

COASTAL NORTH CAROLINA SOCIOECONOMIC STUDY

VOLUME II

BASE CASE CHARACTERIZATION: COUNTY STUDIES

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FOR THE

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VOLUME II

COUNTY STUDIES

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List of Acronyms

adt	average daily traffic
AFDC	Aid to Families with Dependent Children
BLM	Bureau of Land Management
CAMA	Coastal Area Management Act, State of North Carolina
CCEDC	Carteret County Economic Development Council
CCSA	Carteret County Sportfishing Association
CNCSS	Coastal North Carolina Socioeconomic Study
COA	College of the Albemarle
CP&L	Carolina Power and Light
DMF	Division of Marine Fisheries, State of North Carolina
DVAC	Dare Voluntary Action Center
ECU	East Carolina University
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
ESRP	Environmental Sciences Review Panel
FOY	Friends of Youth Organization
GIS	Geographic Information System

HIV	human immuno-difficiency virus
HUD	Housing and Urban Development
IAI	Impact Assessment, Incorporated
ICS	Incident Command System
MCEMS	Morehead City Emergency Medical Services
MCPD	Morehead City Police Department
MCPWD	Morehead City Public Works Department
MFCMA	Mangnuson Fisheries Conservation and Management Act
MFD	Manteo Fire Department
mgd	million gallons per day
MMS	Minerals Management Service, U.S. Department of the Interior
NCBBA	North Carolina Beach Buggy Association
NCCF	North Carolina Coastal Federation
NCDOT	North Carolina Department of Transportation
NCFA	North Carolina Fisheries Association
NCSH	North Carolina Sea Hags
NPS	National Park Service
NEPA	National Environmental Policy Act
NHCA	Nags Head Civic Association
NHSFC	Nags Head Surf Fishing Club
NHVFD	Nags Head Volunteer Fire Department
NPS	National Park Service
OBCF	Outer Banks Community Foundation
OBF	Outer Banks Forum
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OCSLAA	Outer Continental Shelf Lands Act Amendments
OPA	Oil Pollution Act of 1990
ORWs	Outstanding Resource Waters
SOV	Save Our Village
STD	sexually transmitted disease
TEMC	Tideland Electric Membership Corporation
TEDs	Turtle Excluder Devices
UPI	United Press International
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WCA	Wanchese Christian Academy
WIC	Women Infants Children
WSIP	Wanchese Seafood Industrial Park

2.0 BASE CASE CHARACTERIZATION: COUNTY STUDIES

The Coastal North Carolina Socioeconomic Study was undertaken to assist the United States Department of the Interior, Minerals Management Service (MMS), in decision-making related to oil and gas exploration, and associated activities, offshore of the state of North Carolina. The study derives from the conclusion of the Environmental Sciences Review Panel (ESRP)¹ that existing socioeconomic and sociocultural conditions among potentially affected communities and counties should be documented prior to exploration for oil and/or gas along the North Carolina Outer Continental Shelf (OCS).²

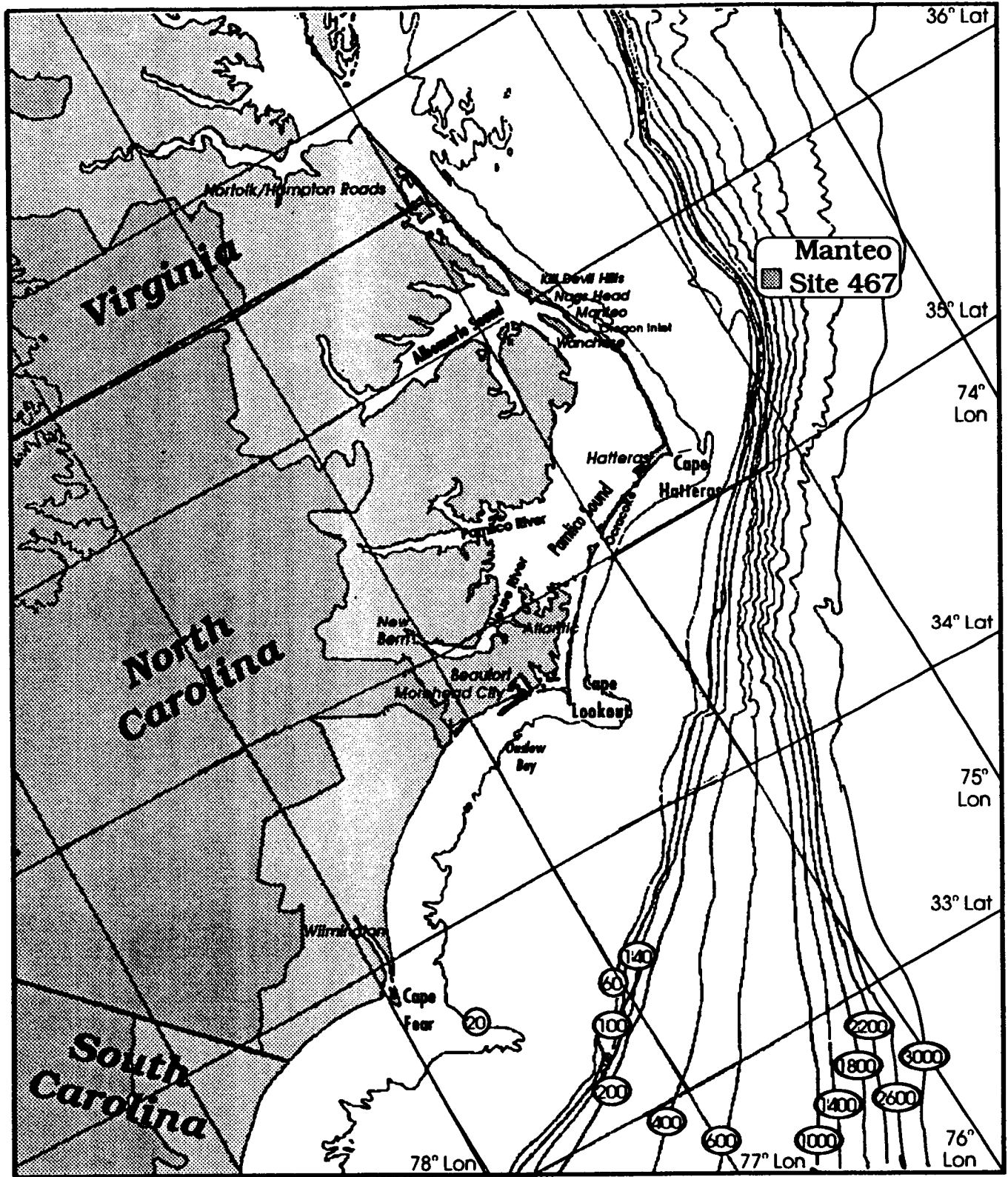
STUDY BACKGROUND

The Coastal North Carolina Socioeconomic Study was designed to collect, analyze, and disseminate information about socioeconomic and sociocultural conditions along those portions of the North Carolina Coast susceptible to the potential effects of OCS activities at the Manteo Prospect. The Manteo Prospect is located in waters some 2,690 feet deep thirty-eight miles east of Salvo, in a geologic zone thought to have a reasonable potential for discovery of natural gas³ (see Map 2.0-1 for a regional overview, including the location of the Manteo Prospect). If exploration were to go forward, Mobil Oil, the current leaseholder, would employ a drillship for a period of 114 days during the favorable weather "window" between the months of May and October (Minerals Management Service 1990:1-4). The reader is referred to the *Final Environmental Report on Proposed Exploratory Drilling Offshore North Carolina* (Minerals Management Service 1990) for further description of the proposed drilling operation.

¹ The Environmental Sciences Review Panel was appointed in December 1990. The Oil Pollution Act (OPA) of 1990 directed the Secretary of the Interior, in cooperation with the State of North Carolina, to appoint this panel to assess existing information necessary for the Secretary to make decisions regarding permitting, leasing, exploration, and development offshore North Carolina. The ESRP identified informational inadequacies and recommended that a comprehensive socioeconomic study be undertaken in the potentially affected region.

² For the sake of brevity, throughout this volume the phrase "OCS activities" is used to denote offshore oil and/or gas exploration/production activities and/or related shoreside activities.

³ The proposal to conduct exploratory drilling at the Manteo site involves the participation of Mobil Oil Exploration and Producing Southeast Inc., in cooperation with Ameralda Hess, Chevron, Conoco, Occidental, Union, Shell, and Marathon oil companies. Mobil "believes the Manteo Prospect may contain as much as 5 trillion cubic feet of dry natural gas." Exploration at this site is also said to "maximize the likelihood of discovering a commercial accumulation of natural gas or natural gas and oil," and will enable explorers to "test the potential of a 21-block Exploration Unit approved by the MMS. . ." (MMS 1990:xxix).



⑩ Water Depth in Meters

RESEARCH OBJECTIVES

The objectives of the Coastal North Carolina Socioeconomic Study were to document conditions in the study area for a wide array of variables traditionally used as indicators of socioeconomic and sociocultural status. This information is intended to provide a "snapshot" of current sociocultural and socioeconomic conditions within these areas. The information will assist decisions undertaken by the federal government, assist county and local governments in planning activities, and will provide a baseline against which to monitor change in the study area if OCS activity offshore of North Carolina goes forward.⁴

REPORT ORGANIZATION

The *Final Technical Report* is comprised of five volumes. Volume I provides an Executive Summary of the overall technical report. This County Studies Volume, Volume II, describes the study counties of Dare, Hyde, Carteret, Beaufort, and Pamlico and the land/water relationship involving human activities. Volume III, the Communities Volume, describes the study communities of Wanchese, Nags Head, Hatteras, Ocracoke, Atlantic, Beaufort, and Morehead City. Volume IV, the Pile Sort Data and Analysis Volume provides some of the raw data collected and analysis of the data derived within the perceptual component of the study. Volume V, the Socioeconomic Monitoring Plan and Methodology Volume, provides a framework for keeping track of changes in socioeconomic and sociocultural indicators over time.

This Counties Volume begins with a regional overview section (Section 2.1) that highlights intercounty commonalities and variations. The sections that follow provide information on the individual counties of Dare, Hyde, Carteret, Beaufort, and Pamlico (Sections 2.2 through 2.6 respectively). In order to facilitate reader access, the regional section and each of the individual county sections follow a common format. The interested reader thus can examine an individual county section as a stand-alone set of information in its own right, or can draw comparisons among counties, or can refer to the introductory section which provides a general regional context. The volume concludes with a section (Section 2.7) that describes the spatial and social components of the annual round of the regional fisheries, with a focus on ocean use areas by species and activities.

⁴ The companion Socioeconomic Monitoring Plan provides a template for tracking change using a set of variables that, in the informed opinion of research team, will likely be: (1) potentially responsive to OCS-related activities; (2) socioeconomically and socioculturally significant at the community and/or regional level; and, (3) "trackable" in the sense of being both quantifiable and relatively efficient to obtain.

2.1 INTERCOUNTY COMMONALITIES AND VARIATION

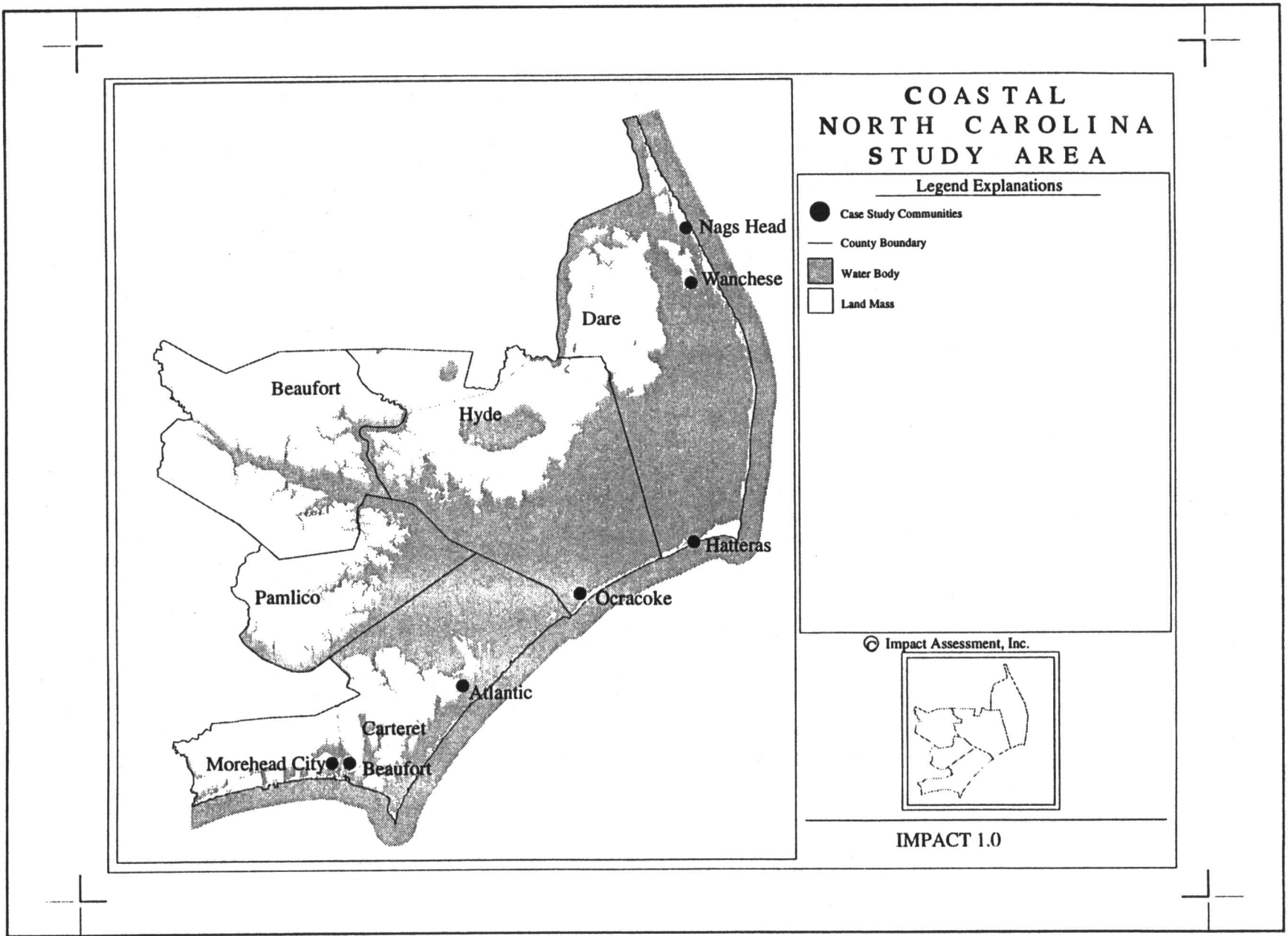
The five counties described in this volume were chosen for study for several reasons. The primary reasons were: (1) their geographic proximity to the Manteo site; (2) their existing ocean use patterns that are known to include the offshore waters in the vicinity of the Manteo Prospect; and, (3) to allow for systematic comparison between coastal and inland trends, if such differences were observed (see Map 2.1-1 for a regional overview). It is recognized that in this case there is no absolute distinction between coastal and inland; for example, while Dare, Hyde, and Carteret counties are situated on the coast, the inland counties of Beaufort and Pamlico have extensive sound and river shorelines and are also home to commercial fishermen who work the waters around the Manteo Prospect. Additionally, Carteret County was of specific importance to the study as a prospective location for an oil or natural gas landfall facility.

This section of Volume II provides an overview discussion of the five study counties organized in terms of the same general categories of variables we have used to document baseline conditions in each of the county-specific sections. This discussion, although brief, seeks to give the reader some sense of the degree to which the region can be thought of as a unit rather than consisting of distinct parts. In many ways, the five counties we have designated as the Outer Banks/Pamlico Sound study region are distinct despite basic similarities in the area's physical environmental conditions.

2.1.1 Introduction

Prior to being the site of early European exploration of North America, the coast of North Carolina was home to a number of aboriginal groups for hundreds of generations. Tribal groups exploited the area's natural resources from as early as 10,000 years ago, as indicated by a Clovis point found in Carteret County, to (and past) the time of European contact in the sixteenth and seventeenth centuries. Dare County was the site of the Lost Colony, a pre-Jamestown settlement on Roanoke Island. This early sixteenth century community represented the first attempt at permanent colonization in what is now the United States.

The inland parts of the region developed slowly through the eighteenth century and were largely occupied by persons migrating south from successful settlements in Virginia. However, the Outer Banks were generally settled from the east, and small communities developed adjacent to access points to the Atlantic Ocean in conjunction with maritime trade and, later, lifesaving installations.



The entire area remained largely undeveloped for most of the nineteenth century. As roads and other infrastructure were developed early in the twentieth century, communication and travel between communities and counties increased. Natural obstacles to social interaction remain to some degree, however, and serve to perpetuate differences within the region. For instance, although communities in Dare County are linked by an adequate road system, the Hatteras Island area was recently isolated when a barge broke away from its moorings and crashed into the bridge across the Oregon Inlet. Older local residents reported that the situation reminded them of days past when locals were more self-sufficient. Periodic isolation occurs on all of the barrier islands in the study area as roads are subject to storm overwash. Sheer distance by water and over land also serve as natural obstacles to social interaction. For instance, Ocracoke is two and one-half hours by ferry from the mainland portions of Hyde County and points south in Carteret County.

2.1.2 Physical Geography and Infrastructure

2.1.2.1 Physical Geography

The five study counties are located along the northern and central North Carolina coastal/sound region. Three of the counties, Dare, Hyde, and Carteret, have Atlantic Ocean coasts. Dare County, with approximately 80 miles of ocean coastline, is the northernmost of the counties. Hyde County, immediately south of Dare, borders the sea for roughly eighteen miles. Carteret County, southernmost of the coastal counties, has over 100 miles of ocean shore.

For all three "coastal" counties, the ocean coast is formed by barrier islands or banks separated from the mainland (or "inland") area of each county by a system of sounds, the largest of which is Pamlico Sound. While all three have extensive Pamlico Sound shorelines, the sound plays different roles in their layouts. In northern Dare County, itself in the northern reaches of the sound system, the Outer Banks are close to the mainland, and bridges have been built allowing easy traffic flow between mainland and island communities. As one moves south in Dare County, the sound grows ever wider. In Hyde County the sound remains wide for the length of the county and there is no direct connection between Ocracoke Island, which comprises Hyde's ocean coast, and the much larger mainland area. Carteret County, at the southern end of the Sound system, features a narrowing gap between the Outer Banks and the mainland as one moves south with island-mainland bridge connections once again made toward the southern end of the county.

Two of the counties, Beaufort and Pamlico, have no ocean shoreline. These are not what most persons would consider "inland" counties, however, in the sense that both have extensive shores on Pamlico Sound (and its tributaries). These two counties are located in the middle of the study region moving north to south; Beaufort is located west of Hyde, with Pamlico located immediately to the south of Beaufort and to the north of Carteret.

The total area and land area for North Carolina and each study county is presented in Table 2.1-1. As noted, the state has a total area of 52,662.32 square miles, 92% of which is land area. The total area in Beaufort County, and to an extent Pamlico County, is also predominately comprised of land. More than 50% of the area of Carteret, Dare, and Hyde Counties, on the other hand, consists of bodies of water. Although Hyde and Dare counties have the largest total areas of all the counties, Beaufort County has the greatest amount of land area.

Table 2.1-1			
TOTAL AREA AND LAND AREA (SQUARE MILES) OF THE STATE AND COUNTIES IN 1989			
Place	Total Area	Land Area	Land as a Percent of Total Area
North Carolina	52,662.32	48,665.83	92.41%
Beaufort County	958.36	827.49	86.34%
Carteret County	1,049.77	524.09	49.92%
Dare County	1,248.57	383.55	30.72%
Hyde County	1,378.13	612.17	44.42%
Pamlico County	561.61	336.74	59.96%

Source: North Carolina State Data Center, Statistical Abstract 1992

Physical environmental conditions in all of the counties are influenced by the Atlantic Ocean. Tidal waters shape ocean shore topographies and the wind and tide drive the estuarine waters against the land masses of the soundside counties. The ocean, while moderating winter temperatures, also can threaten coastal populations as strong tropical or extra-tropical weather systems track along the coast and propagate high winds and waves. The entire region is flat and low which contributes to flooding.

Variation among the counties' floral biota is insignificant. The region consists of two principle floral regimes. Plants in the immediate coastal areas are dependent on sandy soil, and the species that thrive in the maritime climate at this latitude are common. Beach grasses and shrubs and trees such as live oak and pines are typical. The federally protected status of seabeach amaranth, a species of beach grass, is the subject of controversy since it may re-route recreational off-road motorists. The inland areas are part of a Coastal Plain ecosystem and have wider variety of trees, shrubs and grasses. Deciduous and conifer tree species form large forested tracts in this area. All five of the counties have extensive wetland acreages, a fact with implications for future development given current debates about the protection of such areas.

Several animal species deserve mention because they currently are listed as threatened or endangered and often are the subject of controversy. These include the red wolf, which was recently re-introduced into remote parts of Hyde, Dare, and Carteret counties, the piping plover, an avian species which nests along the beach areas, and some sea turtle species, which utilize various littoral areas and adjacent offshore waters during their lifecycles.

2.1.2.2 Land Use

Major commercial land uses in the area include silviculture and agriculture. Overall, agricultural use of lands is decreasing in each of the counties. Extensive portions of all of the counties are inappropriate for commercial or residential development, due to fragility of ecosystems or regulatory restrictions.

Water and water quality is the subject of concern in the inland counties where farm runoff and industrial pollution often are perceived to be damaging the ecosystems of the Pamlico River and Sound. Fishermen in these areas claim fishing is poorer than it once was when the waters were "cleaner." On the other hand, it is also locally recognized that these industries give the regional economy diversity and a degree of stability in contrast to an overreliance on the fishing industry, which is an inherently volatile undertaking. Drinking water is an important issue threatening to limit growth in parts of the study area, particularly on Hatteras Island where the situation of limited drinking water supplies is clashing with desires to continue development.

2.1.2.3 Infrastructure

In general, the infrastructure of populated coastal areas is more developed than that of less populated inland rural areas. This difference resulted as Dare and Carteret county governments accommodated tourists visiting coastal areas. Bridges, ferries, and other transportation-related infrastructure have been central in opening up coastal areas to tourism.

The infrastructure of many of the coastal communities has also been strained by the increasing number of visitors and residential growth encouraged by the earlier development of bridges, ferries, and roads. In Carteret County, the expanding coastal population has strained the capacities of the existing sewer system. Decision-makers must now take this factor into account when projecting the area's capacity to accommodate more residents.

Table 2.1-2 presents data on road characteristics of each county. Four of the five counties have significantly more miles of secondary than primary roads: Carteret and Hyde have approximately twice as many, and Beaufort and Pamlico have about three and one-half times as many. The exception is Dare County, which has over 50% more miles of primary roads than of secondary roads. This is primarily a function of the geography of the county which does not foster a secondary road system. All of the counties have more paved than unpaved

road miles, but there is significant variation in the relative amounts of each. Beaufort, Hyde, and Pamlico have between three and four times as many miles of paved as unpaved roads; Carteret has ten times as many, and Dare has over sixteen times as many. Dare is on the end of the continuum of proportion of paved roads (and lack of secondary roads) for several reasons. Much of the development that has occurred in the county is adjacent to the main road that serves the northern Outer Banks and the connector roads to the mainland; conversely there has been minimal recent development on the mainland, and comparatively little agriculture.

Place	Primary Roads (miles)	Secondary Roads (miles)	Primary: Secondary (ratio)	Paved Roads (miles)	Unpaved Roads (miles)	Paved: Unpaved (ratio)
Beaufort County	189.39	686.95	1.00:3.63	654.24	222.10	2.96:1.00
Carteret County	124.63	276.09	1.00:2.22	364.52	36.20	10.07:1.00
Dare County	157.82	104.12	1.52:1.00	246.77	15.17	16.27:1.00
Hyde County	89.80	187.78	1.00:2.09	222.36	55.22	4.03:1.00
Pamlico County	59.20	213.29	1.00:3.60	212.40	60.09	3.53:1.00

Source: North Carolina State Data Center

2.1.3 Population and Demography

2.1.3.1 Population Characteristics

The counties in the study area are sparsely populated. In coastal counties, populations are typically the largest in the oceanside resort towns, although collectively significant populations are dispersed in the more rural inland sections as well. Beaufort and Pamlico are similar; population concentrations are found along Pamlico Sound and the Pamlico River, and significant rural populations are dispersed throughout the remainder of the counties. The following figures are from the U.S. Bureau of the Census (1990).

Dare County's total population is 22,746, over half of whom are concentrated in the coastal communities of Nags Head, Kitty Hawk, Kill Devil Hills, Manteo, Southern Shores and Hatteras; nearly a quarter of the population of the county was considered "urban," in 1990, up from zero in 1980, further indicating the rising density in the coastal communities. Hyde County's population is much smaller than Dare's; it had only 5,411 residents in 1990. Around 700 persons lived in that county's single coastal community of Ocracoke. Carteret County has

the largest population among the study counties with 52,553 persons in 1990. Of this total, around 20,000 persons lived in the coastal communities from Atlantic south to Pine Knoll Shores adjacent to Morehead City. The remainder of the population live in military or rural areas.

Beaufort County, also a largely rural county, has a relatively significant population center in "Little Washington." The total population in that county in 1990 was 42,283 persons, roughly 13,000 of whom lived in urban areas. The total population of Pamlico County was 11,372 persons, 7,584 of whom lived in unincorporated areas of the county.

Tables 2.1-3 and 2.1-4 present the total population of North Carolina and the five study counties for 1980 and 1990. The entire state's population increased 13% from 1980 to 1990. Carteret and Dare counties are growing at well over the state average. Although Carteret County had the largest population in both 1980 and 1990, Dare County grew the fastest. Hyde County experienced a decrease of 8% while Beaufort and Pamlico counties experienced only modest growth, well below the state growth rate.

Table 2.1-3 TOTAL POPULATION IN STATE AND COUNTIES FOR 1980 AND 1990			
Place of Residence	1980	1990	Percent Change From 1980 to 1990
North Carolina	5,882,000	6,629,000	12.70%
Beaufort County	40,355	42,283	4.78%
Carteret County	41,092	52,553	27.89%
Dare County	13,377	22,746	70.04%
Hyde County	5,873	5,411	-7.87%
Pamlico County	10,398	11,372	9.37%
Source: U.S. Bureau of the Census			

As shown in Table 2.1-4, the urban-rural residence patterns in the counties are changing. In Beaufort County, the urban population is growing rapidly, while the rural population is decreasing. In Carteret County, both population segments are growing, but the urban population is growing at over twice the rate of the rural population which is reflected in the overall state population as well. In 1980, Dare had no urban areas, but by 1990 approximately 19% of county residents lived in urban areas. The entire counties of Dare, Hyde, and Pamlico remained classified as rural during the decade 1980 to 1990. It is important to recognize, however, particularly in Dare and Hyde counties, that significant

growth did occur in concentrated areas along the coast, whether or not these were formally classified as urban.⁵

Table 2.1-4				
URBAN AND RURAL POPULATIONS IN STATE AND COUNTIES FOR 1980 AND 1990				
Place	Area Type	1980	1990	Percent Change From 1980 to 1990
North Carolina	Urban	2,882,852	3,337,778	15.78%
	Rural	3,058,914	3,290,859	7.58%
Beaufort County	Urban	8,418	12,960	53.96%
	Rural	32,907	29,323	-10.89%
Carteret County	Urban	8,185	12,423	51.78%
	Rural	32,907	40,133	21.96%
Dare County	Urban	0	4,238	N/A
	Rural	13,377	18,508	38.36%
Hyde County	Urban	0	0	0.00%
	Rural	5,873	5,411	-7.87%
Pamlico County	Urban	0	0	0.00%
	Rural	10,398	11,372	9.37%
<p>Source: U.S. Bureau of the Census</p> <p>Note: The Census Bureau classifies urban areas as having populations of 2,500 or more persons incorporated as cities, towns, villages, and boroughs</p>				

The migration patterns seen in this region are not unlike patterns seen at the national level during this time. Although national migration patterns between urban and rural areas are highly complex and are influenced by myriad factors of age, gender, race, etc. a few basic trends do emerge. Traditionally a hallmark of North American development, rural to urban migration experienced a reversal in the 1970s. One contributing factor to this apparent rise in rural population, was the overflow of population which spilled into the peripheries of censal metropolitan areas rather than persons moving "back to the farm." By the 1980s however, migration between rural and urban areas appeared to have shifted to a two-way exchange. This may be due to the above-mentioned phenomenon of overlapping between metropolitan and nonmetropolitan areas; a situation infrequently reflected in census definitions. In the

⁵ Definitions of terms used by the U.S. Bureau of the Census, including "urban," may be found in the glossary at the end of this volume.

study region, the "rural" growth that was seen was in concentrated areas along the coast; the "urban" growth looked very similar, but was in areas of large enough size to trigger the threshold definition of "urban." In terms of interregional movement, the only statistically significant net migratory flow between any of the regions in the U.S. was that from the Midwest to the South. (Fosler et al, 1990).

2.1.3.2 Population Composition

Age Between 1980 and 1990, the median age in North Carolina rose from 29.6 years to 33.1 years. In 1990, the median age for the five study counties was higher, ranging from 35.2 to 38.3 years old. A rising median age is consistent with national trends as well. Following a dip in the 1970s, it has been rising ever since, reaching 31.8 years in 1986, the highest median age in the United States' history. Projections until the year 2020 indicate that the median age will continue to rise (Siegel 1993).

Table 2.1-5 depicts the median age and percent of the population under 18 and over 65 for the state and each county in 1980 and 1990. The percent change for both age groupings are based on the total number of persons in that population. Although the under 18 population for the state and counties is larger than the population over 65 in 1990, the older age group increased at a substantially faster rate since 1980 than did the younger age group. As discussed in the individual county sections, the aging of the population in the study area is the result of several factors, including differential migration, and the growing popularity of the beach areas as a retirement destination. In fact, while the population over 65 increased in the state and all the counties for this period, the population under 18 decreased with the exception of Carteret and Dare.

Americans 65 years and older are a population segment on the rise at a national level as well. In 1990, Americans 65 and older made up 12.6% of the population. It is estimated that they will account for 13% of the population in the year 2000 and 14% in the year 2010. These percentages are projected to increase more dramatically when the "baby boomers" start reaching 65. In 2020 it is projected that the 65 and over group will make up 17 percent of American's population, that figure rising to 21 percent in 2030.

**Table 2.1-5
MEDIAN AGE AND PERCENT OF POPULATION IN STATE AND COUNTIES FOR 1980 AND 1990**

Place	Category	1980	1990	* Change
North Carolina	Median Age	29.6 years	33.1 years	+3.5 years
	Percent Under 18	28.20%	24.23%	-3.17%
	Percent Over 65	8.10%	12.13%	68.77%
	Total Population	5,882,000	6,629,000	12.70%
Beaufort County	Median Age	31.1 years	35.7 years	+4.6 years
	Percent Under 18	29.75%	25.91%	-8.75%
	Percent Over 65	12.83%	14.95%	22.10%
	Total Population	40,355	42,283	4.78%
Carteret County	Median Age	31.4 years	35.9 years	+4.5 years
	Percent Under 18	26.49%	22.47%	8.47%
	Percent Over 65	11.58%	14.30%	57.91%
	Total Population	41,092	52,553	27.89%
Dare County	Median Age	33.2 years	35.2 years	+2.0 years
	Percent Under 18	23.25%	22.37%	63.63%
	Percent Over 65	12.63%	12.49%	68.11%
	Total Population	13,377	22,746	70.04%
Hyde County	Median Age	30.1 years	35.8 years	+5.7 years
	Percent Under 18	29.92%	25.12%	-22.65%
	Percent Over 65	15.09%	16.61%	1.47%
	Total Population	5,873	5,411	-7.87%
Pamlico County	Median Age	32.2 years	38.3 years	+6.1 years
	Percent Under 18	28.47%	23.83%	-8.46%
	Percent Over 65	13.69%	16.81%	34.27%
	Total Population	10,398	11,372	9.37%

*Percent growth of number of age groupings (not change in percent of total category)
Source: U.S. Bureau of the Census

Sex The Table 2.1-6 indicates the sex distribution in North Carolina and the counties for 1980 and 1990. The total number of males and females have remained relatively unchanged from 1980 to 1990 in the state and each county. In 1990, there were slightly more females than males in each place and the percentage of females increased slightly greater than the percentage of males since 1980 (with the exception of Hyde County). This trend is consistent with national findings that there are more females than males in this country. In 1950 there were approximately 1 million more women than men, and by 1990 there were approximately 6 million more females than males in the United States.

Table 2.1-6 SEX DISTRIBUTION IN STATE AND COUNTIES FOR 1980 AND 1990				
Place	Sex	1980 (percent)	1990 (percent)	*Percent Change From 1980 to 1990
North Carolina	Male	48.54	48.49	12.58%
	Female	51.46	51.51	12.81%
Beaufort County	Male	47.50	47.19	4.10%
	Female	52.50	52.81	5.39%
Carteret County	Male	49.62	49.41	27.35%
	Female	50.38	50.59	28.44%
Dare County	Male	49.76	49.71	69.86%
	Female	50.24	50.29	70.21%
Hyde County	Male	48.65	48.97	-7.25%
	Female	51.35	51.03	-8.45%
Pamlico County	Male	48.20	47.99	8.88%
	Female	51.80	52.01	9.82%
*Percent growth of number of males or females (not change in percent of total category) Source: U.S. Bureau of the Census				

Ethnicity There is significant variation in spatial distribution between African-American and Euro-American persons in the study area. Census materials show large majorities of Euro-Americans in the immediate coastal communities; for example, the population of the Hatteras Island area is 99.98% Caucasian. One notable exception is in Carteret County where a sizeable African-American population lives in the Beaufort area. Correlated with this relative ethnic diversity, Beaufort is the only coastal area with a diversified economy. There are few other representatives of ethnic minority groups in the study area.

Table 2.1-7 displays data on the ethnic composition of the population of each county and the state for 1980 and 1990. Ethnic diversity varies considerably within the five counties. The two main ethnic groups represented are Euro-Americans ("white") and African-Americans ("black"). The portion of the population of Hispanic Origin approaches 1% in Carteret, Hyde, and Dare counties (similar to percentage seen at the state level). For all other counties, no non-Euro-American or non-African-American group composes more than approximately one-half of one percent of the total population.

