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North Carolina Ports: A Search for Identity

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University of Rhode Island

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NORTH CAROLINA PORTS:
A SEARCH FOR IDENTITY

BY

CLIFFORD S. SHARPE

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ABSTRACT

North Carolina's development in colonial times and in the early stages of statehood was greatly affected by her coastline. An abundant coastline did not translate into an abundance of good ports, in fact, difficult coastal and inland navigation hampered early commercial development. North Carolina's barrier islands and numerous inlets served as a haven for pirates in colonial days, for privateers during the Revolution, and later defied the North's blockade during the Civil War.

There were several attempts by individuals to encourage maritime trade in the late nineteenth and early twentieth century. Shortly after World War II the state mobilized to promote maritime commerce. A $7.5 million bond issue financed the building of modern port facilities in Wilmington and Morehead City. The State Ports Authority's initiative paralleled North Carolina's transition from a strictly agricultural and textile economy to a more sophisticated industrial state.

Current operations hail the first port-operated inland container staging and storage facilities in the nation. The Port Authority conducts an extensive marketing effort in this country as well as in London, West Germany, Hong Kong, Japan, and Korea. The cornerstone of the marketing strategy is the promotion of North Carolina's competitive edge in areas of cost, efficiency, and security.

In 1987, the North Carolina General Assembly allocated $45 million for port improvement to ensure that the ports of Morehead City and Wilmington would continue to grow and be competitive into the 1990s. This capital injection solidified North Carolina's commitment to its ports and affirmed that state leaders believed that improved business in the 1980s indicated that North Carolina ports had overcome their inherent geographic constraints through technology, innovation and effective marketing. After a downturn in business in 1988, many question the optimistic predictions for the ports which prompted the ambitious undertakings of the previous year.
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CHAPTER I
INTRODUCTION

The purpose of this study is to explore the effects which the geographic limitations of the North Carolina coastline have had on the state's maritime trade and the effects these same limitations will continue to have on the state's future. In order to properly focus on this issue one must understand the early development of the state, specifically just how instrumental the lack of a good deep water seaport was in hampering commerce. The second chapter of this study is devoted to the state's early history. The unique character of the coastline is largely credited as the justification for the state not achieving the economic importance that bordering states enjoyed.

The third chapter details efforts to overcome geographic handicaps and develop ports. The prime vehicle for these efforts was established with the creation of the North Carolina State Ports Authority after World War II. The state proceeded with reservation. Many were skeptical of port development; the issue of poor ports and dangerous coastal waters had so long been a part of North Carolina folklore, critics of the new Port Authority felt pursuing increased maritime trade was folly for the state. The industrialized piedmont region had established trade routes
via Norfolk, Virginia and Charleston, South Carolina. Ports in Wilmington and Morehead City were separated from the commerce centers of the state by an expansive coastal plan. Railways were limited and highways were poor.

Chapter four outlines present day operations. Current trade through the ports is analyzed. Major portions of an interview conducted in March, 1988 with North Carolina State Ports Authority Military Liaison and Special Operations Manager are highlighted. Impressions of visits to both Wilmington and Morehead City are recorded.

Chapter five attempts to draw conclusions concerning future prospects for North Carolina ports. Recent acquisitions, improved facilities and future plans are impressive. But worse than expected business in 1988 may well spell problems in the future, or at least should serve as warning that expectations should be revised.

The hypothesis for this study finds its roots under a general heading of "lessons learned from history." The approach is inductive rather than deductive. North Carolina ports experienced substantial growth in the 1980s. This growth was largely attributable to the general business climate of the state; North Carolina is recognized as one of the boom states of the newly prosperous Southeast. The increased port business can also be credited to aggressive marketing by the Port Authority to garner new business, specifically the effort to capture previously elusive trade from the state's industrial
piedmont region. State industry had shied away from North Carolina ports by tradition, essentially due to geographic barriers and the ports' inability to offer adequate services. The ports are now accessible via highway and railway and offer modern container facilities in Wilmington and improved bulk handling capabilities in Morehead City. The port leaders capitalized on technological advances and attacked the overland transportation barrier through organization and economy of scale in offering the nation's first port operated inland intermodal services by establishing terminal facilities in Charlotte and Greensboro.

In 1987, the state threw caution to the wind embarking on the most ambitious port improvement, expansion, and promotion ever. Encouraged by the increase in port traffic in the 1980s, the state believed it now had the advantage, the formula, to position itself as a major player in maritime commerce of the Southeastern United States. Was the enthusiasm realistic or justified? The state allocated $45 million for the endeavor; could the state expect a return on such an investment in the foreseeable future?

It is hypothesized that no matter how aggressively North Carolina ports market themselves, no matter how swift the state is to embrace technological advances, and no matter how much state leaders support the shipping industry, the ports can never overcome natural geographic
barriers which have and always will prevent the state from being a major force in maritime commerce.
CHAPTER II
HISTORICAL OVERVIEW

Early History

The unique geographic features of North Carolina's coastline greatly influenced the state's early development, as well as its later lack of development. Giovanni da Verrazzano, a Florentine navigator serving France, was the first to explore the Cape Fear coast and area North. His favorable reports influenced Walter Raleigh in his pursuit of establishing English colonies in the New World. Verrazzano's report promised "faire fields...good and wholesome aire...trees greater and better than any in Europe...sweet and odoriferous flowers...great bounty of game and fowl of every kind and natives who were 'charmed by their first sight of white men'...country 'as pleasant and delectable to behold, as is possible to imagine'" (Lefler and Newsome, p.3-4).

Even before Raleigh's English colonial efforts, Spain attempted an unsuccessful settlement in the Cape Fear region in 1526. Spanish official Lucas Vasquez de Ayllon led over 500 men and women equipped with stores and eighty-nine horses to a site along the Cape Fear or "Rio Jordan". Record of a shipwreck in the mouth of the Cape Fear helps historians place the colony along the river's
banks. This shipwreck is of interest for two reasons: 1) it was the first of many in North Carolina's history and establishes an early foundation for what will become the legendary dangers of the Carolina coast; 2) two ships were built to replace the lost one; these ships probably represent the first ships built by Europeans in what is now the United States. "The rest of the history of this short-lived colony is a story of disappointment, illness, mutiny, and failure" (Lefler and Newsome, p.4). Though the colony failed, Spanish interest in the Carolinas prompted further exploration. Two other unsuccessful colonies were attempted in the Hatteras area. Evidence of Spanish exploration and tragedy along the Carolina coast may best be established by the wild ponies of Ocracoke and Shackleford Banks. These ponies roamed protected and unrestricted until this decade. Most historians believe the ponies swam ashore from a Spanish shipwreck. The pony herds inhabited the islands before Englishmen. Spain eventually abandoned the Carolina's and areas north for gold and silver to the south.

