incorporation of these standards, South Carolina's Coastal Council has worked closely with the State Department of Health and Environmental Control, where responsibility for implementing these two Acts is lodged. (See South Carolina's Pollution Control Act, Title 48, Chapter 1, 1976 Code of Laws.)

South Carolina's management plan incorporates the minimum air quality standards applicable to the coastal zone. Since the Department of Health and Environmental Control is charged with promulgating and enforcing such standards, close cooperation has been necessary between DHEC and the Coastal Council. A Memorandum of Agreement between the two agencies was signed early in the program. (See Appendix D.) Among the points contained therein were clauses governing the designation of official liaisons between the two agencies, review of Coastal Council (critical area) permits by DHEC personnel and review of DHEC permits by the Coastal Council. DHEC permits are required by:

"Any person... desiring to make any new outlet or source, or to increase the quantity of discharge from existing outlets or sources, for the discharges of sewage, industrial wastes or other wastes, or the effluent therefrom, or oil contaminants, into the waters or ambient air of the State, shall first make an application to the Department for a permit to construct and a permit to discharge from such outlet or source." (Section 48-1-100, 1976 South Carolina Code of Laws.)

The minimum water pollution control requirements applicable to the coastal zone are met by

South Carolina's management plan. These standards include the minimum established by the EPA for effluent limitations, new source performance standards, pre-treatment standards and toxic pollutant discharge standards as well as the regulations established by DHEC.

The same permitting procedures and review provisions applicable to air quality standards apply to water quality regulation. In addition, South Carolina's Coastal Management Act (Act 123 of 1977) requires that the Coastal Council:

"Consider, in conjunction with the Department of Health and Environmental Control the planning and review of existing water quality standards and classifications in the coastal zone." (Section 8(D))

This requirement has been addressed in the Memorandum of Agreement between the two agencies.

In addition to enforcing water quality standards, the two departments are working together to coordinate the prevention, control, removal, monitoring and reimbursement for oil spills in the coastal zone. Other agencies involved in this effort are the EPA and the U.S. Coast Guard, as well as a number of local commercial and industrial interests.

D. INTERGOVERNMENTAL COORDINATION

1. FEDERAL COORDINATION

Section 306(c)(1) of the Federal Coastal Zone Management Act requires States to develop their management plans "with the opportunity of full participation by relevant Federal agencies..." South Carolina's coastal zone legislation reiterates the need for state/federal coordination in Section 8(b)(8) and Section 8(c). Without active participation by Federal agencies, coordination of the State's coastal zone management plan with existing Federal programs and legislation would be impossible. The diversity of interest - many of which are conflicting - in the coastal zone makes coordination of federal, state, and, of course, local programs imperative if rational decisions regarding resource use and allocation are to be made. South Carolina's Coastal Council has endeavored to establish close, agency-specific ties with relevant Federal agencies in order to facilitate a mutual understanding of each others programs, goals and procedures, and to develop workable arrangements which will accommodate the needs of all concerned.

Relevant Federal Agencies

The first step toward achieving federal coordination is the identification of those agencies which are affected by, or have an influence on, coastal zone management in South Carolina. The following agencies have been identified as having an interest in South Carolina's coastal zone. With one exception (the Marine Mammal Commission), they are the agencies named in the Rules and Regulations pursuant to the Federal Coastal

Zone Management Act of 1972.

1. Coastal Plains Regional Commission
2. Council on Environmental Quality
3. Department of Agriculture
4. Department of the Army
5. Department of the Air Force
6. Department of Commerce
7. Department of Energy
8. Department of Health, Education and Welfare
9. Department of Housing and Urban Development
10. Department of the Interior
11. Department of Justice
12. Department of the Navy
13. Department of Transportation
14. Environmental Protection Agency
15. General Services Administration
16. Nuclear Regulatory Commission
17. Marine Mammal Commission

Information Dissemination

Section 923.51(d)(2) of the Rules and Regulations governing the Federal Coastal Zone Management Act states that "timely opportunities for relevant Federal Agency participation and input" must be provided in order for the states to be in compliance with subsection 306(c)(1) of the Act. One of the most important aspects of "relevant participation" is knowledge of Coastal Council objectives and activities, for without an awareness of developments in coastal zone management, Federal agencies will be unable to define and evaluate their own role in coastal planning.

In order to ensure that federal agencies with an interest in South Carolina's coastal zone are kept

abreast of new developments, a contact has been designated within each agency. These Federal Agency contacts have been added to the Coastal Council's mailing list, and thus receive notification of all council meetings, public meetings and public hearings, as well as minutes and summaries thereof. They also have received copies of all new segments of the management plan, permitting rules and regulations and other pertinent items as they have been completed. Contact names and addresses are listed in Appendix G, p. 1-5.

Federal agency awareness of Coastal Council activities is further enhanced by Carolina Currents, a monthly newsletter designed to acquaint Federal Agency contacts and other interested parties with relevant Council decisions and activities. Each issue contains minutes of the previous month's Council meeting, as well as brief discussions of recent developments of interest. Articles have included results of the March 28, 1978, Outer Continental Shelf Lease Sale #43, which encompassed submerged lands off the South Carolina coast, a history and "state of the art" discussion of coastal impoundments, an explanation of the 1977 Clean Air Amendments, and developments in the public involvement program sponsored by the Council.

Interaction

In addition to listing and making initial contacts with relevant Federal agencies, states must "provide timely opportunities for relevant Federal agency participation and input" (Section 923.51(d)(2)) and advise "those agencies of public hearings on the management program" (Section 923.51(d)(3)).

Federal Agency contacts are advised of all public hearings and public meetings. They are invited to make presentations at these events and to express their views during the review and comment period

preceeding adoption of any segment of the management plan or Rules and Regulations. Once a final draft has been accepted, a copy is sent to each agency, along with a letter responding to the agency's comments on the document.

In an attempt to ascertain what Federal agencies perceive to be their own, as well as the national interest in the coastal zone, the Coastal Council sent Federal agency contacts a questionnaire. Contacts were asked to list activities and projects as well as their primary functions and responsibilities in the coastal zone. Responses are used to further the Council's understanding of national interest considerations as well as coordination needs.

By far the most important aspect of South Carolina's federal coordination procedure is that of personal contact between the Council's Federal coordinator and Federal agency contacts. Nearly all relevant Federal agencies have expressed an interest in personal meetings with Council representatives. It is anticipated that at least eight to ten meetings will be held at the Federal Regional Offices in Atlanta. Frequent communication by letter and phone augments the personal contact schedule.

In addition to the general meetings discussed above, several special purpose coordination mechanisms are planned. Such a mechanism has been developed with the U.S. Army Corps of Engineers in order to simplify the permitting process for certain classes of piers and docks. As a result of this dialogue, one general permit may be obtained in many cases instead of the multiple permits required prior to April, 1978.

Special Needs

The South Carolina Coastal Council has identified several areas requiring special attention for one reason or another. These include, but are not limited to, the following:

1. The U.S. Air Force has been a significant contributor due to the location and operation of major air facilities in Charleston, Myrtle Beach and Beaufort.
2. The U. S. Army Corps of Engineers worked in close coordination with the Council as the permitting section of the management program was developed.
3. The U. S. Coast Guard and the Department of the Navy were closely involved due to the large volume of navigation along our coast and the location of Coast Guard and Navy bases.
4. U. S. Fish & Wildlife Service and National Marine Fisheries Service input was significant because of their interest in environmental protection.
5. The Fisheries Management Council was closely involved during their development of a fisheries management policy.
6. The Bureau of Land Management and other federal energy agencies were able to contribute considerably due to expanded OCS activities.
7. Both the Soil Conservation Service and the Forest Service were important contributors due to the importance of forestry and agricultural practices in South Carolina's coastal zone.

Documentation

Section 923.51(b)(3) of the Federal Rules and Regulations pursuant to the Coastal Zone Management Act states that Coastal Zone Management offices must "summarize the nature, frequency, and timing of contacts

with relevant Federal agencies, including attempts to resolve differences, if any." To that end, all Federal agency contacts have been logged and classified according to date, personnel involved, nature of the communication, and content. In addition, complete records of all correspondence with Federal agency contacts are maintained. Record keeping is facilitated by the use of contact sheets distributed to all staff members. The staff is asked to record the date, method of contact, name of the agency and person contacted, summary and/or purpose of the communication and any pertinent remarks. A copy of this contact log sheet, as well as individual log summaries for each of the relevant Federal agencies are found in Appendix G, beginning on page 6.

2. FEDERALLY EXCLUDED LANDS

Subsection 923.33 of the Section 306 regulations regarding requirements for approval of a state's coastal management program, state the following:

States must exclude from their coastal management zone those lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government, its officers or agents.

The regulations further state:

The exclusion of Federal lands does not remove Federal agencies from the obligation of complying with the consistency provisions of section 307 of the Act when Federal actions on these excluded lands have spillover impacts that significantly affect coastal zone areas, uses or resources within the purview of a state's management program.

The following is a list of the Federally excluded lands within South Carolina's coastal zone.

(NOTE: Maps of these excluded lands will appear in the Appendix of a subsequent draft of this management program.)