Race	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Total Population	1980	5,882,000	40,355	41,092	13,377	5,873	10,398
	1990	6,629,000	42,283	52,553	22,746	5,411	11,372
	Percent Change	12.70%	4.78%	27.89%	70.04%	-7.87%	9.37%
White	1980	4,457,507	27,525	36,955	12,521	3,774	7,029
	1990	5,008,491	28,949	47,618	21,766	3,598	8,362
	Percent Change	12.36%	5.17%	28.85%	73.84%	-4.66%	18.96%
Black	1980	1,318,857	12,786	3,857	817	2,088	3,238
	1990	1,456,323	13,194	4,262	811	1,780	2,951
	Percent Change	10.42%	3.19%	10.50%	-0.73%	-14.75%	-8.86%
American Indian, Eskimo, Aleut	1980	64,652	9	68	13	0	100
	1990	80,155	28	269	37	4	33
	Percent Change	23.99%	211.11%	295.59%	184.62%	N/A	-67.00%
Asian or Pacific Islander	1980	21,176	32	155	3	5	15
	1990	52,166	48	293	79	3	20
	Percent Change	146.34%	50.00%	89.03%	2,533.33%	-40.00%	33.33%
Hispanic Origin of Any Race	1980	56,667	229	383	56	54	54
	1990	76,726	197	450	199	43	61
	Percent Change	35.40%	-13.97%	17.49%	255.36%	-20.37%	12.96%
Other	1980	19,574	3	95	24	6	16
	1990	31,502	84	164	53	27	6
	Percent Change	60.94%	2,700.00%	72.63%	.18%	350.00%	-62.50%

Source: U.S. Bureau of the Census

In only two counties, Beaufort and Carteret, did the total number of African-Americans increase between 1980 and 1990; in all counties African-Americans declined as a percent of the total population, a trend seen at the state level as well. In Beaufort and Hyde Counties, the relative decline was moderate, and African-Americans continue to comprise approximately one-third of the population. In Pamlico County, the African-American population component declined from approximately one-third of the total population to approximately one-quarter of the total population over the decade. In each of these three counties, African-Americans made up a larger proportion of the population than for the state as a whole. The African-American component of the total population of North Carolina was approximately 22% in 1980 and 22% in 1990.

For Carteret and Dare Counties, African-Americans made up a much smaller percent of the total population than in the other counties or the state as a whole. In Carteret County, African-Americans declined from approximately 9% of the population in 1980 to 8% in 1990. In Dare County, the decline was from approximately 6% to 4% over the same time period.

Household Patterns The total number of households in the state and all of the five counties has increased from 1980 to 1990 with a significant increase in Dare and Carteret counties while Hyde and Beaufort counties changed the least. Total households in the state have also increased by 23% during this period. Table 2.1-8 lists the household patterns in the counties for 1980 and 1990. Both family and nonfamily households rose in the state and counties with the exception of Hyde, where family households decreased by approximately 4%. Non-family households have increased by 91% in Dare County and 69% in Carteret County since 1980. Although there appears to be a notable trend of increase in total households in the state and counties, persons per household have decreased in the state and for all of the counties from 1980 to 1990.

Although the Census has consistently registered an increase in the number of total households since 1850, as the study counties and the state of North Carolina illustrate, an increasing number of these are nonfamily households. This trend appears to have started in the 1960s and continues on a national level today. One contributing factor is the rising divorce rate which typically results in the formation of a new nonfamily household in addition to the already existing family household. Secondly, older Americans who are widows are now more likely to continue to live by themselves than to move in with other family. A final factor contributing to the rising number of nonfamily households is the trend set by younger Americans who move out of their parent's homes earlier, but marry later in life, choosing to live alone or with roommates first. The number of persons per household has also decreased, consistent with what is observed in the study counties. In 1960, at the national level the average number of persons per household was 3.7, and by 1984 this number had fallen to 2.7.

Table 2.1-8 HOUSEHOLD PATTERNS IN THE COUNTIES FOR 1980 AND 1990							
Census Category	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Total Households	1980	2,045,714	14,283	15,150	5,323	2,048	3,673
	1990	2,517,026	16,157	21,238	9,349	2,094	4,523
	Percent Change	23.04%	13.12%	40.18%	75.63%	2.25%	23.14%
Family Households	1980	1,576,622	11,015	11,627	3,794	1,592	2,918
	1990	1,812,053	11,840	15,276	6,425	1,533	3,382
	Percent Change	14.93%	7.49%	31.38%	69.35%	-3.71%	15.90%
Non-Family Households	1980	466,669	3,268	3,523	1,529	456	755
	1990	704,973	4,317	5,962	2,924	561	1,141
	Percent Change	51.06%	32.10%	69.23%	91.24%	23.03%	51.13%
Persons Per Household	1980	2.78	2.81	2.65	2.49	2.86	2.83
	1990	2.54	2.58	2.43	2.41	2.57	2.49
	*Percent Change	-.24%	-.23%	-.22%	-.08%	-.29%	-.34%
*Change in percent of total category Source: U.S. Bureau of the Census							

Housing A trend toward an increase in seasonal housing units can be found at both the state and counties level, particularly in Carteret whose seasonal housing units have increased over 230% from 1980 to 1990. Dare County had a significant increase in both owner and renter occupied units during this period. While overall housing units have increased for the state and all of the counties, Hyde and Beaufort had the least increase in renter and owner occupied units and Pamlico had the least increase in seasonal units since 1980.

Table 2.1-9 HOUSING IN STATE AND COUNTIES FOR 1980 AND 1990							
Housing	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Owner Occupied Units	1980	1,397,426	10,467	11,394	4,134	1,572	3,064
	1990	1,717,817	11,972	15,761	6,648	1,613	3,668
	Percent Change	22.93%	14.38%	38.33%	60.81%	2.61%	19.71%
Renter Occupied Units	1980	645,865	3,786	3,734	1,225	457	614
	1990	805,209	4,184	5,477	2,701	481	856
	Percent Change	24.67%	10.51%	46.68%	120.49%	5.25%	39.41%
Units for Seasonal Use	1980	50,541	1,380	3,072	4,894	256	906
	1990	98,714	1,865	10,138	6,415	463	1,040
	Percent Change	95.31%	35.14%	230.01%	31.08%	80.85%	14.79%
Source: U.S. Bureau of the Census							

In 1990, North Carolina had a total of 2,818,193 housing units (excluding vacant housing units for seasonal use) which represented an increase of 27% since 1980. Of the five study counties, Carteret has the largest number of housing units, while Dare had the greatest increase in housing units during this period. Although the largest number of housing units in the state and the five counties in 1980 and 1990 was single unit detached homes, these structures have generally not increased at the rate that other structures have. Mobile homes and trailers had the greatest increase in housing structures in the state and the counties and represented over a 100% increase since 1980, with the exception of Carteret county which had a 93% increase.

**Table 2.1-10
UNITS IN STRUCTURE IN STATE AND COUNTIES FOR 1980 AND 1990**

Units	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
1, detached	1980	1,617,286	11,940	12,884	4,702	1,998	3,237
	1990	1,830,229	12,832	17,508	15,933	1,986	3,943
	Percent Change	13.17%	7.47%	35.89%	238.86%	-0.60%	21.81%
1, attached	1980	52,652	215	428	167	23	22
	1990	74,318	299	1,207	531	20	54
	Percent Change	41.15%	39.07%	182.01%	217.96%	-13.04%	145.45%
2	1980	75,186	635	836	208	8	61
	1990	83,018	590	1,343	494	21	42
	Percent Change	10.42%	-7.09%	60.65%	137.50%	162.50%	-31.15%
3 and 4	1980	68,721	294	450	74	7	54
	1990	94,682	356	910	385	21	32
	Percent Change	37.78%	21.09%	102.22%	420.27%	200.00%	-40.74%
5 to 9	1980	82,402	304	277	72	39	40
	1990	130,801	318	703	890	16	53
	Percent Change	58.74%	4.61%	153.79%	1,136.11 %	-58.97%	32.50%
10 to 49	1980	81,453	173	550	120	64	9
	1990	131,927	192	1,950	909	1	6
	Percent Change	61.97%	10.98%	254.55%	657.50%	-98.44%	33.33%
50 or more	1980	24,669	65	194	15	5	0
	1990	19,059	0	1,328	79	0	0
	Percent Change	-22.74%	-100.00%	584.54%	426.67%	-100.00%	0%

Table 2.1-10 UNITS IN STRUCTURE IN STATE AND COUNTIES FOR 1980 AND 1990							
Units	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Mobile home or trailer, and other	1980	221,827	2,207	4,979	1,005	399	703
	1990	454,159	5,011	9,627	2,346	810	1,920
	Percent Change	104.74%	127.05%	93.35%	133.43%	103.01%	173.12%
*TOTAL	1980	2,224,196	15,833	20,598	6,363	2,543	4,126
	1990	2,818,193	19,598	34,576	21,567	2,875	6,050
	Percent Change	26.71%	23.78%	67.86%	238.94%	13.06%	46.63%
*1980 total does not include vacant housing units for seasonal use Source: U.S. Bureau of the Census							

Table 2.1-11 indicates the change in owner and renter occupied units in the state and counties and the median value of each for 1980 and 1990. With the exception of Hyde, the number of owner and renter-occupied units has increased in the state and for all of the counties during this period, particularly in Dare and Carteret counties. The median value per owner-occupied units varied in 1990, ranging from \$43,700 to \$108,000, and represented a significant increase since 1980 (up between 66% and 127%).⁶ The median rent per renter-occupied units ranged from \$158 to \$416 in 1990, which represented nearly uniform doubling of rents over the decade from 1980 to 1990, with the exception of Hyde County which actually experienced a decrease in median rent over this period.

⁶ Like all data from the census, these dollar figures are presented in (then) current dollars (i.e., 1980 prices are given in 1980 dollars, and 1990 prices are given in 1990 dollars). If one wishes to convert these into constant dollars, the consumer price index (CPI) is a common way to do so. The latest benchmarking of the CPI uses 1982-84 as the base year (100) with previous and subsequent year dollars represented as a proportion of the base calculation. In this case 1980 is 82.4 and 1990 is 130.7, using the "all items" category for the sake of simplicity rather than the CPI adjustments for different categories of goods and services. In other words, \$0.824 in 1980 was "worth" the same as \$1.00 in 1982-84 and \$1.307 in 1990, all other things being equal. If one wishes to compare 1980 prices with 1990 prices controlling for the influence of inflation, the equation can be solved several ways. All dollars can be converted to 1982-84 dollars, or one can multiply the 1980 price by 1.586 to get the equivalent value in 1990. For example, a house priced at \$50,000 in 1980 would be worth \$79,300 in 1990 simply as the result of inflation, independent of any increase in relative worth of the real estate market. These calculations, of course, do not control for local changes in income and expenses over this period.

**Table 2.1-11
VALUE OF SPECIFIC OWNER AND RENTER-OCCUPIED UNITS IN THE COUNTIES FOR 1980 AND 1990**

Census Category	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Specific Owner-Occupied Units	1980	1,020,283	7,066	8,104	2,985	963	2,119
	1990	1,217,975	7,592	10,438	5,041	954	2,362
	Percent Change	19.38%	7.44%	28.80%	68.89%	-.93%	11.47%
Median Value (dollars)	1980	36,000	31,200	36,900	47,500	25,800	24,100
	1990	65,800	51,700	73,100	108,100	43,700	54,300
	Percent Change	82.78%	65.71%	98.10%	127.58%	69.38%	125.31%
Specific Renter-Occupied Units	1980	576,757	3,328	3,533	1,157	270	535
	1990	709,716	3,454	4,798	2,327	316	629
	Percent Change	23.05%	3.79%	35.81%	101.12%	17.04%	17.57%
Median Rent (dollars)	1980	134	100	140	171	160	102
	1990	284	191	280	416	158	219
	Percent Change	111.94%	91.00%	100.00%	143.27%	-1.25%	114.71%

Source: U.S. Bureau of the Census

Table 2.1-12 contains information on the range of housing values in the state and five study counties. Of particular note is the relative and absolute decline of housing in the lowest value category in the state and each of the counties. With one minor exception (one value cohort for one county) the rate of growth in housing increased with each progressively higher value category. While a significant portion of rising housing values is simply a function of inflation, it is also the case that housing at the higher end of the scale is being built much more rapidly than housing at the lower end of the price range. As discussed in the county sections, this rise in housing values indicates a vital economy but does have negative consequences. For residents on low or fixed incomes, dramatically increasing housing assessments can result in untenable tax burdens. This increased net worth of individuals and families is irrelevant if they do not wish or are not able to sell their homes and move to lower priced real estate. This process of "gentrification" has been particularly evident in resort areas, such as Beaufort and the Hatteras Island communities, and is a cause of substantial concern for many long-term residents.

**Table 2.1-12
HOUSING VALUES IN THE COUNTIES FOR 1980 AND 1990**

Value Range	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Less than \$50,000	1980	724,515	5,542	5,657	1,618	805	1,777
	1990	382,781	3,543	2,297	336	551	1,072
	Percent Change	-47.17%	-36.07%	-59.40%	-79.23%	-31.55%	-39.67%
\$50,000 to \$99,999	1980	258,530	1,366	2,051	1,156	149	308
	1990	575,677	2,982	5,105	1,960	277	864
	Percent Change	122.67%	118.30%	148.90%	69.55%	52.35%	180.52%
\$100,000 to \$149,999	1980	28,104	120	303	159	7	31
	1990	155,158	649	1,547	1,287	76	221
	Percent Change	452.09%	440.83%	410.56%	709.43%	985.71%	612.90%
\$150,000 to \$199,999	1980	5,949	29	67	28	2	2
	1990	56,252	219	753	729	27	114
	Percent Change	845.57%	655.17%	1,023.88%	2,503.57%	1,250.00%	5,600.00%
\$200,000 to \$299,999	1980	3,185*	9*	26*	24*	0	1*
	1990	33,088	144	527	484	18	77
	Percent Change	938.87%	1,500.00%	1,926.92%	1,916.67%	N/A	7,600.00%
\$300,000 or more	1980	N/A	N/A	N/A	N/A	0	N/A
	1990	15,019	55	209	245	5	14
	Percent Change	N/A	N/A	N/A	N/A	N/A	N/A
Median	1980	36,000	\$31,200	\$36,900	\$47,500	\$25,800	\$24,100
	1990	65,800	\$51,700	\$73,100	\$108,100	\$43,700	\$54,300
	Percent Change	82.78%	65.71%	98.10%	127.58%	69.38%	125.31%

* \$200,000 or more

Source: Adapted from U.S. Bureau of the Census

Marriages and Divorces Although the number of married persons in the five study counties far outweighs the number of divorced persons in 1980 and 1990, the total divorced population has grown at a significantly faster rate than the total married population for this period. Table 2.1-13 shows that the total number divorced has increased over 90% for each community from 1980 to 1990, while the total number married has increased at a much slower rate and has even decreased in Hyde County (one exception is Dare Community whose married population has increased by 71%).

Table 2.1-13 MARRIAGE AND DIVORCE IN THE COUNTIES FOR 1980 AND 1990				
Place	Status	1980	1990	Percent Change From 1980 to 1990
Beaufort County	Total Married	18,650	19,205	2.98%
	Total Divorced	995	1,916	92.56%
Carteret County	Total Married	20,589	26,866	30.49%
	Total Divorced	1,495	3,215	115.05%
Dare County	Total Married	6,728	11,471	70.50%
	Total Divorced	668	1,445	116.32%
Hyde County	Total Married	2,500	2,332	-6.72%
	Total Divorced	111	219	97.30%
Pamlico County	Total Married	5,009	5,630	12.40%
	Total Divorced	256	564	120.31%
Source: North Carolina State Data Center				

Births and Deaths Table 2.1-14 indicates the number of births and deaths in the communities for 1980 and 1990. Total births have been greater than total deaths in 1990 with the exception of Hyde County which had a slightly higher death rate than birth rate. While Dare and Pamlico counties have experienced a greater increase in births than deaths from 1980 to 1990, Beaufort, Carteret, and Hyde counties have experienced a greater increase in deaths than births. Hyde County in particular, had a percent change of over 29% of deaths from 1980 to 1990, while experiencing a decrease in births by approximately 20%. These figures would indicate that where significant population growth is seen in the counties, it is due to immigration rather than natural population growth.

Table 2.1-14				
BIRTHS AND DEATHS IN THE COUNTIES FOR 1980 AND 1990				
Place	Category	1980	1990	Percent Change From 1980 to 1990
Beaufort County	Births	608	623	2.47%
	Deaths	459	473	3.05%
Carteret County	Births	625	706	12.96%
	Deaths	330	487	47.58%
Dare County	Births	175	344	96.57%
	Deaths	119	166	39.50%
Hyde County	Births	91	73	-19.78%
	Deaths	58	75	29.31%
Pamlico County	Births	106	143	34.91%
	Deaths	117	137	17.09%
Source: North Carolina State Data Center				

2.1.3.3 Seasonal Population

Annual population fluctuations in the five study counties is predominately influenced by tourism- and recreation-related seasonal populations. The following tables indicate the total seasonal housing units in each county for 1980 and 1990 and the relationship of seasonal and permanent populations in the counties for 1990. Table 2.1-15 reveals that seasonal housing units have increased over 46% in all of the counties from 1980 to 1990 with the exception of Beaufort County whose units have only increased by 11%. Carteret and Dare counties have the most seasonal housing units for both 1980 and 1990 and have experienced the greatest increase in units during this period. Although Hyde County has the least seasonal housing units for 1980 and 1990 it has still witnessed a 46% increase in units during this period.

Table 2.1-15			
TOTAL SEASONAL HOUSING UNITS IN THE COUNTIES FOR 1980 AND 1990			
Place	1980	1990	Percent Change From 1980 to 1990
Beaufort County	3,231	3,593	11.20%
Carteret County	11,810	19,321	63.60%
Dare County	10,935	17,599	60.94%
Hyde County	933	1,361	45.87%
Pamlico County	1,288	2,049	59.08%
Source: Holland Consulting Planners 1992			

Table 2.1-16 summarizes the total peak population capacity in Carteret and Pamlico counties in 1990 and for Hyde of 1987. Developed by a private consultant for individual counties, analogous data are not available for Beaufort and Dare counties. "Peak Seasonal Population Capacity" refers to the total number of persons in all seasonal housing units if those units were occupied at full capacity based on average assumed household sizes for each type of unit (Holland 1992: I-12). Thus, the table's peak seasonal population capacity figures indicate not the actual number of persons visiting the county but, rather, a projected number of persons who could possibly stay in the county at a given time (presumably during peak periods - i.e. Memorial Day, the Fourth of July, and over the Labor Day weekend). Thus, while the permanent population of Hyde County is 5,411 there are a total of 13,457 persons who could occupy the county during peak intervals. According to the calculation, the peak seasonal population of Carteret and Hyde counties could surpass the permanent population by 14% to 20%. This figure is an indication of the changing tourism "carrying capacity" of the counties for which it is available. As tourism increases in the counties, county planners must prepare for permanent and temporary residential needs.

Table 2.1-16					
RELATIONSHIP OF SEASONAL CAPACITY/PERMANENT POPULATION IN THE COUNTIES FOR 1990					
Category	Beaufort County	Carteret County*	Dare County	Hyde County	Pamlico County
Permanent Population	N/A	50,485	N/A	5,411	11,372
Percent of Total Peak Population Capacity	N/A	42.94%	N/A	40.21%	63.57%
Peak Seasonal Population Capacity	N/A	67,082	N/A	8,046	6,516
Percent of Total Peak Population Capacity	N/A	57.06%	N/A	59.79%	36.43%
**Total Peak Population Capacity	N/A	117,567	N/A	13,457	17,888
*Carteret County data is from 1987 **Refers to the sum of permanent population and peak seasonal population capacity Source: Adapted from Holland Consulting Planners 1992					

2.1.3.4 Migration

The Table 2.1-17 contains 1980 and 1990 data on the total number of migrant and non-migrant filers in each of the counties under study. This table provides a good indication of county in-migration flows. This data is based on income tax returns filed in the Internal Revenue Service's Individual Master File from 1040, 1040A, and 1040EZ forms from citizens and resident aliens and reflects only those persons who filed income taxes.

The number of non-migrant filers in each county has increased from 1980 to 1990. Dare County, in particular, experienced an 114% increase in non-migrant filers during this period. The total number of migrant filers to the counties, however, decreased. Hyde County shows a decrease of over 45% of migrant filers during this period and Beaufort and Pamlico counties show a drop of over 35%. Although Carteret County maintained the greatest number of migrant filers, its total decreased by approximately 14%.

Table 2.1-17 TOTAL MIGRANT AND NON-MIGRANT TAX FILERS IN THE COUNTIES FOR 1980 AND 1990				
County	*Tax Filers	1980	1990	Percent Change From 1980 to 1990
Beaufort County	Migrant Filers	3,787	2,440	-35.57%
	Non-Migrant Filers	41,794	49,893	19.38%
Carteret County	Migrant Filers	7,232	6,199	-14.28%
	Non-Migrant Filers	38,633	55,941	44.80%
Dare County	Migrant Filers	3,421	2,908	-15.00%
	Non-Migrant Filers	11,237	24,081	114.30%
Hyde County	Migrant Filers	471	256	-45.65%
	Non-Migrant Filers	5,172	5,685	9.92%
Pamlico County	Migrant Filers	1,153	741	-35.73%
	Non-Migrant Filers	9,799	10,806	10.28%
*Includes all exempt and non-exempt filers Source: Internal Revenue Service, Statistics Income Division 1992				

2.1.4 Economy

2.1.4.1 Major Economic Sectors

The economy of Carteret County is the most diverse of the five study counties. In addition to the fishing and tourism, Carteret has a number of military facilities and manufacturing industries.

Dare County relies on a combination of commercial fishing and tourism. Tourism is increasing in importance as the county's coastal communities grow. According to many fishermen, commercial fishing in Dare and other counties is waning in the face of competition and resource regulation.

Hyde County is one of the poorest in the state. Most revenue is generated in Ocracoke during the tourist season, although some agricultural and silvicultural activity occurs in inland areas. Agriculture is limited, however, by extensive wetlands. The situation could worsen if Ocracoke secedes from the county, as it has threatened, in search of additional government services.

The economies of Pamlico and Beaufort are primarily based on agriculture, silviculture, and commercial fishing. Some small communities along the river and sound are also seasonally popular for sailors and tourists. A significant mining industrial base is located in Aurora in Pamlico County. Both of these counties harbor fishing fleets that work in the sound, nearshore and offshore waters of North Carolina. Communities with fishing interests include Hobucken, Lowland, Vandemere, and Bayboro in Pamlico County, and Washington and Bayview in Beaufort County.

Employment by Sector North Carolina employed 3,238,414 persons in 1990, representing a 24% increase since 1980. Of the five study counties, Dare experienced the greatest increase in employment levels (124%) and Hyde had the least increase in employment (2%) during this period (see Table 2.1-18). The retail trade industry remained the largest employer in the state and the study counties in 1990 with the exception of Hyde in which agriculture, forestry and fisheries constituted its largest employer, and retail trade was its second largest employer. Although agriculture, forestry and fisheries are important employers of local residents, their employment levels have generally decreased or remained relatively stable with the exception of Dare whose employment in this sector has risen by 48% (and went from 5th to 3rd in rank order among the counties). It is important to note that while employment levels have risen in many industries from 1980 to 1990, industrial employment as a percent of total employment has often decreased. For instance, although employment in agriculture, forestry, and fisheries increased in Dare by 48%, it decreased from employing 8% of the total employed in 1980 to 5% of the total in 1990. In general, the demographic growth of Dare County and the relative vitality of its economy may be seen in the employment data. With few exceptions, Dare leads the other study counties in growth across sectors.

Industry Groups	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Agriculture, forestry, and fisheries	1980	89,430	1,408	1,227	440	579	503
	1990	89,581	1,108	1,249	653	511	427
	Percent Change	0.17%	-21.31%	1.79%	48.41%	-11.74%	-15.11%
Mining	1980	5,600	715	7	6	0	159
	1990	5,186	82	11	2	0	50
	Percent Change	-7.39%	-111.47%	57.14%	-66.67%	0%	-68.55%

**Table 2.1-18
EMPLOYMENT BY INDUSTRY IN STATE AND COUNTIES FOR 1980 AND 1990**

Industry Groups	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Construction	1980	162,467	1,048	1,229	712	188	294
	1990	227,706	1,374	2,146	2,001	197	322
	Percent Change	40.16%	31.11%	74.61%	181.04%	4.79%	9.52%
Manufacturing, nondurable goods	1980	515,392	2,355	1,033	133	132	375
	1990	483,875	3,127	1,008	193	97	431
	Percent Change	-6.12%	32.78%	-2.42%	45.11%	-26.52%	14.93%
Manufacturing, durable goods	1980	339,157	2,344	895	234	45	296
	1990	380,496	2,689	1,198	349	84	324
	Percent Change	12.19%	14.72%	33.85%	49.15%	86.67%	9.46%
Transportation, communication, and other public utilities	1980	159,177	675	965	302	74	170
	1990	205,360	813	1,520	585	156	348
	Percent Change	29.01%	20.44%	57.51%	93.71%	110.81%	104.71%
Wholesale trade	1980	106,459	957	645	223	168	258
	1990	135,750	637	725	316	70	218
	Percent Change	27.51%	-47.41%	12.40%	41.70%	-58.33%	-15.50%
Retail trade	1980	372,982	2,502	3,059	1,198	258	476
	1990	522,832	3,275	5,618	2,978	402	717
	Percent Change	40.18%	30.90%	83.65%	148.58%	55.81%	50.63%
Finance, insurance, and real estate	1980	110,576	497	626	356	57	116
	1990	166,276	684	1,290	1,142	95	185
	Percent Change	50.37%	37.63%	106.07%	220.79%	66.67%	59.48%

**Table 2.1-18
EMPLOYMENT BY INDUSTRY IN STATE AND COUNTIES FOR 1980 AND 1990**

Industry Groups	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Business and repair services	1980	74,654	342	315	123	19	74
	1990	124,685	527	7+94	403	24	210
	Percent Change	67.02%	54.09%	152.06%	227.64%	26.32%	183.78%
Personal services	1980	80,449	522	617	460	128	120
	1990	90,623	450	841	819	101	177
	Percent Change	12.65%	-13.79%	36.30%	78.04%	-21.09%	47.50%
Entertainment and recreational services	1980	18,384	99	98	72	5	17
	1990	32,030	124	353	194	16	27
	Percent Change	74.23%	25.25%	260.20%	169.44%	220.00%	58.82%
Health services	1980	159,676	876	940	215	53	175
	1990	233,437	1,530	1,723	352	32	305
	Percent Change	46.19%	74.66%	83.30%	63.72%	-39.62%	74.29%
Educational services	1980	220,727	1,099	1,362	327	171	329
	1990	258,595	1,503	1,829	737	167	476
	Percent Change	17.16%	36.76%	34.29%	125.38%	-2.34%	44.68%
Other professional and related services	1980	84,853	400	400	273	43	77
	1990	165,200	674	1,054	788	76	185
	Percent Change	94.69%	68.50%	163.50%	188.64%	76.74%	140.26%

Industry Groups	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Public administration	1980	107,942	645	2,235	374	205	295
	1990	116,782	590	2,478	687	132	316
	Percent Change	8.19%	-8.53%	10.87%	83.69%	-35.61%	7.12%
TOTAL	1980	2,607,925	16,484	15,653	5,448	2,125	3,734
	1990	3,238,414	19,187	23,837	12,199	2,160	4,718
	Percent Change	24.18%	16.40%	52.28%	123.92%	1.65%	26.35%
Source: U.S. Bureau of the Census							

The employment status for North Carolina and the five counties for 1990 are presented in Table 2.1-19. The unemployment level in the counties is fairly low (ranging between 4.0% and 5.4%) and consistent with state levels (4.1%) except for Hyde County. Hyde's rate at 9.2% is more than double that of the state rate, and is indicative of the overall cluster of trends indicating an overall weak economy, such as population decrease, in spite of a relatively vital area on Ocracoke Island. Hyde County also has, by a wide margin, the fewest number of employed persons. Carteret County has the greatest number of persons employed, followed by Beaufort, Dare, and Pamlico.

Place	Employment	Unemployment	Unemployment Rate
North Carolina	3,262,000	139,000	4.1%
Beaufort County	18,721	1,070	5.4%
Carteret County	22,176	1,062	4.6%
Dare County	16,522	696	4.0%
Hyde County	2,008	204	9.2%
Pamlico County	4,499	205	4.4%
Source: North Carolina State Data Center, Statistical Abstract 1991			

Gross Retail Sales In 1990, North Carolina had over \$64 billion gross retail sales, a 91% increase in sales since 1980. This trend can be seen in all five counties as well, particularly in Dare County where sales increased over 300%. Beaufort had the highest gross retail sales in 1980 but was surpassed by Dare and Carteret Counties in 1990. Although Hyde County had the least gross retail sales in 1980 and 1990, it still experienced a 70% increase in this decade.

Table 2.1-20			
GROSS RETAIL SALES IN STATE AND COUNTIES FOR 1980 AND 1990			
Place	1980	1990	Percent Change From 1980 to 1990
North Carolina	33,901,829,000	64,691,006,000	90.82%
Beaufort County	223,745,000	333,998,000	49.28%
Carteret County	188,684,000	457,743,000	142.60%
Dare County	104,032,000	456,290,000	338.61%
Hyde County	17,411,000	29,659,000	70.35%
Pamlico County	21,894,000	42,404,000	93.68%
Source: North Carolina State Data Center, Statistical Abstract 1991			

Agriculture Agriculture is an important aspect of North Carolina's economy. Table 2.1-21 summarizes changes in this industry from 1980 to 1990. Several important trends are evident. For all the counties, the number of farms decreased substantially, as did the size of farm populations and the number of farming operators. Land in farms also decreased, but at a much lesser rate. This pattern is consistent with changes seen in the counties such as smaller farms failing or being consolidated into larger corporate farms and mechanization of farming tasks being increased. Changes over the decade in the amount of cropland harvested does not portray a consistent trend across the counties. Farm income rose in four of the five counties over the decade (increases varied widely) and stayed virtually unchanged in Pamlico. Percentage increases in farm income inversely related to the total amount of farm income, number of farms, land in farms, farm populations, and farming operators. It should be noted that number of farms, land in farms, farm population, and farm operator variables are not independent of each other.

**Table 2.1-21
AGRICULTURE INDUSTRY IN STATE AND COUNTIES FOR 1980 AND 1990**

Category	Year	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County	North Carolina
Farms	1980	815*	162*	^	189*	136*	72,792*
	1990	630**	122**	^	163**	86**	65,000#
	Percent Change	-22.70%	-24.69%	N/A	-13.76%	-36.76%	-10.70%
Land in Farms (Acres)	1980	158,281*	67,645*	^	111,641*	44,045*	10,320,832*
	1990	156,433**	65,541**	^	102,420**	38,270**	10,000,000#
	Percent Change	-1.17%	-3.11%	N/A	-8.26%	-13.11%	-3.11%
Farm Populations	1980	3,043	623	81	643	363	188,437
	1990	1,323	402	48	418	178	///
	Percent Change	-56.52%	-35.47%	-40.74%	-34.99%	-50.96%	///
Farming Operators	1980	560*	86*	^	160*	90*	32,997*
	1990	384**	68**	^	123**	67**	28,597**
	Percent Change	-31.43%	-20.93%	N/A	-23.13%	-25.56%	-13.33%
Harvested Cropland (Acres)	1980	140,400	18,100	700	69,600	40,500	5,080,000
	1990	139,900	33,900	3,700	89,300	37,600	4,080,000
	Percent Change	-0.36%	87.29%	428.57%	28.30%	-7.16%	-19.68%
Farm Income (thousands of dollars)	1980	62,331	8,380	344	21,837	15,141	3,611,573
	1990	67,102	13,373	872	31,441	15,025	4,644,504##
	Percent Change	7.65%	59.58%	153.49%	43.98%	-0.77%	28.60%

* 1982 data
 ** 1987 data
 #1989-1992 data
 ## 1988 data
 ^Data Unavailable

Source: North Carolina Data Center

This pattern is also consistent with national trends. In 1930 farm population accounted for 30.2% of the total population. By 1960 this figure had dropped to 8.7% and by 1985 the

figure was down to 2.2%. The farming population has grown older than the population in general; in 1990, 44% of the farm population had reached the age of forty, compared to only 36% of non-farm residents, reflecting a general "aging in place" as migration off farms is not offset by new persons migrating to farms. In the study area, like the county as a whole, it is very rare for a young person to become a farmer unless he or she is born into a farming family.

The following table illustrates the total grain harvested by acres in 1980 and 1991 for the top three crops in each of the counties. Although soybeans and corn were the top two crops in each of the counties in 1991, wheat increased at a significantly faster rate for all of the counties since 1980 with the exception of Pamlico. The total grain harvested for wheat increased over 800% in Carteret County for this period and over 200% in Beaufort, Dare, and Hyde Counties. Soybean harvests decreased in three of the five counties.

Table 2.1-22 TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN COUNTIES FOR 1980 AND 1991				
County	Major Crops	1980	1991	Percent Change from 1980 to 1991
Beaufort County	Soybean	76,100	72,000	-5.39%
	Corn	55,500	53,000	-4.50%
	Wheat	9,330	35,600	281.56%
Carteret County	Soybean	9,400	16,800	78.72%
	Corn	6,700	16,000	138.81%
	Wheat	450**	4,400	877.78%
Dare County	Soybean	800	1,500	87.50%
	Corn	100	1,100	1,000.00%
	Wheat	180*	600	233.33%
Hyde County	Soybean	43,500	42,600	-2.07%
	Corn	27,750	43,500	56.76%
	Wheat	4,800	15,400	220.83%
Pamlico County	Soybean	22,400	19,300	-13.84%
	Corn	10,300	12,500	21.36%
	Wheat	8,670	8,300	-4.27%
*1982 Data **Tobacco and sorghum outnumbered total grain harvested for wheat in 1980 Source: North Carolina Department of Agriculture, Agricultural Statistics Division				

2.1.4.2 Income

The average median family income in North Carolina for 1990 was \$32,400 which represented an 124% increase since 1980. This amount is slightly higher than the median family income in the five counties, with the exception of Dare, whose median family income is higher than the state by 8%. All of the counties experienced a significant increase in median family income from 1980 to 1990, as well as an increase in the average annual wage.