In 1584, Walter Raleigh, having obtained English charter from Queen Elizabeth providing guidelines for English exploration and provisions for establishing claims in the New World, engaged Captains Amadas and Barlowe to explore and find a site suitable for settlement. The two Captains "with two barkes well furnished with men and victuals" (Lefler and Newsome, p.5) sailed to the West
Indies and followed the Gulf Stream until they came upon shoal water along the North Carolina coast. In search of a proper inlet, they sailed along the coast for over 120 miles before finding the present day Ocracoke Inlet. Barlowe and Amadas determined Roanoke Island to be the site for Raleigh's first settlement. They returned to England with two Indians, Wanchese and Manteo (now names for communities on modern Roanoke Island), in an effort to convince Raleigh they had in fact found the perfect spot and the Indians were not only friendly but were receptive to an English colony.

The Ralph Lane Colony arrived at Roanoke Island in the summer of 1585 with seven well stocked ships, 108 men, no women or children. The men spent little time building homes or preparing fields; they instead searched inland areas for gold. Disorder, disharmony, along with deteriorating relations with the Natives, led the Lane Colony to jump at the opportunity to return to England with Sir Francis Drake in 1586 who had happened by the Roanoke colony on his way home from a voyage. The Lane Colony may have introduced tobacco, corn and potatoes to England; historical records are not clear on this point.

The Lane Colony's failure prompted Raleigh to take a different approach in his next effort. The John White colony of 1587 was made up of men, women and children. There was more of a commitment to permanence in this attempt. Individuals in the colony brought skills,
ambition and desire to make a new life for themselves in the New World. Virginia Dare was the first child of English parents born in the New World. One month after arrival, John White returned to England for supplies for his colony. They had arrived too late to plant in 1587. Due to England's war with Spain, White was unable to return to Roanoke until August 1590. He found no remains of his colony, only the word CROATOAN carved in a tree. And thus began the legend of the "Lost Colony." Historian's claims have included: 1) the Spanish destroyed the colony and took survivors to Florida; 2) relations with the Indians eroded to the point that the Indians massacred the settlers; and 3) the colonists left the island in search of a better place to settle and eventually died off. The most popular and logical theory today has the colonists being absorbed by a wandering Indian tribe which eventually settled in Southeastern North Carolina. The last theory is supported by the fact that early travelers between Jamestown, Virginia and Charleston, South Carolina reported a tribe of Indians, some with blue eyes and fair complexions, living in crude frame houses in the lowlands of what is now North Carolina. A group of Indians today claim such a heritage. Many in today's tribe carry surnames similar to ones in John White's party: Sampson, Locklear, and Oxendine.

The purpose of this review of early history is to emphasize just how much North Carolina's coast affected its
earliest and subsequent development. Raleigh's ill-fated attempts coupled with Spanish record of difficulties gave North Carolina a bad reputation: coastal waters were difficult to navigate, weather on the islands was unpredictable and could often be brutal, and Indians were hostile. Early exploration of the topography, climate and vegetation had led the English and the Spanish to believe that North Carolina was ideal for settlement, it was now believed jinxed. England concentrated her efforts in Virginia and South Carolina rather than in the area now known as North Carolina. North Carolina would only begin to be populated with overflow from these two regions later in the seventeenth century.

Troubles navigating the waters off the coast of North Carolina were well documented; the area was to become known as the "graveyard of the Atlantic." Seafarers were not eager to transit offshore and even less anxious to enter coastal waters. A description of the coast follows: "Along the coast for a distance of some 320 miles, there is a long chain of islands, or 'banks,' ranging in height from a few feet to Kill Devil Hills in Dare County, over 1000 feet. From these sandbanks along the coast, three capes with awe-inspiring names jut out into the ocean: Hatteras, extending into the "Graveyard of the Atlantic," Lookout, near the entrance to the Beaufort-Morehead City area, and Cape Fear at the entrance of the river leading to Wilmington. Between the banks and the mainland proper are
five sounds: Albemarle, Pamlico, Boge, Currituck, and Core--constituting the largest area of inland waters in any state in the Union. A casual look at the map might indicate that this region would be ideal for navigation and commerce, but the sounds are shallow and inlets to them--Ocracoke, Topsail, Oregon, and others--are shallow, shifting and treachous" (Lefler and Newsome, p.17).
FIGURE 1
Map of North Carolina Coast

Colonial Times

The eventual settlers from present day Virginia and lower South Carolina areas soon learned that the barrier islands were no place to live year round. They instead settled inland close to the sounds where the weather was less severe and the soil better for agricultural pursuits. Commerce could be carried on by shallow draft vessels on inland waters. Aside from tobacco, forest industries provided settlers goods for commerce during the early American colonial period. Tar, pitch, turpentine were exportable naval stores. Boards, shingle, barrels, staves, and other forest products were produced for trade. But North Carolina lacked a dependable deep water port in the Northeast to handle trade. Products were moved by small craft on the sounds and rivers then transported overland to the then growing Norfolk, Virginia port. The southeastern portion of the state was served by Wilmington. Records show Wilmington was home to forty-two vessels and some 1,200 people by the 1730s. But captains were reluctant to enter the Cape Fear, thus Wilmington never grew as its neighbors to the north and south. Wilmington might have been ignored all together had it not been for the area's production of naval stores. "By 1770, half of the American colonies' total production of naval stores came from the Cape Fear area" (Stick, p.7). Much of the central and southern part of the state relied on Charleston for coastal
trade. The reliance on Charleston and Norfolk continued throughout North Carolina's history and continues today.

Whereas general ocean shipping shied away from North Carolina's coastal waters, pirates thrived in and depended on the barrier islands for hideouts; the bars and shifting sands made the waters impossible to police. North Carolina's most notorious pirates were Edward Teach, "Blackbeard," and Major Stede Bonnet. Blackbeard and Bonnet terrorized colonial shipping during the early eighteenth century. Bonnet's men not only used the Carolina coast as a hideout to escape would-be pursuers, they used features of the coast to enhance their trade. "Bonnet's men would lure ships to destruction by placing false lights on the beaches of Bald Head Island" (Stick, p.7). Bonnet's own fate was eventually sealed by the shifting sands; he ran aground in September 1718 and was captured. Blackbeard was captured and hung a few months later. The fact that pirates were eventually linked with government officials in coastal communities of New Bern and Bath did little to endear the already tainted image legitimate shippers had of North Carolina. Adventurers still search for reportedly buried treasures left behind by these early pirates.

The North Carolina Colony had five official ports: Brunswick (Wilmington, Southport, and all ports of the Cape Fear), Roanoke, Edenton, Beaufort, and Bath. Navigation at the seaward entrances to sounds were unpredictable and
wrought with peril. Storms cut then took away entrances to Currituck and Albemarle Sounds. More dependable entrances to the south were subject to shifting sands with every storm. Bath and Beaufort "dwindled into insignificance by the Revolution" (Lefler and Newsome, p.99). Edenton and Roanoke relied primarily on local intercoastal commerce.