Horry County

Department of Defense: Air Force	-----	3,793.21
Post Office	-----	.26
Post Office	-----	1.00
TOTAL	-----	<u>3,794.47 Acres</u>

Georgetown County

Department of Defense: Coast Guard	-----	7.40
TOTAL	-----	<u>7.40 Acres</u>

Berkeley County

Department of Agriculture: Forest Service (Francis Marion National Forest)	-----	189,280.00
Department of Defense: Air Force	-----	44.00
Army - Corps of Engineers (Charleston Army Depot)	-----	832.00
Army - Reserves	-----	2.41
Navy - Ammunition Depot	-----	16,149.75
TOTAL	-----	<u>206,308.16 Acres</u>

Charleston County

Department of Agriculture: Agricultural Research Service	-----	451.00
Forest Service (Francis Marion National Forest)	-----	60,126.00
Department of Defense: Air Force	-----	3,137.22
Army - Corps of Engineers (Charleston Army Depot)	-----	171.00
Army - Corps of Engineers (Charleston Army Depot)	-----	22.50
Army - Corps of Engineers (Charleston Harbor)	-----	34.00

Charleston County Continued

Army - Reserves -----	6.77
Army - Reserves -----	2.50
Coast Guard -----	14.30
Coast Guard -----	3.75
Coast Guard -----	8.20
Navy - Base -----	3,265.75
Navy - Reserve -----	4.50
Environmental Protection Agency: -----	32.00
General Services Administration: -----	2.16
Federal Building -----	
Post Office and U.S. -----	
Courthouse -----	1.20
U.S. Customs House -----	4.74
Department of Interior: Fish and Wildlife Service -----	10.86
Migratory Bird Refuge -----	34,218.00
Park Service Ft. Sumter -----	34.27
Veterans Administration: Hospital -----	16.60
Navy Hospital -----	
TOTAL -----	<u>101,567.32 Acres</u>

Dorchester County

Post Office -----	.34
TOTAL -----	<u>0.34 Acre</u>

Colleton County

Department of Defense: Army - Corps of Engineers -----	
(Intracoastal Waterway) -----	26.00
Post Office -----	.47
Post Office -----	1.98
TOTAL -----	<u>28.45 Acres</u>

Beaufort County

Department of Defense:	Army - Corps of Engineers (Hilton Head Survey Tower) -----	.01
	Marines - Base -----	5,333.99
	Marines - Base -----	8,405.23
	Marines - Housine Project -----	309.16
	Marines - School -----	15.00
	Navy - Hospital -----	126.94
Department of Interior:	Fish and Wildlife Service -----	4,052.70
Post Office -----		1.92
Post Office -----		.39
Veterans Administration:	National Cemetery -----	29.00
TOTAL -----		<u>18,274.34</u> Acres

Jasper County

Department of Defense:	Army - Corps of Engineers (Savannah Harbor) -----	3.06
	Army - Corps of Engineers (Savannah Harbor) -----	3.10
	Army - Corps of Engineers (Savannah Harbor) -----	5.83
	Army - Corps of Engineers (Savannah River) -----	5.10
	Army - Corps of Engineers (Savannah River) -----	14.15
Department of Interior:	National Wildlife Refuge -----	7,618.00
Post Office -----		1.11
TOTAL -----		<u>7,650.35</u> Acres

3. FEDERAL CONSISTENCY

This chapter, addressing Federal Consistency as pertains to South Carolina's Coastal Zone Management Program, is written with two objectives in mind. First, to explain the concept of Federal consistency and secondly, to outline the method by which Federal consistency will be accomplished in South Carolina's functioning coastal management program.

In the following pages each of four sub-topics under the subject of Federal consistency are explained, and following each explanation, operational guidelines set forth the procedures to be followed by the South Carolina Coastal Council, Federal agencies and applicants.

The operational guidelines, while substantially comprehensive, do not attempt to take the place of the Federal consistency regulations promulgated pursuant to the Federal Coastal Zone Management Act of 1972, as amended. The guidelines are to be used in conjunction with those Federal regulations. (Part 930, Federal Register, Vol. 43, No. 49, March 13, 1978.)

INTRODUCTION (General Overview)

Subsections 307(c) and (d) of the Federal Coastal Zone Management Act of 1972, as amended, contain what is referred to as the Federal Consistency Requirements of the law. Through these subsections and their accompanying rules and regulations certain Federal actions are required to be consistent with approved State management programs.

Four types of action have been identified as requiring a federal consistency determination - (1) Direct Federal Activities/Development Projects, (2) Federal Licenses and Permits, (3) Outer Continental Shelf (OCS) Activities, and (4) Federal Assistance. Through the consistency determination process, each relevant proposed activity under the four action types will be reviewed by the State and will be determined by it to be either consistent or not consistent with the management program. In each of the above categories, except for that of Direct Federal Activities/Development Projects, the action cannot receive Federal approval (except as provided in the mediation provisions of the Act) unless first determined consistent by the State.

Thus, it can be seen that Federal Consistency serves a very important dual purpose in the overall national coastal zone management program. Under this requirement, national interests must be taken into consideration by coastal states, and in return for this concession, the states are allowed a greater say-so in the future of their coastal zones. The following is an explanation of the way in which the Federal Consistency provisions of the Federal Coastal Zone Management Act will be accommodated in each of four categories named above. The

specific operational guidelines to be used in South Carolina's coastal management program for each category follow the explanation of the category.

I. Direct Federal Activities/Development Projects

Subsections 307(c)(1) and (2) address the subjects of Federal Activities and Federal Development Projects in the coastal zone. Although these subjects are treated as a single class of Federal actions, "development projects" have been defined to be a subset of "activities."

Subsection 307(c)(1) states: "Each Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." The Section 307 regulations define the term "Federal activity" as "any functions performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities." Federal activities, other than development projects as defined below, include Federal actions which are neither development projects nor actions covered by the license, permit and assistance categories which are discussed in sections II, III and IV below. (Examples: Federal agency activities requiring a Federal permit; Federal assistance to entities other than state and local governments.)

Subsection 307(c)(2) states: "Any Federal agency which shall undertake any development project in the coastal zone of a state shall insure that the project is, to the maximum extent practicable, consistent with approved state management programs." The Section 307 regulations define the term "development project" as "a Federal activity involving the planning, construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources."

A. Federal Agency Identification of Activities Significantly Affecting the Coastal Zone

Federal agencies are required to determine which of their activities significantly affect the coastal zone of States with approved management programs. All Federal development projects within the coastal zone must be considered as activities significantly affecting the coastal zone and thus require a consistency determination; all other activities within the coastal zone are subject to Federal agency review to determine whether or not they will have a significant effect on the coastal zone. Also subject to this Federal agency review and determination are Federal activities outside the coastal zone (e.g., on excluded Federal lands, on the Outer Continental Shelf, or landward of the coastal zone).

B. Consistency Determination

Once a Federal activity is determined to have a significant effect on the coastal zone, the Federal agency is required to determine whether or not the activity is consistent with the State's management program and to give notice to the State of the proposed or ongoing activity along with the accompanying consistency determination.

The notification to the State agency must include a brief statement indicating how the proposed action will be undertaken in a manner consistent, to the maximum extent practicable, with the State's approved coastal management program. The consistency determination must also include a detailed description of the activity, its associated facilities, and their combined coastal zone effects, as well as data and information sufficient to support the Federal agency's conclusion.

The Federal agency should obtain the views and assistance of the State agency regarding the provisions of the management program which are related to the proposed activity as well as information necessary to determine the consistency of the proposal.

C. Notification Procedures

The method of notification is determined by the Federal agency. However, Federal agencies are strongly urged, for practical purposes, to use existing notification procedures such as the OMB Circular A-95 process, NEPA environmental impact statements, memoranda of agreement, etc. Notification should be given the State agency at the earliest practicable time. A minimum of 90 days notice, before final approval of the Federal action, is required by the Federal Coastal Zone Management Act consistency regulations, unless both the Federal and State agencies have agreed to an alternative notification schedule.

D. State Review

The State agency is required to inform the Federal agency of its agreement or disagreement with the consistency determination at the earliest practicable time. If a final response has not been issued within 45 days from receipt of the Federal agency notification, the Federal agency may presume State agency agreement.

The State agency may, however, request an extension of time for review, in which case agreement will not be presumed. The Federal agency must approve one request for an extension period of not more than 15 days. The approval of longer or additional extension requests is left to the discretion of the Federal agency which

should take into consideration the magnitude and complexity of its consistency determination. The Federal agency cannot begin its activity sooner than 90 days from the issuance of the consistency determination unless both agencies agree to an alternative period.

Should the State agency disagree with the Federal agency's determination, it must accompany its response with the reasons for disagreement as well as supporting information on which its decision is based. The remaining portion of the 90-day notification period should be used in an attempt by both agencies to resolve their differences. If the disagreement cannot be settled, the Federal agency should delay the implementation of its proposed activity until the disagreement is resolved.

E. Conflict Resolution

Several avenues exist for the resolution of conflicts between State and Federal agencies. Initial informal discussion is always recommended. Should this not be sufficient, either party may request mediation by the Secretary of Commerce in accordance with Subpart G of the Federal Consistency Regulations.

If mediation efforts are unsuccessful, or are not used, either party may seek judicial review. Judicial review may be sought without first having exhausted the mediation process although informal discussions and/or mediation are strongly encouraged.

Operational Guidelines

(Direct Federal Activities/Development Projects)

I. Definitions

A. Federal Activity - A Federal activity is any function performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities. Federal activities include Federal actions which are neither Federal development projects nor activities covered by the Federal license, permit and assistance sections of these operational guidelines.

B. Development Project - A Federal development project is a Federal activity involving the planning, construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources.

II. Federal Activities/Development Projects Determined by the South Carolina Coastal Council as Likely to Have a Significant Effect on the Coastal Zone of South Carolina

The South Carolina Coastal Council has determined the following activities as significantly affecting the South Carolina coastal zone. Please note that all Federal development projects within the coastal zone are required to be considered as activities significantly affecting the coastal zone.

(South Carolina's list of Federal Activities/Development Projects determined as likely to have a significant effect on the state's coastal zone will appear in a later draft of the management program.)

III. Consistency Determination

A. Decision Making Agency - The Federal agency makes the consistency determination.

B. Responsibilities of Federal Agency

1. Determine consistency of activity/development.
2. Notify South Carolina Coastal Council of determination. Suggested method of notification is utilization of the OMB Circular A-95 process.

NOTE: This determination may be a negative one in which the Federal agency decides that a certain activity does not require a consistency determination. (See the Federal Register, Volume 43, Number 49, p. 10521, March 13, 1978.) Negative determination procedures are provided to assure State agencies an opportunity to review borderline cases. The South Carolina Coastal Council must be notified of all Federal agency negative determinations.

3. Respond to South Carolina Coastal Council requests for additional information.

C. Notification Procedures and Content of Consistency Determination

The method of notification is determined by the Federal agency. However, the South Carolina Coastal

Council recommends that the OMB Circular A-95 review process be adopted as the method of notification.