Table 2.1-23 AVERAGE ANNUAL WAGE AND MEDIAN FAMILY INCOME IN STATE AND COUNTIES FOR 1980 AND 1990				
Place	Wage/Income	1980	1990	Percent Change From 1980 to 1990
North Carolina	Average Annual Wage	11,919	18,625*	56.26%
	Median Family Income	14,481	32,400	123.74%
Beaufort County	Average Annual Wage	10,980	15,772*	43.64%
	Median Family Income	14,461	26,010	79.86%
Carteret County	Average Annual Wage	9,242	12,904	39.62%
	Median Family Income	16,068	30,241	88.21%
Dare County	Average Annual Wage	8,033	13,950*	73.66%
	Median Family Income	16,322	34,891	113.77%
Hyde County	Average Annual Wage	8,236	11,505*	39.69%
	Median Family Income	11,053	19,929	80.30%
Pamlico County	Average Annual Wage	5,076**	10,665**	110.11%
	Median Family Income	14,509	26,168	80.36%
*1988 figure **Per Capita Money Income Sources: North Carolina State Data Center and U.S. Bureau of the Census				

Table 2.1-24 presents the personal earnings in the counties for 1980 and 1988. Although Carteret County had the greatest amount of personal earnings in both 1980 and 1988, Dare's increased the most during this period. Hyde County not only continue to have the least personal earnings of all the counties, but it has experienced the least growth as well. While there is variation between the counties, all of them experienced a substantial increase in earning from 1980 to 1988.

Table 2.1-24			
PERSONAL EARNINGS IN THE COUNTIES FOR 1980 AND 1988			
Place	1980	1988	Percent Change From 1980 to 1988
Beaufort County	303,446,000	521,756,000	73.92%
Carteret County	316,319,000	640,476,000	102.48%
Dare County	100,211,000	295,967,000	195.34%
Hyde County	38,526,000	56,816,000	47.47%
Pamlico County	74,910,000	131,869,000	76.07%

Source: North Carolina State Data Center, Statistical Abstract 1991

Table 2.1-25 depicts the poverty status in the state and counties for persons and families whose poverty status was determined in 1980 and 1990. The total number of persons in North Carolina whose incomes were below the poverty level in 1990 was 829,858 (approximately 13%). Although Pamlico and Hyde Counties had the lowest populations and the fewest persons for whom poverty status was determined,⁷ they had the highest percentage of persons whose incomes were below the poverty level (Beaufort also included). Dare County had the lowest percentage of persons in poverty, followed by Carteret County. On a percentage basis, Beaufort, Hyde, and Pamlico counties had a much larger portion of their populations below the poverty level than the state as a whole. Of special note is the fact that the number of families below the poverty level decreased in two of the five counties, remained the same in one county, and increased only slowly in the other two.

⁷ Poverty status was determined for 98% to 99% of the total population in each of the counties; determination criteria may be found in the Glossary at the end of this volume.

**Table 2.1-25
POVERTY STATUS IN STATE AND COUNTIES FOR 1980 AND 1990**

Poverty Status	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
#Total Persons Determined	1980	5,682,948	40,137	40,255	13,275	5,852	10,396
	1990	6,397,185	41,676	51,517	22,536	5,339	11,217
	Percent Change	12.57%	3.83%	27.98%	69.76%	-8.77%	7.90%
Total Persons Below Poverty Level	1980	839,950	8,437	5,618	1,499	1,658	2,142
	1990	829,858	8,130	5,977	1,861	1,281	2,119
	Percent Change	-1.20%	-3.64%	6.39%	24.51%	-22.74%	-1.07%
Percent Persons Below Poverty Level	1980	14.78%	21.02%	13.96%	11.29%	28.33%	20.60%
	1990	12.97%	19.51%	11.60%	8.26%	24.00%	18.89%
	*Percent Change	-12.25%	-1.51%	-2.36%	-3.03%	-4.33%	-1.71%
Total Families Determined	1980	1,583,490	11,015	11,627	3,794	1,592	2,918
	1990	1,824,465	11,885	15,351	6,469	1,572	3,377
	Percent Change	15.22%	7.90%	32.03%	70.51%	-1.26%	15.73%
Total Families Below Poverty Level	1980	183,146	1,911	1,341	338	393	512
	1990	179,906	1,885	1,400	338	316	534
	Percent Change	-1.77	-1.36%	4.40%	0.00%	-19.59%	4.30%
Percent Families Below Poverty Level	1980	11.57%	17.35%	11.53%	8.91%	24.69%	17.55%
	1990	9.86%	15.86%	9.12%	5.22%	20.10%	15.81%
	*Percent Change	-14.78%	-1.49%	-2.41%	-3.69%	-4.59%	-1.74%

#All persons for whom poverty status determined
 *Number reflects observed difference between 1980 and 1990, not absolute percent change
 Source: U.S. Bureau of the Census

2.1.5 Patterns of Government Service Delivery

2.1.5.1 Structure and Employees

The geography and small populations in the five study counties make government service delivery a problem. Hyde's weak and undiversified economy compounds the difficulty. Nevertheless, the county governments provide a variety of services to their rural areas and unincorporated towns.

Most communities in the study counties are unincorporated. Unlike incorporated communities, unincorporated ones receive most governmental services directly from the county. This places the burden at the county rather than local level, while the benefits from county services accrue locally. This creates a disincentive to incorporate despite the increase in decision-making powers that it brings.

County seats include: Swan Quarter for Hyde County, Manteo for Dare County, Beaufort for Carteret County, Washington for Beaufort County, and Bayboro for Pamlico County.

2.1.5.2 Local Government Revenues and Expenditures

The following tables provide information on the state and counties total expenditures and revenues for 1980, 1985, and 1990. Total expenditures in North Carolina increased over 40% from 1980 to 1985 and almost doubled that from 1985 to 1990. Interestingly, while the percent change in expenditures of the counties from 1980 to 1985 were less than the state's total (with the exception of Dare), they were greater than the state's total from 1985 to 1990 (with the exception of Carteret). Of all the study counties, Dare had the greatest total expenditures in 1990 and the largest increase in expenditures since 1985. Hyde had the least expenditures in 1990 and Carteret experienced the least increase since 1985.

In 1990, the state's total revenues were approximately \$4 billion and were greater than the state's total expenditures. Only two of the five study counties, however, had similar trends. Both Carteret and Dare had greater total revenues than expenditures during this period, while Beaufort, Hyde, and Pamlico had greater expenditures than revenues. Dare had the greatest total revenues of all the counties in 1990 and experienced the largest increase since 1985. Hyde had the least revenues and Beaufort had the least increase in revenues since 1985.

Table 2.1-26					
TOTAL EXPENDITURES IN THE STATE AND COUNTIES FOR 1980, 1985, AND 1990 (in \$000s)					
Place	1980	1985	Percent Change From 1980 to 1985	1990	Percent Change From 1985 to 1990
North Carolina	1,403,953	2,057,770	46.57%	3,721,869	80.97%
Beaufort County	7,583	10,108	33.30%	23,481	132.30%
Carteret County	11,591	16,469	42.08%	23,301	41.48%
Dare County	5,376	13,238	146.24%	37,400	182.52%
Hyde County	2,507	3,153	25.77%	6,131	94.44%
Pamlico County	5,510	3,622	-34.26%	8,010	121.15%
Source: North Carolina State Data Center					

Table 2.1-27					
TOTAL REVENUES IN THE STATE AND COUNTIES FOR 1980, 1985, AND 1990 (in \$000s)					
Place	1980	1985	Percent Change From 1980 to 1985	1990	Percent Change From 1985 to 1990
North Carolina	1,399,879	2,185,093	56.09%	4,043,312	85.04%
Beaufort County	7,770	12,686	63.27%	19,352	52.55%
Carteret County	11,306	13,586	20.17%	26,294	93.54%
Dare County	5,236	14,866	183.92%	41,857	181.56%
Hyde County	2,553	3,137	22.88%	5,848	86.42%
Pamlico County	4,421	3,846	-13.01%	7,572	96.88%
Source: North Carolina State Data Center					

2.5.1.3 Education

Public school expenditures in North Carolina in 1990 totalled over \$4 billion. Of this amount, 23% of expenditures were locally funded. Beaufort and Carteret had the greatest public school expenditures while Hyde had the least. The five study counties provide between 17% and 20% of the total public school expenditures, with the exception of Pamlico whose local funding is only 12% and Dare whose local funding is 32%.

Place	Total Expenditures	Total Local Funding	Percent Local Funding
North Carolina	4,362,832,000	992,347,000	22.75%
Beaufort County	31,028,000	5,216,000	16.81%
Carteret County	29,005,000	5,677,000	19.57%
Dare County	13,343,000	4,322,000	32.39%
Hyde County	4,636,000	906,000,000	19.54%
Pamlico County	8,227,000	991,000	12.05%

Source: North Carolina State Data Center, Statistical Abstract 1991

2.1.6 Tourism

2.1.6.1 The Structure of Tourism

The study area's proximity to the Atlantic Ocean and the Albemarle-Pamlico Estuary, the second largest estuarine system in the United States, are factors in this industry. The second factor in this regional tourist system is the variety of activities which bring visitors to the area. A third integrating factor is the economic multipliers associated with the industry itself. As the area's tourism grows, businesses are formed, more people visit the area, and more people settle in the area, including an increasing number who choose the coast for retirement.

Certain tourist activities are common throughout the study communities and their consideration provides insight into the systemic nature of the area's tourist industry.

History The tourist industry has capitalized on the region's rich maritime history. In Dare County, "The Lost Colony," a play depicting the Roanoke Voyages and first settlements of Roanoke Island in the late 1600's, is a mainstay during the tourist season. Likewise, the restored U.S. Lifesaving Stations are important tourist destinations that capitalize on local

history. Historic preservation districts in Dare, Hyde, and Carteret Counties are viable attractions as well. The Maritime History Museum in Beaufort, and the Outer Banks History Center in Manteo also attest to the integration of maritime history, mystery, and myth as an important attraction to the region.

Lighthouses Lighthouses are part of this maritime history in North Carolina. Four lighthouses stand within the study region, two in Dare County, one in Hyde County, and one in Carteret County. Another lighthouse stands at the edge of the study region in Currituck County. The lighthouses are major attractions along the coast, and most have an adjoining museum to assist visitors with understanding the lighthouses and the area's maritime history.

Parks and Wildlife Refuges More than a dozen parks and refuges dot the five study counties. Arguably the counties' tourist assets are Cape Hatteras and Cape Lookout National Seashores. Hatteras National Seashore covers some seventy-five miles and 30,000 acres in Dare County (North Carolina Travel and Tourism Division n.d.:111). Cape Lookout National Seashore covers fifty-five miles of coastline and is only accessible by boat (North Carolina Travel and Tourism Division n.d.:111). Because of this, Cape Hatteras receives the preponderance of visitors. In spite of the fact that the wildlife refuges provide only limited tourist access, spring and fall migrations of birds also bring a migration of visitors to see the diversity of species that pass through the area.

The eco-tourism movement has spawned a new set of eco-tourist activities, such as kayaking in the refuges, and may, in the long run, increase refuge use. Several state parks were created to display the area's rich history including the Wright Brother's Memorial and Fort Macon State Park.

The following examples of the numbers of visitors to selected parks indicates the sheer numbers of visitors to the area and the seasonality of tourism to the area. In 1992, 10,232 persons visited Jockey's Ridge State Park in January, and 137,316 persons visited the park in July. In January of 1992, 7,960 persons visited the Wright Brothers Memorial, and in July 1992, 78,174 persons visited the site. The National Seashore had 41,523 visitors in January of 1992 and 363,642 in July 1992 (Outer Banks Chamber of Commerce:1992).

Sports and Recreation Visiting the beach and a variety of sports and recreational activities are the major reasons tourists visit the area. In the 1992 Outer Banks (Dare County) Tourism Survey, 33% of the respondents listed the beaches as an activity and attraction visited by the respondent. Fishing was reported to be the second most popular activity according to this same questionnaire (Office of Parks and Tourism Research 1993:3). Other water related recreational activities that are quite popular in the region include surfing, water skiing, windsurfing, boogie boarding, jet skiing, and sailing.

Other recreational activities include golf, hunting, hang gliding, and parasailing. The nature of tourism is changing as different recreational activities change over the years. Whereas golf is expanding and communities and counties are specifically targeting golfers in their tourism

marketing efforts, some types of hunting are on the decline. While hunting remains an important activity in the region overall, the duck hunting that used to lure many tourists to the area has decreased as duck populations in the area have decreased. Finally, the ocean breezes and the existence of Jockey's Ridge Sand Dune in Nags Head led to the development of a hang gliding school in Nags Head, taking advantage of a relatively new sport. This school is the largest in the country, and over 100,000 flights have taken place on this dune (pers. comm. Kitty Hawk Kites Flight School Employee).

Other Activities An illustrative list of miscellaneous tourist activities might include: aquariums, ferries, amusement parks, arcades, and mini-golf courses. Dare and Carteret County are home to a North Carolina Aquarium. Development of aquariums and associated educational opportunities have proven a very effective strategy for attracting tourists. In July 1992 for example, 14,000 more people visited the aquarium in Dare County than visited the Wright Brothers Memorial (Outer Banks Chamber of Commerce:1992). Plans are also under development for an Estuarine Education Center in Beaufort County.

Five ferries operate within the study region. The ferry system is not a tourist attraction per se because it provides essential transportation between Hatteras and Ocracoke. On the other hand, many visitors go out of their way to take the over two hour ferry ride from Ocracoke to Swan Quarter or Cedar Island as an alternative route home. In July of 1992, close to 150,000 people took the Hatteras Inlet Ferry, as opposed to January 1992 when only a little over 12,000 people used the same ferry (Outer Banks Chamber of Commerce:1992).

The ferries also represent the systemic nature of tourism in the region. The ferry service physically connects tourist destinations throughout the entire study region, making each county as accessible as the next. Other privately run ferry services work as National Park Service concessionaires filling in the gaps in the state run ferry service routes.

As obviously important component of the tourist business in the region are the small amusement parks, arcades, and mini-golf courses, especially in the beach areas. A recent campaign to construct a "Disney-like" amusement park near Lake Matamuskeet in Hyde County was advertised as a way to lure tourist dollars to this inland setting.

2.1.6.2 Economic Effects of Tourism

Expenditures The five study counties do not benefit equally from tourism. Counties with an Atlantic coastline have higher levels of travel expenditures (see Table 2.1-29). Dare and Carteret rank highest in expenditure levels and are in the top 10% of counties in the state; Dare ranks sixth and Carteret tenth among all counties in North Carolina. The other three counties rank significantly lower, with Beaufort in the middle of North Carolina counties, whereas Hyde and Pamlico are in the bottom 25%. Table 2.1-29 also provides the percent increase in travel expenditures from 1990 to 1991, a statistic which highlights the increasing levels of travel to all the study counties.

Table 2.1-29 TRAVEL EXPENDITURES AND STATE RANK OF THE COUNTIES			
County	1991 Travel Expenditures (millions)	Percent Change from 1990	State Rank (out of 100)
Beaufort County	\$28.12	4.40%	47th
Carteret	\$138.43	4.46%	10th
Dare County	\$238.74	2.60%	6th
Hyde County	\$11.34	4.31%	75th
Pamlico County	\$7.97	5.36%	87th
Source: U.S. Travel Data Center 1992			

Visitors The highway system reaching the study region tends to channel visitors from the outside to one county or another. For example, the majority of visitors to Dare County and its beaches are from Virginia and states further north such as Maryland, New Jersey, and Pennsylvania because the road systems leading to these beach areas make this the shortest drive. North Carolina visitors to Dare County are primarily from the Northeastern Corridor of the state, because they live closest to the area. Many of these visitors also visit Hyde County via Ocracoke Island. The majority of the study area's visitors reside in central-eastern North Carolina or south-eastern North Carolina.

Future Growth The growth of tourism is important to the region because it is a mainstay of the area's economy. Economic indicators show that tourism is growing in all five study counties and suggest that tourism-based development may soon be an economic reality in the near future even in the counties without an Atlantic coastline. Plans for large scale amusement parks, hovercraft ferry lines, and eco-tourist attractions have been mentioned in recent newspaper articles and plans for estuarine education centers and boat tours in wildlife refuges are already underway or are in the formative stages.

2.1.7 Use of Marine Resources

Marine resources in the immediate coastal areas of the study counties are widely used for ocean sports and recreation, but the inland counties also offer a variety of recreational activities on the water. Commercial uses of the rivers, sounds, and ocean are also widespread in the region (see Section 2.7).

Transportation of commodities by water is a regionally important activity. The Intracoastal Waterway is an important transportation corridor that traverses the study area. The immediate coastal counties each have important points of access to the ocean. Beaufort Inlet in Carteret County is the deepest and is used by the largest vessels; Oregon Inlet in Dare County in a highly active ocean zone is a changeable and dangerous passage but is used by smaller vessels; Ocracoke Inlet in Hyde County is also relatively shallow and dangerous.

2.1.7.1 Commercial Landings

Tables 2.1-30 and 2.1-31 list the top ten finfish landings and shellfish landings for each county in 1981 and 1991. The top ten finfish in 1991 are not always the top ten finfish in 1981 (as reflected in the "N/A" cells). Some harvest data are confidential (due to minimum aggregation requirements to protect business information where few harvesters/processors are involved) and could not be obtained.

In 1991, The single top finfish landing in Beaufort County was the Spotted Seatrout which experienced a 471% increase since 1981. The Atlantic Menhaden was the largest catch in Carteret County but its landings decreased by 25% during this period. Dare's greatest finfish landing was the Bluefish which also experienced a decline of 31% since 1981. Although Fluke Flounders comprised the largest landings for both Hyde and Pamlico Counties, they experienced a 67% increase in Hyde and a 58% decrease in Pamlico. The single top shellfish landing in 1991 for all of the counties was Hard Blue Crabs which experienced an overall decrease since 1985 with the exception of Hyde in which they increased by 86%.

**Table 2.1-30
TOP TEN FINFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981* AND 1991**

Fish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Anglerfish (Goosefish)	1981	N/A	N/A	N/A	N/A	76,752
	1991	N/A	N/A	N/A	N/A	29,429
	Percent Change	N/A	N/A	N/A	N/A	-61.66%
Bluefish	1981	**	1,518,135	3,956,616	393,909	355,529
	1991	1,386	726,554	2,722,370	206,214	16,662
	Percent Change	N/A	-52.14%	-31.19%	-47.65%	-95.31%
Catfishes	1981	17,178	N/A	N/A	N/A	N/A
	1991	3,243	N/A	N/A	N/A	N/A
	Percent Change	-81.12	N/A	N/A	N/A	N/A
Croaker, Atlantic	1981	152,178	2,169,216	7,244,469	609,579	N/A
	1991	3,322	1,152,482	1,450,924	296,009	N/A
	Percent Change	-97.82%	-46.87%	-79.97%	-51.44%	N/A
Flounders, Fluke	1981	388,186	1,794,283	2,976,224	657,237	3,673,113
	1991	162,179	2,282,180	2,016,702	1,095,299	1,558,863
	Percent Change	-58.22%	27.19%	-32.24%	66.65%	-57.56%
Grey Seatrout (Weakfish)	1981	100,982	3,810,241	7,949,701	1,253,444	3,210,894
	1991	1,467	2,912,338	1,533,799	58,088	8,864
	Percent Change	-98.55%	-23.57%	-80.71%	-95.37%	-99.72%
Herring, Thread	1981	N/A	**	N/A	N/A	N/A
	1991	N/A	3,796,220	N/A	N/A	N/A
	Percent Change	N/A	N/A	N/A	N/A	N/A

**Table 2.1-30
TOP TEN FINFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981* AND 1991**

Fish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Kingfishes (Sea Mullet)	1981	N/A	N/A	N/A	N/A	7,854
	1991	N/A	N/A	N/A	N/A	17,339
	Percent Change	N/A	N/A	N/A	N/A	120.77%
Mackerel, King	1981	N/A	N/A	519,277	N/A	N/A
	1991	N/A	N/A	697,375	N/A	N/A
	Percent Change	N/A	N/A	34.30%	N/A	N/A
Mackerel, Spanish	1981	N/A	27,410	18,666	N/A	N/A
	1991	N/A	259,030	400,391	N/A	N/A
	Percent Change	N/A	845.02%	2,045.03%	N/A	N/A
Menhaden, Atlantic	1981	N/A	147,289,450	N/A	N/A	N/A
	1991	N/A	110,432,731	N/A	N/A	N/A
	Percent Change	N/A	-25.02%	N/A	N/A	N/A
Mulletts	1981	128,307	516,138	N/A	56,023	63,957
	1991	45,566	728,161	N/A	52,035	47,743
	Percent Change	-64.49%	41.08%	N/A	-7.12%	-25.35%
Other Finfish (Includes Confidential)	1981	6,705	N/A	N/A	32,275	N/A
	1991	3,691	N/A	N/A	30,101	N/A
	Percent Change	-44.95%	N/A	N/A	-6.74%	N/A
Sea Basses	1981	N/A	N/A	N/A	5,636	34,659
	1991	N/A	N/A	N/A	34,779	22,067
	Percent Change	N/A	N/A	N/A	517.09%	-36.33%

**Table 2.1-30
TOP TEN FINFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981* AND 1991**

Fish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Seatrout, Spotted	1981	53,593	N/A	N/A	N/A	4,023
	1991	305,986	N/A	N/A	N/A	8,733
	Percent Change	470.94%	N/A	N/A	N/A	117.08%
Shad	1981	10,461	N/A	N/A	N/A	N/A
	1991	1,603	N/A	N/A	N/A	N/A
	Percent Change	-84.68%	N/A	N/A	N/A	N/A
Sharks, Dogfish	1981	N/A	N/A	37,737	**	N/A
	1991	N/A	N/A	1,392,315	36,136	N/A
	Percent Change	N/A	N/A	3,589.52%	N/A	N/A
Spot	1981	36,696	1,983,497	915,186	146,017	131,869
	1991	2,288	1,811,834	735,303	48,909	14,925
	Percent Change	-93.76%	-8.65%	-19.66%	-66.50%	-88.68%
Swellfishes (Puffers)	1981	N/A	N/A	N/A	N/A	18,186
	1991	N/A	N/A	N/A	N/A	12,267
	Percent Change	N/A	N/A	N/A	N/A	-32.55%
Tuna	1981	N/A	N/A	8,450	N/A	N/A
	1991	N/A	N/A	520,517	N/A	N/A
	Percent Change	N/A	N/A	6,059.96%	N/A	N/A

Table 2.1-30 TOP TEN FINFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981* AND 1991						
Fish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Unclassified for Industrial/Bait	1981	N/A	N/A	2,273,892	820,726	N/A
	1991	N/A	N/A	1,663,803	133,250	N/A
	Percent Change	N/A	N/A	-26.83%	-83.76%	N/A
White Perch	1981	24,507	N/A	N/A	N/A	N/A
	1991	1,993	N/A	N/A	N/A	N/A
	Percent Change	-91.87%	N/A	N/A	N/A	N/A
<p>*These are the top ten finfish in 1991, not necessarily in 1981 **denotes confidential data Source: North Carolina Division of Marine Fisheries</p>						

Table 2.1-31 SHELLFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981 AND 1991						
Shellfish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Blue Crabs (Hard)	1981	5,615,887	8,762,569	6,404,544	5,959,299	7,098,275
	1991	3,616,188	4,074,923	6,341,250	11,089,627	6,265,486
	Percent Change	-35.61%	-53.50%	-0.99%	86.09%	-11.73%
Blue Crabs (Soft)	1981	*	36,703	24,019	96,535	12,902
	1991	*	9,528	459,684	35,581	0
	Percent Change	N/A	-74.04%	1,813.83%	-63.14%	-100.00%
Clam, Hard	1981	N/A	827,846	N/A	N/A	N/A
	1991	N/A	533,640	N/A	*	N/A
	Percent Change	N/A	-35.54%	N/A	N/A	N/A

**Table 2.1-31
SHELLFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981 AND 1991**

Shellfish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Conchs	1981	N/A	19,909	6,406	N/A	*
	1991	N/A	37,163	13,114	*	19,074
	Percent Change	N/A	86.66%	104.71%	N/A	N/A
Octopus	1981	N/A	N/A	N/A	N/A	N/A
	1991	N/A	1,839	843	*	435
	Percent Change	N/A	N/A	N/A	N/A	N/A
Other Shellfish (Includes Confidential)	1981	426	N/A	N/A	*	3,354
	1991	130	N/A	N/A	33,232	*
	Percent Change	-69.48%	N/A	N/A	N/A	N/A
Oyster, Fall	1981	29,597	51,753	58,412	42,787	20,049
	1991	9,771	14,548	18,676	15,705	N/A
	Percent Change	-66.99%	-71.89%	-68.03%	-63.29%	N/A
Oyster, Spring	1981	4,227	35,709	12,176	38,101	28,662
	1991	N/A	16,590	8,639	31,645	*
	Percent Change	N/A	-53.54%	-29.05%	-16.94%	N/A
Scallop, Bay	1981	N/A	161,572	N/A	N/A	N/A
	1991	N/A	39,686	N/A	N/A	N/A
	Percent Change	N/A	-75.44%	N/A	N/A	N/A
Scallop, Sea	1981	N/A	*	96,535	N/A	22,018
	1991	N/A	480,114	97,547	*	57,160
	Percent Change	N/A	N/A	1.05%	N/A	159.61%

**Table 2.1-31
SHELLFISH LANDINGS IN POUNDS IN COUNTIES FOR 1981 AND 1991**

Shellfish	Year	Beaufort	Carteret	Dare	Hyde	Pamlico
Shrimp, Brown	1981	N/A	N/A	N/A	24,019	N/A
	1991	1,053,073	1,996,158	433,618	1,478,071	1,374,914
	Percent Change	N/A	N/A	N/A	6,053.76	N/A
Shrimp, Pink	1981	N/A	N/A	N/A	N/A	N/A
	1991	392,098	1,473,441	35,431	280,988	415,360
	Percent Change	N/A	N/A	N/A	N/A	N/A
Shrimp, Rock	1981	N/A	N/A	N/A	N/A	N/A
	1991	N/A	6,324	N/A	N/A	1,809
	Percent Change	N/A	N/A	N/A	N/A	N/A
Shrimp, Unclassified	1981	147,742	1,093,708	72,786	112,187	428,129
	1991	N/A	N/A	N/A	N/A	N/A
	Percent Change	N/A	N/A	N/A	N/A	N/A
Shrimp, White	1981	N/A	N/A	N/A	224,777	N/A
	1991	280,988	310,721	18,237	101,233	156,382
	Percent Change	N/A	N/A	N/A	-54.96%	N/A
Squid	1981	*	6,946	224,777	4,622	39,065
	1991	N/A	27,339	196,596	18,541	56,893
	Percent Change	N/A	293.59%	-12.54%	301.15%	45.64%
Unclassified Shellfish	1981	N/A	N/A	N/A	*	N/A
	1991	N/A	N/A	N/A	N/A	N/A
	Percent Change	N/A	N/A	N/A	N/A	N/A

*denotes confidential data

Source: North Carolina Division of Marine Fisheries

Table 2.1-32 displays total figures for finfish, shellfish, and total (finfish plus shellfish) landings by county in terms of pounds landed and dollar value of landings for 1981 and 1991. The size of the commercial landings differs greatly among the counties. For example, total landings for Carteret County, the county with the greatest volume of landings, are over 30 times larger than landings for Beaufort County, the county with the least volume. Similarly, Carteret's landings are eleven times more valuable than Beaufort's landings.

Several significant changes occurred between 1981 and 1991. First, the rank order of counties for volume of finfish remained constant over the decade, except that Pamlico and Hyde switched third and fourth place positions. Neither, however, approached the volume of the largest producing counties. Second, the volume of finfish landings dropped for all counties, with declines ranging from 23% to 82%. Third, the value of finfish landings increased for some counties and decreased for others, ranging from a 52% decline in Beaufort to a 37% increase in Hyde. This change is inversely related to the total volume landed in 1991, i.e., the county with the least change in value is the county with the highest overall volume landed (Carteret); the county with the second highest volume landed had the next greatest change in value (Dare), and so on, through the county with the lowest volume landings experiencing the greatest change in value over the decade (Beaufort).

Shellfish landings follow a different pattern than finfish. Landing rank was more variable; only Beaufort County, fifth in shellfish landings in 1981, retaining its position. Also, volumes landed for shellfish showed both increases and decreases over the decade: the largest increase (Hyde County) was 113%, while the largest decrease (Beaufort County) was 28%. Shellfish landing values, however, were up for all counties, ranging between 14% and 270%. Shellfish landing values exceeded finfish landing values in all counties except Dare in both 1981 and 1991 and Pamlico in 1991.

When finfish and shellfish landing are combined total commercial fish landings show a decline of between 23% and 42% in every county except Hyde, which logged a 48% increase. The change in value of total landings over the period 1981 to 1991 show three different ranges. Beaufort County was virtually unchanged. Pamlico, Dare, and Carteret counties showed increases of 14% to 30%, respectively while Hyde County showed an increase in total value of 162% over the decade.

Table 2.1-32 FINFISH, SHELLFISH, AND TOTAL LANDINGS BY POUND AND VALUE BY COUNTY FOR 1981 AND 1991							
Type	Year	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County	Five County Total
Total Finfish Landings: Volume (pounds)	1981	1,097,278	165,968,627	32,522,156	4,094,499	9,676,736	63,987,531
	1991	239,213	127,559,508	15,227,088	2,099,045	1,771,906	32,093,202
	Change	-78.20%	-23.14%	-53.18%	-48.73%	-81.69%	-49.84%
Total Finfish Landings: Value (dollars)	1981	459,514	9,714,972	10,831,278	1,193,816	3,871,131	26,070,711
	1991	220,487	10,224,833	7,824,396	1,634,827	2,149,597	22,054,140
	Change	-52.02%	5.25%	-27.76%	36.94%	-44.47%	-15.41%
Total Shellfish Landings: Volume (pounds)	1981	5,797,879	11,233,497	6,899,655	6,156,996	7,652,454	37,740,481
	1991	4,147,796	9,028,474	7,623,635	13,084,623	8,347,513	42,232,041
	Change	-28.46%	-19.63%	10.49%	112.52%	9.08%	11.90%
Total Shellfish Landings: Value (dollars)	1981	1,546,858	7,666,965	2,061,357	1,762,621	2,839,234	15,877,035
	1991	1,769,441	12,441,021	7,623,635	6,118,189	5,510,012	33,462,298
	Change	14.39%	62.27%	269.82%	247.11%	94.07%	110.76%
Total Landings: Volume (pounds)	1981	6,895,157	177,202,124	39,421,811	10,251,495	17,329,190	251,099,777
	1991	4,387,009	136,587,982	22,850,723	15,183,668	10,119,419	189,128,801
	Change	-36.38%	-22.92%	-42.04%	48.11%	-41.60%	-24.68%
Total Landings: Value (dollars)	1981	2,006,372	17,381,937	12,892,635	2,956,437	6,710,365	41,947,746
	1991	1,989,928	22,665,854	15,448,031	7,753,016	7,659,609	55,516,483
	Change	-0.82%	30.40%	19.82%	162.24%	14.15%	132.35%
Source: North Carolina Division of Marine Fisheries							

Table 2.1-33 provides a list of the stock status of some of the important commercial and sport fish species in the Albemarle-Pamlico Region. The status "depressed" indicates the worst status category and some of the species that fall into this category are Atlantic Croakers, bay scallops, oysters, red drums, river herring, striped bass, summer flounder, and weakfish. The species that currently have a healthy status are the Atlantic Menhaden, blue crabs, shrimp, Southern flounder, and Spanish mackerel.

**Table 2.1-33
STOCK STATUS OF IMPORTANT COMMERCIAL AND SPORT FISH SPECIES IN THE
ALBEMARLE-PAMLICO REGION**

Species	Status	Major Concerns
American Shad	Stressed	Lack of data; obstructions to migration; loss of habitat; water quality
Atlantic Croaker	Depressed	Overfishing; bycatch of undersized fish; lack of stock assessment
Atlantic Menhaden	Healthy	Harvest of juveniles; disease; user conflicts
Bay Scallops	Depressed	Low Stocks; poor recovery from '87 Red Tide; harvest impact on habitat
Blue Crabs	Healthy	Disease, effects of trawls on habitat; ghost pots; user conflicts; hypoxia
Bluefish	Stressed	Reduced landings since '88; user conflicts over access to fishery
Catfish	Stressed	Insufficient data for management
Hard Clam	Stressed	Lack of data; possible overfishing; shellfish area closures; user conflicts
Mullet	Unknown	Lack of data; prevention of overfishing; user conflicts (stop nets)
Oysters	Depressed	Overfishing; disease; shellfish area closures; harvest impact on habitat; lack of data
Red Drum	Depressed	Overfishing; user conflicts
River Herring	Depressed	Overfishing; obstructions to migration; loss of habitat; water quality
Shrimp	Healthy	Bycatch of finfish and turtles; user conflicts, harvest impact on habitat
Southern Flounder	Healthy	Bycatch of undersized flounder and blue crabs; user conflicts
Spanish Mackerel	Healthy	Recovery from overfishing; user conflicts; bycatch in offshore shrimp trawls
Spot	Stressed	Bycatch of undersized fish; lack of stock assessment
Spotted Sea Trout	Unknown	Lack of data; user conflicts
Striped Bass	Depressed	Overfishing; user conflicts; loss of habitat; poor water quality
Summer Flounder	Depressed	Overfishing; bycatch of undersized flounder and sea turtles
Weakfish	Depressed	Overfishing; bycatch of undersized species; user conflicts
White Perch	Unknown	Lack of data; loss of habitat; user conflicts

Source: Albemarle-Pamlico Advocate 1993

2.1.7.2 Vessel Registrations and Licenses

The total number of vessel registrations in North Carolina for 1991 was 278,598 which represented at 44% increase since 1980. Of this total Carteret had the most registrations of the study counties with a total of 7,403. Dare County alone exceeded the state's rate of growth in registrations with a nearly two-thirds increase, while the other counties grew at a pace that was slower than the states. Hyde County continued to have the least number of registrations in 1991 and showed virtually no change over this period.

Table 2.1-34 VESSEL REGISTRATIONS IN STATE AND COUNTIES FOR 1991			
Place	1980	1991	Percent Change From 1980-1991
North Carolina	193,058	278,598	44.30%
Beaufort County	3,845	4,133	7.41%
Carteret County	5,895	7,403	25.58%
Dare County	2,285	3,749	64.07%
Hyde County	654	659	.76%
Pamlico County	1,159	1,570	35.46%
Source: North Carolina Wildlife Resource Commission			

The Table 2.1-35 lists the total number of commercial vessels licensed in North Carolina and each county for 1981 and 1991. These licenses are further broken down into full-time, part-time, pleasure, charter, and head⁸ use categories.⁹ This table reveals that in 1991 the state had a total of 19,811 commercial vessels licensed, and of this 47% were for pleasure uses. Similarly, Beaufort County had a total of 1,048 commercial vessels licensed in 1991, and of this 40% were for pleasure use. The largest number of vessels licensed during this period in Carteret, Dare, Hyde, and Pamlico Counties were for full-time uses.