The Revolutionary War and Its Aftermath

The North Carolina coast played an important role in British strategy in the Revolutionary War. In 1776, the British stationed 5000 troops on Bald Head Island to protect the mouth of the Cape Fear (Stick, p.7). The area's naval stores production had become valuable to the expanding British Fleet. Southeastern North Carolina consisted of a strong Loyalist population at the outbreak of the Revolution. The victory of Moore's Creek, the "Lexington and Concord of the South" (Lefler and Newsome, p.102) ended British control in southeastern North Carolina in February 1777. The British pullout left coastal commerce in chaos. The demand for naval stores dried up. And even though North Carolinians engaged in shipbuilding to support the new Continental Navy; the financial advantages of such enterprises in no way substituted for the steady trade with England. The port of Edenton did experience a temporary increase in tobacco exports during the British blockade of Virginia, for a short while the direction of trade was reversed. Goods flowed south on the sounds; European bound ships slipped in and out of
previously ignored North Carolina ports. But Edenton's
good fortune was short lived. Norfolk quickly
reestablished its dominance at the conclusion of
hostilities.

North Carolina shipyards produced 44 ships in 1788
alone; two brigs were fitted out for coastal defense.
Western North Carolina was frequently a battleground, but
the coastal areas were free of battle from Moore's Creek
until Cornwallis' retreat from the western front to
Wilmington in April 1781. The British took Wilmington in
hopes of finding refuge and for resupply. British rule was
restored; it was a hollow victory. The resupply from
England was nominal. General Greene, in charge of the
Southern element of the Continental Army refused to fight
allowing Cornwallis to sit in Wilmington undisturbed. The
Continental Navy moved to seal off the entrance to the Cape
Fear, cutting off any further resupply. Cornwallis began
his fateful march to Yorktown. Greene refused to engage,
instead he frustrated and humiliated the British troops
through what would now be termed guerilla warfare.
Cornwallis' defeat and surrender at Yorktown stemmed
largely from his experiences in North Carolina. The
Continental navy and army used North Carolina's coastal
geography to weaken the enemy and ensure victory.

North Carolina, as did other states of the early Union,
suffered in loss of trade with England during the war and
during the early aftermath. New markets were sought,
primarily the non-British West Indies, France, and central Europe. Small crafts plying the sounds were the order of the day. Shipbuilding thrived but most were of a coastal variety. North Carolina's part in the War of 1812 amounted to the recorded invasion by the British fleet consisting of one large battleship and over 100 smaller craft. On July 11, 1813, the British fleet landed in Ocracoke after having easily defeated five small North Carolina gunboats. "Not considering North Carolina a major objective, the fleet sailed away a few weeks later" (Lefler and Newsome, p.295).

The coastal commercial history from 1815 to 1840 was as dismal as the rest of the state's plight. "The end of the war with England in 1815 brought to the United States the blessings of prosperity, peace, and freedom from embarrassing foreign problems. The nation and states were free for the first time in a generation to turn their undivided attention and energies to domestic, political, economic, and social development. No state was less developed or had more serious problems relating to agriculture, transportation, commerce, manufacturing, finance, education and emigration than North Carolina. Nature's resources of climate, soil, and forest made it easy for the people of the state to provide a scanty live-at-home subsistence for themselves and their farm animals, but conditions were such that it was difficult for them to produce enough to live much above the level of mere subsistence. The state was poor, backward, divided--an
unattractive place in which to live because of the limited opportunity for advancement. In 1830, a legislative committee reported that North Carolina was a State without foreign commerce, for want of seaports, or a staple; without internal communication by rivers, roads, or canals; without a cash market for any article of agricultural product; without manufacturers; in short without any object to which native industry and the active enterprise could be directed. In addition to all of these handicaps, there was general political apathy under a one-party system, which resulted in indifference to all cultural, social, and economic matters" (Lefler and Newsome, p.298).

North Carolina's internal, coastwise, and foreign commerce was small. The dangerous coast and shallow inlets, sounds, and rivers handicapped coastwise and foreign commerce. In 1816, only one and one-third million dollars worth of produce were shipped through all North Carolina ports to the outside world. Imports, likewise, were small. Most of the coastwise and foreign trade of North Carolina was carried by New England shippers (North Carolina and the Sea, p.11). In contrast, Virginia and South Carolina prospered in the early nineteenth century, and their port cities, Charleston and Norfolk, experienced unprecedented growth in commerce. North Carolina was known as a "valley of humility between two mountains of conceit."

Renewed Hope/The Civil War Period

The political, cultural and economic climate improved
in the 1840s. The Wilmington and Weldon Railroad was completed in 1840 connecting the state's capital, Raleigh, with the seaport of Wilmington. The railroad provided a link between the geographically isolated coast and the growing Piedmont area of North Carolina. A connecting rail to Morehead City giving the state rail access to two port cities would not be completed until later in the century. Connections with South Carolina and Virginia rails came shortly after the opening of the Wilmington and Weldon. The 1850s brought a new wave of prosperity and ambition to the state; Wilmington, and to a lesser extent other coastal areas were benefiting from technological breakthroughs in lines of communication. North Carolina did not experience wealth and growth to the extent of the Clipper ship ports. Large ships were still leary of Carolina waters, but now at least with the railroads connecting a seaport with the rest of the state, there was hope for future growth in commerce.

North Carolina's new found prosperity ended with the outbreak of the Civil War. The North's design for victory was based on control of sealanes and on naval blockades. North Carolina's coast was an intricate part of this now proven successful scheme. In 1861, the Union sent strong, well equipped Naval and militia forces to capture lightly defended Hatteras, Roanoke, New Bern, Washington, and Plymouth. Union forces held the northeastern North Carolina sound region throughout the conflict. Confederate strategists simply had not counted on this early move by
the North. From this stronghold in North Carolina, the Union was able to take control of Norfolk so as to control the mouth of the Chesapeake. Short vital supply routes were thus denied to Confederate troops fighting in Virginia, Maryland and southern Pennsylvania.

To the south, "The port of Wilmington held out almost to the very end as the chief Confederate center of blockade-running. It was defended by powerful Fort Fisher at the mouth of the Cape Fear. This fort, called the Gibraltar of America, had withstood Federal attacks in 1862 and 1864" (Lefler and Newsome, p.432). The blockade-runners used the combination of inlets islands and shoals to defy the North's blockade efforts much as the pirates of the early 1700s had used the very same waters. They provided the much needed supplies for Lee's armies and proved a staunch symbol of resistance.