Content of Consistency Determination

1) The consistency determination made by the Federal agency should include one of the following statements:

(a) "The activity (or development project) is not subject to the consistency requirements of Section 307 of the Coastal Zone Management Act of 1972, as amended."

(b) "This activity (or development project) is consistent with the South Carolina Coastal Zone Management Program."

(c) "This activity (or development project) is not consistent with the South Carolina Coastal Zone Management Program, but no practicable alternative exists to carry out the legal purpose for which the activity (or development project) is designed."

(d) "This activity (or development project) is not consistent with the South Carolina Coastal Zone Management Program, but no practicable alternative exists to meet the national security need filled by this activity."

2) Date by which Federal agency plans to make a final decision on whether or not to proceed with the activity/development project.

3) Detailed description of activity/development project, its associated facilities, and their coastal zone effects (including primary, secondary and cumulative coastal zone effects).

4) Comprehensive data and information sufficient to support consistency statement.

NOTE: Federal agencies are urged to obtain the views and assistance of the South Carolina Coastal Council regarding provisions of the South Carolina Coastal Management Program which are related to the proposed activity/development project and the information necessary to make a consistency determination. The activity/development project, its primary effects, its associated facilities and the primary effects of the associated

facilities must all be consistent to the maximum extent practicable with the management program.

D. Determinations for Proposed Activities/Development Projects

1) Federal Activities

In determining whether or not proposed Federal activities which significantly affect the coastal zone are consistent with the South Carolina Coastal Management Program, Federal agencies are urged to consult with the South Carolina Coastal Council.

A general consistency determination may be issued in cases where Federal agencies will be performing a repeated activity other than a development project (e.g., ongoing maintenance, waste disposal, etc.) which cumulatively has a significant effect on the coastal zone. This general consistency determination may be used only in situations where the incremental actions are repetitive or periodic, substantially similar in nature, and cause only insignificant coastal zone effects when performed separately. Periodic (at least once every three months) consultation with the South Carolina Coastal Council is required to discuss the manner in which the incremental actions are being undertaken.

2) Development Projects

When a Federal agency has sufficient information to determine the consistency of a proposed development project from planning to completion, only one consistency determination is required. However, in cases where decisions involving planning, siting and design of a proposed development project will be made in phases, a consistency determination is required for each major decision.

E. Determinations for Activities/Development Projects Initiated Prior to Management Program Approval

1) Federal Activities

In instances in which ongoing Federal activities (e.g., waste disposal practices) initiated prior to management program approval and for which the Federal agency retains the discretion to reassess and modify the activity, a consistency determination is required. This determination must be made by the Federal agency at the earliest practicable time following approval of South Carolina's management program.

For all ongoing Federal activities which the South Carolina Coastal Council identifies, through monitoring, as subject to consistency, Federal agencies must provide the Council with a consistency determination no later than 120 days after approval of South Carolina's coastal zone management program.

2) Development Projects

A consistency determination is required for major, phased Federal development project decisions referred to in D(2) above which are made following management program approval and are related to development projects initiated prior to approval of South Carolina's coastal zone management program.

NOTE: This requirement does not apply to phased Federal decisions which were described, considered and approved prior to management program approval, as through an environmental impact statement.

F. Multiple Federal Agency Participation

One consistency determination may be made whenever more than one Federal agency is involved in conducting or supporting a Federal activity/development project or its associated facilities significantly

affecting the coastal zone, or is involved in a group of Federal activities/development projects related to each other because of their geographic proximity.

The consistency determination must be sent to the South Carolina Coastal Council at least 90 days before final decisions are taken by any of the participating agencies. Each of the proposed activities must be addressed.

IV. South Carolina Coastal Council Response

A. Review

1. The South Carolina Coastal Council will review the activity/development project and the consistency determination and will seek the views of other state agencies, local governments and other appropriate sources.

2. Affirmative Responses - If the Council agrees with the consistency determination, then the matter is resolved.

3. Negative Response - If the Council does not agree with the consistency determination, written notice will be sent to the Federal agency.

V. Conflict Resolution

The following methods will be used for the mediation of conflicts arising between a Federal agency and the South Carolina Coastal Council regarding a Federal consistency determination.

1) Informal discussion among all parties involved.

2) Mediation by the Secretary of Commerce. Either the Federal agency or the South Carolina Coastal Council may request Secretarial Mediation.

3) Judicial Review. Either party may seek judicial review. Judicial review may be sought without first having exhausted the mediation process.

NOTE: Informal discussions and/or mediation are strongly encouraged.

II. Federal Licenses and Permits

Subsection 307(c)(3)(A) addresses the subject of federal licenses and permits for activities affecting land or water uses in the coastal zone. The subsection states:

After final approval by the Secretary of a state's management program, any applicant for a required Federal license or permit to conduct an activity affecting land or water uses in the coastal zone of that state shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the state's approved program and that such activity will be conducted in a manner consistent with the program.

The Section 307 regulations define the term "Federal license or permit" as "any authorization, certification, approval, or other form of permission which any Federal agency is empowered to issue to an applicant". All federal leases except those issued pursuant to the Outer Continental Shelf Lands Act are included within this definition as well as renewals and major amendments as discussed in the rules and regulations.

The term "applicant" includes "any individual, public or private corporation, partnership, association or other entity organized or existing under the laws of any State, or any State, regional, or local government, who, following management program approval, files an application for a Federal license or permit to conduct an activity significantly affecting the coastal zone".

In accordance with the Section 307 regulations, a coastal zone state must identify and develop a list of Federal license and permit activities which are likely to significantly affect its coastal zone. (See operational Guidelines for South Carolina's list.) All such proposed license and permit activities

will be reviewed by the state to determine whether or not they are consistent with the state's management program. If the state determines that the activity is not consistent, the Federal permitting agency may not issue the license or permit unless the Secretary of Commerce overrules the State's decision.

State agencies are urged to monitor unlisted Federal license and permit activities to ensure that they have an opportunity to review any activity which may significantly affect the coastal zone.

A. Notification Procedure

Upon approval of the management program the state's list of Federal license and permit activities will be forwarded to all relevant Federal agencies which must, in turn, make this information available to applicants.

B. Consistency Certification

The applicant for a Federal license or permit is required to certify to the Federal agency that the proposed activity complies with the state's coastal management program and that it will be conducted in a manner consistent with the program. Before making its consistency certification, an applicant should obtain the views and assistance of the state agency as to the means for ensuring that the proposed activity will be conducted in a manner consistent with the state's management program.

A copy of the certification along with supporting information must be sent by the applicant to the state agency. The supporting information must include a detailed description of the proposal, a brief assessment of the probable coastal zone effects, and a brief set of findings indicating that the proposed activity, its associated facilities, and their effects are all consistent with the provisions of the management program.

C. State Review

State review begins at the time the state agency receives the applicant's consistency certification along with the supporting information. Following receipt of this material, the state agency must ensure timely public notice of the proposed activity. The public notice must include a summary of the proposal, an announcement that public information submitted by the applicant is available for inspection, and a request that comments on the proposal be submitted to the state agency.

Whenever possible, Federal and state agencies are urged to issue joint public notice.

At the discretion of the state agency, the public notice may include the announcement of one or more public hearings. Should the Federal agency also determine that a public hearing is necessary, the two agencies should hold a joint hearing on the action.

At the earliest practicable time, the state agency must notify the applicant and the Federal agency whether it concurs with or objects to the consistency certification. If a state agency does not take action (issue an objection) within six months following commencement of its review, concurrence by the state agency will be conclusively presumed.

Should a state agency object to an applicant's consistency certification, it must give reasons for the objection as well as information in support of those reasons. When a Federal agency receives a state agency objection to a consistency certification, it cannot issue the license or permit except as provided in the conflict resolution procedures.

D. Conflict Resolution

Two avenues exist for the resolution of conflicts between state and Federal agencies.

Initial informal discussion among Federal and state agencies and the applicant is always recommended. The applicant may choose to file a notice of appeal with the Secretary of Commerce within 30 days from receipt of the state's objection. In this instance, following public notice, receipt of comments and, in some cases, a public hearing, the Secretary of Commerce determines whether or not the proposal is consistent with the objectives or purposes of the Federal Coastal Zone Management Act or is necessary in the interest of national security. Should the Secretary find that the proposal meets either of the above requirements, the Federal agency may approve the activity.

Operational Guidelines

(Federal Licenses and Permits)

I. Definitions

A. Federal Licenses and Permits - A federal license or permit includes any authorization, certification, approval, or other form of permission which any Federal agency is empowered to issue to an applicant. All federal leases except those issued pursuant to the Outer Continental Shelf Lands Act are included within this definition as well as renewals and major amendments which cause significant coastal zone effects.

B. Applicant - An applicant includes any individual, public or private corporation, partnership, association or other entity organized or existing under the laws of any State, or any State, regional, or local government, who, following management program approval, files an application for a Federal license or permit to conduct an activity significantly affecting the coastal zone of South Carolina.

II. Federal License and Permit Activities Likely to Significantly Affect South Carolina's Coastal Zone

The following is a list of Federal license and permit activities which are likely to significantly affect the coastal zone of South Carolina. The S. C. Coastal Council reserves the right to make additions or deletions to this list after consultation with the affected Federal agency(ies). All such license or permit activities must be reviewed by the S.C. Coastal Council for consistency with the State's coastal management program.

When application is made for one of the permits or licenses listed below, the Federal agency will direct

the applicant to consult with the S.C. Coastal Council in determining the consistency of the application. No Federal license or permit described in this list shall be issued until the requirements of this section (Federal Licenses and Permits) have been satisfied.

A. Permits required from the Army Corps of Engineers for:

- 1) discharge of dredged or fill material in navigable waters pursuant to Sec. 404 of the Federal Water Pollution Control Act of 1972, as amended;
- 2) obstructions or alterations in navigable waters pursuant to Sec.'s 9, 10, 11, and 14 of the Rivers and Harbors Act of 1899;
- 3) transportation of dredged material in navigable water pursuant to Sec. 103 of the Marine Protection, Research and Sanctuaries Act of 1972.