Hyde County showed the greatest increase of any county in the number of full-time licenses; Carteret alone showed a decline. All counties showed a decline in the number of part-time licenses. For the pleasure class of license, only Dare County showed an increase over the decade. For all classes combined, only Dare and Pamlico counties showed an increase in licenses over this time period.

⁸ A head boat, named as such because the trip cost is based on a per person or per "head" basis, carries up to 100 anglers for half or full day trips. Head boats usually target deep water or pelagic fish. Charter boats are hired by private parties on a per trip basis rather than on a per angler basis, and are considerably smaller than head boats, typically carrying four to six passengers. Charter boats typically pursue benthic species such as billfish and tuna. Charter boat fees are relatively high but, unlike head boats, anglers may choose their own fishing sites (although the expertise of the captain is usually sought).

⁹ Categories are based on self-reporting. These categories underwent revision in 1984 as a result of changes in the law. Prior to January 1, 1984, those vessels now in "charter" and "head" categories were not required to be licensed, unless they fished with a net. Legislation passed in 1983 included fishing for hire under licensing requirements for the first time. Vessels now in the "charter" and "head" categories may or may not have appeared in one of the other categories prior to that time (Marine Fisheries Division 1993: personal communication).

**Table 2.1-35
COMMERCIAL VESSEL LICENSES ISSUED IN STATE AND COMMUNITIES FOR 1981 AND 1991**

Type	Year	North Carolina	Beaufort County	Carteret County	Dare County	Hyde County	Pamlico County
Full-time	1981	4,099	N/A	1,365	562	81	299
	1991	4,909	353	1,222	697	250	326
	Percent Change	19.76%	N/A	-10.48%	24.02%	208.64%	9.03%
Part-time	1981	7,770	N/A	1,482	492	236	193
	1991	5,396	285	981	406	61	160
	Percent Change	-30.55%	N/A	-33.81%	-17.48%	-74.15%	-17.10%
Pleasure	1981	13,595	N/A	1,080	155	143	384
	1991	9,308	410	601	205	22	244
	Percent Change	-31.53%	N/A	-44.35%	32.26%	-84.62%	-36.46%
Charter	1981*	N/A	N/A	N/A	N/A	0	N/A
	1991	185	N/A	40	75	0	1
	Percent Change	N/A	N/A	N/A	N/A	0.00%	N/A
Head	1981*	N/A	N/A	N/A	N/A	N/A	N/A
	1991	13	N/A	2	6	4	0
	Percent Change	N/A	N/A	N/A	N/A	N/A	N/A
Total	1981	25,464	N/A	3,927	1,209	429	876
	1991	19,811	1,048	2,846	1,389	337	731
	Percent Change	-22.20%	N/A	-27.53%	14.89%	-21.45	19.63%

*Charter and head boats were not listed as a separate category until 1984
Source: North Carolina Division of Marine Fisheries Licensing Section

2.2 DARE COUNTY

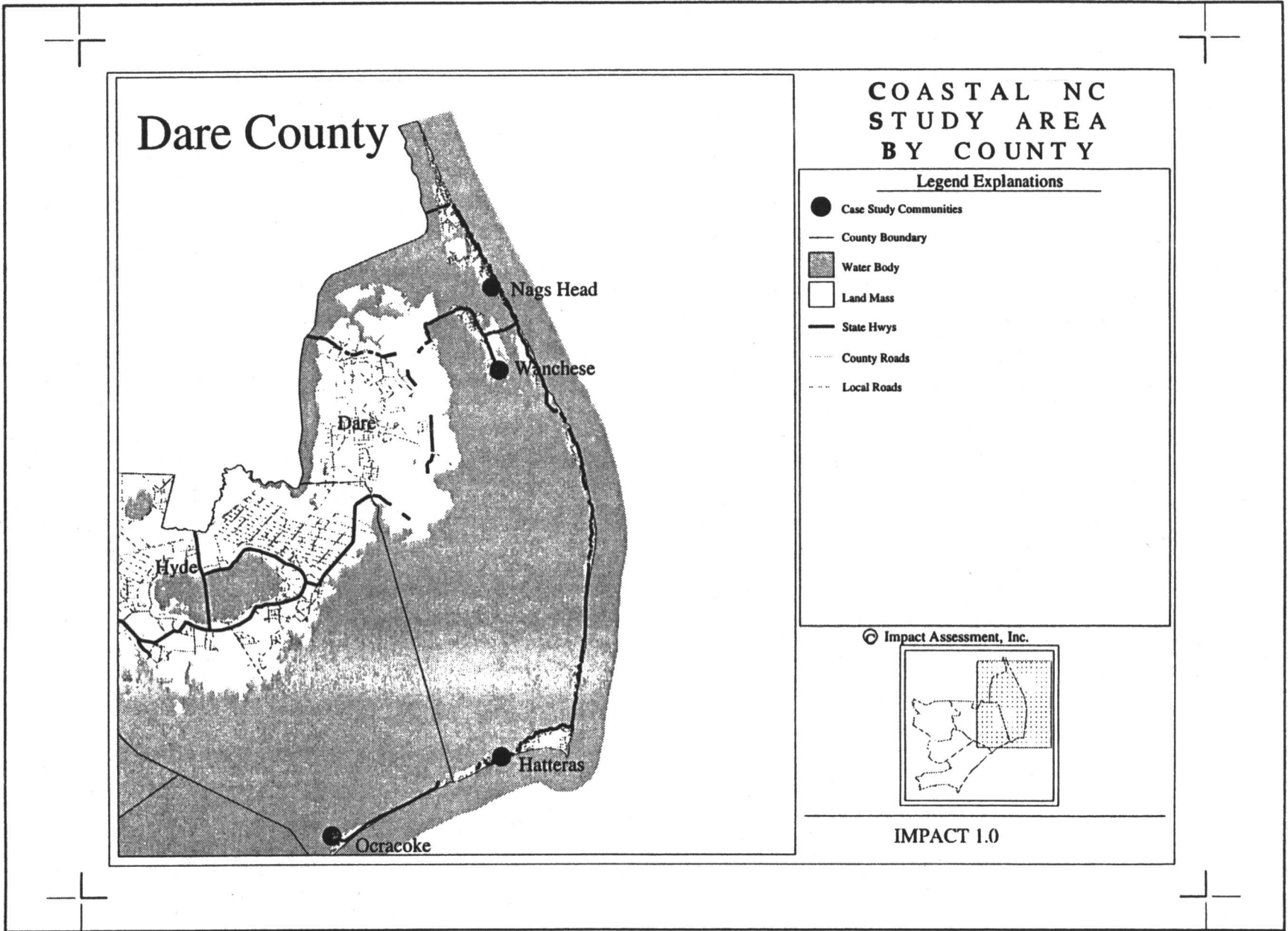
2.2.1 Introduction

Dare County is a large coastal county that consists of mainland areas, Roanoke Island, and most of the northern Outer Banks, including the majority of the Cape Hatteras National Seashore. Economically, the county is heavily dependent on tourism and commercial fisheries.¹ Dare County's population increased 70% between 1980 and 1990; a product of the tremendous growth experienced by beach communities. Not surprisingly, growth is a multifaceted issue for Dare's residents.

The first recorded European activity in Dare County was in 1584, when English explorers visited Roanoke Island. In 1585, a group sponsored by Sir Walter Raleigh built Fort Raleigh on Roanoke Island. They eventually returned to England. A third group established a colony on the island in 1587 but, when a resupply ship arrived a year later, the fort was in ruins and the colonists had vanished. Their mysterious fate has continued to intrigue locals and visitors alike. It is reenacted each year in the outdoor drama, "The Lost Colony," performed on Roanoke Island.

The first permanent settlers of European descent on the Outer Banks were shipwrecked sailors and settlers who came from Virginia in the late 1600s (Stick 1958:22). These early residents grew tobacco, cultivated grapes and raised livestock. The islands provided ideal grazing areas with no need for fencing. Some Outer Banks residents sold oil from beached whales (USDA, SCS 1992:2). Briefly during the 1700s, pirates operated on the Outer Banks, but most residents lived by farming, hunting and fishing. In the late 1800s, the most lucrative sources of employment were the U.S. Lifesaving Service, which had a number of local stations, and local weather stations and lighthouses. Logging and boot-legging liquor were popular activities in the early 1900s in Dare County (Stick 1958:243). Commercial fishing did not become economically important until improvements in refrigeration and transportation were devised. Similarly, tourism became an important endeavor in Dare County in the 1920s when bridges were built connecting Dare County's islands to the mainland.

¹ Three of the seven communities selected for community-specific characterization in the Coastal North Carolina Socioeconomic Study are in Dare County: Wanchese, a fishing village; Nags Head, a sizable resort community; and Hatteras Village, a fishing village with seasonal population variations due to tourism (see Volume III [Communities] of this Technical Report).



Dare County was created in 1870 from parts of Currituck, Hyde, and Tyrrell counties. Originally, Dare included all of the Outer Banks from Hatteras Inlet north to Caffey's Inlet (now closed), plus Colington, Roanoke Island, and a major portion of the mainland (Stick 1958:243). In 1920, the beach communities of Kitty Hawk and Duck were added to the county (Stick 1970:34); contemporary Dare County thus includes all of the Outer Banks from Hatteras Inlet north to Duck as portrayed in Map 2.2-1. Manteo, located on Roanoke Island, is the county seat. The county is named after the first child of English parents to be born in America, Virginia Dare (USDA, SCS 1992:1). Born August 18, 1587 on Roanoke Island, she was one of the lost colonists.

2.2.2 Physical Geography and Infrastructure

2.2.2.1 Physical Geography

Dare County consists of both mainland areas and islands. Its principal mainland segment is a peninsula oriented roughly north to south. Its primary islands are Hatteras Island, a long, narrow island that defines the easternmost portion of the Outer Banks, and Roanoke Island, a large island between the mainland and the Outer Banks that serves as the demarcation between Pamlico Sound to the south and Albemarle Sound to the north. Dare County also extends northward on Currituck Bank, now a peninsula connecting with the mainland north of the Virginia border but once composed of various islands and inlets.²

Primarily defined by its shores, Dare has land boundaries in common with two other counties, and these are short segments. Currituck County borders Dare on the northern section of the Outer Banks, and Hyde County abuts the southwest corner of Dare's mainland peninsula for 10 miles. The Dare County peninsula is bordered by the Alligator River to the west, the Albemarle Sound to the north, and the Pamlico Sound to the east. Its Outer Banks section extends for more than 80 miles north to south, bordered by the Atlantic Ocean to the east, the Roanoke, Albemarle, and Croatan sounds to the northwest, and the Pamlico Sound to the southwest. Of Dare's 1,248.57 square mile total area, 383.55 square miles are land (31%) and 865.02 square miles are water and wetlands (69%). The state and federal governments own 322.26 square miles, or 84% of the total land area.

Differences between coastal and inland environments are pronounced. On the barrier islands, dominant ecosystems change when moving from ocean to sound shores: typically a foredune beach borders the ocean, followed by a shrub zone and maritime forest, with

² The shifting inlets of the Outer Banks create challenges for geographers and those concerned with geographic references. Inlets open and close and islands form, merging with other islands and with peninsulas. Thus, names in current use often do not reflect current configurations. For example, "Pea Island" is no longer a separate island but an area of Hatteras Island. Still, Pea Island is a commonly accepted place name.

marshland abutting the sound. Jockey's Ridge, elevation 138 feet, is the highest point in the county and the highest sand dune on the East Coast (USDA, SCS 1992:1).

The mainland areas of Dare County are extremely lowlying, with elevations of 12 feet or less (Peacock1982:1). The mainland is predominantly composed of wetlands and regenerated forests, including "open lakes, brackish sounds and embayed rivers, to freshwater marshes, pocosins and wooded swamps, with minor areas of upland mixed pine-hardwood..." (Peacock 1982:1).

Cape Hatteras is a major geographical feature of the county. Diamond Shoals off Cape Hatteras and the low-lying Outer Banks have been some of the greatest hazards to navigation along the East Coast, contributing to more than 500 shipwrecks. Hatteras Inlet and Oregon Inlet are located off the southern and northern ends of Hatteras Island, respectively. The enormous volume of water flowing through the inlets and the westward migration of the barrier islands keep these inlets in constant flux. Two major maritime forests are located near population centers in the county: Nags Head Woods, in Nags Head, and Buxton Woods, in Buxton. These forests are part of a shrinking ecosystem along the Outer Banks.

Other major natural resources in the county include agricultural lands, forests, and extensive deposits of peat on the mainland. Sand used for construction is abundant on the Outer Banks and some sand mining has occurred (Stone and Assoc. 1991:2-29). Fish stocks in the sounds, and the nearshore and offshore ocean waters have long supported the county's renowned commercial and recreational fisheries. Most of the county's tourist economy is derived from its close ties to the sea (Stone and Assoc. 1991:2-30).

2.2.2.2 Land Use

Major recreational uses of the land and the waters of Dare County include fishing, hunting, boating, sailing, swimming, skin and scuba diving, surfing, windsurfing, hangliding, hiking, and other mostly water-related activities. Commercial uses include fishing, agriculture, forestry, mining, and charter boat and recreational vehicle rentals such as jet skis and windsurfers. Military uses include a bombing range located on the mainland. Conservation uses include land and water set aside for parks and wildlife and ecological reserves. Most of mainland Dare County is now part of the Alligator River National Wildlife Refuge, the site of a nationally recognized reintroduction program for federally endangered red wolves. Cape Hatteras National Seashore extends some 70 miles along the Outer Banks with exclusions around the Pea Island National Wildlife Refuge and the communities of Rodanthe, Waves, Salvo, Avon, Buxton, Frisco, and Hatteras.

Land use issues in Dare County include the mixing of commercial and residential areas in small unincorporated communities, increasing traffic congestion, and the loss of natural resources and scenic beauty because of rapid, unplanned development. Higher density

developments also are placing increasing pressure on public water and sewer services, particularly on Hatteras Island.

2.2.2.3 Infrastructure

Roads Dare County has 157.82 miles of primary roads and 104.12 miles of secondary roads. Major north/south roadways in the county are U.S. 158 and N.C. 12. Major east/west highways include U.S. 64 and U.S. 264. The nearest interstate highway system access (I-64) is 100 miles away. Bridges along evacuation routes from the beach areas include the Herbert Bonner Bridge over Oregon Inlet on N.C. 12 and the Washington Baum Bridge connecting Nags Head with Manteo; the Croatan Sound Bridge connecting Roanoke Island with the Dare County mainland; and the Alligator River Bridge connecting Dare with Tyrrell County, all on U.S. 64. Other bridges on evacuation routes include the Wright Memorial Bridge on U.S. 158 from Southern Shores to the Currituck County mainland.

The county's major intersections are formed by the approach roads to the various bridge crossings. These intersections and their approach roads have been or are being upgraded. U.S. 64, connecting Manteo, the Washington Baum Bridge, and Nags Head, will be a four-lane road within a few years. The Whalebone Junction intersection in Nags Head, which directs traffic north to Nags Head and south to Cape Hatteras, is also receiving a new traffic pattern. A two-lane extension is being built leading up to the Wright Memorial Bridge to improve traffic congestion on 158 north (Stone and Assoc. 1991:39)

Dare County experiences major seasonal differences in traffic flow. Daily flows on most roadway sections average more than 5,000 vehicles per day, and several key roadway sections and bridges average daily flows of 10,000 to 14,000 vehicles per day. However, the peak seasonal flow can exceed these averages by over 60% on weekdays and over 160% on weekends (Stone and Assoc. 1991:39-40).

Waterways The state provides free ferry service between Hatteras Island and Ocracoke Island (Hyde County). Sea transportation is limited because Oregon Inlet is restricted to small sport and fishing craft. The Intracoastal Waterway crosses the Albemarle Sound and follows the Alligator River along Dare County's western border.

Landfills Dare County Public Works has four divisions: sanitation, maintenance, recycling, and transport and transfer. The Sanitation Department employs twenty people and collects garbage from commercial and residential properties in Dare County. It also provides collection services to the Coast Guard, National Park Service, and Ocracoke Island. Solid waste is taken to the East Lake Landfill on the Dare County mainland, currently the only landfill in the county. The landfill began operating in early 1982 and is expected to be full by August 1995. In 1985, approximately 286,056 cubic yards of waste were transported to the landfill. During the five peak months that year, 208,800 cubic yards (73% of the total) were collected (Stone 1991:48). Dare County Public Works also operates recycling drop-off

centers in Manteo, Buxton, Nags Head, Duck, Southern Shores, Stumpy Point, and Manns Harbor (glass only).

2.2.3 Population and Demography

Dare County has experienced explosive population growth in the last two decades. A more subtle trend has been the "aging" of the population.

2.2.3.1 Population History and Characteristics

The 1850 census, the earliest accurate count of Dare County residents, enumerated 400 families with a total of 2,500 people (Stick 1970:20). Of this population, 280 were slaves, mostly on Roanoke Island. A Freedmen's Colony established on Roanoke Island lasted from 1862 to 1867, reaching a peak population of 3,500 (Click 1981:v). In 1931 the Wright Memorial Bridge was built, connecting Currituck County and Kitty Hawk to the mainland (Stick 1958:246). For the most part, population growth in Dare County was slow between 1880 and 1970 (see Table 2.2-1). The greatest growth occurred during the decade of the 1970s when the population grew by more than 90%. Dare's rapid population growth continued to the 1990s when the census recorded 22,746 residents, a 70% increase for the decade 1980-1990. This rapid population increase was limited to beach communities, and the dramatic growth of individual communities can be seen in Table 2.2-2. The total community population in the county increased 110% from 1980 to 1990, with the Southern Shores experiencing the greatest amount of growth. Kill Devil Hills had the largest population in 1990 and an over tenfold increase since 1970. Third in community population size, Nags Head experienced 80% growth during this period, and the mainland population actually decreased. While year-by-year census counts are not available, growth in even the rapidly expanding communities appears to have slowed in response to the national recession in the past few years.

Table 2.2-1 POPULATION IN DARE COUNTY FOR 1880 AND 1990		
Year	Population	Percent Change from 1880 through 1990
1880	3,243	N/A
1890	3,768	16.19%
1900	4,757	26.25%
1910	4,841	1.77%
1920	5,115	5.66%
1930	5,202	1.70%
1940	6,041	16.13%
1950	5,405	-10.53%
1960	5,935	9.81%
1970	6,995	17.86%
1980	13,377	91.24%
1990	22,746	70.04%

Source: U.S. Bureau of the Census

Table 2.2-2 COMMUNITY POPULATION IN DARE COUNTY FOR 1970, 1980, AND 1990				
Community	1970	1980	1990	Percent Change from 1980 to 1990
Kill Devil Hills	357	1,671	4,238	153.62%
Kitty Hawk	N/A	849	1,937	128.15%
Manteo	547	902	991	9.87%
Nags Head	414	1,020	1,838	80.20%
Southern Shores	75	520	1,447	178.27%
Total	1,393	4,962	10,451	110.62%
Population density (persons per square mile)	17.90	34.23	58.20	70.03%

Source: North Carolina State Data Center

Although Dare remains predominantly rural, it is becoming more urbanized as the coastal area is growing. In 1980, the census listed no urban residents in the county (i.e., there were no areas classified as urban); in 1990, of Dare's total population, 18,508 (81%) were rural and 4,238 (19%) were urban residents. Dare's group quarters also rose over 100% during this period (see Table 2.2-3).

Table 2.2-3 POPULATION CHARACTERISTICS IN DARE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total population	13,377	22,746	70.04%
Urban population	0	4,238	N/A
Rural population	13,377	18,508	38.36%
Group quarters	102	208	103.92%
Noninstitutional age 16-64	8,919	15,176	70.15%
Source: U.S. Bureau of the Census			

2.2.3.2 Population Composition

Age In 1990, the median age of Dare County residents was 35.2 years as compared to 33.2 years in 1980. Aging in place and in-migration families with adults in the upper end of the 25 to 54 year census category most likely account for the higher median age. Table 2.2-4 indicates that population growth in the county occurred in all age groups. The number of children under 5 years of age more than doubled between 1980 and 1990 as did the population in the 25 to 54 age group, which also has the largest total number of persons. In 1990 persons age 55 to 64 and 65 and over combined numbered 5,185, or 23% of the total population. However, the 55-to-64 category, although increasing numerically, has declined as a percentage of the population; those 65 and over have increased at nearly exactly the rate of increase of the overall population.

Table 2.2-4 AGE DISTRIBUTION IN DARE COUNTY FOR 1980 AND 1990					
Age Group	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total Population	13,377	100.00%	22,746	100.00%	70.04%
Total Persons Under 18	3,110	23.25%	5,089	22.37%	63.63%
Under 5 years	764	5.71%	1,558	6.85%	103.93%
5 to 17 years	2,346	17.54%	3,531	15.52%	50.51%
18 to 20 years	636	4.75%	694	3.05%	9.12%
21 to 24 years	955	7.14%	1,140	5.01%	19.37%
25 to 54 years	5,164	38.60%	10,638	46.77%	106.00%
55 to 64 years	1,822	13.62%	2,344	10.31%	28.65%
65 years +	1,690	12.63%	2,841	12.49%	68.11%
Median Age	33.2 years	N/A	35.2 years	N/A	2.0 years*

* Increase in median age in years
Source: U.S. Bureau of the Census

Sex In 1990, females constituted 50.3% of Dare's total population and males the remaining 49.7%. Table 2.2-5 shows the total number of males and females in the county for 1980 and 1990. The number of males and females have remained relatively stable during this period, with a slightly greater increase in the number of females than males.

Table 2.2-5 SEX DISTRIBUTION IN DARE COUNTY FOR 1980 AND 1990					
Sex	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of total	
Total population	13,377	100.00%	22,746	100.00%	70.04%
Total females	6,721	50.24%	11,440	50.29%	70.21%
Total males	6,656	49.76%	11,306	49.71%	69.86%

Source: U.S. Bureau of the Census

Ethnicity Whereas the overall population of Dare County has increased rapidly since 1970, the nonwhite population has decreased (U.S. Bureau of the Census). The nonwhite population of Dare County in 1970 was 7% of the total population, 6% in 1980, and 4% in 1990 (U.S. Bureau of the Census). Between 1980 and 1990, the number of African-Americans decreased slightly while the remaining number of nonwhites increased. However, although American Indian, Asian, Hispanic, and "Other" populations have grown, each of these categories account for well less than 1% of the total population. Ethnic minorities are not distributed randomly; of the 811 African-Americans living in Dare County in 1990, 722 resided on Roanoke Island.

Table 2.2-6 ETHNIC COMPOSITION OF DARE COUNTY FOR 1980 AND 1990					
Ethnicity	1980		1990		Percent Change from 1980 to 1990
	Number of Persons	Percent of Total	Number of Persons	Percent of Total	
White	12,521	93.60%	21,766	95.69%	73.84%
Black	817	6.11%	811	3.57%	-0.73%
American Indian, Eskimo, Aleut	13	0.10%	37	0.16%	184.62%
Asian or Pacific Islander	3	0.02%	79	0.35%	2,533.33%
Hispanic Origin of Any Race	56	0.42%	199	0.87%	255.36%
Other	24	0.18%	53	0.23%	120.83%
Source: U.S. Bureau of the Census					

Household Patterns According to the 1990 census, 69% of Dare County households are family households. Of these, 86% are married-couple households. In 1980, family households made up 71% of all households, and 61% of these were married-couple families (see Table 2.2-7). During this decade the number of nonfamily households increased by 91%, while the number of persons per household decreased slightly. Householders age 65 and over declined by 38% during the same period.

Table 2.2-7 HOUSEHOLD PATTERNS IN DARE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total households	5,323	9,349	75.63%
Family households (families)	3,794	6,425	69.35%
Married-couple families	3,259	5,498	68.70%
Percent of total households	61.2%	58.8%	-2.40%*
Other family, male householder	133	245	84.21%
Other family, female householder	402	682	69.65%
Nonfamily households	1,529	2,924	91.24%
Percent of total households	28.7%	31.3%	2.60%*
Householder living alone	1,280	2,264	76.88%
Householder 65 years and over	1,144	714	-37.59%
Persons living in households	13,273	22,542	69.83%
Persons per household	2.49	2.41	-0.08**
*change in percent of total category, 1980-1990 **change in average number of persons per household (not percent), 1980-1990 Source: U.S. Bureau of the Census			

Housing Comparison of housing in Dare County in 1980 and 1990 reveals marked growth (see Table 2.2-8). In 1990, the total number of housing units in the county was 21,567 which represented a 96% increase since 1980. Only 9,349 (43%) of these units were occupied. Owners accounted for 71% of total occupancy, and renters 29%. The vacant housing units composed the majority of the total housing units in 1990 and increased by 116% since 1980. A little over half of the vacant units were for seasonal, recreational, or occasional use, which increased approximately 30% during this period. Renter vacancy rate increased from 22% to 58%, while homeowner vacancy rates increased from only 3% to

6%. The high rental vacancy rate reflects the overall increase of housing capacity combined with the growth of the county's tourism industry and its seasonal nature.

Table 2.2-8 HOUSING IN DARE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total housing units	11,006	21,567	95.96%
Occupied housing units	5,359	9,349	74.45%
Percent owner occupied	77.1%	71.1%	60.79%*
Percent renter occupied	22.9%	28.9%	120.57%*
Vacant housing units	5,647	12,218	116.36%
Vacant housing units for seasonal, recreational, or occasional use	4,894	6,415	31.08%
Homeowner vacancy rate (percent)	2.7%	6.2%	3.50%**
Rental vacancy rate (percent)	22.2%	58.2%	36.00%**
*Percent growth of number of units in category (not change in percent of total category)			
**Change in percent of total category			
Source: Adapted from the 1980 and 1990 U.S. Bureau of the Census			

Table 2.2-9 lists the units in structure in Dare County. Although one-unit detached homes constituted over half (15,933) of Dare's housing total in 1990, five-to nine-unit structures had the greatest increase (1,136%) since 1980. Mobile homes and trailers comprise the second largest housing structures in the county and have increased over 100%, yet they still have not increased at the rapid rate of the other housing structures.

Table 2.2-9 UNITS IN STRUCTURE IN DARE COUNTY FOR 1980 AND 1990			
Units	1980	1990	Percent Change from 1980 to 1990
1, detached	4,702	15,933	238.86%
1, attached	167	531	217.96%
2	208	494	137.50%
3 and 4	74	385	420.27%
5 to 9	72	890	1,136.11%
10 to 49	120	909	657.50%
50 or more	15	79	426.67%
Mobile home, trailer, etc.	1,005	2,346	133.43%
TOTAL	6,363	21,567	238.94%
Source: U.S. Bureau of the Census			

Currently Dare County has the highest property value per capita in North Carolina (Dare County Board of Education, 1991:v). Dramatic changes in value occurred between 1980 and 1990, as is the case in the other study counties (see Table 2.2-10). Numbers of units valued at the lower end of the scale in Dare dropped precipitously. Housing under \$50,000 declined in absolute numbers fivefold and declined from making up 54% of the total units in 1980 to making up only 7% of the total units in 1990. The number of units in the \$100,000 to \$149,000 range grew over 700%; in the \$150,000 to \$199,999 range, there were 26 times more units in 1990 than in 1980; for units valued over \$200,000 the increase from 24 to 729 units is more than a thirtyfold increase, or a change of less than 1% of total housing units to over 14% of the total. These transformations are the results of two trends: (1) existing units are being inflated upward, which by itself is likely to account for a significant amount of the growth in the \$100,000 category, as well as units moving "up and out" of the \$50,000 category and (2) newer homes tend to be toward the upper end of the price range.

**Table 2.2-10
VALUE OF SPECIFIED OWNER-OCCUPIED AND RENTER-OCCUPIED UNITS IN DARE COUNTY
FOR 1980 AND 1990**

Census Category	1980	Percent of Total (1980)	1990	Percent of Total (1990)	Percent Change from 1980 to 1990
Specified owner-occupied units	2,985	N/A	5,041	N/A	68.88%
Less than \$50,000	1,618	54.20%	336	6.67%	-79.23%
\$50,000 to \$99,999	1,156	38.73%	1,960	38.90%	69.55%
\$100,000 to \$149,999	159	5.33%	1,287	25.35%	709.43%
\$150,000 to \$199,999	28	0.94%	729	14.46%	2,503.57%
\$200,000 to \$299,999	24*	0.80%	484	9.60%	1,916.67%
\$300,000 or more	N/A	N/A	245	4.86%	N/A
Median (dollars)	\$47,500	N/A	\$108,100	N/A	127.58%
Specified renter-occupied units paying cash rent	1,157	N/A	2,327	N/A	101.12%
Median (dollars)	\$171	N/A	\$416	N/A	143.27%
<p align="center">*Total number of housing units valued at \$200,000 or more in 1980 Source: Adapted from the 1980 and 1990 U.S. Bureau of the Census</p>					

Marriages and Divorces There were a total of 11,471 married people and 1,445 divorced people in Dare County in 1990 (see Table 2.2-11). The number of married people increased 70% during the previous decade, while the number of divorced people more than doubled. Although there were slightly more married women than married men in 1990, the number of married men increased at a slightly faster rate than did married women. Divorced women, however, outnumbered divorced men in 1990 and their numbers increased at twice the rate of divorced men since 1980.

Table 2.2-11 MARRIAGES AND DIVORCES IN DARE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total married people	6,728	11,471	70.50%
Married women	3,390	5,745	69.47%
Married men	3,338	5,726	71.54%
Total divorced people	668	1,445	116.32%
Divorced women	286	754	163.64%
Divorced men	382	691	80.89%

Source: North Carolina Data Center

Births and Deaths As Table 2.2-12 shows, births in Dare County nearly doubled over the decade, while deaths increased by only 40%. The percentage change in births is 27% higher than the growth rate of the total population during this time period. On the other hand, the percentage change in the death rate is 31% lower than the population growth rate over the same period. Although births are growing at a significant rate in the county, the total number of births only represents a small percentage of the total population. Thus, the increase in population growth experienced in the county is most likely a result of in-migration rather than increasing birth rates.

Table 2.2-12 BIRTHS AND DEATHS IN DARE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Births	175	344	96.57%
Deaths	119	166	39.50%

Source: North Carolina State Date Center

2.2.3.3 Seasonal Population

Table 2.2-13 provides a summary of seasonal housing units in Dare County for 1980 and 1990. Total seasonal housing units have increased in the county by 64% during this period, with the most significant growth being in private housing units. The number of motels, hotels and boat slips have also increased in the county, while the number of campsites have remained the same. This is consistent with other indicators that the growth of tourism and recreational facilities was "upscale" during the decade.

Table 2.2-13 SUMMARY OF SEASONAL HOUSING UNITS IN DARE COUNTY FOR 1980 AND 1990			
Type of Seasonal Unit	Number of Units		Percent Change from 1980 to 1990
	1980	1990	
Total	11,810	19,321	63.60%
Private Housing Units	4,922	11,179	127.12%
Motels/Hotels	2,816	3,987	41.58%
Campgrounds	3,718	3,718	0.00%
Boat Slips	354	437	23.45%

Source: Adapted from Holland Consulting Planners 1992

2.2.3.4 Migration

Tables 2.2-14 and -15 contain 1980 and 1990 data on county in-migration flows for Dare County based on IRS income tax returns. A large number of people in-migrating to Dare County in 1980 were from the Virginia cities of Virginia Beach and Norfolk. The prevalence of Virginia in-migrants remained strong in 1990, although those coming from Norfolk dropped in number. Compared to the more southern counties of Carteret and Beaufort, Dare County has generally been more popular with Virginia residents because of its proximity and the popularity of Nags Head as a vacation area for Virginians. Dare County experienced a slight drop in in-migration in 1990 of 15% compared to 1980.

**Table 2.2-14
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO DARE COUNTY FOR 1980**

County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Virginia Beach	VA	58	5.24%	127	5.49%	185
Norfolk	VA	45	4.07%	96	4.15%	141
Pasquotank	NC	33	2.98%	77	3.33%	110
Portsmouth	VA	33	2.98%	74	3.20%	107
Chesapeake	VA	27	2.44%	47	2.03%	74
Wake	NC	25	2.26%	43	1.86%	68
Foreign	N/A	19	1.72%	49	2.12%	68
Fairfax	VA	18	1.63%	46	1.99%	64
Allegheny	PA	17	1.54%	38	1.64%	55
Newport News	VA	17	1.54%	39	1.69%	56
Richmond	VA	17	1.54%	35	1.51%	52
Currituck	NC	15	1.36%	35	1.51%	50
Montgomery	MD	14	1.26%	33	1.43%	47
Hampton	VA	14	1.26%	30	1.30%	44
Pitt	NC	13	1.17%	23	0.99%	36
Prince Georges	MD	13	1.17%	24	1.04%	37
Bertie	NC	10	0.90%	19	0.82%	29
Arlington	VA	10	0.90%	18	0.78%	28
Same state	NC	184	16.62%	399	17.24%	583
Northeast	N/A	145	13.10%	304	13.14%	449
North Central	N/A	72	6.5%	143	6.18%	215
South	N/A	270	24.39%	534	23.08%	804
West	N/A	38	3.43%	81	3.50%	119

County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
County total migrant filers	NC	1,107	100.00%	2,314	100.00%	3,421
County nonmigrant filers	N/A	3,435	N/A	7,802	N/A	11,237

Source: Internal Revenue Service, Statistics Income Division 1992

County/Place of Origin	State	Nonexempt Files	Percent of Total Nonexempt Files	Tax-Exempt Filers	Percent of Total Exempt Files	*Total Tax Files
Virginia Beach	VA	59	5.72%	93	4.96%	152
Currituck	NC	42	4.07%	82	4.37%	125
Chesapeake	VA	35	3.39%	72	3.84%	107
Fairfax	VA	33	3.20%	57	3.04%	90
Pasquotank	NC	30	2.91%	58	3.09%	88
Norfolk	VA	27	2.62%	47	2.51%	74
Montgomery	MD	21	2.03%	41	2.19%	62
Portsmouth	VA	18	1.74%	35	1.87%	53
Nash	VA	15	1.45%	33	1.76%	48
Wake	NC	14	1.36%	21	1.12%	35
Pitt	NC	12	1.16%	20	1.07%	32
Allegheny	PA	12	1.16%	17	0.91%	29
Prince William	VA	10	0.97%	17	0.91%	27
Richmond	VA	10	0.97%	10	0.53%	20
APO / FPO Zip Code	FR	10	0.97%	16	0.85%	26
Forsyth	NC	10	0.97%	15	0.80%	25

County/Place of Origin	State	Nonexempt Files	Percent of Total Nonexempt Files	Tax-Exempt Filers	Percent of Total Exempt Files	*Total Tax Files
Same state	NC	157	15.21%	288	15.35%	445
Northeast	N/A	133	12.89%	253	13.49%	386
Midwest	N/A	70	6.78%	134	7.14%	204
South	N/A	272	26.36%	479	25.53%	751
West	N/A	42	4.07%	88	4.69%	130
County total migrant filers	NC	1,032	100.00%	1,876	100.00%	2,908
County nonmigrant filers	N/A	8,030	N/A	16,051	N/A	24,081

Source: Internal Revenue Service, Statistics Income Division 1992

2.2.4 Economy

Outer Banks tourism is the mainstay of Dare County's economy. Although some tourism existed prior to the building of the first bridge to the Outer Banks in 1930, the improved access proved a boon to the industry. The establishment of the Cape Hatteras National Seashore in 1952 and the regulatory structure it provided also facilitated tourism. The county and its Outer Banks are one of the most popular vacation destinations in the mid-Atlantic region and have been for many years (Stick 1958:243-246). While commercial fishing is also important in some communities in Dare County, the industry has declined in the last decade because of dwindling resources, increased regulation, and competition.