Fort Fisher finally fell in January 1865, and Union forces took Wilmington and the railroad to ensure the success of Sherman's campaign in North Carolina. The fall of Wilmington ended Lee's supply line and sealed his fate. Stirring accounts of extraordinary heroism and adventure in blockade-running are chronicled in oral and written accounts in collection at the University of North Carolina at Wilmington library. North Carolina's unique coastal features played a role in the strategy which brought conclusion to both the Revolutionary War and the Civil War.
Early reconstruction was a period of social, economic and political turmoil. Little or no progress was achieved in coastal commerce. It would be years before a new social order could restore stability to the agricultural community. The industry of the 1850s was destroyed by the War. The state was in financial ruin; fortunes had been lost in a losing cause; Confederate currency and bonds were worthless.

Into the Twentieth Century

The industrial revolution of the late nineteenth century provided promise for North Carolina. New lines of communication, specifically the continued growth of railways, spelled unfulfilled promise for North Carolina coastal commerce. The state and federal government moved to improve aides to navigation along the coastlines. The move from sail to steam made the fickleness of the North Carolina coast seem more manageable. Wilmington and Morehead City attracted some traffic. The ports of Edenton, New Bern and Roanoke ceased to attract anything other than localized commerce. Larger, deep draft vessels avoided the sounds.

Strong emerging industries of the North Carolina Piedmont included textiles, tobacco, forest products, mining, brick-making, and furniture. This would initially appear ready goods for export through North Carolina ports. Unfortunately, readily available rail access to Norfolk and Charleston meant North Carolina industrialists
shipped and received through ports north and south. This again is a tragedy of North Carolina geography. The port of Charleston was just as close to the emerging industrial Charlotte area as was Wilmington. Norfolk provided easy access for Raleigh-Durham and for Winston-Salem/Greensboro. Furthermore the shipping industry preferred calling at Charleston and Norfolk. Wilmington and Morehead City still suffered the bad reputation of the North Carolina waters.

Wilmington experienced a well publicized race riot in 1898; business suffered. Activity on the North Carolina coast was limited in World War I, although there was a short lived increase in exports due to the North Carolina industrial support of the War. World War II brought a little more excitement. A famous sighting of a German submarine off the coast of Hatteras caused quite a commotion. North Carolina Ship Corporation of Wilmington built 126 Liberty Ships and 232 other war support vessels. Morehead City had been a sleepy port town until the hustle of World War II when it became an important embarkation point for soldiers and equipment.

With the conclusion of World War II, North Carolina seaports were again straddled with their age old problems in attracting commerce. The United States Marine Corps commitment to the Jacksonville area ensured that Morehead City would remain important to the military, but it would have trouble attracting other customers. Wilmington's fall
after the war was even more dramatic. The Shipyard closed and Seaboard Coastline Railroad moved its corporate headquarters. The area lost 20,000 to 25,000 jobs in less than five years. The opening of the Intercoastal Waterway in 1936 meant increased traffic flow through inland waters and was a tremendous boon to shippers on the Eastern Seaboard, especially since the rough waters off the coast of North Carolina could now be avoided by north-south traffic. But other than supporting new service industries along the waterway, it had little net effect on North Carolina coastal commerce.

The geographical features of the North Carolina coast were still a liability just as they had been to early settlers. Wilmington required ships to negotiate dangerous and shifting shoals at the entrance to the Cape Fear. Once in the river, a 26 mile transit was required to make port. The inlet at Ocracoke, the entrance for the port of Morehead City, was difficult to maintain. Navigation was tricky on a good day, ominous in poor weather. The waters off North Carolina were wicked in times of storms. Sandbars and shoal water extended miles out to sea. The shoreline lacked distinguishing features for coastal piloting. The "great wall" meteorological phenomena January-March could produce a 50 foot rogue wave without warning. In short, North Carolina was a place to avoid and seamen knew it. It would not be until substantial advances were made in navigation equipment and technology allowed
for better inlet maintenance that North Carolina could successfully promote her ports.
CHAPTER III
THE STATE MOBILIZES

Origin of North Carolina Port Authority

It was not as though North Carolinians were unaware of their lack of good seaports and the consequent problems in trade. Many forward thinking politicians and businessmen bemoaned the fact North Carolina ports were losing business to other states. By the early twentieth century, North Carolina had more industry than both South Carolina and Virginia (Carolina Cargo, Aug/Sept 1987, p.6). "The lack of easily and safely accessible natural ports constituted an ever growing problem as the size and draft of ships increased thus not only impeding trade but also stifling related industry such as shipbuilding. The failure of the colony, and later the state, to confront these problems until well into the twentieth century was largely the result of inland geographic features that early led to both settlement in and stronger communication between the piedmont/upland regions and neighboring colonies to the north and south rather than with the coastal plains of North Carolina. As recently as 1924, an appropriation of $8.5 million for state-owned ports, terminals, ships and an east-west trunkline railroad was defeated in a popular vote in which the piedmont counties
were strong sources of opposition" (North Carolina and the Sea, p.11). The industrial piedmont was comfortable with their established business alliances.

The North Carolina Port Authority was formed in 1945 to promote and manage the state's two deep water ports, Wilmington and Morehead City. World War II coastal activity led state leaders to believe there was a future market for these ports and that development of the economically depressed coastal plain counties would be dependent on such development. The 1949 North Carolina General Assembly authorized the issue of $7.5 million in bonds for the construction and improvement of ports for ocean shipping in Wilmington and Morehead City. Construction was completed in 1952. Improvements consisted of a facelift to existing structure, increased aides to navigation, some improvement in inlet maintenance and new storage facilities. The Port Authority was placed under the State Department of Commerce in 1954. Volume of cargo flow remained steady through the 1950s, approximately two million commercial tons for both ports and an unspecified military tonnage. Lumber and pulp were the leading exports, the ports had not been successful in their efforts, to attract textiles, tobacco, bricks, or furniture from the piedmont. Attempts at further port development were again defeated in 1961. A similar history of frustration has surrounded the problem of stabilizing inlets, commercial transport to and from and along the
coast, and other infrastructural elements which would have brought industrial development to the coastal area (North Carolina and the Sea, p.11).

The sixties were a time of change and growth in North Carolina. The Vietnam support activity at the state's bases: Fort Bragg, Pope Air Force base, and Camp LeJeune ensured heavy military traffic at the ports. Morehead City was the port of embarkation and debarkation for the Second Division of the United States Marine Corps. Wilmington was the port of support for Army and Air Force heavy equipment. Sunny Point (just north of Southport on the Cape Fear) was (and still is) the largest ammunition supply depot in the nation.

Other than military activity, little changed with the North Carolina Port Authority. The state's commitment was more verbal than monetary, as evidenced by the General Assembly's rejection of appropriations for port improvements in 1961. The powers in place seemed content with the status quo. The importance of maintaining the state's ports was not questioned, the military usage more than justified their existence. The state was eager to accommodate the military for it had become heavily dependent on military revenues. The real issue was over promotion of the ports in nonmilitary commercial areas.