B. Permits required from the U.S. Coast Guard for:

- 1) construction of bridges over navigable waters pursuant to 33 USC 401, 491 - 507 and 525 - 534;
- 2) deepwater ports pursuant to the Deepwater Port Act of 1974.

C. Permits required from the Environmental Protection Agency for:

- 1) discharge of pollutants pursuant to Sec. 402 of the Federal Water Pollution Control Act of 1972, as amended (the National Pollution Discharge Elimination System);
- 2) air pollution emissions from stationary sources pursuant to the Clean Air Act of 1972, as amended.
- 3) dumping material other than dredged material in navigable waters pursuant to Sec. 102 of the Marine Protection, Research and Sanctuaries Act of 1972.

D. Permits required from the Nuclear Regulatory Commission for the construction and operation of commercial nuclear reactors pursuant to the Atomic Energy Act of 1954.

E. Certificates required from the Federal Energy Regulatory Commission for:

- 1) construction and operation of natural gas pipelines, transportation and storage facilities pursuant to the Natural Gas Act.

F. Certificates required from the Department of Energy for:

- 1) construction and operation of LNG import/export marine terminals pursuant to the Natural Gas Act.

G. The following permits associated with OCS activities:

- 1) Permits relating to the siting, design and construction of common carrier pipelines required respectively by the Bureau of Land Management in the Department of Interior and the Materials Transportation Bureau in the Department of Transportation;
- 2) Permits related to drilling and the siting, design and construction of flow and gathering lines required by the Geological Survey in the Department of Interior;
- 3) Permits relating to discharges of pollutants from fixed platforms and structure and/or dumping of nondredged material required by the Environmental Protection Agency;
- 4) Permits relating to the installation of platforms, pipelines, artificial islands, fixed structures, navigation and free floating structures required by the Corps of Engineers.
- 5) Permits relating to the transportation and disposal of dredged or fill material required by the Corps of Engineers.

III. Unlisted Federal License and Permit Activities

The S.C. Coastal Council shall monitor unlisted license and permit activities through the use of OMB Circular A-95 review, review of NEPA environmental impact statements, Memoranda of Agreement, etc. Federal

agencies shall cooperate with and assist the Council in its monitoring of these unlisted activities.

The S.C. Coastal Council will, within 30 days from notice of the license or permit application, notify Federal agencies, applicants and the Assistant Administrator of unlisted activities judged by it to significantly affect the coastal zone of South Carolina. No Federal license or permit may be issued until the requirements of this section have been satisfied unless the Assistant Administrator disapproves the Council's decision to review the activity.

Whenever any disagreement occurs between a Federal agency and the S.C. Coastal Council regarding whether a listed or unlisted Federal license or permit activity is subject to consistency review, either party may request Secretarial mediation as provided in the Federal Register, Vol. 43, No. 49, Subpart G, pp. 10530-10531, March 13, 1978.

IV. Consistency Certifications

A. Responsibilities of Federal Agency

1. Inform applicants of their responsibilities to the S.C. Coastal Council for certifying the consistency of their applications.

B. Responsibilities of S.C. Coastal Council

1. Make copies of the management program document available for public inspection.
2. Assist applicants in development of means for ensuring that the proposed activity will be conducted in a manner which is consistent with South Carolina's management program.
3. Assist applicants in developing the assessment and findings required in D below.

4. Where applicable, provide applicants with a "one-stop" multiple permit review for consolidated permits to minimize duplication of effort and to avoid unnecessary delays.

C. Responsibilities of Applicant

1. Meet with S.C. Coastal Council to discuss the Federal license and permit application(s) and to obtain assistance from the Coastal Council regarding the means for ensuring that the proposed activity will be conducted in a manner which is consistent with South Carolina's management program.
2. Furnish the S.C. Coastal Council with the information required by Section 930.58 of the Federal Register, Vol. 43, No. 49, p. 10525, March 13, 1978, as well as any additional information requested by the Council. (See Necessary Data & Information below)
3. Consolidate, where applicable, related Federal license and permit activities significantly affecting the coastal zone for Coastal Council review.

D. Necessary Data and Information (To be furnished by applicant to S.C. Coastal Council)

The applicant shall furnish the S.C. Coastal Council with the following data and information along with the consistency certification.

1. Detailed description of the proposed activity and its associated facilities. The description should contain sufficient detail to permit an assessment of the probable coastal zone effects of the activity and its associated facilities. "Coastal zone" effects means significant primary, secondary and cumulative effects and includes nonassociated facilities. However, the applicant is not responsible for assessing the consistency of any nonassociated facilities.

When necessary for an adequate description and understanding of the activity and its

associated facilities, maps, diagrams, technical data and other relevant material must be submitted.

2. A brief assessment relating the probable coastal zone effects of the proposal and its associated facilities to the relevant elements of the management program.
3. A brief set of findings, derived from the assessment, indicating that the proposed activity (e.g., project siting and construction), its associated facilities (e.g., access road, support buildings), and their primary effects (e.g., air, water, waste discharge, erosion, wetlands, beach access impacts) are all consistent with the provisions of the management program. Appropriate weight must be given to the various types of provisions within the management program.
4. All relevant State and/or local government permits which are required in addition to the Federal license or permit.

E. The Certification Statement

The applicant, upon determining that the proposed activity meets the Federal consistency requirements, shall include with the application a certification statement. This statement shall read as follows: "The proposed activity complies with South Carolina's approved coastal management program and will be conducted in a manner consistent with such program."

V. S.C. Coastal Council Review

The S.C. Coastal Council will begin review of an applicant's consistency certification after receipt of the consistency statement and all data and information required in Section D above.

A. Public Notice

Within five days after receipt of the consistency certification (consistency statement, required data and information) the S.C. Coastal Council will publish public notice of the proposed activity in a newspaper of statewide circulation as well as in a newspaper circulated in the area which is likely to be significantly affected by the proposed activity. Where one newspaper meets both criteria, publication of the public notice in the single newspaper shall be sufficient. The public notice shall include a summary of the proposed activity, an announcement that information on the activity is available for public inspection at the Coastal Council office, and a request that comments be submitted to the Coastal Council by a specified date.

The Federal agency and the S.C. Coastal Council should issue a joint public notice when applicable to avoid duplication of effort and unnecessary delays.

B. Public Hearings

At its discretion, the S.C. Coastal Council may hold a public hearing on the proposed activity. Announcement of the hearing may be included in the public notice discussed in A above. A public hearing may not be held until at least 30 days after publication of the hearing announcement. Federal agencies and the S.C. Coastal Council should publish joint public hearing announcements and should hold joint public hearings when both agencies determine that a hearing is necessary. All interested parties will be given 15 days after the date of the hearing in which to submit comments to the Coastal Council.

C. S.C. Coastal Council Review

Upon receipt of comments from other State agencies, Federal agencies and other interested parties, the S.C. Coastal Council shall make a decision to either concur or not concur with the applicant's consistency certification. Whenever possible, the Coastal Council will make its determination within three months following commencement of its review. (Federal regulations allow a period of six months for State coastal zone agency review and comment. State agency concurrence is presumed in the absence of an objection within six months following commencement of State review.) If unable to issue a determination at the end of three months after commencement of its review, the S.C. Coastal Council will notify the applicant and the Federal agency of the status of the matter.

1) S.C. Coastal Council Concurrence

When the S.C. Coastal Council concurs with an applicant's consistency certification, it shall notify the applicant and the Federal agency in writing at the earliest practicable time. Upon receipt of Coastal Council concurrence or when concurrence is presumed (in the absence of an objection at 6 months from commencement of Coastal Council review), the Federal agency may approve the license or permit application.

NOTE: Should the Federal agency determine that an application will not be approved, it shall immediately notify the applicant and the S.C. Coastal Council.

2) S.C. Coastal Council Objection

In the event of an objection, the S.C. Coastal Council will notify in writing the applicant, the Federal agency and the Assistant Administrator. The objection must describe how the proposed activity is inconsistent with the management program as well as suggest alternative measures (if they exist) which would permit the activity to be consistent. A statement informing the applicant of a right of appeal

to the Secretary of Commerce will be included in the objection.

Following receipt of a S.C. Coastal Council objection to a consistency certification, the Federal agency shall not issue the license or permit except as provided in Conflict Resolution below.

VI. Conflict Resolution

Several avenues exist for the resolution of conflicts.

1) Informal Discussion

The S.C. Coastal Council, the applicant, and the Federal agency should meet informally in an attempt to resolve the matter rather than appealing the issue to the Secretary of Commerce.

2) Appeals to the Secretary

If informal discussion fails to resolve the matter, the applicant may, within 30 days of receipt of the Coastal Council's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information and copies of the notice and supporting information must be sent to the Federal agency and the S.C. Coastal Council.

Following public notice by the Secretary of Commerce, receipt of comments and, in some cases, a hearing, the Secretary shall determine whether the proposed activity is consistent with the objectives or purpose of the Federal Coastal Zone Management Act or is necessary in the interest of national security.

If the Secretary finds that the proposal meets either of these two requirements, the Federal agency may approve the activity. If the Secretary does not make either of the two findings, the Federal agency

()

may not approve the activity. (For complete details as to Secretarial Review, see the Federal Register, Vol. 43, No. 49, March 13, 1978, pp. 10531-10532.)

III. Outer Continental Shelf (OCS Activities)

Subsection 307 (c)(3)(B) addresses the subject of Outer Continental Shelf exploration, development and production activities. The subsection states:

After the management program of any coastal state has been approved by the Secretary under section 306, any person who submits to the Secretary of the Interior any plan for the exploration or development of, or production from any area which has been leased under the Outer Continental Shelf Lands Act (43 U.S.C. 1331 et seq.) and regulations under such Act shall with respect to any exploration, development or production described in such plan and affecting any land use or water use in the coastal zone of such state, attach to such plan a certification that each activity which is described in detail in such plan complies with such state's approved Management program and will be carried out in a manner consistent with such program.

A. Notification Procedure

Any person submitting to the Interior Department any OCS plan must provide Interior with a consistency certification, attached to the OCS plan, and must furnish the state agency with the same information.