2.2.4.1 Major Economic Sectors

Consistent with its focus on tourism, the major economic sectors and sources of employment in Dare County are retail trade and services. Total gross retail sales in 1990 were more than \$468 million. Most of the jobs in these sectors are seasonal. The construction industry was a major employer in Dare County in the 1980s largely because of the growth in the beach communities. Building has slowed somewhat in recent years, which is locally attributed to the recession in the United States as a whole. The largest manufacturing employers in the county in 1992 were: Davis Yachts, 130 employees; Wanchese Fish Company, 40

employees; Richard V. Scarborough (boat building), 10 employees; and Briggs Boatworks, Inc., 6 employees.

Employment by Sector Dare's total number of persons employed in the civilian labor force 1990 was 12,199, a significant increase (124%) since 1980. Retail trade employed the greatest number of persons in 1990 (24% of the total), and the construction industry employed 2,001 persons (16% of the total). Although business and repair services employed only 403 persons in 1990, their employment levels have risen by 228% since 1980. Employment in finance, insurance, and real estate has also increased by 221%; construction, entertainment and recreational services, and other professional and related services have all increased over 150%. The only category in Dare to experience a decrease in employment levels since 1980 was the mining industry, which only had a total of 6 jobs at the start of the decade.

Gross Retail Sales Hotels and motels in Dare County recorded \$95.7 million in gross retail sales in 1990, leading all other business categories. This sector was followed by grocery stores, with \$84.9 million in gross retail sales, and restaurants, with \$62.1 million in gross retail sales. Table 2.2-17 shows the gross retail sales for various sectors in 1980 and 1990. Several changes are evident. First, dramatic growth is seen in most sectors, particularly those associated with the tourism/recreation industries. Second, the largest absolute growth occurred in the hotel and motel sector. It displaced grocery stores as the leading sector. Motor vehicle sales were up sharply (the largest relative growth of those sectors shown), which is undoubtedly related to the increase in residential population that has accompanied the growth in tourism (i.e., people buy vehicles where they live, not at their recreation sites).

Manufacturing, Industry, Construction Product Values The major manufacturers in Dare County are boat builders and seafood processors. Most fish processors are located in Wanchese and Hatteras. The value of shipments by Dare County manufacturers was \$28 million in 1987, compared with \$10.3 million in 1982.

Commercial Fishing Commercial fishing continues to play important economic and cultural roles in some Dare County communities. Although the total number of finfish landings decreased from 1981 to 1991, the value per pound of fish increased. Shellfish landings and the value per pound of shellfish increased during this same period. Total finfish and shellfish landings are presented in Section 2.2.6.

**Table 2.2-16
EMPLOYMENT BY INDUSTRY IN DARE COUNTY FOR 1980 AND 1990**

Industry Groups	1980	Percent of Total	1990	Percent of Total	Percent Change from 1980 to 1990
Agriculture, forestry, and fisheries	440	8.08%	653	5.35%	48.41%
Mining	6	0.11%	2	.02%	-66.67%
Construction	712	13.07%	2,001	16.40%	181.04%
Manufacturing, nondurable goods	133	2.44%	193	1.58%	45.11%
Manufacturing, durable goods	234	4.30%	349	2.86%	49.15%
Transportation, communication, and other public utilities	302	5.54%	585	4.80%	93.71%
Wholesale trade	223	4.09%	316	2.59%	41.70%
Retail trade	1,198	21.99%	2,978	24.41%	148.58%
Finance, insurance, and real estate	356	6.53%	1,142	9.36%	220.79%
Business and repair services	123	2.26%	403	3.30%	227.64%
Personal services	460	8.44%	819	6.71%	78.04%
Entertainment and recreational services	72	1.32%	194	1.59%	169.44%
Health services	215	3.95%	352	2.89%	63.72%
Educational services	327	6.00%	737	6.04%	125.38%
Other professional and related services	273	5.01%	788	6.46%	188.64%
Public administration	374	6.86%	687	5.63%	83.69%
TOTAL	5,448	100.00%	12,199	100.00%	123.92%

Source: U.S. Bureau of the Census

Table 2.2-17 GROSS RETAIL SALES BY MAJOR EMPLOYMENT SECTORS IN DARE COUNTY FOR 1980 AND 1990 ¹			
Category	1980 ²	1990 ³	Percent Change from 1980 to 1990
Hotel and motel	\$21,453,989	\$95,743,942	346.28%
Building materials	\$8,955,539	\$20,145,652	124.95%
Discount and general stores	\$1,396,676	\$8,635,093	518.26%
Variety and specialty stores	\$9,055,991 ⁴	\$16,009,329	76.78%
Restaurants	\$16,171,841	\$62,131,936	284.20%
Grocery stores	\$28,139,238	\$84,976,900	201.99%
Service stations	\$7,367,440	\$5,974,749	-18.90%
Motor vehicles	\$1,433,150	\$12,146,419	747.53%

1 Source: Outer Banks Chamber of Commerce 1992
2 Fiscal Year 1980 - 1981
3 Fiscal Year 1990 - 1991
4 Fiscal Year 1983 - 1984

Agriculture There is little agricultural land in Dare County since mainland soils are mostly wet and lowlying and within the Alligator River National Wildlife Refuge. In 1990, 3,700 acres of cropland were harvested, which generated an estimated \$872,000. Farm populations decreased by 41% from 1980 to 1990. Table 2.2-18 summarizes the agriculture industry in the county for these periods.

Table 2.2-18 AGRICULTURE INDUSTRY IN DARE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Farms	*	*	N/A
Land in farms (acres)	*	*	N/A
Farm populations	81	48	-40.74%
Farming Operators	*	*	N/A
Harvested cropland (acres)	700	3,700	428.57%
Farm income	344,000	872,000	153.49%

*Data unavailable
Source: North Carolina State Data Center 1991

Table 2.2-19 lists the total grain harvested by major crops in Dare County for 1980 and 1991. Although corn, wheat, and soybeans remained the top three crops and each grew significantly in acres harvested, they changed rank ordering over the decade. Soybeans remained the top crop by a large percentage, but corn and wheat switched second and third positions. Oats, which were not harvested in Dare in 1980, reached a total of 50 harvested acres in 1991.

Table 2.2-19			
TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN DARE COUNTY FOR 1980 AND 1991			
Crop	1980	1991	Percent Change from 1980 to 1991
Corn	100	1,100	1,000.00%
Wheat	180*	600	233.33%
Soybeans	800	1,500	87.50%
Tobacco	0	0	0.00%
Oats	0	50	N/A
Potatoes	0	0	0.00%
Sorghum	0	0	0.00%

* 1982 Data
Source: North Carolina Department of Agriculture, Agricultural Statistics Division 1992

2.2.4.2 Workforce

In 1990 there were 12,879 persons in the Dare County labor force, of which 4.5%, or 580 persons, were unemployed. The county's dependence on tourism is reflected in the large number of people employed in the wholesale trade, retail trade, and services sectors.

The tourist season in Dare County lasts roughly from Memorial Day to Labor Day, with "shoulder seasons" extending from Easter to late October. Monthly unemployment rates reflect this seasonal economy. In 1991 the lowest unemployment rate was 2% in August and the highest was 14% in January.

2.2.4.3 Income

The median family income, median household income, and median nonfamily household income more than doubled in Dare County between 1980 and 1990. The average annual wage per worker increased from \$8,033 in 1980 to \$13,950 in 1988, a 74% increase in wage earnings. Table 2.2-21 lists Dare's total personal earnings in the county and per capita personal incomes. Personal earnings rose over 250% during this period and per capita personal incomes more than doubled.

Table 2.2-20 AVERAGE ANNUAL WAGE PER WORKER AND MEDIAN FAMILY INCOME IN DARE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Average annual wage per worker (dollars)	8,033	13,950*	73.66%
Median family income (dollars)	16,322	34,891	113.77%
*1988 figure Sources: North Carolina State Data Center; Employment Security Commission			

Table 2.2-21 PERSONAL INCOME AND PER CAPITA PERSONAL INCOME IN DARE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total personal income (dollars)	100,211,000	351,429,000	250.69%
Per capita personal income (dollars)	7,405	15,246	105.89%
Source: North Carolina State Data Center			

Table 2.2-22 displays information on the poverty status in the county for the years 1980 and 1990. While the total number of individuals living below the poverty level increased approximately 24% over this period, this growth did not keep pace with the overall population growth of the county (i.e., persons for whom poverty status was determined, who represent over 99% of the total population). The relative number of persons below the poverty line dropped from 11% to 8% of the total population. Although the total number of families whose poverty status was determined increased by 70% from 1980 to 1990, the number of families below the poverty level remained stable during this period.

Table 2.2-22 POVERTY STATUS IN DARE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total persons determined*	13,275	22,536	69.76%
Total persons below poverty level	1,499	1,861	24.15%
Percent persons below poverty level	11.29%	8.26%	-3.03%**
Total families determined*	3,794	6,469	70.51%
Total families below poverty level	338	338	0.00%
Percent families below poverty level	8.91%	5.22%	-3.69%**
*All persons/families for whom poverty status was determined **Change in percent of total category Source: U.S. Bureau of the Census			

2.2.4.4 Economic Issues and Trends

The increase in tourism has benefited Dare County economically, but the seasonal nature of the industry and the low pay of service and retail-sector jobs also create problems. During the winter off-season, county unemployment rates are regularly higher than the national average. Some people move to the county to work during the summer but find they cannot support themselves year-round. Employees willing and able to work for minimum wage are becoming increasingly scarce because of the rising cost of living on the Outer Banks. Many service industry employees in the resort areas come from mainland Dare County or Currituck County and are not permanent residents on the Outer Banks.

The population and economic growth have caused property values to rise dramatically, which has had both positive and negative consequences for long-term residents. While the increased value of a holding is desirable, the benefit is only realized if the asset is sold. On the other hand, the tax burden increases with increases in assessed valuation, which economically squeezes those on low or fixed incomes. Hard data are not readily available to demonstrate overall numbers, but interviews with long-term locals indicated that in other developing areas of the coast, individuals have been taxed off of property that has been in their family for years, if not generations, and have been unable to buy back into the same area even after liquidating their other assets. This, combined with increases in the cost of

living in coastal communities, has proven difficult for some long-term residents. Some long-term residents, however, even on fixed incomes, have benefited from selling portions of their lands and have been able to remain in the area.

The population and economic growth have strained local infrastructure and improvements are widely considered necessary. Still, many Dare residents believe that local government spending has been too high in recent years. Two recent controversial projects were the building of a new school on the Outer Banks and a new jail.

2.2.5 Patterns of Government Service Delivery

2.2.5.1 Structure and Employees

Dare County has a commission-manager form of government. The seven-member Board of Commissioners is the decision-making body that makes policy in the county, and the county manager administers these policies and handles the day-to-day functions of county government. The Dare County Board of Commissioners is responsible for county policy on education, libraries, tax assessments, social services, public health, recreation, the water system, planning, and zoning (League of Women Voters of Dare County, NC 1992:10). Commissioners are elected at-large for four-year staggered terms in even-numbered years. Commissioners represent one of four districts in the county. The board chair is elected by the board members for a one-year term.

The Dare County Planning Board is the other major governing body in the county. Currently, there are seven members on the planning board. They are appointed by the Dare County Board of Commissioners and serve two-year terms.

In addition to the county government, Dare County is home to five municipal governments corresponding to its incorporated communities: Manteo, Nags Head, Kill Devil Hills, Kitty Hawk, and Southern Shores. Unincorporated areas are governed directly by the county. These areas include all of Hatteras Island, Colington, Duck, Manns Harbor, Stumpy Point, Wanchese, and the northern section of Roanoke Island.

The 1990 census reported 984 persons employed by local governments in Dare County. According to the latest 1992 figures available, the county government alone employs 666 people, not including employees of the county school system, which, when added, brings county employment to 1,129 jobs.

2.2.5.2 Local Government Revenues and Expenditures

Dare County experienced an overall increase in total expenditures and revenues from 1980 to 1990 except from 1989 to 1990 when the county's revenues decreased slightly. Both expenditures and revenues in Dare experienced an increase well over 100% from 1980 to 1985 with an increase of over 180% from 1985-1990.

Table 2.2-23 TOTAL EXPENDITURES IN DARE COUNTY FOR 1980 THROUGH 1990		
Year	Total Expenditures	Percent Change from 1980 through 1990
1980	5,376,000	N/A
1985	13,238,000	146.24%
1986	14,788,000	11.71%
1987	19,378,000	31.04%
1988	31,703,000	63.60%
1989	33,505,000	5.68%
1990	37,400,000	11.63%
Source: North Carolina State Data Center		

Table 2.2-24 TOTAL REVENUES IN DARE COUNTY FOR 1980 THROUGH 1990		
Year	Total Revenues	Percent Change from 1980 through 1990
1980	5,236,000	N/A
1985	14,866,000	183.92%
1986	18,207,000	22.47%
1987	23,952,000	31.55%
1988	25,050,000	4.58%
1989	43,186,000	72.40%
1990	41,857,000	-3.08%
Source: North Carolina State Data Center		

2.2.5.3 Education

The Dare County Board of Education administers the Dare County school system, which includes Cape Hatteras School (grades K-12), Dare County Alternative High School (9-12), Kitty Hawk Elementary School (K-5), Manteo Elementary School (K-5), Manteo Middle School (6-8), Manteo High School (9-12), First Flight Elementary School (K-5) and First Flight Middle School (6-8).

Table 2.2-25 list the total public school expenditures in the county in 1990. The school expenditures in 1990 totaled \$13.3 million; federal expenditures accounted for 3%, state expenditures for 64%, and local expenditures accounted for 32%.

During the 1992/1993 school year, 3,271 students were enrolled in county schools, down 4.5% from the previous year. The school system is a major employer in the county and had 463 employees in 1992. The total average daily membership in the first month of the 1990 school year was 3,314, with a total final enrollment of 3,444 the same year. There were 182 public high school graduates in the county in 1990. Table 2.2-26 summarizes school enrollment for 1991-1992.

Table 2.2-25 PUBLIC SCHOOL EXPENDITURES BY SOURCE IN DARE COUNTY FOR 1990			
Total Expenditures	Federal	State	Local
13,343,000	454,000	8,567,000	4,322,000
Source: North Carolina State Data Center, Statistical Abstract 1991			

**Table 2.2-26
MEMBERSHIP BY SCHOOLS AND GRADES IN DARE COUNTY FOR 1991-1992¹**

Grade	Cape Hatteras	Dare Co. Alt.	Kitty Hawk	Manteo Elem	Manteo High	Manteo Middle	First Flight Elem	First Flight Middle	Total
K	38	—	56	107	—	—	85	—	286
1	52	—	74	102	—	—	77	—	305
2	46	—	58	107	—	—	95	—	306
3	46	—	76	107	—	—	77	—	306
4	41	—	77	102	—	—	78	—	298
5	48	—	74	93	—	—	70	—	285
6	42	—	—	—	—	84	—	140	266
7	36	—	—	—	—	86	—	143	265
8	43	—	—	—	—	88	—	108	239
Special	5	—	—	—	—	—	18	—	23
Total Elem.	397	—	415	618	—	258	500	391	2,579
9	39	8	—	—	214	—	—	—	261
10	23	9	—	—	181	—	—	—	213
11	39	12	—	—	135	—	—	—	186
12	33	6	—	—	147	—	—	—	186
Total H.S.	134	35	—	—	677	—	—	—	846
Grand Total	531	35	415	618	677	258	500	391	3,425

¹ Fifth month average daily membership
Source: Dare County School Survey 1992

2.2.5.4 Law Enforcement and Emergency Services

Dare County Sheriff's Department Dare County residents are provided law enforcement services by a county sheriff's department, five municipal police departments, and the North Carolina Highway Patrol. The Dare County Sheriff's Department has jurisdiction over all areas of the county. However, it generally responds only to requests for mutual assistance in the incorporated areas rather than acting as a first responder. The sheriff's department maintains cooperative agreements with the police departments of some municipalities and with the Highway Patrol. The sheriff's department responds to calls and complaints, patrols the different areas of the county, conducts investigations, and serves civil papers. The department has four offices: the main office in the County Courthouse, an annex in Manteo, and satellite offices in Duck and Hatteras. The department has three divisions -- civil, jail, and communications -- and employs 128 people. Within the civil division there are forty-five deputies and the sheriff. The communications division employs twenty-two persons. The jail division has fifty-one jailers and two jail civilians (secretary and maintenance) working there. Seven administrative staffers also are employed by Sheriff's Department. Equipment owned by the sheriff's department includes patrol cars for the deputies, a Bell helicopter, and a canine unit for drug enforcement. The Dare County Communication Center coordinates all emergency 911 calls (Stone and Associates 1991; personal communication).

Emergency Services The county maintains an Emergency Management Operations Center in the Nags Head area to respond to natural disasters such as hurricanes or tornadoes. Residents of the county are also served by the Dare County Emergency Medical Services, which includes the county rescue squad and ambulance service. These groups respond to life-threatening medical emergencies and offer aid and transportation to the sick and injured. Off-duty personnel also provide training in cardio-pulmonary resuscitation (CPR) and first aid. In addition, there is a flight-for-life service that transports emergency cases from outlying areas of the county to hospitals in Elizabeth City or Norfolk. Municipal volunteer fire departments are usually responsible for fire suppression services in the outlying county municipalities, although the county may assist as necessary.

2.2.5.5 Social Services

The Dare County Department of Social Services administers such public assistance programs as food stamps, Aid to Families with Dependent Children, and county service programs. The need for social services has increased in Dare County in the last few years, possibly as a result of a downturn in the local economy. Because of the seasonal nature of the tourist industry, demand for social services typically increases during the winter months. The department anticipates a rising demand for services for the elderly as more retirees move to Dare County. Table 2.2-27 shows the programs administered by the department in 1992.

**Table 2.2-27
SOCIAL SERVICES IN DARE COUNTY**

Programs	Services Offered
Public Assistance Programs	Aid to Families with Dependent Children Food Stamps Medicaid State/County Special Assistance for Adults Foster Care and Adoption Assistance Payments Low-Income Energy Assistance Program
Service Programs	Adoption Services Chore Services Day Care Services for Children (Infancy to 18 yrs.) Employment and Training Services Family Planning Services Foster Care Services for Adults Foster Care Services for Children Health Support Services Homemaker Services Housing and Home Improvement Individual and Family Support Services Information and Referral Services Interstate/Intercounty Services to Children Personal Care Services Problem Pregnancy Services Protective Services for Adults (Age 18 or older) Protective Services for Children (Under 18) Respite Care Services to Meet Special Needs of the Blind Services to Meet Special Needs of Elderly, Disabled, or Handicapped Transportation Services Crisis Assistance (Food, heating and cooling)

2.2.5.6 Health Services

The Dare County Health Department employs thirty-four people and serves a base population of 25,000. Its primary facility is located in Manteo and is administered by an eleven-member board of health. Board members are appointed by the county board of commissioners and serve three-year terms. Members include a physician, pharmacist, dentist, veterinarian, county commissioner, registered nurse, optometrist, engineer, and several lay persons (League of Women Voters of Dare County, NC 1992:14).

The Dare County Health Department maintains several facilities in the county, including a clinic and home health care office in Manteo and a clinic in Buxton with one nurse. The

Environmental Health Division is located in Kill Devil Hills; it issues septic tank permits, samples wells for pollution, and inspects restaurants, hotels, motels, day care centers, and swimming pools (League of Women Voters of Dare County, NC 1992:14-15).

Overall, the health department is not organized as a primary care provider. It does offer screening for sexually transmitted diseases, tuberculosis, diabetes, and cancer. Other services include immunizations, blood tests, and health information and counseling, including family-planning clinics and programs on prenatal and postpartum child care. Its school health program provides prekindergarten and athletic physical examinations as well as vision, hearing, and scoliosis tests. Home Health Services offers skilled nursing and therapy for shut-ins.

According to a health department administrator, the facilities are not affected by the influx of tourists. However, there is a shortage of staff and a lack of building space because of budgetary constraints. A new building planned to house the departments of health and social services has been delayed.

2.2.5.7 Planning and Economic Development

The county planning department provides expertise to the planning board and board of commissioners. It also implements the Dare County Land Use Plan and enforces local and state zoning and building codes (League of Women Voters of Dare County, NC 1992:4). Building inspections, building and sign permits, and zoning are handled within this department. The county has employed a full-time county planner since 1987. Previously, planning was the responsibility of the planning board and a clerical support staff. A zoning administrator oversees conditional use permits, complaints, zoning compliance, signs, and site plan reviews for commercial development; it also assists in planned projects such as walking trails.

The planning department's headquarters are on Roanoke Island, and it has satellite offices in Kill Devil Hills, Nags Head, and Buxton. The Coastal Area Management officer in Nags Head also serves as flood-planning administrator and enforces state Coastal Area Management Act (CAMA) regulations and Federal Emergency Management Agency (FEMA) regulations. The Buxton office houses one zoning officer and one building inspector.

Dare County's infrastructure was insufficient to handle the rapid growth of the 1980s, according to the county planner, and the county has only recently completed needed infrastructure improvements. The county's growth rate has slowed in recent years and current planning is based on this slower rate. Funding for capital improvements has been somewhat controversial. Many residents would like to shift the financial burden of infrastructure improvements to the users of specific services. This has been done to a certain extent via a land transfer tax, occupancy tax, and meals tax. Land availability may also limit

future development. The increased growth and rising cost of living has displaced some traditional residents of the Outer Banks, according to one county administrator.

2.2.6 Use of Marine Resources

2.2.6.1 Commercial Landings

Table 2.2-28 shows that total finfish landings have decreased almost 50% from 1981 to 1991, while the change in value per pound varied by specie. Total revenues fell over \$3 million (28% of total value), primarily because of the decreased landings; average price per pound for total finfish increased from approximately \$.33 to \$.51 (a 55% increase). Landings of several species, such as dogfish sharks and King Mackerel, have increased.

Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Bluefish	3,956,616	881,619	2,722,370	448,193
Flounders, Fluke	2,976,224	1,861,082	2,016,702	2,397,403
Unclassified for industrial/bait	2,273,892	59,784	1,663,803	42,254
Grey Seatrout (Weakfish)	7,949,701	2,552,694	1,533,799	985,050
Croaker, Atlantic	7,244,469	2,455,803	1,450,924	733,461
Sharks, Dogfish	37,737	14,591	1,392,315	111,702
Spot	915,186	213,484	735,303	152,678
Mackerel, King	519,277	466,245	697,375	687,720
Tuna	8,450	7,456	520,517	650,429
Mackerel, Spanish	18,666	9,677	400,391	141,404
TOTAL FINFISH†	32,522,156	10,831,278	15,227,088	7,824,396

* Denotes confidential data
†Includes minor landings of additional species not listed above
Source: North Carolina Division of Marine Fisheries

Table 2.2-29 lists the total shellfish landings in the county for 1981 and 1991. Unlike finfish landings, shellfish landings have increased during this period. The value of catch landed has increased by 62% while the value per pound of shellfish increased by approximately 47%.

Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Blue Crabs (hard)	6,404,544	1,295,187	6,341,250	1,178,994
Blue Crabs (soft)	24,019	19,648	459,684	810,429
Brown Shrimp	N/A	N/A	433,618	787,947
Squid	224,777	78,244	196,596	32,202
Sea Scallop	96,535	386,491	97,547	337,916
Pink Shrimp	N/A	N/A	35,431	51,725
Oyster, Fall	58,412	96,303	18,676	57,911
White Shrimp	N/A	N/A	18,237	43,352
Conchs	6,406	1,614	13,114	4,677
Oyster, Spring	12,176	19,395	8,639	30,284
Octopus	N/A	N/A	843	843
Unclassified Shrimp	72,786	164,475	N/A	N/A
TOTAL SHELLFISH†	6,899,655	2,061,357	7,623,635	3,336,280
* Denotes confidential data † Includes unclassified species and confidential data Source: North Carolina Division of Marine Fisheries				

2.2.6.2 Vessel Licenses and Registrations

Dare County fishermen use a variety of vessels and gear. Vessels range from those 20 to 45 feet in length for fishing the sounds and nearshore waters, to ocean-going trawlers, dredgers, and long-liners. Gear used includes fish trawls, long lines, shrimp trawls, flounder trawls, pound nets, surf nets, scallop dredges, gill-nets, crab pots, oyster and clam dredges, and oyster tongs. Recreational fishermen use surf-fishing equipment as well as small boats, usually 18 to 20 feet, to troll and bottom-fish in the sound and near shore waters. The county has a large charter fleet based in Nags Head, Oregon Inlet, and Hatteras, consisting

of vessels 30 to 50 feet in length, which fish the offshore waters. These vessels can make a significant contribution to local landings during certain fish runs, especially that of yellowfin tuna, which is often bought by wholesalers fresh from the boat and air-freighted to Japan for sushi. Dare County fishermen utilize nearly all the nearby sounds, rivers, estuaries, inlets and bays, and nearshore and offshore ocean waters. Offshore areas that are highly used by both commercial and recreational fishermen include the Gulf Stream, the area around Frying Pan Shoals Light Tower, and the area known as "The Point" near the Manteo Prospect. For more detailed information on fishing patterns, the reader is referred to Section 2.7, which contains a discussion of the regional context of fishing, including types of boats, areas fished by species, and so on.

The North Carolina Department of Marine Fisheries issued 1,389 commercial fishing licenses in Dare County in 1991. Of these 219 were in Wanchese, 104 were in Hatteras, and 84 were in Nags Head. While vessel licenses issued for full-time and pleasure uses have increased in the county from 1981 to 1991, licenses issued for part-time uses have decreased (see Table 2.2-30).

Type	Dare		North Carolina	
	1981	1991	1981	1991
Full-time	562	697	4,099	4,909
Part-time	492	406	7,770	5,396
Pleasure	155	205	13,595	9,308
Charter	N/A	75	N/A	185
Head	N/A	6	N/A	13
Total	1,209	1,389	25,464	19,811

Source: North Carolina Department of Marine Fisheries Licensing Section

Table 2.2-31 lists the vessel registrations in the state and Dare County for 1980 and 1991. Total vessel registrations have increased by 44% during this period, but Dare County registrations have increased even more, by 64%.

Table 2.2-31 VESSEL REGISTRATIONS IN STATE AND DARE COUNTY FOR 1980 AND 1991			
Place	1980	1991	Percent Change from 1980 to 1991
Dare	2,285	3,749	64.07%
Total registrations	193,058	278,598	44.31%
Source: North Carolina Wildlife Resource Commission			

2.2.6.3 Marine Use Issues

While commercial fishing remains an important part of the socioeconomic and cultural history of the area, its contribution to the economy pales in comparison to tourism. Furthermore, many of Dare County's tourists are recreational fishermen who directly compete with commercial fishermen for resources that have been declining for the past decade. The competition between recreational and commercial fishermen has escalated in recent years and has, at times, turned into conflict. For example, commercial fishermen have set nets that recreational beach fishermen have considered too close to popular fishing beaches and menhaden boats working near piers are thought to have negatively impacted pier fishing by taking as bycatch species pier fishermen target. Many recreational fishermen also accuse commercial fishermen of overharvesting fish stocks. Commercial fishermen, on the other hand, say that there is no method of recording recreational harvests, and that many recreational fishermen sell fish to local markets in direct competition with them, which simultaneously adds to commercial landing statistics (as such sales are reported), further working against commercial fishermen. There is also considerable resentment of some part-time commercial fishermen by full-time commercial fishermen who feel that those whose livings do not depend on fishing (for example, doctors, lawyers, and other professionals who hold part-time commercial permits) negatively affect their ability to make a living.

Another major issue for commercial fishermen is the use of turtle excluder devices (TEDs) in shrimp and flounder trawls; they are required so as to protect endangered and threatened species of sea turtles that frequent the sounds and nearshore waters during the spring and summer. While the devices seem to work well in shrimp trawls, fishermen report that TEDs do not always operate satisfactorily in flounder trawls and allow too much of the catch to escape. The changing regulations governing the specifications for these trawls have angered many fishermen, who may spend \$500 to \$1,000 for the devices one year, but find that they are out of compliance the next.

Perhaps the preeminent issue to Dare County commercial fishermen, especially those with large vessels operating from Wanchese, is the stabilization of Oregon Inlet. For years, county fishermen have lobbied for the construction of large jetties on both sides of the inlet

to provide safe passage for deep-drafted fishing vessels. The jetty issue, however, has been stalled by environmental concerns. In May 1993, the sea beach amaranth, a rare plant that inhabits Outer Banks beaches, was placed on the federal list of threatened species. This action could be the final roadblock to jetty construction.

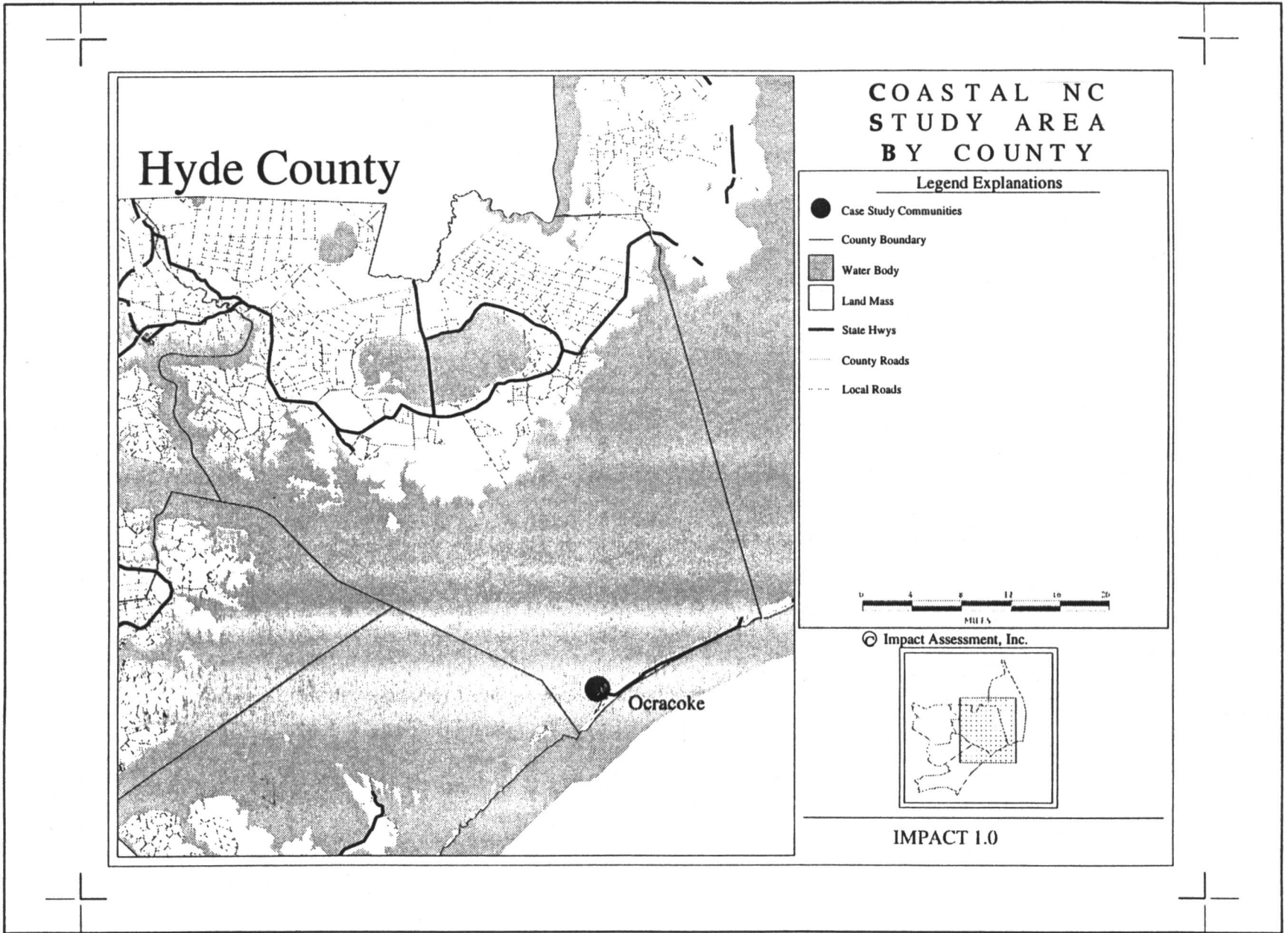
2.3 HYDE COUNTY

2.3.1 Introduction

Hyde County, North Carolina, is a large, rural county on the southern edge of the Pamlico-Albemarle peninsula (See Map 2.3-1). It includes Ocracoke Island and part of the Outer Banks that separate the Atlantic Ocean from Pamlico Sound. Graced with fertile soils, dense pine forests, and rich estuaries, the county is known for its agriculture, silviculture, commercial fishing, and recreational activities. Recreational and tourism opportunities center around Ocracoke Island and Lake Mattamuskeet, North Carolina's largest natural lake, located in the center of the county on the mainland. The 40,000-acre lake is part of Lake Mattamuskeet National Wildlife Refuge, one of four federally managed wildlife refuges in Hyde County. An important wintering grounds for waterfowl on the Atlantic flyway, the lake is a mecca for hunters and fishermen from across the country.