**New Era of Prosperity**

Other activities were changing the face of North Carolina. The State was experiencing unprecedented growth
in population and prosperity. It cast off the image of backwardness by promoting its excellent educational opportunities, its climate, and a pro business political environment. Public schools easily transited through the potentially volatile integration period and emerged with a national reputation for excellence. Universities located in the State such as Duke, University of North Carolina, Wake Forest, and North Carolina State received national acclaim. The State was already known for its mild winters, but the popularization of air conditioning meant the muggy summers were now bearable. North Carolina offered significant tax incentives for new industry. A Research Triangle experiment in the Raleigh-Durham area provided state land to corporations which guaranteed fifty percent of revenues would go to research. The Research Triangle has become a huge success and established a new standard for relations between education, business, and community.

North Carolina's growth could be measured in terms of population and in economic statistics. The State boasted a population of 4,556,155 in 1960; 5,100,000 in 1970; 5,880,415 in 1980; and well over 6,000,000 today (The World Almanac 1987, p.267). In 1970, only Texas ranked ahead of North Carolina in southern industry, by 1980 North Carolina was the leading industrial state in the South (The New Encyclopaedia Britannica, 1982). Manufacturing activity and employment jumped over 40 percent from 1960 to 1970;
Attention turned to the coastal area. More and more people were not only vacationing at the beaches, more people sought to make the coastal plains their home. Dependence on agriculture lessened as new industry came to the area. Good weather, receptive communities, and cheap non-union labor proved substantial inducements to corporations seeking relocation. Huge paper and forest product manufacturers such as Riegel and Weyerhauser moved into eastern North Carolina and would increase trade at state ports in conventional lumber products. Dupont Converse, Alcoa, Mueller and others would locate in southeastern North Carolina.

Federal funds for highways plus the increased tax base provided by new industries and a growing population helped spur a state commitment to highway building. As a result, the coastal communities became more accessible. Older secondary roads were rebuilt to support heavier traffic. Modern interstate highways connecting the major commercial areas of the state were planned. The four lane from Raleigh to Wilmington and the tie-in four lane from Morehead City to major state arteries will be completed later this year. The Interstate from Charlotte to Wilmington was completed in the early 1970s.

New industry in the coastal plains helped the ports and added pressure on the Port Authority to continue to upgrade
services. In the early 1970s, Wilmington again suffered race riots which attracted national attention. "The Wilmington 10" tarnished the city's image. But the city bounced back. Buoyed by tourist traffic, new development at the beaches, and an increasing year round population, Wilmington embarked on an improvement program, one which would rehabilitate the historic downtown district, attract new business, and promote an upgrade of the port.

State appropriations in the mid-1970s allowed Wilmington to upgrade for the handling of containers. Morehead City remained largely a bulk handling port but was able to handle containers by the end of the decade.

Tonnage through the port of Wilmington had been relatively steady since the early 1950s, but in the period from 1976 to 1980, tonnage increased over 60 percent, from 1.6 to 2.6 million tons. Possibly even more significant was the increase in revenues over the same period, up $3.2 million from $4.2 to $7.4 million. Morehead City experienced more modest gains over the same period but still showed a sizeable increase in tonnage, up 0.5 million from 1.5 to 2.0 tons. Financially, revenues almost doubled, increasing from $1.6 to $3.0 million.

North Carolina's ports had benefited from the state's growth and from promotion by the Port Authority. The ports also benefited from advances in technology. Ships were less hesitant to enter North Carolina ports. Efforts by the Army Corps of Engineers allowed for better inlet,
waterway, and river maintenance. Wilmington and Morehead City received high priority because of their importance to the military. Aides to navigation improved. Weather forecasting improved to the point that the violent shifts in weather so often associated with the North Carolina coast could usually be predicted in advance and precautions could be observed. Navigation equipment onboard vessels improved. With Loran and satellite navigation, a ship was more certain of its location. Improved highways made the ports accessible to areas not served by rail. And the modernization of the port facilities to handle container traffic insured the port was in step with the shipping industry.

The 1980's

Tonnage at the Wilmington port remained relatively constant from 1980 to 1984, ranging from 2.4 to 2.7 million tons. But revenues were up every year, reaching $11.9 in 1984. This increase in revenue can largely be attributed to the increase in container traffic through the port. Containers typically hold higher value goods. Cargo movement and handling charges are based on both volume and value of cargo. Morehead City enjoyed increases in tonnage, 2.0 to 3.6 million tons, through the period every year except 1982. But the port did not experience a proportional increase in revenues. Port intake increased from $3.0 million in 1980 to $4.3 million in 1982, but fell to $3.2 million by 1984 despite the increase in tonnage.
handled by the port. Morehead City's cargo was primarily bulk.

In 1984, the North Carolina Port Authority made a significant move to go after the industrial piedmont, the market which had so long eluded the ports' efforts. The authority opened an inland staging terminal in Charlotte in 1984. The success of the Charlotte facility led to the opening of a Greensboro terminal in 1986. These terminals represent the first port-operated inland container staging and storage facilities in the nation. "By making its own arrangements with trucking and railroad firms, the authority can keep trucks and train cars full as they travel between the inland terminals and ports. The result saves shippers as much as half the cost they would otherwise pay to get products to or from the ports" (Herndon, p.30A). The Port Authority's aim is to provide the cheapest inland transportation available to and from the state's two deepwater harbors. Then deputy director of ports, Richard A. Lowery summed the concept, "A manufacturer might pay to send a truck down full, but he's also paying to send the truck back empty" (Herndon, p.30A). North Carolina had become one of the innovators in the area of intermodalism in its effort to combat an age old geographic problem.

Port Authorities considered the inland terminals an unqualified success. In 1984, North Carolina ports were capturing only 35 percent of the state's shipping business,
by 1986 that figure would increase to 58 percent. A target of 70 percent was set for 1988. Another inland terminal, one in the state's northeast which would specialize in agricultural commodities, was under consideration.