B. Consistency Certification

When satisfied that the proposed activities described in detail in the OCS plan meet the Federal consistency requirements, the OCS lessee or operator shall declare that the activities comply with and will be conducted in a manner consistent with the state's management program. Supporting information to accompany the certification must include data and material required by the Department of Interior as well as a brief assessment of the probable coastal zone effects and a brief set of findings indicating that the proposed

activities, their associated facilities, and their combined effects are all consistent with the provisions of the management program.

C. State Review

State agency review begins at the time the state receives the OCS plan, consistency certification and supporting information. Timely public notice must be ensured by the state agency which may hold one or more public hearings.

At the earliest practicable time, the State agency must notify the person whether it concurs with or objects to the consistency certification. If concurring, the State agency must notify both the Secretary of Commerce and the Secretary of the Interior. Concurrence will be conclusively presumed in the absence of an objection within six months following commencement of State review. If the State agency concurs with the consistency certification, the person will not be required to submit additional certifications for State review at the time Federal applications are actually filed for the permit activities.

Should the State agency object to the certification, it must accompany its objection with reasons and supporting information. Following receipt of a State agency objection, Federal agencies may not issue any of the licenses or permits for activities except as provided below.

D. Conflict Resolution

Several avenues exist for the resolution of conflicts regarding an OCS plan certification. Initial informal discussions are always recommended. Lessees and operators are encouraged to adopt amended or new OCS plans which conform to alternative strategies proposed by the state.

The person may file a notice of appeal with the Secretary of Commerce within 30 days from

receipt of the state's objection. Following public notice, receipt of comments and, in some cases, a hearing, the Secretary of Commerce will determine whether each of the objected to OCS activities is consistent with the objectives or purposes of the Federal Coastal Zone Management Act or is necessary in the interest of national security

If the Secretary finds that all of the objected to activities meet either of the two above requirements, the Department of the Interior may approve the OCS plan and issue permits. If the Secretary does not make either of these two findings, the person must submit an amended or new plan for state review.

Operational Guidelines
Outer Continental Shelf Activities

I. Definitions

A. Federal License or Permit Activity Described in Detail

This means any activity requiring a Federal license or permit which the Secretary of the Interior determines must be described in detail within an OCS plan.

B. Person

The term "person" means any individual, corporation, partnership, association, or other entity organized or existing under the laws of any state, the Federal government, any State, regional or local government, or any entity of such Federal, State, regional or local government, who submits to the Secretary of the Interior, following management program approval, an OCS plan which describes in detail Federal license or permit activities.

C. OCS Plan

The term "OCS plan" means any plan for the exploration or development of, or production from any area which has been leased under the Outer Continental Shelf Lands Act and the regulations under that Act, which is submitted to the Secretary of the Interior following management program approval and which describes in detail Federal license or permit activities.

II. OCS Activities Subject to State Agency Review

(See "Federal License and Permit Activities Likely to Significantly Affect South Carolina's Coastal zone," page 397 .)

III. Consistency Certifications

A. Responsibilities of S.C. Coastal Council

1. Make copies of the management program document available for public inspection.
2. Assist persons regarding the means for ensuring that the proposed activities will be conducted in a manner which is consistent with South Carolina's management program.

B. Responsibilities of Applicant

1. Meet with S.C. Coastal Council to discuss the OCS plan and activities and to obtain assistance from the Coastal Council regarding the means for ensuring that the proposed activities will be conducted in a manner which is consistent with South Carolina's management program.
2. Furnish the S.C. Coastal Council with the information required by Section 930.58 of the Federal Register, Vol. 43, No. 49, p. 10525, March 13, 1978, as well as any additional information requested by the council. (See Necessary Data & Information below)
3. Consolidate related Federal license and permit activities significantly affecting the coastal zone for Coastal Council review.

C. Necessary Data and Information

(To be furnished by applicant to S.C. Coastal Council)

The applicant shall furnish the S.C. Coastal Council with the following data and information

along with consistency certifications.

1. Detailed description of the proposed activities and their associated facilities. The description should contain sufficient detail to permit an assessment of the probable coastal zone effects of the activities and their associated facilities. ("Coastal zone effects" means significant primary, secondary and cumulative effects and includes nonassociated facilities. However, the person is not responsible for assessing the consistency of such facilities.)

When necessary for an adequate description and understanding of the activities and their associated facilities, maps, diagrams, technical data and other relevant material must be submitted.

2. A brief assessment relating the probable coastal zone effects of the activities and their associated facilities to the relevant elements of the management program.

3. A brief set of findings, derived from the assessment, indicating that each of the proposed activities, (e.g., drilling, platform placement), and their associated facilities (e.g., onshore support structures, offshore pipelines), and their primary effects (e.g., air, water, waste discharge, erosion, wetlands, beach access impacts) are all consistent with the provisions of the management program. Appropriate weight must be given to the various types of provisions within the management program.

4. All relevant State and/or local government permits which are required in addition to the Federal license or permit.

D. The Certification Statement

The person, upon determining that the proposed activities meet the Federal consistency

requirements, shall include with the OCS plan a certification statement. This statement shall read as follows: "The proposed activities described in detail in this plan comply with South Carolina's approved coastal management program and will be conducted in a manner consistent with such program."

IV. S.C. Coastal Council Review

The S.C. Coastal Council will begin review of a person's consistency certification after receipt of the consistency certification and all data and information required in Section III(C) above.

A. Public Notice

Within five days after receipt of the consistency certification (consistency statement, required data and information) the S.C. Coastal Council will publish public notice of the proposed activity in a newspaper of statewide circulation as well as in a newspaper circulated in the area which is likely to be significantly affected by the proposed activity. Where one newspaper meets both criteria, publication of the public notice in the single newspaper shall be sufficient. The public notice shall include a summary of the proposed activities, an announcement that information on the activities is available for public inspection at the Coastal Council office, and a request that comments be submitted to the Coastal Council by a specified date.

B. Public Hearings

At its discretion, the S.C. Coastal Council may hold a public hearing on the proposed activities. Announcement of the hearing may be included in the public notice discussed in A above. A public hearing may not be held until at least 30 days after publication of the hearing announcement. All

interested parties will be given 15 days from the date of the hearing in which to submit comments to the Coastal Council.

C. Council Review

Upon receipt of comments from other State agencies, Federal agencies and other interested parties, the S.C. Coastal Council shall make a decision to either concur or not concur with the person's consistency certification. Whenever possible, the Coastal Council will make its determination within three months following commencement of its review. (Federal regulations allow a period of six months for State coastal zone agency review and comment. State agency concurrence is presumed in the absence of an objection within six months following commencement of State review.) If unable to issue a determination at the end of three months after commencement of its review, the S.C. Coastal Council will notify the person and the Dept. of the Interior of the status of the matter.

(1) S.C. Coastal Council Concurrence

When the S.C. Coastal Council concurs with a person's consistency certification, it shall notify the person and the Dept of the Interior in writing at the earliest practicable time. Upon receipt of Coastal Council concurrence or when concurrence is presumed (in the absence of an objection at 6 months from commencement of Coastal Council review), the Dept. of the Interior may approve the OCS plan.

(2) S.C. Coastal Council Objections

In the event of an objection, the S.C. Coastal Council will notify in writing the person, the Dept. of the Interior, and the Assistant Administrator. The objection must describe how the

proposed activity is inconsistent with the management program as well as suggest alternative measures (if they exist) which would permit the activity to be consistent. A statement informing the person of a right of appeal to the Secretary of Commerce will be included in the objection.

Following receipt of a S.C. Coastal Council objection to a consistency certification, the Federal agencies shall not issue licenses or permits except as provided in Conflict Resolution below.

V. Conflict Resolution

Several avenues exist for the resolution of conflicts.

1) Informal Discussion

The S.C. Coastal Council, the person, and the Dept. of the Interior should meet informally in an attempt to resolve the matter rather than appealing the issue to the Secretary of Commerce.

2) Appeals to the Secretary

If informal discussion fails to resolve the matter, the person may, within 30 days of receipt of the Coastal Council's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information, and copies of the notice and supporting information must be sent to the Dept. of the Interior and the S.C. Coastal Council.

Following public notice by the Secretary of Commerce, receipt of comments and, in some cases, a hearing, the Secretary shall determine whether each of the objected to OCS activities is consistent with the objectives or purposes of the Federal Coastal Zone Management Act or is necessary in the interest of national security.

If the Secretary finds that all of the objected to OCS activities meet either of these two requirements, the Dept. of Interior may approve the OCS plan and issue permits. If the Secretary does not make either of these two findings, the Dept. of the Interior may not approve the OCS plan and the person must submit an amended or new OCS plan to the Dept. of the Interior and to the S.C. Coastal Council, along with a new consistency certification and supporting information. State review will begin again. The applicable time period for purposes of concurrence by conclusive presumption shall be three months instead of six months.

IV. Federal Assistance (to State and Local Governments)

Section 307(d) addresses the subject of federal assistance to state and local governments under other Federal programs affecting the coastal zone. The subsection states:

Federal agencies shall not approve proposed projects that are inconsistent with a coastal state's management program, except upon a finding by the Secretary that such project is consistent with the purposes of this title or necessary in the interest of national security.

The Section 307 regulations define the term "Federal assistance" as "assistance provided under a Federal program to an applicant agency through grant or contractual arrangements, loans, subsidies, guarantees, insurance, or other forms of financial aid".

The term "applicant agency" refers to "any unit of State or local government, or any related public entity such as a special purpose district, which, following management program approval, submits an application for Federal assistance".

A. Identification of Types of Federal Assistance Programs Subject to Consistency Review

State agencies are encouraged to include within the management program a list of types of Federal assistance programs which may significantly impact the coastal zone and are thus subject to a consistency review. The State agency may also choose to review applications for Federal assistance activities outside the coastal zone but likely to significantly affect the coastal zone. When choosing to do so, the state agency must provide within the management plan a description of the geographic area (e.g. coastal floodplains) within which Federal Assistance activities will be subject to review. The

state list and geographic area description must be provided to Federal Agencies, units of State and local government empowered to undertake Federally assisted activities, and to the A-95 clearinghouse.

B. Notification Procedures

The state agency shall be notified of Federal assistance applications by means of the Office of Management and Budget (OMB) A-95 process, which provides for the evaluation, review and coordination of Federally assisted programs.