Hunting and recreational fishing are passions here. Many Hyde County residents are proud of their wildlife heritage and cite the rural environment and the open expanses of fields and marsh as major reasons for living in the county. Some Hyde County families date back to the early 1700s, and have spent generations carving their living from the land, the sound, and the sea.

The first recorded European exploration of the area occurred in 1585 when Sir Richard Grenville sailed from Ocracoke to the northern shores of Pamlico Sound. He found the area inhabited by an Algonkian tribe known to the English as the Secotan, after their largest village (Schoenbaum 1982:121). The area remained unsettled by Europeans until the early 1690s when French Huguenots from Virginia began moving to lands along the northern shore of the Pamlico River. A smallpox epidemic decimated the local Native American population, facilitating a rapid increase of European settlers attracted by the fertile soils and good fishing. In 1696, Governor Archdale of the Carolina colony officially designated the area as Bath County. Because of its growing population, Bath County was divided into three precincts in 1705. The Wickam precinct, which included all of modern mainland Hyde County, was renamed in 1712 after Edward Hyde, the Earl of Clarendon, the first governor of North Carolina. It was designated as a county in 1738 and, although its boundaries have changed somewhat, it is North Carolina's oldest county.



As the agricultural economy grew during the mid-1800s, a number of plantation homes were built, many of which still exist. Ten structures or areas in Hyde County are in the National Register of Historic Places; the North Carolina division of Archives and History has identified thirty-three sites on the mainland as historically significant. One of the structures on the National Register is the Lake Mattamuskeet pump station. This three-story building was part of a failed scheme to use Dutch reclamation techniques to drain the lake and plant its bed with corn and vegetables. The North Carolina General Assembly authorized a similar project in 1835, but appropriated no money. Private investors purchased the land in 1915 and built the pump station and several canals from the lake to Pamlico Sound. The lake bed was drained and cultivated for two years, but the cost of running the pumps proved prohibitive. The pumps were cut off and the lake returned. The investors sold the land to the federal government, which created the wildlife refuge in 1935.

While Hyde County was developing into a land of fishermen and farmers, Ocracoke village became a bustling port community. The colonial assembly dispatched pilots to the island in 1715 to help ships negotiate the shifting shoals of Ocracoke Inlet. A rich trade through the inlet attracted the attention of numerous rogues and pirates, including the infamous "Blackbeard," who was killed near the island after a fierce naval battle with a British warship in 1718. With the decline of piracy, commerce through the inlet thrived. It became the major trade and transportation route to the state's interior during North Carolina's early development. In 1779, the colonial assembly ceded the island to Carteret County to ensure taxation of the residents. The island was transferred to Hyde County in 1845, where it remains today.³

The rapid growth and development experienced by other coastal North Carolina Counties in the last two decades has largely bypassed Hyde County. Not only is Hyde not growing, its population is declining, in part due to a lack of employment opportunities. Hyde County lacks such infrastructure as major roadways and public sewage systems that might attract industries (Holland Consulting Planners, Inc. 1992:I-4). Most of the undeveloped land in the county is wetlands under the Clean Water Act, discouraging large-scale development.⁴

Hyde County has no incorporated towns. The small village of Swan Quarter on the county's southwestern shore is the county seat, but it vies with Engelhard on the eastern shore as the center of the county's commerce. Outside of seafood processing and some boat building,

³ A more detailed history of the island may be found in Volume III (Communities Volume) of this technical report.

⁴ These are wetlands subject to Section 404 of the Clean Water Act, which requires anyone interested in depositing fill material to first obtain a permit from the U.S. Army Corps of Engineers. Locally, such wetlands are popularly called "404 wetlands" and, given the difficulties in obtaining permits, are considered virtually undevelopable.

there is no significant manufacturing industry. With the exception of the burgeoning tourist trade on Ocracoke, the county's economy is based on activities that have sustained the population for generations: farming, commercial fishing, logging, and guiding visiting waterfowl hunters.

The Hyde County mainland, with its miles of marsh, its dense pocosin forests, and Lake Mattamuskeet, is renowned for its abundant wildlife. Along with thousands of ducks, geese, and tundra swans that winter on the lake, the county also hosts several threatened or endangered species such as bald eagles and peregrine falcons. The Alligator River National Wildlife Refuge, which extends into the county, has gained national attention as the site of a reintroduction program for the endangered red wolf, a once common species extirpated from the region in the early 1970s. The mainland is also known for its seafood, especially crabs and oysters. Rose Bay, a 9,000-acre estuary near Sladesville, has long been famous for oysters, but the decline in water quality -- combined with aquatic diseases -- have drastically reduced harvest levels in the past few years.

While the mainland has experienced slow, steady decline, the once quiet fishing community of Ocracoke has become a summer playground for beach lovers from as far away as Canada. The island and its people have been profiled in numerous newspapers and magazines, including the *New York Times*, *Washington Post*, and *National Geographic Traveler*. Tourism on the island now supports several hotels, motels, bed and breakfast inns, and restaurants, bringing an infusion of cash to the island as well as new job opportunities for long-time locals and new residents. With the growth and new wealth, however, has come a growing dissatisfaction with county services and the increased tax burden placed on island residents because of rising property values. Several island residents have organized a drive to secede from Hyde County and join Dare County to the north, with an expectation of improved services. Ocracoke's relationship with the county government is one of the major issues facing its residents.

2.3.2 Physical Geography and Infrastructure

2.3.2.1 Physical Geography

Hyde County covers 1,248.57 total square miles, only 31% of which is land area. It is bordered by the North Carolina counties of Pamlico, Beaufort, Washington, Tyrrell, Dare, and Carteret. The entire southern expanse of the mainland is bounded by water, extending from the Pungo River in the west through the numerous bays and marshes of Pamlico Sound to the Long Shoal River in the east. Ocracoke Island extends for about 16 miles south of Cape Hatteras, and is oriented northeast to southwest. It is separated from the other Outer Banks by Hatteras Inlet to the north and Ocracoke Inlet to the south.

Hyde County is within the Coastal Plain Flatwoods physiographic region. Its topography is flat, with elevations ranging from sea level along the shoreline to 18 feet above sea level

near Alligator Lake in the northern section of the county. Some dunes on Ocracoke are nearly 20 feet high. Mainland Hyde County has extensive pine forests and agricultural cropland, as well as large expanses of swamps, coastal wetlands, and estuarine waters. Most of the higher ground in the county has already been converted to cropland, while most of the county's remaining forests, about 10% of the county's land area, are "404 wetlands." These estuaries support valuable sport and commercial fishing species, such as menhaden, flounder, shrimp, crabs, and oysters (Holland Consulting Planners, Inc. 1992:I-43). In 1989 the state designated the Swan Quarter/Juniper Bay area and the Alligator River area as Outstanding Resource Waters for their relatively pristine conditions and value as a recreational and natural resource. Mattamuskeet and Swan Quarter refuges have also been recognized as Natural Heritage Areas by the state.

Ocracoke village consists of 775 acres surrounding the harbor of Silver Lake on the southern end of Ocracoke Island. The village encompasses only 14% of the island's land mass; the rest is managed by the National Park Service as part of the Cape Hatteras National Seashore. The island's width varies from 200 yards to about 2 miles near the village, averaging about one-half mile wide for most of its length. The beach is bordered by a primary dune line covered by sea oats and other beach grasses. Behind the dune line the land falls gradually to the sound, with areas of yaupon, myrtle, and low brush extending into the marsh. The park has a few areas of maritime forest. Much of the mature maritime forest in the village has been developed, although a significant tract remains in the area known as Springer's Point.

Hyde County's considerable natural resources include primary and secondary nursery areas found along the creeks and bays entering Pamlico Sound and along the Pungo and Shoal rivers. The greatest concentration of these areas is around Rose, Bell, and Deep bays and on the eastern shore of the Pungo River.

The county contains two undeveloped but significant deposits of peat. The largest, in northern Hyde County, covers some 120 square miles and contains an estimated 70 million tons of peat. The second covers approximately 6 square miles within the Gull Rock Wildlife Area. One of the world's largest deposits of phosphate underlies the entire eastern half of Beaufort County, and extends into Hyde County. Although still undeveloped in Hyde County there is a large open-pit phosphate mine in Beaufort County. Such mining has added significantly to the nutrient load in the river and sound, contributing to algal blooms and degraded water quality. Demand for phosphate is expected to increase over the years; local development could have a significant impact on local fisheries.

2.3.2.2 Land Use

Land use in Hyde County has changed little over the last decade, with two major exceptions. Approximately 22,000 acres of forest were converted into cropland by large corporate farms. Also, the U.S Fish and Wildlife Service acquired 27,890 acres in northwestern Hyde County

to create Pocosin Lakes National Wildlife Refuge. The refuge has a total area of 93,155 acres in Hyde, Tyrrell, and Washington counties.

The major land uses in the county continue to be forests (an estimated 142,110 acres), federally controlled lands (an estimated 105,116 acres), and cropland (an estimated 101,261 acres). Corn, soybeans, and wheat are the major crops grown in the county, although a growing number of farmers have diversified into vegetable crops such as potatoes, sweet corn, cucumbers, and tomatoes. Hyde County also produces a significant number of hogs.

Federal lands play a major role in Hyde County, attracting tourists to both the mainland and Ocracoke, as well as removing substantial acreage from the county tax rolls. The 50,000-acre Mattamuskeet Refuge, created in 1935, is the oldest refuge in the county and includes the lake and adjacent timber, swamps, and croplands. The Pungo Refuge, part of the recently established Pocosin Lakes National Wildlife Refuge, contains a 3,000-acre lake, pocosin lands, and agricultural fields that provide food and cover for black bears, white-tailed deer, migratory waterfowl, and other wildlife. The Swan Quarter Refuge contains 15,500 acres of salt marsh and woodlands on the northern side of the Pamlico Sound, and a number of marsh islands that are used as nesting areas for colonial shorebirds such as willets and terns. About 8,000 acres within the refuge have been designated as a national wilderness area, and hunting has been banned on an additional 27,000 acres of water in the refuge by presidential decree. Alligator River National Wildlife Refuge lies mostly in Tyrrell and Dare counties, but some 20,000 acres extend into northern Hyde County south of the Alligator River and adjacent to Swan Lake. Although none of the endangered wolves released on the refuge have been released in Hyde, about a dozen roam lands in the county. The Fish and Wildlife Service has a cooperative agreement with a large corporate farm near the refuge that allows the wolves access to the area. County commissioners recently passed a unanimous resolution against the expansion of the red wolf program into the county, fearing restrictions on land use.

Commercial development on the county mainland is centered primarily around Engelhard, Fairfield, and Swan Quarter; residential developments also exist in the communities of Nebraska, Middletown, Scranton, Sladesville, and Slocum. Other residential development is scattered along primary and secondary roads within the county. Industrial land use is almost nonexistent.

2.3.2.3 Infrastructure

Roads As of 1987, Hyde County had 222.36 miles of paved roads and 55.22 miles of unpaved roads. Of these, 89.8 miles were primary roads and 187.78 were secondary roads. Three primary roads cross mainland Hyde County: U.S. 264, N.C. 94, and N.C. 45. Traffic volumes have changed little since 1985 and are well within the capacity of the roads. The average daily traffic on the most traveled roads in 1989 (U.S. 264/N.C. 45) was about 1,700 vehicles. N.C. 12 is the main road on Ocracoke, traversing the island from the

northern ferry terminal at Hatteras Inlet to the southern ferry terminal at Silver Lake. Most roads on Ocracoke are maintained by the state, but a number in new subdivisions do not meet state standards and are not state maintained. As a result, landowners in these areas have had problems, some have even paid for road improvements themselves. The most pressing of these problems is the condition of three privately constructed bridges that serve about fifty residents in the Oyster Creek subdivision. The structures are seriously deteriorated and are hazardous to anyone using them (Holland Consulting Planners 1992 Part II:I-32). Traffic congestion on Ocracoke Island during the tourist season is also a growing concern. Movement of traffic during this season is often extremely slow and there are increasing conflicts between automobiles and pedestrians.

Aviation A general aviation airport is located 3 miles east of Engelhard. It has a 4,700-foot runway with pilot-controlled lighting, a visual approach slope indicator, and a small terminal building. Ocracoke also has a general aviation airstrip located a few miles east of the village in the Cape Hatteras National Seashore.

Waterways The North Carolina Department of Transportation operates ferries from Swan Quarter and Cedar Island to Ocracoke village (travel time: two hours, forty minutes, capacity: thirty vehicles for Swan Quarter ferries; thirty to fifty vehicles for Cedar Island ferries) and between Hatteras Island and the north end of Ocracoke Island (travel time: forty minutes, capacity: twenty-two to thirty-four vehicles). The ferries run more frequently during the summer to accommodate the increased demand. From 1981 to 1990, the number of passengers traveling on ferries to Ocracoke increased nearly 40%, providing access for more than one million people during 1990 alone. That year approximately 25% of the passengers used the Hatteras Inlet ferries, 21% used the Cedar Island ferries and 4% traveled on the Swan Quarter ferries. Since Ocracoke is completely dependent on the ferries for tourist access, and goods and services, any increase or decrease in service has a direct impact on its growth. Hyde County is considering moving the mainland ferry landing near Swan Quarter to the Outfall Canal at East Bluff Bay. This would shorten the trip to the mainland by 10 miles and decrease the crossing time by about forty-five minutes.

Mainland Hyde County is flanked by the Intracoastal Waterway to the north, the Pungo River to the west, and Pamlico Sound to the south and east. In 1989, the North Carolina Department of Transportation (NCDOT) listed five marinas in mainland Hyde County with a total of 130 boat slips. All had ramps, supplies, and slips and two had pump-out facilities.

Landfills There are no landfills currently operating in Hyde County. On Ocracoke, Dare County provides residential and commercial waste pickups on a contract basis and each year transports about 1,000 tons of garbage from the island to the Dare County landfill. Hyde County also contracts with Dare County for the dumping of 1,000 tons of waste each year collected on the mainland east of Highway 94. Dare County charges approximately \$81,000 annually for this service. An additional 1,000 tons of waste per year collected west of Highway 94 are carried to the Beaufort County landfill. Tipping fees for this material are currently budgeted at \$16,000.

Collections of recyclable materials are infrequent on the mainland, and residents of Ocracoke often take their recyclables to Dare County. In 1992, the Hyde County commissioners made the Solid Waste and Recycling Department a distinct entity, separating it from the Utilities Department. A 1991 state law required a 25% reduction in solid waste by 1993 and a 40% reduction by the year 2001. The county is currently testing a program to compost crab scraps, and has proposed future tests for composting newspapers. Because of the lack of recycling services, it is doubtful that the county will be able to meet the required reduction of solid waste by the end of 1993.

2.3.3 Population and Demography

2.3.3.1 Population History and Characteristics

In 1850, Hyde County boasted a population of 7,636. The permanent population grew to 9,278 by the turn of the century and then began a slow, but steady decline except for minor increases in the 1920s and 1970s (see Table 2.3-9). Its permanent population in 1990 was 5,411, the second lowest county figure in the state. While the overall population of the coastal North Carolina region has increased by more than 50% over the last four decades, Hyde's population has actually declined 6% since 1960 -- the highest rate of decline of all twenty coastal counties in the state. The regional growth has been influenced by the expansion of military facilities, decentralization of industries, and the growth of recreation and retirement centers. Hyde County's permanent population has not been heavily influenced by these factors even though seasonal and retirement populations have increased.

Table 2.3-2 lists Hyde County's community populations. Although Lake Landing Township had the largest population of all the communities in 1990, its population decreased by 9% since 1980. The only communities in Hyde to experience any increase during this period were Ocracoke Township which had a 5% increase, and Lake Mattamuskeet, which increased from a population of sixteen to forty-two.

Hyde County has remained rural in character (the census lists no urban residents in the county); its 8.87 persons per square mile gives it the lowest population density of any county in North Carolina. Table 2.3-3 shows that the total population in the county has decreased by 8% between 1980 and 1990. Group quarters, however, increased by 14 persons during this period.

**Table 2.3-1
POPULATION IN HYDE COUNTY FOR 1880 THROUGH 1990**

Year	Population	Percent Change from 1880 through 1990
1880	7,765	N/A
1890	8,903	14.66%
1900	9,278	4.21%
1910	8,840	-4.72%
1920	8,386	-5.14%
1930	8,550	1.96%
1940	7,860	-8.07%
1950	6,479	-17.57%
1960	5,765	-11.02%
1970	5,571	-3.37%
1980	5,873	5.42%
1990	5,411	-7.87%

Source: U.S. Bureau of the Census

**Table 2.3-2
COMMUNITY POPULATION IN HYDE COUNTY FOR 1980 AND 1990***

Community	1980	1990	Percent Change from 1980 to 1990
Currituck Township	1,302	1,169	-10.22%
Fairfield Township	582	514	-11.68%
Lake Landing Township	2,217	2,021	-8.84%
Lake Mattamuskeet (unorganized)	16	42	162.50%
Ocracoke Township	658	690	4.86%
Swan Quarter Township	1,098	975	-11.20%
Total	5,873	5,411	-7.87%

* Hyde County does not have any incorporated communities
Source: U.S. Bureau of the Census

Table 2.3-3 POPULATION CHARACTERISTICS IN HYDE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total population	5,873	5,411	-7.87%
Urban population	0	0	0.00%
Rural population	5,873	5,411	-7.87%
Group quarters	17	31	82.35%
Noninstitutional Age 16-64	3,490	3,258	-6.65%
Source: U.S. Bureau of the Census			

2.3.3.2 Population Composition

Age The age composition of Hyde County's population changed significantly between 1980 and 1990 as seen in Table 2.3-4. While the total population was declining, all age cohorts under 25 years were declining much more rapidly. Persons falling in the 25 to 54 year category, on the other hand, increased by approximately 9%. The older categories were mixed: persons in the 55-64 year category declined only slightly less rapidly than the overall population; persons 65 years and older increased slightly in number, but remained almost exactly the same in percentage composition of the total population. The difference between the rates of change in the younger and older age categories was so great that the median age was raised by 5.7 years, a significant aging of the population.

Sex The percentage of males and females in Dare County is relatively equal, with females comprising 51% of the population in 1990 and males comprising 49%. This ratio has been nearly constant from 1980 to 1990, although the total number of females has decreased at a slightly faster rate (1%) than the total number of males, implying that more females (255 net) than males (207) moved out of the county. Table 2.3-5 lists the sex distribution in the county for these periods.

Table 2.3-4 AGE DISTRIBUTION IN HYDE COUNTY FOR 1980 AND 1990					
Age Group	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	5,873	100.00%	5,411	100.00%	-7.87%
Total persons under 18	1,757	29.92%	1,359	25.12%	-22.65%
Under 5 years	450	7.66%	343	6.34%	-23.78%
5 to 17 years	1,307	22.25%	1,016	18.78%	-22.26%
18 to 20 years	284	4.84%	229	4.23%	-19.37%
21 to 24 years	416	7.08%	258	4.77%	-37.98%
25 to 54 years	1,948	33.17%	2,121	39.20%	8.88%
55 to 64 years	582	9.91%	545	10.07%	-6.36%
65 years +	886	15.09%	899	16.61%	1.47%
Median age	30.1 years	N/A	35.8 years	N/A	5.7 years*

* Increase in median age in years
Source: U.S. Bureau of the Census

Table 2.3-5 SEX DISTRIBUTION IN HYDE COUNTY FOR 1980 AND 1990					
Sex	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	5,873	100.00%	5,411	100.00%	-7.87%
Total females	3,016	51.35%	2,761	51.03%	-8.45%
Total males	2,857	48.65%	2,650	48.97%	-7.25%

Source: U.S. Bureau of the Census

Ethnicity Table 2.3-6 shows that Hyde County's population has remained approximately two-thirds white and one-third African-American throughout the last decade. Although both population segments have declined, the African-American population has declined at almost three times the rate of the white population (nearly 15%) since 1980. Many residents say the overall population decline is the result of poor job opportunities on the mainland for young residents of both groups. This would account, at least in part, for the differential rates of decline for African-Americans and whites, because African-Americans form a larger portion of the population in inland than coastal communities. While "percent change" appears large for some nonwhite/nonblack ethnic categories, the total numbers of these persons are small for both 1980 and 1990 (1.1% and 1.4% of the total population, respectively).

Ethnicity	1980		1990		Percent Change from 1980-1990
	Number of Persons	Percent of Total	Number of Persons	Percent of Total	
White	3,774	64.26%	3,598	66.49%	-4.66%
Black	2,088	35.55%	1,780	32.90%	-14.75%
American Indian, Eskimo, Aleut	0	0.00%	4	0.07%	N/A
Asian or Pacific Islander	5	0.09%	3	0.06%	-40.00%
Hispanic origin of any race	54	0.92%	43	0.79%	-20.37%
Other	6	0.10%	27	0.50%	350.00%

Source: U.S. Bureau of the Census

Household Patterns Hyde County had a total of 2,094 households in 1990 which was up slightly from the 2,048 households reported in 1980. Of the total households, 73% were family households and of these, 75% were married couple families. Although nonfamily households comprised only 27% of the total households in 1990, their numbers had increased by 23% since 1980. The average number of persons per household fell from 2.9 in 1980 to 2.6 in 1990. Table 2.3-7 presents these household patterns.

Table 2.3-7 HOUSEHOLD PATTERNS IN HYDE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total households	2,048	2,094	2.25%
Family households (families)	1,592	1,533	-3.71%
Married-couple families	1,252	1,151	-8.07%
Percent of total households	61.13%	54.97%	-6.16%*
Other family, male householder	48	61	27.08%
Other family female householder	292	321	9.93%
Nonfamily households	456	561	23.03%
Percent of total households	22.27%	26.79%	4.52%*
Householder living alone	425	516	21.41%
Householder 65 years and over	231	269	16.45%
Persons living in households	5,919	5,382	-9.07%
Persons per household	2.86	2.57	-0.29*
*Change in percent of total category, 1980-1990 **Change in average number of persons per household (not percent), 1980-1990 Source: U.S. Bureau of the Census			

Housing In 1990, Hyde had a total of 2,094 occupied housing units and of these 77% were occupied by owners and 23% were occupied by renters. Vacant housing increased by nearly 50% from 1980 to 1990; seasonal, recreational, or occasional use units, which constituted over half of Hyde's vacant housing units, increased by almost 60%. While the homeowner vacancy rate remained fairly consistent during this period, the rental vacancy rate increased at a slightly greater rate from 16% to 25% (see Table 2.3-8). Nearly all of the housing construction in the county during the 1980 to 1990 decade occurred on Ocracoke, where retirement and investment properties fueled a construction boom on the island.

Table 2.3-8 HOUSING IN HYDE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total housing units	2,836	2,905	2.43%
Occupied housing units	2,029	2,094	3.20%
Percent owner occupied	77.5%	77.0%	2.54%*
Percent renter occupied	22.5%	23.0%	5.47%*
Vacant housing units	551	811	47.19%
Vacant housing units for seasonal, recreational, or occasional use	293	463	58.02%
Homeowner vacancy rate (percent)	1.3%	2.1%	0.8%**
Rental vacancy rate (percent)	15.7%	24.7%	9.0%**
*Percent growth of number of units in category (not change in percent of total category)			
**Change in percent of total category			
Source: U.S. Bureau of the Census and North Carolina State Data Center			

While the number of overall units in structure increased in Hyde (up 13%), growth was uneven across categories of housing, with both losses and gains shown between 1980 and 1990. Structures with fifty or more units showed the greatest decline (100%). Although the majority of units in the county were 1 unit detached homes in 1980 and 1990, the number of one-unit homes decreased slightly during this period. As table 2.3-9 indicates, structures comprised of three and four units had the greatest increase of 200% and two-unit structures and mobile homes and trailers increased over 100%.

Table 2.3-9			
UNITS IN STRUCTURE IN HYDE COUNTY FOR 1980 AND 1990			
Units	1980	1990	Percent Change from 1980 to 1990
1, detached	1,998	1,986	-0.60%
1, attached	23	20	-13.04%
2	8	21	162.50%
3 and 4	7	21	200.00%
5 to 9	39	16	-58.97%
10 to 49	64	1	-98.44%
50 or more	5	0	-100.00%
Mobile home, trailer, etc.	399	810	103.01%
TOTAL	2,543	2,875	13.06%
Source: U.S. Bureau of the Census			

Housing values in Hyde County are similar to those found in the other study counties in that they form a pyramid; relatively very few houses are at the high end of the scale and there are ever increasing numbers as one moves down the value scale, with the largest number of houses falling in the lowest value category (see Table 2.3-10). This pyramid becomes reversed, however, when comparing the overall percentage increases in housing categories from 1980 to 1990. That is, housing units with the lowest value have decreased markedly while housing units with higher values have increased rapidly. The number of specified renter-occupied units increased by 17%, but the median dollars for rent decreased slightly.

Table 2.3-10 VALUE OF SPECIFIED OWNER-OCCUPIED AND RENTER-OCCUPIED UNITS IN HYDE COUNTY FOR 1980 AND 1990					
Category	1980	Percent of Total (1980)	1990	Percent of Total (1990)	Percent Change from 1980 to 1990
Specified owner-occupied units	963	N/A	954	N/A	-.93%
Less than \$50,000	805	83.59%	551	57.76%	-31.55%
\$50,000 to \$99,000	149	15.47%	277	29.04%	85.91%
\$100,000 to \$149,000	7	0.73%	76	7.97%	985.71%
\$150,000 to \$199,999	2	0.21%	27	2.83%	1,250.00%
\$200,000 to \$299,999	0	0	18	1.89%	N/A
\$300,000 or more	0	0	5	0.52%	N/A
Median (dollars)	\$25,500	N/A	\$43,700	N/A	71.37%
Specified renter-occupied units paying cash rent	270	N/A	316	N/A	17.04%
Median (dollars)	\$160	N/A	\$158	N/A	-1.25%
Source: U.S. Bureau of the Census					

Marriages and Divorces In 1990, there were less than 10% as many divorced persons as married persons in Hyde county. However, whereas the number of married persons decreased approximately 9% between 1980 and 1990, the number of divorced persons increased 97%. Not only were there more married men than married women during this period, but the number of married women declined at a faster rate than the number of married men. There were also more divorced women than there were divorced men in 1990 and they increased at a faster rate than did their male counterparts. Table 2.3-11 shows these data.

Table 2.3-11 MARRIAGES AND DIVORCES IN HYDE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total married people	2,560	2,332	-8.91%
Married women	1,251	1,126	-9.99%
Married men	1,309	1,206	-7.87%
Total divorced people	111	219	97.30%
Divorced women	58	124	113.79%
Divorced men	53	95	79.25%

Source: North Carolina State Data Center

Births and Deaths The record of births and deaths in Hyde County in 1980 and 1990 shows another aspect of the continued decline in the county's population (see Table 2.3-12). The number of births decreased by nearly 20% in 1990 compared to 1980 (more than double the rate of overall population decline), while the number of deaths increased by almost 30%. Given the small number of births and deaths relative to the overall population, however, it is clear that migration is a much more significant factor in county population dynamics than births and deaths. These figures are consistent with the age data that show a sharp decline in younger age groups and an overall aging of the population.

Table 2.3-12 BIRTHS AND DEATHS IN HYDE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Births	91	73	-19.78%
Deaths	58	75	29.31%

Source: North Carolina State Date Center

2.3.3.3 Seasonal Population

The total permanent population of Hyde County has declined in recent years, but the total number of seasonal housing units has increased over 45% from 1980 to 1990. The number of private housing units has increased by 48% during this period and the number of motels and hotels and boat slips have increased substantially by 100% and 200% respectively, primarily as a result of a gentrification of the group of summer visitors to Ocracoke Island. The number of campgrounds has remained the same during this period. Table 2.3-13 is a summary of the seasonal housing units in Hyde County.

Table 2.3-13 SUMMARY OF SEASONAL HOUSING UNITS IN HYDE COUNTY FOR 1980 AND 1990			
Type of Seasonal Unit	Number of Units		Percent Change from 1980 to 1990
	1980	1990	
Total	933	1,361	45.87%
Private housing units	476	702	47.48%
Motels/Hotels	102	208	103.92%
Campgrounds	309	309	0.00%
Boat slips	46	142	208.70%
Source: Holland Consulting Planners 1992			

Table 2.3-14 illustrates the relationship of seasonal population capacity and permanent populations in Hyde County for 1980 and 1990. "Peak Seasonal Population Capacity" refers to the total number of persons in all seasonal housing units if those units were occupied at full capacity based on average assumed household sizes for each type of unit (Holland 1991: I-12). This category does not determine the actual seasonal population in the county for these periods, but indicates the total number of persons that could occupy housing units in the county during peak seasons (e.g., Memorial Day and Labor Day). Table 2.3-14 reveals that in 1990, if all housing units were full (permanent and seasonal) during a peak period, the total peak seasonal population would more than double the permanent population. This trend contrasts with 1980 figures in which the permanent population would have remained larger than the potential peak seasonal population.

Table 2.3-14 RELATIONSHIP OF SEASONAL POPULATION CAPACITY/PERMANENT POPULATION IN HYDE COUNTY FOR 1980 AND 1990					
Year	Permanent Population	Percent of Total Peak Population Capacity	Peak Seasonal Population Capacity	Percent of Total Peak Population Capacity	*Total Peak Population Capacity
1980	5,873	62.91%	3,463	37.09%	9,336
1990	5,411	40.21%	8,046	59.79%	13,457
Percent Change	-7.87%	N/A	132.34%	N/A	44.14%
* Refers to the sum of permanent population and peak seasonal population capacity Source: Adapted from Holland Consulting Planners 1992					

2.3.3.4 Migration

Tables 2.3-15 and -16 contain 1980 and 1990 data on county in-migration flows for Hyde County based on IRS income tax returns. Like many of the counties in the study area, Hyde County experienced a drop in in-migration levels in 1990 compared to 1980. Overall, the numbers of in-migrants are considerably lower for Hyde than for other coastal counties. Most of the in-migrants in Hyde County during the last decade moved to Ocracoke, as discussed in the Communities Volume, which has become increasingly popular as a vacation and retirement community.

**Table 2.3-15
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO HYDE COUNTY FOR 1980**

County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Beaufort	NC	11	8.09%	33	9.85%	44
Same state	NC	58	42.65%	136	40.60%	194
Same region (different state)	N/A	42	30.88%	104	31.04%	146
Different region	N/A	25	18.38%	62	18.51%	87
Total county migrant filers	NC	136	100.00%	335	100.00%	471
Total county nonmigrant filers	N/A	1,446	N/A	3,726	N/A	5,172

*Includes total nonexempt and exempt filers
Source: Internal Revenue Service, Statistics Income Division 1992

**Table 2.3-16
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO HYDE COUNTY FOR 1990**

County/Place of Origin	State	Nonexempt Filers	Percent of Nonexempt Filers	Tax-Exempt filers	Percent of Total Exempt Filers	*Total Tax Filers
Same state	NC	45	51.72%	78	46.15%	123
Same region (different state)	N/A	30	34.48%	67	39.64%	97
Different region	N/A	12	13.79%	24	14.20%	36
Total county migrant filers	NC	87	100.00%	169	100.00%	256
Total county nonmigrant filers	N/A	1,794	N/A	3,891	N/A	5,685

*Includes total nonexempt and exempt filers
Source: Internal Revenue Service, Statistics Income Division 1992

2.3.4 Economy

According to standard economic indicators, Hyde County's economy has improved over the last few decades. Between 1970 and 1990, per capita income increased 337%, while total personal income almost quadrupled (397%). These increases are largely the result of increased tourism on Ocracoke. Tourism notwithstanding, Hyde County's economy remains partially dependent on activities such as farming, timber harvesting, and commercial fishing, activities that have sustained residents for generations. These still provide more than half the private-sector jobs, but they do not provide extensive earnings. Manufacturing and retail trades have done poorly on the mainland, as have tourist-related activities. Government employment, however, has increased 57% since 1970, primarily at the state and local level. This has provided some economic stability.

The disparity between the economy on the mainland and that on Ocracoke cannot be stressed enough. Much of the increase in personal income and almost all growth in real estate, construction, and retail sales is the result of development and tourism on Ocracoke.

2.3.4.1 Major Economic Sectors

Major Employers The top five major employment sectors in the county in 1990 by rank were: (1) agriculture, forestry, and fisheries; (2) retail trade; (3) construction; (4) educational services; and, (5) transportation, communication, and other public utilities. The 1991 profile of Hyde County by the North Carolina Department of Economic and Community Development lists the major employers as: Mattamuskeet Seafood (100 employees), Swan Quarter Crab Co. (22 employees), Engelhard Fish Shrimp (33 employees), and Clark's Marina & Seafood (25 employees). All produce seafood products.

Contribution by Sector In 1990 personal earnings in Hyde County totaled about \$34.4 million of which \$3.6 million was from farm earnings, and \$30.8 million from nonfarm earnings. The highest-ranking sector in personal earnings in 1990 was state and local government, with earnings of more than \$6.8 million.

Employment by Sector In 1990, the number of employed persons in Hyde County totaled 2,160, an increase of only 2% since 1980. Employment in wholesale trade decreased by 58%, health services and public administration over 35%, and manufacturing (nondurable goods) and personal services over 20% during this period. Although agriculture, forestry, and fisheries was Hyde's largest employer in 1980 and 1990, this sector has decreased by 12%. Retail trade, Hyde's second largest employer, employed 19% of the total workforce. Entertainment and recreational services had the greatest increase in employment (220%) since 1980, and transportation, communication, and other public utilities increased more than 100% (see Table 2.3-17).