The jump in tonnage at the port of Wilmington was nominal, 2.6 to 2.8 million tons, but the increase in revenues was substantial, up $4 million to $15.9 million. This was a clear reflection of the high value of the industrial piedmont products. The growth in Morehead City was even more gratifying. Tonnage was up 0.6 million tons for the same period. Revenues skyrocketed, up from $3.2 million to $8.1 million. Morehead City was now chasing high revenue cargo instead of settling for whatever low quality bulk it could attract.
### TABLE 1

**Comparison of Morehead City and Wilmington ports**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (in millions)</th>
<th>Tonnage (in millions)</th>
<th>Ships</th>
<th>Year</th>
<th>Revenue (in millions)</th>
<th>Tonnage (in millions)</th>
<th>Ships</th>
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<td>1.6</td>
<td>484</td>
<td>1976</td>
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<td>1.5</td>
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<tr>
<td>1977</td>
<td>5.3</td>
<td>1.7</td>
<td>516</td>
<td>1977</td>
<td>1.9</td>
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<td>5.5</td>
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<td>455</td>
<td>1978</td>
<td>2.1</td>
<td>2.0</td>
<td>200</td>
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<tr>
<td>1979</td>
<td>6.4</td>
<td>2.4</td>
<td>535</td>
<td>1979</td>
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<td>182</td>
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<td>2.7</td>
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<td>597</td>
<td>1986</td>
<td>8.1</td>
<td>4.2</td>
<td>197</td>
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</tbody>
</table>

**Source:** News and Observer, August 16, 1987
Success in the 1980s encouraged state leaders. The Port Authority had proven that the ports could attract business through the new intermodal concept and through promotion. In August 1987, the General Assembly passed a $36 million allocation for port improvement. Since the State Port Authority's creation in 1945, total previous allocations had totaled only $57 million (Herndon, p.29A). The Port Authority justified its request, "It's going to make us more competitive, with ports like Norfolk, Charleston and Savannah. The biggest reason we needed this request from the legislature was we (speaker: Richard A. Covery, executive director of North Carolina ports) were getting behind these other ports. Those states have been pouring money into their ports to make them attractive to shippers" (Herndon, p.29A).

Three major expenditures were included in the allocation: 1) $18 million went to the construction of Berth Nine in Wilmington. Berth Nine was designed specifically to handle larger container ships and features two new cranes and a 900-foot berth. Construction should be completed in early 1989; 2) $5.1 million will go to rebuild a larger multipurpose berth at Morehead; and 3) $3.7 million will be used to acquire 76 acres of land on Radio Island to allow for future expansion of the Morehead City port (Herndon, p.29A-30A). The intention of the allocation was to reaffirm the state's commitment to the ports and to prepare them for the challenges of the 1990s.
CHAPTER IV
THE PORTS TODAY

Present Day Operation

North Carolina Port Authority markets itself by claims of "making a world of difference" (1987 Ports marketing brochure) through service, efficiency and cost-effectiveness. (See mileage/rate comparison). Wilmington and Morehead City are situated in the middle of both the North and South Atlantic shipping lanes. Service is offered to over 250 other ports worldwide. The Eastern seaboard location places the ports within 600 miles of half the United States' population and 60 percent of the nation's industrial production. Besides convenient rail service, the ports are served by nearly 100 truck lines. Efficiency is enhanced through the inland intermodal system. Superior handling both in the seaports and at inland terminals is assured by quality personnel and by state-of-the-art equipment including giant container cranes and stackers, gantry and mobile cranes, as well as a large bulk handling facility. The Port Authority competes with other southern ports with rates which are fair and equitable.

North Carolina Ports are in the process of the most comprehensive development plan ever undertaken, involving
### TABLE 2

#### MILEAGE/RATE COMPARISONS

<table>
<thead>
<tr>
<th>TO</th>
<th>WILMINGTON</th>
<th>CHARLESTON</th>
<th>SAVANNAH</th>
<th>NORFOLK</th>
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<tbody>
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<td>MILES</td>
<td>CHARGES</td>
<td>MILES</td>
<td>CHARGES</td>
</tr>
<tr>
<td>FROM</td>
<td>MILES</td>
<td>CHARGES</td>
<td>MILES</td>
<td>CHARGES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATLANTA</td>
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<td>$628</td>
<td>289</td>
<td>$578</td>
</tr>
<tr>
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<td>$587</td>
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<tr>
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<td>$949</td>
<td>523</td>
<td>$1046</td>
</tr>
<tr>
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<td>$523</td>
<td>357</td>
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<tr>
<td>CHARLOTTE</td>
<td>202</td>
<td>$165</td>
<td>202</td>
<td>$404</td>
</tr>
<tr>
<td>GREENSBORO</td>
<td>181</td>
<td>$185</td>
<td>257</td>
<td>$514</td>
</tr>
<tr>
<td>GREENVILLE/SPARTANBURG</td>
<td>298</td>
<td>$362</td>
<td>210</td>
<td>$420</td>
</tr>
</tbody>
</table>

* VIA CHARLOTTE INTERMODAL TERMINAL

approximately $45 million ($36 million from the 1987 General Assembly allocation plus $9 million from operating profits) in capital expenditures. Through the construction of the new 900-foot pier, the addition of container cranes, the rebuilding of the berth at Morehead City, and the purchase of property, the Ports hope to: 1) foster and support statewide industrial development and economic growth; 2) provide a competitive advantage for North Carolina Ports; 3) achieve projected marketing objectives; 4) provide the most cost-efficient and cost-effective marine terminal services possible to shippers and receivers. "Through a more aggressive marketing strategy, the establishment of marketing agencies both domestically and overseas, the attraction of additional liner services to new trade routes, the expansion of the intermodal network, and the institution of a strategic planning process, The North Carolina State Ports is emerging as one of the dominant port authorities in the South Atlantic region and a model for other medium-size ports throughout the United States" (What In The World Does It Take Today To Make A World Of Difference, 1987).

Corbin Interview and Port Visit

An individual with perhaps a unique insight into the North Carolina Ports is Joseph G. Corbin, Military Liaison/Special Operations officer for the Port Authority. Mr. Corbin was a career officer in the United States Marine Corps. His military speciality was port operations. In an
interview conducted March 22, 1988 at the Wilmington offices, Mr. Corbin shared some of his views on the ports. He stressed the ports' future lay in current strategies of growth, competition, and regional marketing through promotion of intermodalism. Aside from increased U.S. trade, the ports are committed to pursuing foreign trade. Yang Ming Lines and Polish Ocean Lines (POL) call at port Wilmington. The Port Authority is represented by agencies in New York, London, West Germany, Hong Kong, Japan, and Korea. North Carolina governor, James Martin, made a trip to Japan and China in 1987 to promote trade for the state.

Corbin estimated Wilmington's 1987 tonnage of 3.0 million would translate into $20 to $23 million in revenues. He projected Morehead City's 1987 tonnage of 4.5 million would mean $10 million in revenues. He then elaborated on the financial relationship of the two ports. The Authority has operated at a $1 to $3 million profit each year since the mid-1970s. Wilmington's revenues have normally been double that of Morehead City's even though Morehead City has exceeded Wilmington's tonnage every year since 1983. Revenues from Wilmington pay 40 percent of Morehead City's operating budget.