C. State Review

1) Approval

If, during the OMB A-95 process, the State agency does not object to the proposal, the Federal agency may grant the Federal assistance to the applicant agency.

2) Objection

In the event the state agency objects to the applicant agency's proposal, it must accompany its objections with reasons and supporting information and must describe alternative measures (if they exist) which would permit the proposed project to be conducted in a manner consistent with the management program. The objection must include a statement informing the applicant agency of a right of appeal to the Secretary of Commerce for review of the proposal related to the objectives or purpose of the Federal CZ Management Act and/or National security interests.

Following receipt of a state agency objection, the Federal agency may not grant the Federal assistance except as provided below.

D. Conflict Resolution

Several avenues exist for the resolution of conflicts regarding the consistency of a Federal assistance proposal. Initial informal discussion among the state and Federal agencies and the applicant agency is always recommended. Should this not be sufficient, either the state agency or the Federal agency may request mediation by the Secretary of Commerce in accordance with Subpart G of the Federal Consistency Regulations.

If mediation efforts are unsuccessful, or are not used, either party may seek judicial review. Judicial review may be sought without first having exhausted the mediation process although informal discussion and/or mediation are strongly encouraged.

A third method of conflict resolution may be initiated by the applicant agency, that of Secretarial Review related to the objectives or purposes of the Federal CZ Management Act and/or National security interests.

Operational Guidelines

Federal Assistance (to State and Local Governments)

I. Definitions

A. Federal Assistance

The term "Federal Assistance" means assistance provided under a Federal program to an applicant agency through grant or contractual arrangements, loans, subsidies, guarantees, insurance, or other form of financial aid.

B. Applicant Agency

The term "applicant agency" means any unit of state or local government, or any related public entity such as a special purpose district, which, following management program approval, submits an application for Federal assistance.

II. Types of Federal Assistance Programs Subject to Consistency Review

The S.C. Coastal Council has identified the following as being subject to consistency review within the coastal zone of S.C.

Federal Assistance for the Construction of:

1. Power generating plants
2. Desalination plants
3. Chemical processing, transfer or storage facilities.
4. Petroleum processing transfer or storage facilities.

5. Mineral extraction facilities.

6. Sewage treatment and disposal facilities.

7. Solid waste disposal facilities

In addition, the S.C. Coastal Council will review all above type Federal assistance programs proposed to take place in the geographic area encompassed by the coastal floodplain of South Carolina.

III. Consistency Determination

A. Decision Making Agency

The S.C. Coastal Council makes the consistency determination.

B. Notification Procedure

When applying for Federal assistance for an activity located in the coastal zone or geographic area encompassed by the coastal floodplain of South Carolina, the applicant agency shall, pursuant to the OMB A-95 process, notify the appropriate state clearinghouse of its intentions. (The applicant agency shall utilize the OMB A-95 process for every major funding phase of the Federal assistance activity which entails the consideration of new information not previously reviewed or which results in substantial modifications to previously reviewed phases.)

The state clearinghouse shall notify the S.C. Coastal Council of the application for Federal assistance through means of the OMB A-95 process.

C. S.C. Coastal Council Review

1) Approval

If the S.C. Coastal Council does not object to the proposed activity, the Federal agency may grant the Federal assistance to the applicant agency.

2) Objection

If the S.C. Coastal Council objects to the proposed project, it shall notify the state clearinghouse of its objection. The state clearinghouse shall in turn notify the applicant agency, the Federal agency and the Assistant Administrator of the objection.

The objection must: (1) describe how the proposed project is inconsistent with S.C.'s Management program and (2) suggest alternative measures (if they exist) which would permit the proposed project to be conducted in a manner consistent with the management program.

The objection shall include a statement informing the applicant agency of its right of appeal to the Secretary of Commerce on the grounds described in Subpart H of the Federal Register, Vol. 43, No. 49, March 13, 1978, pp. 10531-10532.

IV. Responsibility of Federal Assisting Agency

When notified of a S.C. Coastal Council objection to a proposed project, the Federal agency shall not approve assistance for the project except as provided in Subpart H of the Federal Register, Vol. 43, No. 49, March 13, 1978, pp. 10531-10532.

V. Conflict Resolution

Several avenues exist for the resolution of conflicts.

1) Informal Discussion

The S.C. Coastal Council, the applicant agency, and the Federal assisting agency should meet informally in an attempt to resolve the matter rather than seeking Secretarial mediation.

2) Mediation by the Secretary of Commerce

Either the Federal assisting agency or the S.C. Coastal Council may request secretarial mediation.

3) Judicial Review

Either the S.C. Coastal Council or the Federal Assisting agency may seek judicial review. Judicial review may be sought without first having exhausted the mediation process.

NOTE: Informal discussions and/or mediation are strongly encouraged.

4) Secretarial Review

The applicant agency may within 30 days of receipt of the S.C. Coastal Council's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information, and copies of the notice and supporting information must be sent to the Federal agency and the S.C. Coastal Council.

Following public notice by the Secretary of Commerce, receipt of comments, and, in some cases, a hearing, the secretary shall determine whether the proposed activity is consistent with the objectives or purposes of the Federal Coastal Zone Management Act or is necessary in the interest of National security.

If the Secretary finds that the proposal meets either of these two requirements, the Federal agency may approve the activity. If the Secretary does not make either of the two findings, the Federal agency may not approve the activity. (For complete details as to Secretarial Review, see the Federal Register, Vol. 43, No. 49, March 13, 1978, pp. 10531-10532.)

4. STATE COORDINATION

Legislative Requirements

Subsection 306(c)(1) of the Federal Coastal Zone Management Act of 1972, as amended, mandates the development and adoption of each state's management program with the opportunity of full participation by relevant Federal agencies, State agencies, local governments, regional organizations, port authorities, and other interested parties. Section 923.55 of the development and approval regulations (Federal Register, Vol. 43, No. 41, March 1, 1978) further outlines the requirements for coordination with state agencies.

To meet this requirement with respect to governmental entities (other than Federal) and other public or private parties, States shall:

- (1) Develop and make available general information regarding the program and sign; its content and its status throughout program development;
- (2) Provide a listing as comprehensive as possible, of all governmental agencies, regional organizations, port authorities and public and private organizations likely to be affected by or have a direct interest in the development and implementation of the management program.
- (3) Indicate the nature of major comments received from interested or affected parties as identified in (2) above, and the nature of the State's response...
- (5) Establish a mechanism to provide for continuing coordination with affected parties after program approval..

The establishment of these processes are providing valuable information to the South Carolina Coastal Council in the development of its management program, further assuring that the coastal management program can be implemented effectively within the existing governmental framework of the State. In addition, they are serving as a mechanism of communication for State agencies to learn about the coastal management program.

The South Carolina General Assembly also affirmed in the South Carolina Coastal Management Act of 1977 (Act 123) the importance of the development and coordination of the coastal management program with State agencies. In Section 2(B)(5) of the Act one of the policies to be implemented is "to encourage and assist state agencies...to exercise their responsibilities and powers in the coastal zone through the development and implementation of comprehensive programs to achieve wise use of coastal resources. In Section 5(N) of the Act the Coastal Council is given the statutory power and duty "to encourage and promote the cooperation and assistance of state agencies, coastal regional councils of government, local governments, federal agencies and other interested parties". The Act gives the Coastal Council specific authority to become a party to certification proceedings of the South Carolina Public Service Commission for utility facilities within the coastal zone and coordinate with the South Carolina Department of Wildlife and Marine Resources and the Department of Health and Environmental Control.

The key to state coordination effort is in Section 7(A) and Section 8(B) (11) of the Act which state that all state agencies with regulatory authority will administer their authority in accordance with the South

Carolina Coastal Management Act and develop a system of coordination and review of all state permit applications in the coastal zone. Detailed explanation of these sections are found in the Legal Analysis (Appendix C).

Participation in Program Development

Since the inception of the South Carolina Coastal Council in July, 1977, and in the preparation for implementation of the Council's permitting authority which began September 28, 1977, one of the Council's highest priorities has been state coordination. From a legal point of view, the coordination with state agencies with whom the Council will network its authority is of basic importance. From a practical point of view, close communication and coordination with state agencies has been tremendously helpful and productive in the development of the coastal management program. The following list summarizes the various state coordination efforts which are detailed in the specified Appendices.

- (1) Appendix H, Table 1 shows the complete mailing list of all state agencies which receive notices of all Council meetings and copies of all management program information, including draft copies of program document segments for review and comment. All Council meetings are open and attended by representatives of numerous state agencies. State agency comments have been and are being given

careful attention and incorporated into the management program wherever feasible.

- (2) The Coastal Council staff has held coordination meetings with state agencies both on an individual basis with single agencies and with groups of agencies on various topics relevant to elements of the management program. Appendix H, Table 2 gives the dates, participants and topics discussed at the coordination meetings.
- (3) The first draft of the Legal Analysis section has been distributed for comment to all state agencies and rewritten to incorporate the agency comments and concerns. This legal analysis section has been the basis for the development of Memoranda of Agreement (MOAs) with all state agencies with whom the Coastal Council has overlapping or complementary authority. In each case MOAs have been developed through close communication with the state agency involved. Copies of the MOAs are in Appendix D.
- (4) Many state agency representatives serve on Technical Advisory Committees for Beach Access, Erosion Control, and Energy Planning. The list of these participants are in Appendix J, pp.13-23.

- (5) During the period of 305 program funding, several state agency grants were made to assist in inventory, mapping and research efforts contributing to the development of the management program. Appendix H, Table 3, lists these activities.

Program Implementation

South Carolina's coastal management program will be implemented and enforced following the guidelines of Section 923.42(d) (Federal Register, Vol. 43, No. 41, March, 1978) for Technique B - Direct State Control. This Federal program option has been selected because it parallels the basis of the South Carolina Coastal Management Act.