Table 2.3-17 EMPLOYMENT BY INDUSTRY IN HYDE COUNTY FOR 1980 AND 1990					
Industry Groups	1980	Percent of Total	1990	Percent of Total	Percent Change from 1980 to 1990
Agriculture, forestry, and fisheries	579	27.25%	511	23.66%	-11.74%
Mining	0	0.00%	0	0.00%	0.00%
Construction	188	8.85%	197	9.12%	4.79%
Manufacturing, nondurable goods	132	6.21%	97	4.49%	-26.52%
Manufacturing, durable goods	45	2.12%	84	3.89%	86.67%
Transportation, communication, and other public utilities	74	3.48%	156	7.22%	110.81%
Wholesale trade	168	7.91%	70	3.24%	-58.33%
Retail trade	258	12.14%	402	18.61%	55.81%
Finance, insurance, and real estate	57	2.68%	95	4.40%	66.67%
Business and repair services	19	0.89%	24	1.11%	26.32%
Personal services	128	6.02%	101	4.68%	-21.09%
Entertainment and recreational services	5	0.24%	16	0.74%	220.00%
Health services	53	2.49%	32	1.48%	-39.62%
Educational services	171	8.05%	167	7.73%	-2.34%
Other professional and related services	43	2.02%	76	3.52%	76.74%
Public administration	205	9.65%	132	6.11%	-35.61%
TOTAL	2,125	100.00%	2,160	100.00%	1.65%
Source: U.S. Bureau of the Census					

Gross Retail Sales Gross retail sales quadrupled between 1970 and 1990, largely because of the increase in retail sales on Ocracoke. In 1990, gross retail sales in Hyde County totaled \$29.6 million, compared to \$17.4 million in 1980 (an increase of 70%) and \$5.6 million in 1970. Employment in retail trade grew by 83 jobs between 1970 and 1990. Most of the jobs created were on Ocracoke. Since 1986, some 36 new businesses opened on the island including restaurants, tourist homes, motels, and specialty shops.

Manufacturing, Industry, Construction Product Values Hyde County has almost no manufacturing base. Manufactured products consist mostly of processed seafood, especially shrimp and hard crabs. According to the U.S. Bureau of the Census, the value of shipments by manufacturers in the county was \$8 million in 1987, compared with \$6.9 million in 1982.

Commercial Fishing Commercial fishing plays an active role in Hyde County and remains an occupation for many county residents. While the total number of finfish landings have declined in recent years, the value per pound has increased. The value of shellfish has also increased as well as the volume shellfish landings from 1981 (see Section 2.3.6).

Agriculture Although the Hyde County ASCS office lists about 800 agricultural producers in the county, most of these are landowners who rent their land to farmers on a share basis. The most common arrangement is for the landowner to pay one-third of the costs and receive one-third of the gross sales, while the renter provides the equipment, expertise, and labor. There are only about 123 active farmers in the county. Actual farm employment dropped more than 34% from 1970 to 1990 as a result of the decrease in the number of farms, an increase in mechanization, and the growth of large corporate farms. Total sales for field crops in Hyde County in 1989 were estimated to be more than \$22 million. Vegetable and berry crops generated some \$2.2 million that same year, while timber sales amounted to about \$4.5 million. Hogs generated approximately \$1.6 million in revenues in 1989, whereas government payments, though price supports and various loan programs, totaled about \$1.4 million.

Agriculture in Hyde County has changed over the last two decades. The number of small family farms has declined steadily since 1970 while large corporate farms have expanded, reflecting a similar national trend toward increased farm size and greater mechanization. In the late 1980s low prices for corn, soybeans, and wheat, combined with increased production costs, encouraged many growers to diversify into more profitable vegetable crops. Total sales for cucumbers in 1989 were more than \$1.5 million, compared with \$1.6 million in sales of wheat. The same year, Irish potatoes, sweet corn, and tomatoes provided nearly \$1.7 million in revenue for county growers. The shift toward vegetable crops has also offered some seasonal labor opportunities for county residents, although most of the harvesting is done by migrant labor. Roughly 85% of the growers in Hyde County participate in federal price support programs. Table 2.3-18 shows the status of the agriculture industry in the county for 1980 and 1990-1991. Although the total number of farms, land in farms, farm population, and farming operators dropped in Hyde County,

harvested crops increased by 28% from 1980 to 1990 and farm incomes increased by 44% during this period.

Table 2.3-18 AGRICULTURE INDUSTRY IN HYDE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Farms	189*	163**	-13.76%
Land in farms (acres)	111,641*	102,420**	-8.26%
Farm populations	643	418	-34.99%
Farming operators	160*	123**	-23.13%
Harvested cropland (acres)	69,600	89,300	28.30%
Farm income (dollars)	21,837,000	31,441,000	43.98%
* 1982 figures ** 1987 figures Source: North Carolina Data Center			

Table 2.3-19 indicates the major crops in Hyde County. While corn and soybeans were Hyde's major crops for 1980 and 1991, wheat grew at a substantially higher rate (221%). Corn still grew over 50% during this period, but soybeans declined slightly. Sorghum, which totaled 720 harvested acres in 1980, dropped to 120 harvested acres in 1991.

Table 2.3-19 TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN HYDE COUNTY FOR 1980 AND 1991			
Crop	1980	1991	Percent Change from 1980 to 1990
Corn	27,750	43,500	56.76%
Wheat	4,800	15,400	220.83%
Soybeans	43,500	42,600	-2.07%
Tobacco	0	0	0.00%
Oats	0	0	0.00%
Potatoes	0	0	0.00%
Sorghum	720	170	-76.39%
Source: North Carolina Department of Agriculture, Agricultural Statistics Division			

2.3.4.2 Workforce

The number of people in the Hyde County labor force dropped from 2,426 in 1980 to 2,392 in 1990, a decline of 1%. About 72% of the males 16 years or older were included in the 1990 labor force, and about 43% of the females 16 or over percentages similar to that in 1980. More women with young children are working now in Hyde County than in 1980. Of the women with children under 6 (264 total), 52% were part of the labor force in 1990, up from 33% in 1980 (Brumsey 1992:29).

2.3.4.3 Income

As table 2.3-20 shows, median family income in Hyde County rose from \$11,053 in 1980 to \$19,929 in 1990, an 80% increase, but still lagged far behind median family income for the state, which was \$31,548. Median family income varied widely in Hyde County townships in 1990, ranging from a low of \$13,676 in Swan Quarter township, to \$36,250 in Lake Mattamuskeet township. Ocracoke ranked second highest, with a median family income of \$27,130 (Brumsey 1992:38-42). The average annual wage per worker in Hyde County increased by 40% from 1980 to 1990. Total personal earnings increased over 47% during this period, while the per capita income increased by 53% (see Table 2.3-21).

Table 2.3-20 AVERAGE ANNUAL WAGE PER WORKER AND MEDIAN FAMILY INCOME IN HYDE COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Average annual wage per worker (dollars)	8,236	11,505*	39.69%
Median family income (dollars)	11,053	19,929	80.30%
*1988 figure Source: North Carolina State Data Center; Employment Security Commission			

Table 2.3-21 PERSONAL INCOME AND PER CAPITA PERSONAL INCOME IN HYDE COUNTY FOR 1980 AND 1988			
Category	1980	1988	Percent Change from 1980 to 1990
Total personal income	38,526,000	56,816,000	47.47%
Per capita personal income	6,540	10,012	53.09%
Source: North Carolina State Data Center, Statistical Abstract 1991			

Despite a significant rise in median family income for the last decade, the percentage of families living below the poverty level only decreased slightly from 25% in 1980 to 20% in 1990. Of the 1,281 Hyde County residents living in poverty in 1990, 58% were black and 42% were white. There was a 23% decrease in persons below the poverty level from 1980 (see Table 2.3-22).

Table 2.3-22 POVERTY STATUS IN HYDE COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total persons determined*	5,852	5,339	-8.77%
Total persons below poverty level	1,658	1,281	-22.74%
Percent persons below poverty level	28.33%	23.99%	-4.33%**
Total families determined*	1,592	1,572	-1.26%
Total families below poverty level	393	316	-19.59%
Percent families below poverty level	24.69%	20.10%	-4.59%**
*All persons/families for whom poverty status was determined **Change in percent of total category Source: U.S. Bureau of the Census			

2.3.4.4 Economic Issues and Trends

Hyde County lacks a solid manufacturing base despite county attempts to recruit new industry. The county's dependence on agriculture, commercial fishing, forestry, and state and local governments is expected to continue or increase through the year 2000. Ocracoke's economy, however, should continue growing because of its popularity as a seaside resort.

Although the landings of commercial fish were mixed and total value increased in Hyde County in the past decade, the total state landings fell more than 50% in the same period, reflecting a decade-long decline in important fish stocks along the Atlantic coast. Agricultural runoff and industrial pollution from phosphate mining and paper mills along the Pamlico and Pungo rivers have reduced water quality in Pamlico Sound and its estuaries, contributing to shellfish diseases and frequent closure of areas to shellfish harvesting. Stock decline has also been heavily impacted by overharvesting, and, as in Dare County and elsewhere, the fisheries are affected by federal regulations requiring boats trawling for shrimp and summer flounder to use turtle excluder devices.

The greatest opportunity for new economic growth in Hyde County may again come from state government. The North Carolina Division of Prisons in 1991 proposed building an \$8.1 million medium-security facility in Hyde County. The proposed prison is expected to employ 143 to 173 people and have an annual operating budget of \$4 million. The Division of Prisons selected a rural site in western Hyde County, but residents of Engelhard are pushing to have the facility built near them in hopes of acquiring a public sewer system that would serve both the prison and the community. The prison was originally scheduled for completion by February 1993, but by early 1993 the site had yet to be selected.

Perhaps the major economic issue facing the county is whether or not Ocracoke remains a part of it. A recent increase in the county's property tax rate from \$.94 to \$1.06 per \$100 valuation, combined with escalating land values on the island, have created enormous discontent on Ocracoke. Many islanders complain that though they contribute almost a third of the tax base for the county, they receive minimal county services. They also say they are closer to Dare County, both in terms of geography and socially. Some Ocracokers have circulated a petition calling for transfer of the island to Dare County, a move that would require action by the state general assembly. Attitudes of mainland residents on the issue are mixed. Some say they would be happy to let Ocracoke go. Others contend that Hyde County has provided services to the island for nearly 150 years and that the islanders owe something to the mainland. If Ocracoke does leave Hyde County, however, it would be a substantial hardship to the county's already limited budget.

2.3.5 Patterns of Government Service Delivery

2.3.5.1 Structure and Employees

County government consists of a five-member board of commissioners who employ a county manager. The commissioners are selected by countywide elections and serve terms of four years. One commissioner is elected from each of the five geographical areas within the county and elections are held on a rotating basis. Other elected officials include clerk of court, register of deeds, sheriff, and members of the board of education. In 1990, the Hyde County government had 177 employees.

2.3.5.2 Local Government Revenues and Expenditures

Total expenditures and revenues have increase in selected years from 1980 to 1990 in Hyde, except in the period from 1985 to 1986 in which they remained relatively unchanged. The county experienced the greatest amount of growth in expenditures from 1989 to 1990 (26%) and in revenues from 1987 to 1988 (28%).

Table 2.3-23 TOTAL EXPENDITURES IN HYDE COUNTY FOR 1980 THROUGH 1990		
Year	Total Expenditures	Percent Change from 1980 through 1990
1980	2,507,000	N/A
1985	3,153,000	25.77%
1986	3,164,000	0.35%
1987	3,613,000	14.19%
1988	4,068,000	12.59%
1989	4,855,000	19.35%
1990	6,131,000	26.28%

Source: North Carolina State Data Center

Table 2.3-24 TOTAL REVENUES IN HYDE COUNTY FOR 1980 THROUGH 1990		
Year	Total Revenues	Percent Change from 1980 through 1990
1980	2,553,000	N/A
1985	3,137,000	22.88%
1986	3,163,000	0.83%
1987	3,308,000	4.58%
1988	4,230,000	27.87%
1989	4,881,000	15.39%
1990	5,848,000	19.81%

Source: North Carolina State Data Center

2.3.5.3 Education

Mainland Hyde County has two public elementary schools (kindergarten through sixth grade), one in Swan Quarter and one in Engelhard, and one high school (seventh through twelfth grade) near Lake Mattamuskeet. The elementary schools were built in 1950, and additions were made to each in 1953 and 1964. For the 1990-1991 school year enrollment in these schools was 240 and 165 respectively, both well below their capacity of 300 students. The high school was built in 1964 and additions were made in 1970 and 1987. Enrollment in 1990 was 460, also below its capacity of 550. Children on the mainland are transported to the schools by a fleet of fifteen buses. Total public school enrollment was 937 in 1990, down from 1,231 in 1980. The first month average daily membership in 1990 was 853 (North Carolina State Data Center). Hyde County schools graduated 65 high school graduates in 1990. The rates of school dropouts and teen pregnancies are high in the county, however. In the 1989-1990 school year there were 30 dropouts, 4 of which were confirmed pregnancies. In the 1990-1991 school year there were 12 dropouts, 7 of which were confirmed pregnancies. The smallest school in the North Carolina public school system is the K-12 facility in Ocracoke which currently has 99 students and ten teachers.

The Hyde County Board of Education consists of five elected, nonpartisan members who serve staggered, four-year terms. By law, one board member must be from Ocracoke. The board employs a superintendent of schools who is the ex-officio secretary of the board. The school system employs 142 full-time and 40 part-time employees. The total public school expenditures in the county in 1990 were \$4 million and represented a 93% increase since 1980. Of this total, state expenditures comprised 71% of the total, local expenditures 19%, and federal expenditures only 9% (see Table 2.3-25).

**Table 2.3-25
PUBLIC SCHOOL EXPENDITURES BY SOURCE OF FUNDS IN HYDE COUNTY FOR 1980 AND 1990**

Expenditures	1980 (dollars)	1990 (dollars)	Percent Change from 1980 to 1990
Federal expenditures	394,000	430,000	9.14 %
State expenditures	1,473,000	3,300,000	124.03 %
Local expenditures	536,000	906,000	69.03 %
Total expenditures	2,403,000	4,636,000	92.93 %

Source: North Carolina State Data Center

2.3.5.4 Law Enforcement and Emergency Services

Hyde County Sheriff's Department Since there are no incorporated towns in Hyde County, law enforcement for the entire county is provided by the Hyde County Sheriff's Department. The department employs a sheriff and seven deputies. Five deputies are stationed on the mainland (including the chief deputy) and two on Ocracoke. In 1989, new offices were added to the existing jail building in Swan Quarter, which was constructed around 1937. The jail has one eight-person cell and three four-person cells. Deputies also serve as dispatchers and jailers. The department has six patrol cars and one boat.

Both deputies on Ocracoke live in the village and work from a facility built in 1985 that has two offices, a dispatch room, a breathalyzer room, and two four-person cells. Ocracoke deputies are on call twenty-four hours a day and also respond to calls for the local fire department and rescue squad. They are dispatched either from the mainland or through a local 911 number answered by volunteers on the island. On the mainland, department officials say response time is twenty-five minutes maximum, with an average response time of ten minutes. On Ocracoke, response time is three to four minutes in the village, and ten minutes to the northern end of the island. Ocracoke deputies are in radio contact with the mainland, but the signal is often blocked during storms or fog. There also are some areas of the mainland where the signal can not reach. To remedy these problems, the department is moving its signal repeater from the 150-foot tower near Swan Quarter to a new 300-foot tower being built nearby by the U.S. Army. The department also operates a Touchline program for elderly citizens. Each day the dispatcher/jailer makes two calls (at 8:00 A.M. and 8:00 P.M.) to approximately seventy people on the mainland and fifty residents of Ocracoke. If the calls are not answered, deputies are dispatched to the house.

Three troopers with the North Carolina Highway Patrol also live and work in Hyde County. Deputies also cooperate with and receive assistance from state game wardens, marine

fisheries inspectors, and law enforcement personnel of the National Park Service on Ocracoke. In 1991, the sheriff's department recorded seven violent crimes and forty-three property crimes.

Volunteer Fire Departments Fire protection in Hyde County is provided by four volunteer fire departments located in Swan Quarter, Engelhard, Fairfield, and Ocracoke. Each serve both the community proper and adjacent outlying areas, typically an additional 4 or 5 square miles. The Swan Quarter facility has two pumpers (each with 1000-gallon capacity and one drop tank) and an equipment truck, and is manned by about twenty-two active volunteers. The budget for 1991 was approximately \$16,000, with \$12,000 derived from local fund-raising efforts.

Fairfield Volunteer Fire Department has one pumper truck, one 750-gallon pumper/tanker and an equipment van. Some nineteen active volunteers are active in the department. Most of its funding comes from private donations.

Engelhard Volunteer Fire Department has twenty volunteers who man four vehicles: two pumpers (750-gallon capacities), one tanker (1,000-gallon capacity with 1,500-gallon drop tank) and an equipment van. Some hydrants in the area can be used for pumping, but the department relies mostly on its pump trucks and drafting from canals and waterways.

Ocracoke's volunteer fire department has two pumpers (750-gallon capacity and 500-gallon capacity) and a 1965 equipment truck. They also have a trailerable pump (250-gallon capacity) on loan from the National Park Service for fighting brush fires. The department has about twenty-five volunteers. Average response time is five minutes. The annual budget is about \$10,000. Half is provided by the county and half is raised through bingo games held at the station every Wednesday night in summer and every other Saturday in winter. Although it can handle most structure fires on the island, the department's ladders can only reach the second floor of most buildings, leaving it ill equipped to handle any fires above that level. Although a new county ordinance restricts building height to 35 feet, several hotels built in the 1980s are higher.

Emergency Services Hyde County maintains three ambulances on the mainland which are based in Swan Quarter, Fairfield, and Engelhard, and one ambulance in Ocracoke. The vehicles are staffed by paid personnel and approximately fifteen volunteers on the mainland. On Ocracoke, the county employs four full-time emergency medical technicians. Ocracoke is also served by two private medical helicopter services, Nightingale of Norfolk, Virginia and East Care from Pitt Memorial Hospital of Greenville, North Carolina. The U.S. Coast Guard station in Ocracoke also provides search and rescue service for vessels on Pamlico Sound and the Atlantic Ocean, but they limit their services to marine-related incidents that are life threatening.

Hyde County employs a full-time emergency management coordinator to oversee emergency services. Ocracoke has a volunteer emergency management group consisting of the chief of

the Coast Guard Station, the senior deputy sheriff, the head of the park service on the island, a representative from NCDOT ferry division, and a coordinator who is also a member of the state emergency management group. Their major role is to plan for hurricanes, but they have convened when severe storms have flooded parts of Highway 12, the main road on the island.

2.3.5.5 Social Services

The Hyde County Department of Social Services employs about twenty-two people. In addition, a day-care coordinator works in four counties -- Washington, Dare, Tyrrell, and Hyde -- and a social worker for the blind covers Hyde, Dare, and Tyrrell counties. Social service programs in the county primarily provide financial assistance and help persons to receive assistance. The programs offered by the department include: food stamps; Medicaid; AFDCEA (rent assistance); foster care, day care, adoption and protective services; LEP (low-energy assistance program); CIP (crisis intervention program, financial aid in life-threatening situations); licensing of foster care homes; nursing home placement; counseling for children and adults; monitoring of a group home in Fairfield (six clients); CHORE (provides transportation for the elderly and handicapped, contracted to Health Department); home repair assistance; and determining eligibility for financial assistance for family planning.

A board of five appointed members (two appointed by the state, two by county commissioners, and one by the other board members) oversees the department. The department now operates from two facilities; administrative employees are in one, program services are in the other. A goal of the department is to acquire a new building to combine the two sections.

2.3.5.6 Health Department

The Hyde County Health Department employs four registered nurses, one licensed practical nurse, and a part-time family nurse-practitioner who visits the department once a week. The department hires a speech therapist on a contract basis. All health department programs operate from the Hyde County Health Center, a facility built in 1976 in Swan Quarter. Ocracoke has a community health center staffed by a physician's assistant, a registered nurse, and a receptionist/bookkeeper.

The county offers a twenty-four-hour home health program and four times a year provides space for an eye clinic. It also conducts physical examinations for sports at schools, operates immunization clinics, conducts blood, sugar, and cholesterol screening services, as well as screenings for HIV, sexually transmitted diseases (STDs), and tuberculosis. It offers family planning services, screening services for breast and cervical cancer, and information in the

schools about STDs. The county sanitarian inspects and issues permits to restaurants and school cafeterias.

Tideland Mental Health, a five-county agency funded by state and county revenues, has an outpatient satellite office in Swan Quarter and an Adult Development Day Activity Program in Fairfield. The Swan Quarter office is staffed by a registered nurse/substance-abuse counselor and a clerk. A staff psychiatrist from Washington, North Carolina, visits the facility twice a month. The office handles drug and alcohol addiction and mental disorders. The Fairfield program offers day care for the mentally retarded. An eighty-bed nursing home was built in 1991 about 2 miles from Swan Quarter. The facility, managed by Cross Creek Healthcare, employs three registered nurses and five licensed practical nurses.

2.3.5.7 Planning and Economic Development

The planning department in Hyde County functions primarily as an economic development agency. Although a department, it has only one staff member. A primary objective of the county planner is to educate and involve the public in county planning and economic development. This grassroots effort has proven difficult as many residents are unfamiliar with the workings or even basic terminology of county government.

Three task forces were formed to involve citizens in planning and economic development: an economic development board, an education committee, and a group called Hyde Tomorrow. Each task group conducted preliminary research that resulted in numerous recommendations to county government. Only Hyde Tomorrow remains a functioning body. The Hyde Tomorrow Economic Development Task Force, a direct spinoff of the original group, recently recommended that the county form three advisory councils on education, housing, and economic development. A new planning board has also been proposed for Ocracoke.

2.3.6 Use of Marine Resources

2.3.6.1 Commercial Landings

While total finfish pounds landed were down by approximately one-half, the total value of catch landed increased by one-third. Shellfish landings more than doubled between 1981 and 1991, and the total value of the shellfish landing increased by approximately 240% (see Table 2.3-26 and Table 2.3-27).

**Table 2.3-26
TOP TEN FINFISH LANDINGS IN POUNDS AND DOLLARS IN HYDE COUNTY FOR 1981 AND
1991**

Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Flounders, Fluke	657,237	398,378	1,095,299	1,254,280
Croaker, Atlantic	609,579	193,463	296,009	147,493
Bluefish	393,909	54,453	206,214	33,781
Unclassified for industrial/bait	820,726	47,122	133,250	2,625
Grey Sea Trout (Weakfish)	1,253,444	396,470	58,088	40,917
Mulletts	56,023	9,634	52,035	26,635
Spot	146,017	32,384	48,909	9,835
Sharks	*	*	36,136	12,063
Sea Basses	5,636	2,305	34,779	34,115
Other/F (includes confidential)	32,275	13,833	30,101	8,052
TOTAL FINFISH†	4,094,499	1,193,816	2,099,045	1,634,827

* Denotes confidential data

†Includes minor landings of additional species not listed above

Source: North Carolina Division of Marine Fisheries

**Table 2.3-27
SHELLFISH LANDINGS IN POUNDS AND DOLLARS IN HYDE COUNTY FOR 1981 AND 1991**

Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Blue Crabs (hard)	5,959,299	1,395,480	11,089,627	2,464,878
Brown Shrimp	24,019	19,648	1,478,071	2,741,674
Pink Shrimp	N/A	N/A	280,988	456,398
White Shrimp	224,777	78,244	101,233	174,883
Blue Crabs (soft)	96,535	386,491	35,581	33,930
Other/S (includes confidential)	*	*	33,232	68,751
Oyster, Spring	38,101	43,281	31,645	126,580
Squid	4,622	1,074	18,541	4,472
Oyster, Fall	42,787	51,887	15,705	46,623
Clam, Hard	N/A	N/A	*	*
Conchs	N/A	N/A	*	*
Octopus	N/A	N/A	*	*
Sea Scallop	N/A	N/A	*	*
Unclassified Shellfish	*	*	N/A	N/A
Unclassified Shrimp	112,187	270,899	N/A	N/A
TOTAL SHELLFISH†	6,156,996	1,762,621	13,084,623	6,118,189

* Denotes confidential data

†Includes unclassified species and confidential data

Source: North Carolina Division of Marine Fisheries

2.3.6.2 Vessel Licenses and Registrations

In 1991, the North Carolina Department of Marine Fisheries issued 337 commercial vessel licenses in Hyde County. Of these, 103 went to vessels from Ocracoke. Although the total number of full-time vessel licenses increased more than 200% between 1981 and 1991, licenses for part-time and pleasure uses declined substantially (see Table 2.3-28).

Table 2.3-28				
COMMERCIAL VESSEL LICENSES ISSUED IN HYDE COUNTY AND STATE FOR 1981 AND 1991				
Type	Hyde		North Carolina	
	1981	1991	1981	1991
Full-time	81	250	4,099	4,909
Part-time	236	61	7,770	5,396
Pleasure	143	22	13,595	9,308
Charter	0	0	N/A	185
Head	0	4	N/A	13
Total	460	337	25,464	19,811
Source: North Carolina Division of Marine Fisheries Licensing Section				

From 1980 to 1991, the total state registrations increased over 44%, but the county's total registrations remained relatively stable (see Table 2.3-29).

Table 2.3-29			
VESSEL REGISTRATIONS IN STATE AND HYDE COUNTY FOR 1980 AND 1991			
Place	1980	1991	Percent Change from 1980 to 1991
Hyde	654	659	0.76%
Total registrations	193,058	278,598	44.31%
Source: North Carolina Wildlife Resource Commission			

Hyde County fishermen mostly utilize the bays, estuaries, and rivers flowing into Pamlico Sound and the sound itself, while some fish in nearshore and offshore ocean waters. Vessels are commonly 20 to 45 feet in length. Type of gear used includes shrimp trawls, flounder trawls, gill nets, crab pots, oyster tongs, pound nets, and long lines. Although some vessels ply offshore waters, the predominant fishery in the county is the hard crab fishery in Pamlico Sound. Most Ocracoke fishermen fish pots for crabs or use gill nets for finfish.

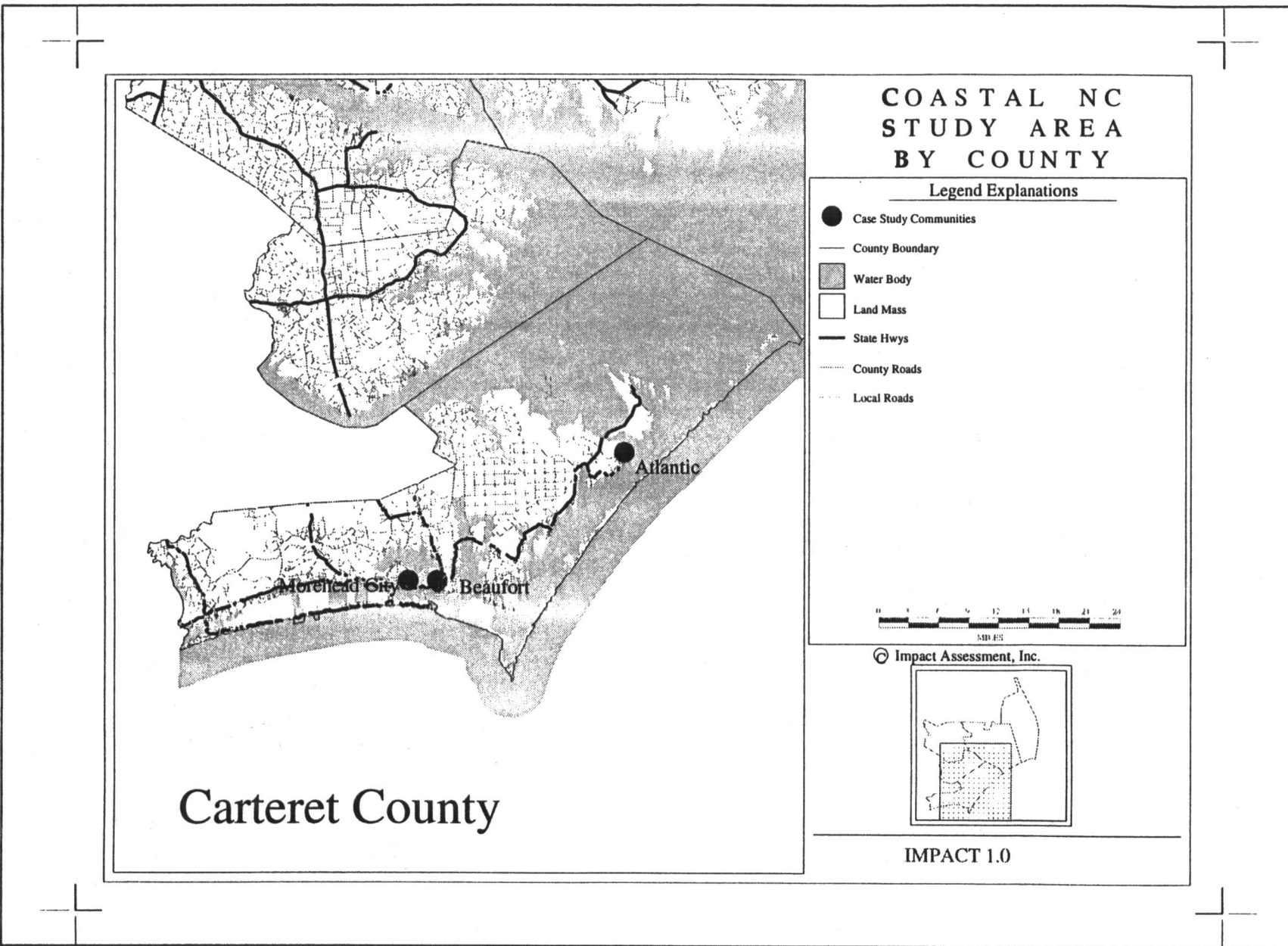
A chief area of concern is the increasing decline in water quality in the sound, which many fishermen attribute to increased pollution and agricultural runoff in the inland rivers that empty into the sound, as well as the loss of wetlands to coastal development.

2.4 CARTERET COUNTY

2.4.1 Introduction

Carteret County's 80-mile long coastline lies roughly midway between the Virginia border to the north and the South Carolina border to the south (see Map 2.4-1). Historically, the county's economy has centered around commercial fishing and farming. However, the county has experienced a tremendous influx of tourists, retirees, second-home owners, and military personnel in the past two to three decades, which has greatly affected the composition of its permanent population and its economic structure (Holland 1991:I-5). Because of Carteret County's high seasonal population, it has experienced a marked shift from an economy based on extractive industry and manufacturing to a service and retail economy (Holland 1991:I-5).

The area was occupied by the Coree and Hatteras Indians at the time of European contact. English and French settlers had arrived by the early 1700s and Carteret County was established in 1722 when it was carved from neighboring Craven County (Jones 1981:95). Beaufort, the county seat, was the earliest town to develop. Its good harbor contributed to its importance as a center of trade and commerce. Beaufort is famous as a favorite haunt for "Blackbeard," the notorious eighteenth-century pirate. The low-lying barrier islands along the Carteret County coastline are renowned for treacherous shoals and have a long history of shipwrecks from Cape Lookout to Ocracoke (Jones 1981:95). Portsmouth Island, Core Banks, and Shackleford Banks, the three barrier islands that cover three-quarters of the county's coastline, are part of the Cape Lookout National Seashore established in the early 1970s.



2.4.2 Physical Geography and Infrastructure

2.4.2.1 Physical Geography

Carteret County is located on the south-central part of the North Carolina coastal plain. It is bordered by Craven County and Pamlico Sound to the north and Jones and Onslow counties to the northwest. The southern portion of its mainland is bordered by Bogue Sound and its eastern portion is bordered by Core and Pamlico sounds. Mainland Carteret County is a separated and protected from the open sea by its barrier islands of Bogue Banks, Bird Shoal, Shackelford Banks, and Core Banks, the eastern shores of which are defined by the Atlantic Ocean. The county is 1,047.82 square miles in area, only 524.09 square miles of which are land.

Carteret County is composed mainly of barrier islands, pocosins, salt marshes, estuaries, and shallow sounds. About half of its area is water and wetlands (Bowles and Glazier n.d.:5). The topography is generally flat and swampy, with elevations ranging from 0 to 50 feet above sea level. The entire county is classified as a flood hazard area and is susceptible to flooding from storms and hurricanes (Holland 1991:I 70-71). Carteret County's main water areas, namely Bogue, Back, Core, and Pamlico Sounds, are significant marine water resources. In 1989, Core Sound, the western half of Bogue Sound, and southeast Pamlico sound were designated by the state as Outstanding Resource Waters, significantly limiting development along these areas (Holland 1991:I-66). Until the early 1970s and the development of areas such as Bogue Banks, most of the county, outside of a few population concentrations, was undeveloped.

2.4.2.2 Land Use

Carteret County is comprised of two distinct areas; the area east of North River known as "Downeast," and the area west of the river known simply as "Western Carteret County." Downeast is mostly wetlands and farmland. The rural population is clustered in several unincorporated communities along its shoreline, including the study community of Atlantic (Holland 1991:I-45). The downeast section also include the county seat of Beaufort and the incorporated community of Morehead City. The western portion of Carteret County, in contrast, contains the area's major development and population base. Much of the population and development is concentrated on Bogue Banks and west of downtown Morehead City. All of the county's zoned areas are in the western portion of the county in high growth areas (Holland 1991:I-45). Estimated general land use is portrayed in Table 2.4-1.

**Table 2.4-1
ESTIMATED GENERAL LAND USE IN CARTERET COUNTY FOR 1973, 1981 AND 1989 (ACRES)**

Category	1973	Percent of Total	1981	Percent of Total	1989	Percent of Total
Federal nonwetland areas	70,776	10.39%	92,637	13.57%	92,637	13.60%
Urban and built up	6,177	0.91%	15,700	2.30%	25,172	3.70%
Agricultural land	20,281	2.98%	68,663	10.06%	60,000	8.81%
Forest and fresh water wetlands	163,230	23.97%	163,230	23.92%	160,969	23.63%
Other land	78,214	11.49%	0	0.00%	0	0.00%
Salt water wetlands	55,000	8.08%	55,000	8.06%	55,000	8.08%
Small and large water bodies	287,310	42.19%	287,310	42.09%	287,310	42.18%
*Total area	680,988	100.00%	682,540	100.00%	681,088	100.00%

*Figures for total area differ slightly from data presented in section 2.1
Source: Holland Consulting Planners 1991

Most of the 40,000-acre increase in farmland occurred on the Open Grounds and Smyrna Farms property Downeast. Farmland in the western portion of the county is being gradually converted to urban and built-up land uses (Holland 1991:I-47). The largest land-use category in the county is forest and fresh water wetlands. Wooded swamps occupy about 6,600 acres, while bogs or pocosins occupy 154,369 acres. One-third of these wetlands are located in the Croatan National Forest in the western portion of the county. The remaining two-thirds are scattered throughout the county and are subject to "404 wetlands" regulations (Holland 1991:I-47). These regulations are the primary deterrent to development in the county. The 55,000 acres of saltmarsh, much of which are located in the eastern portion of the county, are stringently protected and will likely remain undisturbed (Holland 1991:I-48).