The number of ships visiting the ports has remained a relative constant over the past ten years: 50-55 a month in Wilmington, Morehead City attracts less than half as much traffic. Corbin pointed out that military movements, by tonnage, were greater in Wilmington than Morehead City
although the general public presumes just the opposite due to the U.S. Marine Corps' presence in Jacksonville. Wilmington serves the U.S. Army of Fort Bragg and Pope Air Force Base in Goldsboro. Port Wilmington's military activity does not include ammunition movements at Sunny Point.

Wilmington is one of the Department of Defense's Rapid Deployment Ports. In the event of a NATO resupply of Europe, Wilmington would service nine SL-7s in the first few days. A recent Army first was achieved at Wilmington: in January 1988, the U.S. Army loaded a stern-ramped barge in support of exercise AHAU/TARA '88. The barge loading took one and a half working days. "This exercise demonstrates our capability to load military rolling stock onto a stern-ramped barge held perpendicular to the dock while still allowing ships to pass in the river" (North Carolina Cargo, 1988, p.10). Authorities had previously been concerned over the port's ability to simultaneously support military exercises and continue commercial trade.

The significance of Wilmington to the military is evident by the early inclusion of the port in the Navy's Craft of Opportunity Program. The program puts old YPs (Yard Patrol Craft previously used for training) at strategic ports. The YPs are permanently manned by a senior enlisted Craftsmaster and three other junior enlisted. Local Reserve units train on the crafts, practicing Minesweeping and Mine Countermeasure
procedures. In the event of war, the already trained Reserve units mobilize, commandeer predetermined commercial crafts, install minesweep/countermeasure pack-up units, and operate as an active force ensuring the protection of vital ports. The Wilmington Craft, CT 6, is the third such craft in the nation.

Corbin emphasized what he considered the strong suites for marketing: efficiency, security, and profit. Corbin considers the port personnel superb. Unions left the port in 1982. The only union which remains is the ILA for stevedoral services. The shoremen, warehouse workers and laborers are all state employees. Corbin repeatedly pointed to the efficiency achieved through excellent, exacting record keeping and a superior maintenance program. One of the reasons the port had been able to attract Polish Ocean Lines was the rates which the port could offer for weekend arrivals and departures. The workforce was willing to work for the port's benefit without strangling the Authority for overtime.

Security is Corbin's speciality; he coordinates security for both ports. Corbin contends the control over inland terminals and short lines of communication all under the Authority's supervision promote security. The Authority's paper documentation is easy to track and provides for accountability. And best of all, Corbin professes that North Carolina employees are "basically honest," a trait he added that was not always inherent in
port operations. Corbin claims loss to theft in 1987 was less than $2,000 for over $6 billion in cargo moved through the ports.

Security and efficiency allow the ports to pursue business at competitive rates. Corbin credits the innovations in intermodalism for the port's recent successes.

Corbin cites the port's willingness to accept challenge and to adapt to change as reasons to believe the ports will not only survive but will continue to grow. He is proud of both Morehead City's and Wilmington's ability to handle changing and multiple requests of the military, a "can do attitude." He pointed to Wilmington's handling of the MING PLENTY, Yang Ming Lines' "P" class vessels, 885 feet long, 106 feet wide with 3042 TEU capacity, which made its first trip to Wilmington in October 1987 (Carolina Cargo, November/December 1987, p.29) as evidence of the port's ability to accept challenge. He contends that after a river cable presently at 167 feet is raised to 192 feet and once the turning basin is increased to 1500 feet, the completion of Berth Nine in 1989 will allow Port Wilmington to actively go after the largest of the container ships, including the huge econoships.

When asked about the possible hesitancy ship captains might have over the 26 mile transit to Wilmington, Corbin replied there was nothing to fear about the Cape Fear. "The river is highly navigable. We have excellent pilots
and fifteen good tugs. The bar always has 40 feet of good water over it, the channel is clearly marked, tides never exceed four to five feet, the current runs only one to four knots, and the port is well sheltered." Corbin is obviously and justifiably optimistic over the future.

A tour of Port Wilmington proved informative. The port is clean, modern and organized. On March 21, 1988, a lot full of John Deere equipment was staged for shipment to France. Mountains of salt, the port's leading bulk export, was piled awaiting ships. Containers for Yang Ming (YML primarily serves a large North Carolina retailer, Roses Department Stores) and Polish Ocean Lines were lined up covering two lots. Wood pulp was staged for shipment to South America where it would be pressed into board and then shipped back. There seemed an endless stack of 55-gallon barrels of soybeans and vegetable oil reportedly on its way to a third world country. A Senator Lines container ship arrived that morning and was serviced and ready to sail by afternoon. A large assortment of military wares were stored on the premises; the make-up and content of which were classified. Work on Berth Nine was in full swing.

On to Morehead City

Morehead City is a pleasant two hour drive up Highway 17 from Wilmington. Upon arrival it was evident that not much was going on at the port. A port policeman volunteered his services. No ship was in port. The main berth was in obvious need of repair, a project planned for
the 1987 $36 million allocation. When compared to Wilmington, the gantry cranes were smaller and the storage facilities closest to the berths were not as well maintained. Morehead City's emphasis on bulk was readily apparent: the coal yard and its rail were prominent features of the inner port facility, the conveyor system for the phosphate was the most impressive aspect of the port.

The nation's largest phosphate mine and phosphate production facility is operated by Texasgulf in Aurora, North Carolina. The phosphate is transported on barges via the Pamlico Sound and Intercoastal Waterway to Morehead City. Phosphate accounts for most of Morehead City's increased tonnage in the 1980s. "Texasgulf pays approximately $2 million annually to the N.C. State Ports Authority for costs associated with the Texasgulf shipping operation at Morehead City" (Carolina Cargo, August/September, 1987, p.14).

Morehead City owes its existence as a port of commerce to the railroad, and other than its location on the water, the most distinguishing feature of the town is the railroad. The rail literally splits the town down the middle and runs into the port facility at the east end of town.

The acquisition of 75 acres of Radio Island waterfront property for future development of the State Port of Morehead City was completed in December of 1987. The funds
for the purchase were provided for in the 1987 General Assembly allocation. It was the largest single land purchase in the authority's history. "Port of Morehead City handled a record 4.5 million tons of cargo last year, a 20 percent increase from the previous year. Revenues at the facility topped $8.8 million or 15 percent higher than a year before" (North Carolina Cargo, 1988, p.9).

An Update

A telephone interview with Mr. Bob Brown of Port Wilmington provided some enlightening news concerning 1988 State Port Authority operations. At Wilmington, tonnage was down from the 1987 total of 3.0 million tons to 2.5 million tons for 1988. The loss was blamed on the pull out of Atlantic Container Lines and Sealand. Mr. Brown spoke of the promising return of container barge service to and from Puerto Rico. Morehead City enjoyed an increase in tonnage over 1987, up 0.2 million to 4.7 million tons. The increase was once again attributed to an increase in phosphate tonnage.