Technique B - State Control is the method of implementation and enforcement of coastal management programs which establishes the networking concept. Following this approach the Coastal Council will network its authority with every state agency which exercises statutory authority. (The concept is explained in detail in the Implementation Authorities chapter). Therefore, the implementation and enforcement of the management program in South Carolina is based upon thorough state coordination. The mechanisms which were used for state coordination during the development stage, such as, mailing lists, review and comment, meetings with state agencies, MOAs and Technical Advisory Committees, will continue to serve the Coastal Council during implementation of the coastal management program.

5. LOCAL GOVERNMENT COORDINATION

Legislative Requirements

Sub-section 306(C)(2)(A) of the Federal Coastal Zone Management Act of 1972, as amended, mandates the coordination of each state's management program with local, areawide or interstate plans applicable to the area. Section 923.56 of the development and approval regulations (Federal Register, Vol. 43, No. 41, March 1, 1978) further outlines the requirements for coordination with local governments in the coastal zone.

Evidence of coordination shall be documented in the Management program by:

- (1) Identifying local governments, areawide agencies designated pursuant to regulations established under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, regional agencies or interstate agencies which have plans affecting the coastal zone in effect on January 1 of the year in which management program is submitted;
- (2) Listing or providing a general summary of substantive contacts with these entities to coordinate the management program with their plans; and
- (3) Identifying conflicts with those plans of a regulatory nature that are unresolved at the time of program submission and the means that will be used to resolve these conflicts.

These processes are intended to not only avoid conflicts and duplication of efforts, but also to gain

maximum benefit from the expertise and awareness of local governments and their agency personnel. These entities have closer contact with local issues and needs that should be addressed within the state coastal program.

The South Carolina General Assembly also recognized the need and the value of extensive local government coordination in development and implementation of the State's coastal management program. Section 10 of the South Carolina Coastal Management Act of 1977 (Act 123) addresses the local government role in the following manner:

(A) The Management program specified in Section 8 shall be developed in complete cooperation with affected local governments in the coastal zone. This cooperation shall include, but not be limited to:

- (1) Involvement of local governments or their designees in the management program.
- (2) Provision of technical assistance and grants to aid local governments in carrying out their responsibilities under this act.
- (3) Dissemination of improved informational data on coastal resources to local and regional governmental units.
- (4) Recommendations to local and regional governmental units as to needed modifications or alterations in local ordinances that become apparent as a result of the generation of improved and more comprehensive information.

Subsection (B) provides the mechanism for cities or counties in the coastal zone to submit their existing or proposed zoning ordinances, subdivision regulations and/or building codes, especially those affecting the critical areas to the Coastal Council for review and determination that they meet the provisions of the State's

Coastal Management Act. Upon such determination and approval by the Council, these local ordinances and regulations are to be considered by the Council in its decisions on permit applications in the critical areas, and integrated into the coastal management program.

Participation in Program Development

The Coastal Council has been active with local government cooperation and coordination efforts since its inception in July, 1977. Prior to establishment of the Coastal Council, the coastal zone planning program and its two gubernatorially appointed commissions also worked closely with local governments since 1973 in initiation of the program, and establishment and passage of State legislation.

The South Carolina Coastal Council has among its membership one representative from each of the eight coastal counties. The Council member, selected by the local governing body in that county, insures a first level of direct participation by local interests in development of the coastal management program.

In addition, direct input from and education of local elected officials and government agencies has been on-going throughout preparation of the program document. A number of mechanisms have been employed to carry out this effort, including the assignment of one Coastal Council staff person, full-time, to serve as Local Government Liaison. The following list summarizes the local participation efforts, which are detailed, as indicated, in the Appendices.

- (1) The Local Government Liason personally visited every local government in the coastal zone, discussing the coastal management program with them and distributing a specially prepared packet of information about the overall program and the Coastal Council's regulatory authority in the critical areas. Appendix I, pp. 1-3 lists those individuals and/or local governments with whom the staff person made contact.
- (2) Three introductory conferences with local governments were co-sponsored by the Coastal Council and the coastal regional planning agencies - Waccamaw Regional Planning and Development Council, Berkeley-Charleston-Dorchester Regional Planning Council, and Lowcountry Regional Planning Council (in conjunction with the League of Women Voters). These informational sessions concentrated on the Coastal Energy Impact Program, the overall coastal management program and the critical area permitting process. Appendix I, pp. 4-10, Table 2 details the dates and participants in these meetings.
- (3) Appendix I, p. 11 shows the complete local government mailing list, which identifies those agencies and individuals who receive meeting notices and general management program information, including draft copies of program document segments for review and comment.
- (4) Several local government officials or representatives serve on the County Citizen Working Groups, Appendix J, pp. 4-11.

(5) Several regional and local government representatives serve on the Technical Advisory Committees for Beach Access, Erosion Control and Energy Planning, Appendix J, p. 13-23.

(6) During the period of 305 program development funding, a number of regional and local government grants were made for assistance to the State in inventory, mapping and research efforts. This directly involved local planning agencies in development of the coastal program Appendix I, p. 12 lists these activities.

Program Implementation

South Carolina's coastal management program will be implemented and enforced following the guidelines of Section 923.42 (d) (Federal Register, Vol. 43, No. 41, March 1, 1978) for Technique B - Direct State Control. This Federal program option has been selected because it parallels the basis of the South Carolina Coastal Management Act. (The chapter on Implementation Authorities details this aspect of the program.) This approval mandates coordination and cooperation with local and regional units of government.

Affected regional and local governments are notified of each permit application to the Coastal Council for a proposed alteration to the critical areas within their jurisdiction. Conflicts with local regulatory

authority is not an issue since local permit requirements are considered separate from State requirements. Nothing in the issuance of a Coastal Council permit relieves the applicant from the obligation to obtain other necessary Federal, State, or local permits. However, the Council actively solicits local comments on permit applications and considers these in rendering a permit decision. (Section 15(B), South Carolina Coastal Management Act).

Local governments are expected to play a significant role in achieving the goals, objectives and policies of the coastal management program, for the coastal zone as a whole, in addition to the critical areas. By conducting their planning, permitting, and administrative functions in a manner which supports and enhances the Coastal Council's efforts of mutual goals for protection and development of coastal resources will be furthered. Many of the recommended policies for Activities Subject to Management are encouraged by the Council for adoption and implementation at the local level.

Appendix I, pp. 13-18 indicates the local governments in the coastal zone and those with current regulatory authority and/or existing land use plans. The Coastal Council encourages the development of local capabilities in areas of managing growth and development. Pursuant to Section 10 of the Coastal Management Act, Council review and comment on local regulations and plans will be available, as well as technical assistance in their development. This will be an on-going process in the implementation or (306) stage of the management program.

Pass-through funding to local county governments to assist in the costs of project proposals to

address specific local coastal needs or problems will be provided on a limited basis, as available, by the

Coastal Council.

Local governments are insured an opportunity to participate in any future amendments or modifications to the management program, through the same mechanism for coordination provided to Federal and State agencies and interested citizens. This process for update and modification is set forth beginning on p.

E. PUBLIC INVOLVEMENT

Coastal zone management cannot be effective without the cooperation and support of federal, state and local government entities as well as that of the general public. Interaction with private citizens is of particular importance, as this is the best means of incorporating widely held values into management policy development. The Coastal Council relies heavily on input from interested citizens who are most familiar with individual locales or specific local problems. In addition, the Council realizes that without public participation at every stage of the planning and implementation processes, the coastal zone management program will not accurately reflect the needs and concerns of all citizens of the state. Although made up of individuals with diverse interests, the Coastal Council cannot represent all possible points of view. Therefore, every effort has been made to encourage public involvement in coastal zone management, beginning even before South Carolina had a coastal zone management Act.

Early Public Involvement

South Carolina's official response to passage of the Federal Coastal Zone Management Act began in 1973 with the creation of the South Carolina Coastal Zone Planning and Management Council, established by an executive order of then Governor John West. One of the most important tasks of the newly formed Council was to establish a public involvement program, in keeping with the specifications of Section 923.55 of the Rules and Regulations pertaining to the Federal Coastal Zone Management Act. According to Section 923.55(a)(1), States shall "develop and make available general information regarding the program design, its content and its status

throughout program development".

The aims of the public information program were, first and foremost, to acquaint the public with the concept of coastal zone management. In addition, the Council hoped to obtain necessary support for the pending South Carolina Tidelands legislation and to generate suggestions and information essential to the creation of a sound management plan.

A brochure, entitled Coastal Zone Management in South Carolina was widely distributed in an attempt to familiarize the people of the state with the basic premises of coastal zone management. The brochure was also intended to dispel a number of popular misconceptions regarding the proposed legislation. The need for public input was outlined and additional sources of information were identified.

These sources included a slide presentation and an Information Center which citizens could call (collect) to express opinions, request specific information, make suggestions, or schedule the slide presentation. All interested groups and organizations were encouraged to make use of the presentation, which outlined the major problems and issues involved in coastal zone management in South Carolina and described the efforts underway to deal with them. Staff members attended the presentations and were available to answer questions, and distribute printed materials. A variety of interested groups took advantage of this opportunity, including civic, service and environmental organizations, business associations and local governing bodies.

Other public involvement activities included a 90 minute debate regarding the merits of coastal zone management televised on South Carolina ETV in an open-circuit format (in which viewers could call

in with questions or comments), several workshops sponsored by the S. C. League of Women Voters in various areas of the state, and a number of news releases and radio interviews by Council staff members. A small booklet was prepared, which described the new Federal Coastal Zone Management law and the proposed South Carolina legislation in some detail.

Current Activities

After South Carolina's Coastal Zone Management Act was signed into law by Governor James Edwards in May of 1977, the public involvement program was intensified. The newly formed Coastal Council hoped not only to gain an increased understanding of public opinion regarding coastal zone planning, but to acquaint the public with the goals and objectives of the Council itself. It was hoped that activities leading to a mutual understanding among all concerned parties would ultimately lead to a sound management system based upon compromise and accommodation of widely shared values.

Communication

At the most basic level, certain means of communicating with the public are mandated by the Federal Coastal Zone Management Act (Section 923.55 of the Federal Rules and Regulations) as well as by South Carolina's legislation. These include public notice of meetings and hearings (see Section 14C of South Carolina's Act) as well as public hearings themselves. Section 9(a) of South Carolina's Coastal Zone Management Act states that:

"the Council, on thirty days' notice, shall hold statewide public hearings on the proposed coastal zone management plan to obtain the views of all interested parties..."