Construction on Berth Nine continues, a June, 1989 completion date is hoped for. When asked about a third inland terminal, a proposal volleyed about in 1987, Mr. Brown indicated the idea had been dropped, business just did not justify one.
CHAPTER V
CONCLUSIONS

North Carolina has done a good job marketing its ports, considering the geographic constraints, the state has done a superb job. The state seized the initiative in offering intermodal services through inland terminals. The coordination of truck and rail carriage to and from seaports allowed the Ports to offer competitive pricing and chase business in the state's industrial piedmont which had long used other ports. The state committed to an ambitious ports improvement project after the success of the early 1980s; it embarked on this course believing in the continued increase in business at the ports.

But North Carolina was not the only Southern state investing in its ports for the future. "In Virginia, state allocations underwrite the ports' construction and equipment, with $69 million in new construction currently under way and about twice that amount is planned over the next six years. And, a Virginia transportation fund begun this year is expected to provide the ports with about $20 million in state funds in each of the next 10 years" (Herndon, p.30A). Virginia is out to protect its 120,600 jobs and the over $2.2 billion a year in revenues provided
by its Port Authority. South Carolina plans to upgrade the Charleston port facility. Georgia will insure Savannah stays competitive.

North Carolina's marketing is impressive. The promotional material is thorough and slick. The Port Authority magazine, formerly Carolina Cargo, now North Carolina Cargo provides a chart of port management and the marketing organization, port news, a list of new industries in North Carolina, interesting business feature stories, and a comprehensive directory of available services from chandlers to insurers to shipping agents. But the name change of the magazine may be indicative of the key problem North Carolina ports have in marketing: the problem with identity. Carolina Cargo became North Carolina Cargo with its first issue in 1988 "to establish a clear distinction between North Carolina and our sister state to the south...to change our look to something bolder...we believe we have to sharpen our image" (North Carolina Cargo, 1988, p.4). But the magazine came without the date on the cover, without the assurance that it would carry on the once every two month tradition established by the old nameplate. The North Carolina State Ports Authority suffers the same lack of sure identity; it is referred to by many different names. Such a conspicuous concern over identity and name may be inherent in the promotion of two different ports; there is a certain guaranteed lack of focus.
The state is committed to progress. Wilmington will be a model modern port with the completion of Berth Nine. Aside from the new berth and its associated cranes, Wilmington has superior port support facilities. The acquisition of a new Kalmar container handler to provide for stacking containers four high is evidence that Wilmington anticipates an increase in container traffic despite the decrease in tonnage in 1988 and the pullout of Atlantic Container Line and Sealand. The effects of Berth Nine will not be determined until the next decade. With the purchase of 75 acres, the port at Morehead City has room to expand. Tonnage increases each year, but the increase is largely bulk products, specifically phosphates. It is hard to envision Morehead City producing big profits in the near future.

North Carolina's commercial development has been greatly affected by her coastline. An abundant coastline did not translate into an abundance of good ports, in fact, difficult coastal and inland navigation hampered early commercial development. Modern technology currently represented by the innovative utilization of intermodalism spurred commerce at the state's seaports earlier this decade. State leaders are betting on a big payoff on a substantial investment in port improvements. The bet here is that the payoff will be long, if ever, in coming. The competition is also upgrading ports. The situation is not unlike the seaward side of the shipping industry where too
many tons chase too few dollars. The state can never totally erase natural geographic barriers. The future for North Carolina is bright, but promotion and modernization will never be a substitute for natural, easily accessible deepwater ports.
APPENDIX

Port of Wilmington--Characteristics

THE PORT OF WILMINGTON is located on the east bank of the Cape Fear River, 26 miles from the open sea. The channel is maintained at 38 feet, mean low water, and the turning basin is over 1,200 feet across (turning basin increased to 1,500 feet in early 1988). Wharf frontage at Wilmington is 6,040 feet, and there are 10 berths for vessel docking. Double railroad tracks run the length of the dock and ensure rapid cargo exchange. Seaboard System Railroad links the port with direct rail service to Charlotte, connecting with the CSX Corporation. Rail routes give the port access to the major intermodal hubs of Atlanta, Chicago and the west coast.

Wilmington offers a full range of port services including containerized, breakbulk and bulk cargo capabilities. Roll-on/Roll-off vessels call weekly. Custom house brokers, freight forwarders, marine insurers, steamship lines and their agents, ship chandlers, international bankers and U.S. Customs officials are all located on or near the property. Other specifics of the port are as follows:

-- 1 1/2 million square feet of covered, sprinklered storage
-- 120 acres of paved open area
-- Three, 40-long ton, full-bridge, container cranes
-- Four gantry cranes: two 45-ton capacity, one 115-ton capacity and one 225-ton capacity
-- One 140-ton mobile crane
-- Seven container stackers and one container bridge crane
-- All U.S. Customs services
-- Vacuum methyl bromine and Detia fumigation facilities
-- Three truck scales and one railroad scale. Weigh-master on duty 24 hours
-- Twenty-four hour security
-- T-head pier with mooring dolphins and tank farm
-- Foreign Trade Zone 66: Two sites at the Port of Wilmington including 510,206 square feet of warehouse space and 24 acres of open area.
THE MOREHEAD CITY PORT is situated along the Newport River and Bogue Sound, four miles from the open sea. Water depth in the channel and turning basin is maintained at 40 feet mean low water. The facility has 5,250 feet of continuous wharf, including a 1,000-foot bulk handling berth, a Roll-on/Roll-off facility, and four 300 foot barge berths. Double railroad tracks also run the length of the docks to assure rapid cargo transfer. Norfolk Southern serves the port of Morehead City with a massive rail network serving the eastern seaboard to New Orleans and the nation's heartland, to Chicago, Kansas City and Omaha.

Port of Morehead City offers a full range of services. Specializing in bulk and general cargo movements, the Port can also handle containers with its two gantry cranes. Backup container storage is also available. Support services are provided by national and international custom house brokers, freight forwarders, marine insurers, steamship agents, ship chandlers, bankers and U.S. Customs officials. Other specifics are as follows:

-- A dry-bulk facility, used mainly for phosphate, with a 225,000-ton capacity warehouse, a conveyor system, and a shiploader with a 3,000-ton hourly capacity.
-- A coal handling facility which can outload 1,500 tons per hour with a 3 million-ton annual capacity
-- 839-050 square feet of covered, sprinklered storage
-- 14 acres of paved, open storage
-- Two 115-ton capacity gantry cranes
-- Fumigation facilities including vacuum methyl bromide facilities and two 9,000-cubic-foot steel chambers
-- Certified public truck scales
-- Twenty-four hour security
-- Foreign Trade Zone 67: Two sites available, at the Port of Morehead City. Site one, within the terminal consists of 190,374 square feet of warehouse space. Site two is an undeveloped 40-acre tract of land located four miles west of the town.

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