As each segment of the management plan is completed, public hearings are held in various areas of the state. Public hearings were also held before permitting Rules and Regulations received final approval. Section 15(B) of the South Carolina Act states that "at the request of twenty citizens or residents of the county or counties affected, the Council shall hold a public hearing on any application which has an effect on a critical area, prior to issuing a permit." Proceedings of public hearings are available, as mandated in 923.55(a)(3) of the Federal Coastal Zone Management legislation Rules and Regulations (Dates and locations of all public hearings are listed in Appendix J, p.1).

Section 923.55(a)(2) of the Federal legislation directs states to:

"provide a listing, as comprehensive as possible, of all governmental regional organizations, port authorities and public and private organizations likely to be affected by or have a direct interest in the development and implementation of the management program."

Therefore, in addition to formal public notices, the Coastal Council maintains a sophisticated system for direct mail communication with the interested public as well as affected governmental and private entities. Notification of upcoming Coastal Council meet-

ings and public hearings, minutes and agendas of meetings, and completed segments of the management plan are mailed to approximately 250 groups or individuals. Separate files are maintained for each of the following categories: Colleges and Universities, Federal Agency contacts, other Federal Agencies, Interested citizens, Local governments, National interest groups, Regional Governments, S. C. Legislators, S. C. Special interest groups, Special purpose districts, S. C. State Government, State government - other states, and the U. S. Congressional delegation. Of these, the "Interested citizen" and "S. C. special interest" categories are the largest. In addition, this information is sent to 120 libraries across the state and to approximately 50 radio stations, T. V. stations, daily and weekly newspapers. An additional 90 individuals or groups receive only permitting information.

Special Projects

Public notification and mailing list procedures are effective in dealing with those citizens who are already aware of South Carolina's coastal zone management program and are able to contribute to the development of a management plan. However, the Coastal Council and staff realize that special efforts must be made to reach those people who are not yet cognizant of the program. With this in mind, the following activities have been undertaken:

1. General Information Packet: This is a selection of written material and maps designed to clarify various facets of the management plan and permitting procedures. It was designed to address specific local government concerns, and

was personally distributed to all municipal and county government officials.

2. South Carolina Coastal Council Informational Package: Unlike the "General Information Packet described above, the Coastal Council Informational Package is designed for distribution to a wide audience. It consists of a large folder containing information on the South Carolina coast and the need for wise management. Three small inserts, dealing with the Council itself, the permitting process, and the management plan can be added as needed, as can any additional information deemed appropriate for the specific audience. Such flexibility in design increases the usefulness of the packet and reduces its cost. The packet is sent to all mailing list entries and to the general public upon request.
3. Slide Presentation - With a grant from the S. C. Committee for the Humanities, the Coastal Council staff has prepared a fifteen minute slide presentation entitled A Sense of Place: The South Carolina Coast. The presentation will be shown to adult, out-of-school community groups throughout the State, in the hopes of initiating objective discussions of coastal problems and issues among individuals with little or no prior knowledge of the situation. The opinions voiced in these meetings will be relayed to the Coastal Council and Staff and incorporated into the planning process. A brochure has been designed to serve as pre-program publicity for the slide presentation. In addition, availability of the presentation will be publicized by appropriate media releases. It is

anticipated that the presentation will have been made approximately 20 times (to audiences of approximately 20 people) by the end of 1978.

4. Educational Television - The grant from the S. C. Committee for the Humanities has also enabled the Coastal Council to arrange for open-program ETV coverage in early December, 1978. The open-program format allows viewers throughout the state to phone in with questions or comments which may be answered on the air. News releases and coverage in the ETV Guide will provide pre-program publicity.
5. Coastal Council Poster - A color poster has been designed which is available to any individual or group upon request. The poster serves to call attention to the Coastal Council and to the fact that South Carolina has beautiful coastal areas deserving of wise management.
6. Public Display - A three-dimensional graphic display is available for use in public access buildings, such as libraries, hotel lobbies, government buildings, etc., See Appendix J, p.3. In conjunction with handouts available at the same location, the display focuses attention on coastal zone management, and initiates contact between the public and the Coastal Council staff. A number of requests for Staff appearances at group meetings have been made as a result of the display.
7. Newsletter - Carolina Currents, a monthly newsletter, is distributed to Federal Agency contacts and other interested parties. The newsletter contains a synopsis

of the previous month's Coastal Council meeting and an explanation of points of possible concern to Federal Agencies.

8. Radio Coverage - Radio stations across the state receive a 30 second spot announcing all public meetings and public hearings held by the Coastal Council. Listeners are urged to attend the hearings and make their opinions known to the Council. A number of radio interviews have been held with members of the Coastal Council and Staff. (dates and topics are listed in Appendix J, p. 1). Frequent "spot" interviews and brief announcements complete the program's radio contact schedule.
9. TV Talk Shows - TV stations throughout the coastal zone have sponsored talk shows with various members of the Coastal Council and Staff. (Dates and stations are listed in Appendix J, p.2). In addition, brief interviews, quotes and spot coverage segments are provided by numerous local stations.
10. Press Releases - Press releases precede and follow each Coastal Council meeting, and are made as needed when new developments occur in the program, or when completed segments of the management plan are distributed.
11. Public meetings - A number of public meetings and workshops have been held, including a meeting to discuss permitting procedures arranged in Myrtle Beach for realtors and developers, See Appendix J, p.1. Workshops sponsored jointly with the

three regional Councils of Government (Waccamaw, Berkeley - Charleston - Dorchester, and Lowcountry) in the coastal zone were held on the topics of permitting, the management program, and Outer Continental Shelf developments. (See Appendix I, pp. 4-10 for dates and participants.)

Citizens County Working Groups

In order to assure sufficient local input for the development of the management plan as well as to provide a review process of the management program as mandated by Section 8(c) of the South Carolina Coastal Zone Management Act, Citizens Working Groups have been established in each of the eight coastal counties. Although the groups are small, consisting of from twenty to twenty-five people, every effort has been made to involve people with varied backgrounds. Representatives of such interests as the Chamber of Commerce, municipal and county government, local development boards, environmental and civic groups, associations of sportsmen, realtor/developer groups, industrialists, manufacturers, and special districts were invited to serve on the Working Groups. In addition, private citizens who expressed an interest in participating were asked to do so. Two staff members were assigned to each County Working Group and were assisted by the Coastal Council members from their assigned county. Complete membership lists are included in Appendix J, pp. 4-11.

Each County Working Group met once a month while the management plan was being drafted. At their first meeting, the Working Groups learned of the history of Coastal Zone Management legislation and received an explanation of the management program. Copies of relevant materials (such as permitting rules and regulations and

maps were distributed, along with draft segments of the management plan. At subsequent meetings members of the Working Groups reviewed and commented on each segment of the management plan as it was completed, while staff members made note of the recommended additions, deletions or alterations.

All County Citizen's Working Group meetings are open to the public and are announced in advance through various media. Because segments of the management plan are distributed to any interested party upon request, review and comment by the public as well as by official members of the working group is possible - and all outside comments are welcomed by the staff. Adequate press coverage serves to make the activities of the County Working Groups known to a wider audience than might otherwise be the case, and may help to interest more of the general public in the process. Exact dates and locations of Working Group Meetings are listed in Appendix J, p. 12.

It is hoped that the structure employed by the County Working Groups will serve several purposes. First and foremost, of course, is the contribution to the planning process which only local citizens can provide. Because the members of the Working Groups are familiar with local needs and concerns, they are well equipped to evaluate the impacts and ramifications of the management plan for their county. Their familiarity with

the area also enables the members of the Working Groups to anticipate problems which might arise and to locate areas of concern which are not adequately addressed by the management plan. The diverse membership of each Working Group helps to guarantee that all important local needs and values are taken into account during the planning process.

In many ways, the County Working Groups complement the public hearings held for each draft segment of the management plan. The Working Groups are designed to represent diverse interests, while representation at public hearings may be much greater for some interests than for others. It may be easier for some individuals to attend Working Group meetings than it is for them to attend public hearings, as the former are held in each county during the evening. Thus travel time is reduced and attendance is easier for those who are unable to leave their jobs during the day. Finally, the format of the Working Group meetings is much less formal than that of the public hearings, facilitating comment by citizens who may be uncomfortable making a presentation at a public hearing.

The Working Groups will continue to meet, after approval of the management plan, enabling them to advise the staff on necessary amendments. Due to their familiarity with the area, Working Group participants will be in an ideal position to identify problems resulting from implementation of the management plan and to suggest possible remedies to the staff. Ongoing contact with the County Working Groups

is also an excellent way for the Coastal Council to maintain its sensitivity to changing local values and concerns, and to quickly assess the local impacts of new developments.

Advisory Committees

A very different contribution to the management plan is provided by the technical Advisory Committees, formed to address the problems of beach erosion, public access to beaches and energy facility siting. Thus, the organization of the Committees is substantive rather than geographic in nature. In forming the committees, an attempt was made to involve those who possess both familiarity with the problem and a degree of expertise applicable to its solution, rather than a diverse range of interests. Members include state, local and regional government officials, members of civic organizations, such as the League of Women Voters, technical experts from industry and the academic community, and officials of relevant state agencies. Membership lists for each Advisory Committee will be found in Appendix J, p. 13-22. Because members are from all parts of the state rather than from a single county, committee meetings are held in Columbia, the state Capitol. The dates and agenda of each Advisory Committee meeting are listed in Appendix J, p. 23-26.

At the initial meeting of each Committee, the goals and objectives of the Coastal Council were discussed, and the overall format of the management plan was presented. The specific problem area was then discussed, and facets of the topic meriting particular

consideration were called to the attention of the Coastal Council staff.

As each draft segment of the plan is completed, it is forwarded to the appropriate Advisory Committee for review and comment. Subsequently, each Committee will meet to discuss the draft and make criticisms and suggestions for its improvement. The process will continue until a final draft is approved. It is anticipated that the Advisory Committees will be disbanded at this time, although there is a possibility that further input will prove to be desirable.