Wastewater disposal has been one of the most pressing land-use issues facing Carteret County in recent years. Disposal is currently provided by municipally owned systems, public/private package treatment and disposal systems, and privately owned individual septic tank systems (Holland 1991:I-97). The county does not own or operate any wastewater collection/treatment facilities. Dried sludge from three municipal plants is transported to the county landfill, while wastewater is discharged into Calico Creek from Morehead, into Newport River from Newport, and into Taylor's Creek from Beaufort (Holland 1991:1-98).

Increasingly, the disposal systems in place are becoming inadequate for the growing permanent and seasonal population. Additionally, the county faces such problems as septic tank and mechanical package treatment plant failure, shallow aquifer contamination, shellfish area closure, and pollution of estuaries. When the present systems are overloaded, they can contaminate waters for drinking, recreation, and commercial use (Armingeon 1989:ii).

Proposed solutions include land application, ocean outfall, and the expansion of county treatment facilities to include tertiary treatment and deepwell injection (Armingeon 1989:ii). Atlantic Beach planners recently proposed pumping the town's wastewater to Open Grounds Farm, a Downeast agribusiness bordering primary rivers and estuaries. Most citizens who were polled did not reject land applications of wastewater in principle but they greatly opposed the site chosen. Many residents believed that the Downeast application would result in excess fresh-water runoff and cause a decline in estuarine water quality. Atlantic Beach and county planners are now exploring an ocean outfall system, but this alternative's expense and magnitude makes implementation unlikely in the near future. Atlantic Beach is a vivid example of the problems facing rapidly developing coastal communities.

2.4.2.3 Infrastructure

Carteret County's transportation system includes an arterial highway system, a municipal airport, rail transport to serve county industries and the State Port, and the Intracoastal Waterway, providing bulk commercial transportation and a safe travel route for pleasure boats. Improvements in this system since World War II have been instrumental in connecting previously isolated communities and in developing a regionally integrated economy (Maiolo and Tschetter 1982).

Roads The present highway system, although considered adequate, is increasingly strained by the rapidly increasing traffic flow (Holland 1991:I-101). Although infrastructure improvements have been made recently, such as a new high-rise bridge from Morehead City to Atlantic Beach and the soon-to-be-completed Core Creek bridge along North Carolina 101, traffic problems persist, particularly in the summer months when congestion can be "intolerable" (Holland 1991:I-104). Particularly bad congestion occurs along N.C. 24 and U.S. 70 in Morehead City, and along U.S. 70 in Beaufort, which has a frequently used drawbridge. Lanes were added to U.S. 70 in 1993 in an effort to deal with some of the traffic that "poses a significant safety hazard as well as a negative impact on the tourist trade" (Holland 1991:I-101). As of 1987, Carteret County had 124.63 miles of primary roads and 276.09 miles of secondary roads. Of these, 364.52 miles were paved and 36.20 miles were unpaved.

Aviation The Michael J. Smith Field in northwest Beaufort, the county's only general aviation facility, is county owned and managed by the Beaufort-Morehead City Airport Authority (Holland 1991:I-104). It accommodates small to medium-sized propeller aircraft and small business jets. There is considerable controversy concerning a proposal to expand the 340-acre facility. Proponents contend expansion is necessary to attract a commuter service to the area and to provide a jumping-off-point for offshore natural gas exploration if this should come about. Opponents include residents living near the air facility who do not want more air traffic and larger aircraft in the area.

Waterways Carteret County's waterways include the Intracoastal Waterway, which enters the county to the north through Adams Creek and continues past Morehead City south through Bogue Sound. The waterway is heavily used by commercial barge traffic from TexasGulf Inc., a large phosphate mining facility in Beaufort County, as well as for shipment of wood chips and wood products. It also provides north/south transit for recreational boaters, and its proximity has made Beaufort and Morehead City popular ports of call for these vessels. Other waterways used by commercial and recreational vessels include Beaufort Inlet, one of North Carolina's two deep-water inlets, and the numerous sounds, bays, and rivers. The narrow channel between Harkers Island and the Cape Lookout National Seashore is heavily utilized by both recreational and commercial fishermen.

Landfills The county's only sanitary landfill, located in the Newport township, is the disposal site for all domestic and commercial waste from greenboxes, municipal collection services, private collection services, and building development sites (Holland 1991:I-104). In 1992, charges for dumping were initiated. The twenty-year-old landfill began Phase II in 1984 and thus far has had no problems with groundwater contamination (Holland 1991:I-104). Planners from Carteret, Pamlico, and Craven counties are studying the possibility of a future tri-county system of solid waste disposal for the first part of the next century (Holland 1991:I-104).

2.4.3 Population and Demography

The permanent population of Carteret County in 1990 was 52,556. This represents an increase of over 11,000 persons (28%) since 1980. The county's growth rate from 1970 to 1980 (30%) was nearly twice that of the decade from 1960 to 1970 (15%). This growth is part of a well-documented national trend of migration that began in the late 1960s, as people began leaving urban areas and populating nonmetropolitan areas (Holland 1991:I-4). Carteret County felt the impact of this migration trend by the early 1970s. Influencing growth in the county was the expansion of military facilities, the decentralization of industry, and the development of retirement and recreation centers (Holland 1991:I-5).

Several recent infrastructure investments have facilitated the increased flow of people to the county (Maiolo and Tschetter 1982). For example, the Cedar Island to Ocracoke ferry

landing in 1964, the new bridge to Harkers Island in the early 1970s, and the high-rise bridge from Morehead City to Atlantic Beach built in the mid-1980s, have allowed for greater tourist traffic. The seasonal population of Carteret County has a significant impact on community facilities and fragile areas, as well as on the local economy (Holland 1991:I-12).

2.4.3.1 Population History and Characteristics

The population in Carteret County has grown at varying rates since 1880 (see Table 2.4-2). According to U.S. Bureau of the Census figures, the largest growth spurt was between 1970 and 1980, however, growth throughout the last several decades has been significant.

Table 2.4-2 POPULATION IN CARTERET COUNTY FOR 1880 THROUGH 1990		
Year	Population	Percent Change by Decade
1880	9,784	N/A
1890	10,825	10.64%
1900	11,811	9.11%
1910	13,776	16.64%
1920	15,384	11.67%
1930	16,914	9.95%
1940	18,284	8.10%
1950	23,059	26.12%
1960	27,438	18.99%
1970	31,603	15.18%
1980	41,092	30.03%
1990	52,556	27.90%
Sources: Lesserts et al. 1926; U.S. Bureau of the Census		

Much of the population growth between 1960 and 1990 occurred in the incorporated beach communities of Emerald Isle and Atlantic Beach, as these areas became popular vacation spots. Rapid growth also took place in unincorporated areas "within or near the extraterritorial jurisdiction of existing municipalities" with existing infrastructure and municipal government (Holland 1991:I-6).

From 1980 to 1990 a spurt in municipal growth occurred. This was due in part to actual growth within established municipal borders and in part to the annexation of heavily populated unincorporated areas (Holland 1991:I-6). The county's rural townships, with the exception of Atlantic, also showed significant growth. Most, however, continue to be relatively undeveloped because of environmental restrictions and limited water and sewer systems. The conflict between such restrictions and continued growth pressure in rural Carteret County is the focus of much debate (Holland 1991:I-96-97). There are cases within the county, like Harkers Island where there is resistance to incorporation; people do not want their taxes to increase and they are willing to do without services. Another reason for resistance is that many long-term residents do not want development. In contrast, a significant number of newcomers press for just the opposite and want to incorporate.

All of Carteret's community populations experienced population growth from 1980 to 1990 with the exception of Beaufort which had a slight decrease in population size (see Table 2.4-3). While Morehead City had the greatest number of persons in 1990 (6,046), Indian Beach and Emerald Isle had the greatest increases in population growth.

Table 2.4-3 COMMUNITY POPULATION IN CARTERET COUNTY FOR 1980 AND 1990			
Community	1980	1990	Percent Change from 1980 to 1990
Atlantic	722	N/A	N/A
Atlantic Beach	941	1,938	105.95%
Beaufort	3,826	3,808	-0.47%
Cape Carteret	944	1,013	7.31%
Cedar Point	479	628	31.11%
Emerald Isle	865	2,434	181.39%
Indian Beach	54	153	183.33%
Morehead City	4,359	6,046	38.70%
Newport	1,883	2,516	33.62%
Pine Knoll Shores	646	1,360	110.53%
Total	14,719	19,896	35.17%
Source: North Carolina State Data Center			

Although Carteret's rural population growth matched that of its total population growth (just over 20%), the county's urban population growth increased over 50% since 1980. The number of persons in group quarters in the county increased slightly during this period (see Table 2.4-4).

Table 2.4-4 POPULATION CHARACTERISTICS IN CARTERET COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total population	41,092	52,556	27.89%
Urban population	8,185	12,423	51.78%
Rural population	32,907	40,133	21.96%
Group quarters	882	996	12.93%
Noninstitutional age 16-64	26,781	32,534	21.48%
Source: U.S. Bureau of the Census			

2.4.3.2 Population Composition

Age The largest age group in Carteret County is composed of individuals between the ages of 25 and 54 (see Table 2.4-5). The population of all age groups, excluding the number of individuals between the ages of 18 and 24, increased in Carteret County from 1980 to 1990. The largest percentage growth was seen in the two oldest age groups; this is consistent with the increase in median age of county residents from 31.4 in 1980 to 35.9 in 1990. This increase can also be attributed to a slight reduction in birth rate (children under 5 decreased as a percentage of the total population from 1980 to 1990), aging in place, and in-migration of older families or individuals.

Table 2.4-5					
AGE DISTRIBUTION IN CARTERET COUNTY FOR 1980 AND 1990					
Age Group	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	41,092	100.00%	52,556	100%	27.90%
Total persons under 18	10,885	26.49%	11,807	22.47%	8.47%
Under 5 years	2,787	6.78%	3,345	6.36%	20.02%
5 to 17 years	8,098	19.71%	8,444	16.07%	4.27%
18 to 20 years	2,324	5.66%	2,128	4.05%	-8.43%
21 to 24 years	2,985	7.26%	2,843	5.41%	-4.76%
25 to 54 years	15,666	38.12%	22,540	42.89%	12.60%
55 to 64 years	4,473	10.89%	5,714	10.87%	28.78%
65 years +	4,759	11.58%	7,515	14.30%	57.91%
Median age	31.4 years	N/A	35.9 years	N/A	+4.5 years

Note: Percentages may not add to 100 due to rounding
Source: U.S. Bureau of the Census

Sex As shown in Table 2.4-6, there were slightly more females (about 1% more) than males reported in both the 1980 and 1990 census for Carteret County. Males in 1980 made up 49.6% of the total population, while 50.4% of the population was females. In 1990, the male component was marginally smaller (49.4% of the total population), while females composed 50.6%.

Table 2.4-6					
SEX DISTRIBUTION IN CARTERET COUNTY FOR 1980 AND 1990					
Sex	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	41,092	100.00%	52,556	100%	27.90%
Male	20,391	49.62%	25,968	49.41%	27.35%
Female	20,701	50.38%	26,588	50.59%	28.44%

Source: U.S. Bureau of the Census

Ethnicity In absolute numbers, the African-American population of Carteret County has increased since 1970, but the increase has not kept pace with white population growth. The non-African-American minority population growth rate has been large in percentage terms, but still comprises less than 2% of the total population (see Table 2.4-7). The county's in-migration has been dominated by whites while the population growth among African-Americans has been largely dependent on birth and death rates since 1970 and not on migration (Holland 1991:I-11). The African-American population is by and large unaffected by migratory patterns and "is typical of coastal North Carolina counties, and is reflective of several socioeconomic factors such as education, housing availability, and industrial development" (Holland 1991:I-11).

Ethnicity	1980		1990		Percent Change from 1980 to 1990
	Number of Persons	Percent of Total	Number of Persons	Percent of Total	
White	36,955	89.93%	47,618	90.60%	20.85%
Black	3,857	9.39%	4,262	8.11%	10.50%
American Indian, Eskimo, Aleut	68	0.17%	269	0.51%	295.59%
Asian or Pacific Islander	155	0.38%	293	0.56%	89.03%
Hispanic origin of any race	383	0.93%	450	0.86%	17.49%
Other	95	0.23%	164	0.31%	72.63%

Source: U.S. Bureau of the Census

Household Patterns Along with the general rise in population, the total number of households in Carteret County increased from 1980 to 1990 by 40%, as can be seen in Table 2.4-8. The number of persons per household, however, declined slightly from 2.7 to 2.4. Although family households constituted the largest single component of household types in both 1980 and 1990 in Carteret County, nonfamily households increased at twice the rate. Of the county's 15,276 family households in 1990, 83% were married couple families.

Table 2.4-8 HOUSEHOLD PATTERNS IN CARTERET COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total households	15,150	21,238	40.18%
Family households (families)	11,627	15,276	31.38%
Married couple families	9,861	12,681	28.60%
Percent of total households	65.09%	59.71%	-5.38%*
Other family, male householder	363	574	58.13%
Other family, female householder	1,403	2,021	44.05%
Nonfamily households	3,523	5,962	69.23%
Percent of total households	23.3%	28.1%	4.80%*
Householders living alone	3,114	5,070	62.81%
Householder 65 years and older	1,167	1,870	60.24%
Persons living in households	40,208	51,554	28.22%
Persons per household	2.65	2.43	-0.22%*
*Number reflects observed difference between 1980 and 1990, not absolute percent change Source: U.S. Bureau of the Census			

Housing Table 2.4-9 presents information on occupation and tenure of housing units. Of the total housing units in 1990, 61% were occupied and 39% were vacant housing units. The majority of vacant housing units are for seasonal uses, and have increased substantially over the decade. This is consistent with other data that point to the rapid growth of the area as a tourism and recreation destination, paralleled by residential growth. While the homeowner vacancy rate has decreased slightly, the rental vacancy rate has increased slightly.

As Table 2.4-10 shows, of Carteret County's total housing units in 1990, unit structures of fifty or more increased substantially (584%), and five-to-nine unit structures increased over 250% since 1980. Although one-unit detached homes are the largest structures in both 1980 and 1990, they have had the least increase in units during this period.

Table 2.4-9 HOUSING IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total housing units	23,740	34,576	45.64%
Occupied housing units	15,128	21,238	40.39%
Percent owner occupied	75.3%	74.2%	38.31%*
Percent renter occupied	24.7%	25.8%	46.72%*
Vacant housing units	8,612	13,338	54.88%
For seasonal, recreational, or occasional use	3,072	10,138	230.01%
Homeowner vacancy rate (percent)	3.9%	3.4%	-0.50%**
Rental vacancy rate (percent)	17.6%	23.9%	6.30%**
*Percent growth of number of units in category (not change in percent of total category) **Change in percent of total category Source: U.S. Bureau of the Census			

Table 2.4-10 UNITS IN STRUCTURE IN CARTERET COUNTY FOR 1980 AND 1990			
Units	1980	1990	Percent Change from 1980 to 1990
1, detached	12,884	17,508	35.89%
1, attached	428	1,207	182.01%
2	836	1,343	60.65%
3 and 4	450	910	102.22%
5 to 9	277	703	153.79%
10 to 49	550	1,950	254.55%
50 or more	194	1,328	584.54%
Mobile home, trailer, etc.	4,979	9,627	93.35%
TOTAL	20,598*	34,576	67.86%
*1980 total does not include vacant housing units for seasonal uses Source: U.S. Bureau of the Census			

Table 2.4-11 presents information on housing values. Especially significant is the rapid growth in higher-priced homes combined with the decline in number and percentage of homes in the lower price range. For example, homes under \$50,000 have decreased by over 50% (and declined from 70% to 22% of the total housing stock) while the number of homes over \$200,000 have increased nearly 30-fold (and increased from one-third of one percent to over 7% of the total housing stock). This trend, which corresponds with the overall demographic and economic growth of the county, is not without its problems. The tax increases that accompany increased assessments are especially difficult for long-term residents on fixed or low incomes who do not desire or cannot afford to move to a lesser-priced real estate market. This has created an atmosphere where luxury homes are being built by newcomers while some residents, whose families may have been locals for generations, are in jeopardy of being taxed off of their property. This process of "gentrification" of formerly rural areas along the coast is by no means unique to Carteret County.

Table 2.4-11 VALUE OF SPECIFIED OWNER-OCCUPIED AND RENTER-OCCUPIED UNITS IN CARTERET COUNTY FOR 1980 AND 1990					
Census Category	1980	Percent of Total (1980)	1990	Percent of Total (1990)	Percent Change from 1980 to 1990
Specified owner-occupied units	8,104	N/A	10,438	N/A	28.80%
Less than \$50,000	5,657	69.81%	2,297	22.01%	-59.40%
\$50,000 to \$99,000	2,051	25.31%	5,105	48.91%	148.90%
\$100,000 to \$149,000	303	3.74%	1,547	14.82%	410.56%
\$150,000 to \$199,999	67	0.83%	753	7.21%	1,023.88%
\$200,000 to \$299,999	26*	0.32%	527	5.05%	1,926.92%
\$300,000 or more	N/A	N/A	209	2.00%	N/A
Median (dollars)	36,900	N/A	73,100	N/A	98.10%
Specified renter-occupied units paying cash rent	3,533	N/A	4,798	N/A	35.81%
Median rent (dollars)	140	N/A	280	N/A	100.00%
* \$200,000 or more Source: U.S. Bureau of the Census					

Marriages and Divorces The trends in Carteret's marriage and divorce rates are similar to those in other counties. That is, the divorced component of the population is growing much faster than the married component, in this case at close to four times the rate. Although the numbers of married and divorced men versus women differ slightly in 1980 and 1990, their rate of growth has remained equivalent (see Table 2.4-12).

Table 2.4-12 MARRIAGES AND DIVORCES IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total married people	20,589	26,866	30.49%
Married women	10,260	13,319	29.81%
Married men	10,329	13,547	31.16%
Total divorced people	1,495	3,213	114.92%
Divorced women	831	1,783	114.56%
Divorced men	664	1,430	115.36%
Source: North Carolina State Data Center			

Births and Deaths As shown in Table 2.4-13, increases in birth rate do not account for the population increases in Carteret County. In fact, the increase in births in the county is not only significantly outstripped by the overall population growth rate, the percentage growth in the number of deaths has exceed growth in births over threefold.

Table 2.4-13 BIRTHS AND DEATHS IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Births	625	706	12.96%
Deaths	330	487	47.58%
Source: North Carolina State Data Center			

2.4.3.3 Seasonal Population

In 1987, the total seasonal housing units in Carteret County equaled 67,082, a 56% increase since 1980. Table 2.4-14 lists the total number and type of seasonal units in the county for these two periods. The number of private seasonal housing units increased the most during this time (71%), followed by motels and hotels (49%). The number of campgrounds and boat slips also increased from 1980 to 1987 (10%), although not as rapidly as the other types of units.

Table 2.4-14			
SUMMARY OF SEASONAL HOUSING UNITS IN CARTERET COUNTY FOR 1980 AND 1987			
Type of Seasonal Unit	Year		Percent Change from 1980 to 1987
	1980	1987	
Total	42,940	67,082	56.22%
Private housing units	29,016	49,702	71.29%
Motels/hotels	5,344	7,983	49.38%
Campgrounds	5,097	5,598	9.83%
Marinas	3,483	3,799	9.07%
Source: Paul D. Tschetter, East Carolina University, 1987			

Table 2.4-15 presents the relationship of seasonal population capacity and permanent populations in the county for 1970 to 1987. "Peak Seasonal Population Capacity" refers to the total number of persons in all seasonal housing units if those units were occupied at full capacity based on average assumed household sizes for each type of unit (Holland 1992: I-12). This population is strictly theoretical and implies what the total number of persons would be in the county if all units (permanent and seasonal) were full during peak seasons (e.g., Labor Day and Memorial Day). The peak seasonal population capacity grew in Carteret County five times as fast as the permanent population between the years of 1970 and 1987 (Holland 1991:I-16). These statistics are useful to county planners and policymakers who are concerned with providing adequate infrastructure and recreational access for the lucrative seasonal population. The estimated peak seasonal population capacity of the county in 1987 was about two and a half times the size of the permanent population (Holland 1991:I-16).

**Table 2.4-15
RELATIONSHIP OF SEASONAL POPULATION CAPACITY/PERMANENT POPULATION IN
CARTERET COUNTY FOR 1970, 1980 AND 1987**

Year	Permanent Population	Percent of Total Peak Population Capacity	Peak Seasonal Population Capacity	Percent of Total Peak Population Capacity	*Total Peak Population Capacity
1970	31,603	65.95%	16,320	34.05%	47,923
1980	41,092	48.90%	42,940	51.10%	84,032
1987	50,485	42.94%	67,082	57.06%	117,567
Percent change from 1980 to 1987	22.86%	-5.96%	56.22%	6.0%	39.91%

*Refers to the sum of permanent population and peak seasonal population
Source: Holland Consulting Planners 1991

Carteret County municipalities experienced the highest gains in total peak population capacity and the ratio of peak/permanent population capacity. The municipalities most impacted were the beach communities on Bogue Banks (Holland 1991:I-20). Among the townships, White Oak had the largest ratio of peak capacity/permanent population, followed by Harkers Island (Holland 1991:I-20).

Compared to Currituck, Dare, and Hyde counties, Carteret had the highest numerical increase of new seasonal units and was the only county that showed a gain in each type of seasonal unit from 1980-1987. Growth is also reflected in the number of CAMA permits issued per year. In 1986, Carteret County ranked second in North Carolina (behind Brunswick County) in the total number of development permits issued. In 1987, Carteret County was first in the number of permits granted, accounting for 29% of all CAMA development permits issued in the state (Holland 1991:I-14).

The number of residential building permits has also risen. From 1983-1987, 10,090 total residential building permits were issued, for an average of 2,018 per year (Holland 1991:I-14). This increase parallels seasonal population growth. Compared to Currituck, Dare, and Hyde counties, Carteret ranked only behind Hyde County in seasonal population increase from 1980-1987 (Holland 1991:I-15).

2.4.3.4 Migration

In-migration to Carteret County in 1980 and 1990 was overwhelmingly dominated by persons coming from the military communities in Craven and Onslow counties. This reflects both the proclivity of some former military personnel to retire in Carteret County and the popularity of Carteret County as a place of residence for active military personnel who travel daily to the nearby military complexes. The next largest group of in-migrants for 1980 and 1990 were from the Raleigh area. The Beaufort/Morehead City area is popular as a vacation destination for residents in the Research Triangle - Raleigh/Durham/Chapel Hill area. Many become second-home buyers in Carteret County and some eventually retire or relocate to the county, becoming permanent residents.

Contrary to local opinion, IRS migration data show that most in-migrants are from the south, not from the northeast (see Tables 2.4-16 and -17). The second largest category of in-migrants are from the northeast, followed by those from in-state locations. Carteret County in-migration levels remained strong in 1990, but, like Beaufort County, were slightly below the numbers recorded in 1980. Of the 433 southerners moving into the county from 1978 to 1980, 196 were from in-state locations. According to the 1990 table, 408 southerners moved in, 185 of those from in-state locations. The far reaching appeal of Carteret County as evidenced by in-migrations from places such as Hawaii, California, and Florida, could be the result of the military influence of the region, which brings in people from all over the world.

**Table 2.4-16
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO CARTERET COUNTY FOR 1980**

County/Place of Origin	State	Nonexempt Filers	Percent of Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Craven	NC	270	11.76%	613	12.42%	883
Onslow	NC	130	5.66%	301	6.10%	431
Wake	NC	96	4.18%	197	3.99%	293
Foreign	N/A	67	2.92%	130	2.63%	197
Guilford	NC	41	1.79%	94	1.90%	135
Pitt	NC	38	1.66%	73	1.48%	111
Cumberland	NC	29	1.26%	63	1.28%	92
Durham	NC	27	1.18%	55	1.11%	82
Forsyth	NC	26	1.13%	71	1.44%	97
Lenoir	NC	26	1.13%	57	1.15%	83
San Diego	CA	24	1.05%	45	0.91%	69
Suffolk	NY	24	1.05%	43	0.87%	67
Wayne	NC	23	1.00%	51	1.03%	74
Fairfax	VA	21	0.92%	39	0.79%	60
New Hanover	NC	20	0.87%	39	0.79%	59
Orange	NC	19	0.83%	28	0.57%	47
Allegheny	PA	18	0.78%	33	0.67%	51
Orange	CA	17	0.74%	39	0.79%	56
Shelby	TN	17	0.74%	41	0.83%	58
Dade	FL	17	0.74%	33	0.67%	50
Prince William	VA	16	0.70%	46	0.93%	62
Honolulu	HI	15	0.65%	48	0.97%	63
Virginia Beach	VA	15	0.65%	40	0.81%	55
Wilson	NC	15	0.65%	34	0.69%	49
Norfolk	VA	14	0.61%	32	0.65%	46

**Table 2.4-16
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO CARTERET COUNTY FOR 1980**

County/Place of Origin	State	Nonexempt Filers	Percent of Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Chesapeake	VA	14	0.61%	32	0.65%	46
Prince Georges	MD	14	0.61%	30	0.61%	44
Beaufort	NC	14	0.61%	30	0.61%	44
Hecklenburg	NC	13	0.57%	26	0.53%	39
Brevard	FL	12	0.52%	30	0.61%	42
Orange	FL	12	0.52%	25	0.51%	37
Alamance	NC	12	0.52%	27	0.55%	39
Fairfield	CT	12	0.52%	20	0.41%	32
Nash	NC	12	0.52%	25	0.51%	37
Same state	NC	196	8.54%	474	9.60%	670
Northeast	N/A	263	11.46%	505	10.23%	768
North Central	N/A	181	7.89%	343	6.95%	524
South	N/A	433	18.87%	964	19.53%	1,397
West	N/A	82	3.57%	161	3.26%	243
Total county migrant filers	NC	2,295	100.00%	4,937	100.00%	7,232
Total county nonmigrant filers	N/A	11,121	N/A	27,512	N/A	38,633

*Includes total nonexempt and exempt filers
Source: Internal Revenue Service, Statistics Income Division 1992

**Table 2.4-17
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO CARTERET COUNTY FOR 1990**

County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Craven	NC	246	12.01%	522	12.58%	768
Onslow	NC	149	7.28%	305	7.35%	454
Wake	NC	97	4.74%	163	3.93%	260
APO / FPO Zip Code	FR	56	2.73%	125	3.01%	181
Durham	NC	35	1.71%	59	1.42%	94
Fairfax	VA	26	1.27%	50	1.20%	76
New Hanover	NC	23	1.12%	40	0.96%	63
Guilford	NC	23	1.12%	44	1.06%	67
Pitt	NC	22	1.07%	31	0.75%	53
Wayne	NC	21	1.03%	38	0.92%	59
Virginia Beach	VA	20	0.98%	52	1.25%	72
Orange	NC	17	0.83%	27	0.65%	44
Prince William	VA	17	0.83%	48	1.16%	65
Forsyth	NC	16	0.78%	26	0.63%	42
Cumberland	NC	15	0.73%	30	0.72%	45
Nash	NC	14	0.68%	26	0.63%	40
Alamance	NC	14	0.68%	24	0.58%	38
Mecklenburg	NC	14	0.68%	22	0.53%	36
Suffolk	NY	13	0.63%	24	0.58%	37
Pinellas	FL	13	0.63%	24	0.58%	37
Lenoir	NC	13	0.63%	26	0.63%	39

Table 2.4-17 IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO CARTERET COUNTY FOR 1990						
County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Montgomery	MD	13	0.63%	29	0.70%	42
Wilson	NC	12	0.59%	21	0.51%	33
Shelby	TN	12	0.59%	25	0.60%	37
Beaufort	SC	11	0.54%	34	0.82%	45
Edgecombe	NC	11	0.54%	31	0.75%	42
Same state	NC	185	9.03%	387	9.32%	572
Northeast	N/A	265	12.94%	520	12.53%	785
Midwest	N/A	149	7.28%	313	7.54%	462
South	N/A	408	19.92%	828	19.95%	1,236
West	N/A	118	5.76%	257	6.19%	375
Total county migrant filers	NC	2,048	100.00%	4,151	100.00%	6,199
Total county nonmigrant filers	N/A	17,859	N/A	38,082	N/A	55,941
Source: Internal Revenue Service, Statistics Income Division 1992						

2.4.4 Economy

Carteret County, like other counties in the "Sunbelt South," has undergone a transformation since the early 1970s. Low-skill manufacturing industries (e.g. textiles, pulp and paper, fertilizer, tobacco) have declined, while a combination of high-skill research and low-skill service industries have increased (Cobb 1982; Wright 1986).

For coastal counties such as Carteret, this shift means a decline in extractive industries and some types of agriculture (e.g., fishmeal and oil processing, small-scale or family farming, timber, and fishing) and an increase in research, education, and service industries; the latter associated with tourism, recreation, and retirees (Rosenfeld, Bergmar, and Rubin 1985; MDC 1986). Carteret County residents with little or no advanced education or skills training are increasingly forced to take minimum-wage jobs in the service industries or relocate outside the county because of a paucity of low-skill manufacturing jobs within the county.

2.4.4.1 Major Economic Sectors

Carteret County's diversified economy encompasses tourism, manufacturing, agriculture, business, retail trade, real estate and construction, commercial fishing, the military, fisheries research and regulation, and the import/export industry (Holland 1991:I-26).

The county contains three military facilities: a Marine Corps outlying field in Atlantic, a Marine Corps auxiliary landing field in Bogue, and a Coast Guard Base at Fort Macon. Other military facilities in the area influence Carteret County by providing jobs to residents as well as other business opportunities, including military-related tourism. The U.S. Army's Fort Bragg in Fayetteville, approximately 140 miles away; the U.S. Marine Corp base Camp Lejeune in Jacksonville, approximately 40 miles away; and the U.S. Marine Corps Air Station and Naval Aviation Depot at Cherry Point in Havelock (Craven County), approximately 9 miles from the county, all have a marked local influence.

Major Employers Retail trade is a primary source of employment, employing some 5,600 county residents. About 8,000 residents are employed in finance, real estate, insurance, and various service categories. Commercial fishing is one of the most significant sources of employment, as the county lists 3,200 full-time fishermen (including captains and crewmen; a much higher figure than would be assumed from 1990 census data) and an additional 1,000 on-shore employees at fish houses (Carteret County Economic Development Council 1992b:3). Education is another significant sector of employment, with some 950 residents employed (Carteret County Economic Development Council 1992a:6). Atlantic Veneer, a manufacturer of wood veneer products, employs about 650 residents (50 previous employees lost their jobs in January 1993 due to a declining European market). County and state governments account for almost 600 employees, many of whom are involved in fisheries research, management, and regulation enforcement (Carteret County Economic Development Council 1992a:6).

Contribution by Economic Sector The largest contributor to 1990 wages in Carteret County was the government sector with some \$61.6 million in average annual wages.⁵ Next are retail trade and services, which contributed more than \$50 million and \$42 million

⁵ The largest component of government employment is provided through MCAS Cherry Point. The Havelock (Cherry Point) air rework facility is currently (1993) targeted for closure under the national military downsizing plan, which, if carried out, will have significant implications for the local economy.

respectively. In addition to wages, tourism and fishing sectors make significant contributions to the overall regional economy. In the 1991 Carteret County Land Use Plan, travel and tourism was estimated to bring in \$135 million dollars to Carteret County in 1981 (Holland 1991:I-31). Recent estimates of the Carteret County Economic Development Council place the value of commercial fishing at almost \$80 million dollars annually (Carteret County Economic Development Council 1992b:5).

Employment by Sector Employment in Carteret County has increased over 50% from 1980 to 1990. All industries in the county have witnessed a rise in employment levels during this period with the exception of manufacturing (nondurable goods) whose total employment has decreased slightly (2%). Employment in entertainment and recreational services has increased by 260% since 1980, and employment levels in finance, insurance and real estate, business and repair services, and other professional and related services have increased by more than 100%. Retail trade has been the largest employer in Carteret for 1980 and 1990 and has experienced an increase of 84% during this time. Public administration accounted for 14% of the total employers in 1980 but only 11% in 1990. Table 2.4-18 details the employment trends from 1980 to 1990.

Gross Retail Sales Gross retail sales in 1990-1991 were up approximately 115% over the previous decade, consistent with the expanding economy in general. As shown in Table 2.4-19, growth was not steady over all years during this period. Sales peaked in 1988-1989 after a run of uninterrupted growth, fell approximately 3% the next year, and regained some of the lost ground the following year, but remained approximately 2% below the peak levels.

Manufacturing, Industry Construction Product Values The value of shipments by manufacturers in Carteret County in 1987 was \$188.5 million, compared to \$151.5 million in 1982.

Commercial Fishing Although commercial fishing is still an important contributor to Carteret County's economy, total finfish and shellfish landings have decreased over the past ten years. This trend toward a decrease in overall fish landings is reported at the state level and most of the other study counties as well (with the exception of shellfish landings in some counties). Total finfish and shellfish landings in Carteret County in 1981 and 1991 are presented in section 2.4.6.

**Table 2.4-18
EMPLOYMENT BY INDUSTRY IN CARTERET COUNTY FOR 1980 AND 1990**

Industry Groups	1980	Percent of Total	1990	Percent of Total	Percent Change from 1980 to 1990
Agriculture, forestry, and fisheries	1,227	7.84%	1,249	5.24%	1.79%
Mining	7	0.04%	11	0.05%	57.14%
Construction	1,229	7.85%	2,146	9.00%	74.61%
Manufacturing, nondurable goods	1,033	6.60%	1,008	4.23%	-2.42%
Manufacturing, durable goods	895	5.72%	1,198	5.03%	33.85%
Transportation, communication, and other public utilities	965	6.16%	1,520	6.38%	57.51%
Wholesale trade	645	4.12%	725	3.04%	12.40%
Retail trade	3,059	19.54%	5,618	23.57%	83.65%
Finance, insurance, and real estate	626	4.00%	1,290	5.41%	106.07%
Business and repair services	315	2.01%	794	3.33%	152.06%
Personal services	617	3.94%	841	3.53%	36.30%
Entertainment and recreational services	98	0.63%	353	1.48%	260.20%
Health services	940	6.01%	1,723	7.23%	83.30%
Educational services	1,362	8.70%	1,829	7.67%	34.29%
Other professional and related services	400	2.56%	1,054	4.42%	163.50%
Public administration	2,235	14.28%	2,478	10.40%	10.87%
TOTAL	15,653	100.00%	23,837	100.00%	52.28%

Source: U.S. Bureau of the Census

Table 2.4-19	
GROSS RETAIL SALES IN CARTERET COUNTY FOR 1980-81 THROUGH 1990-91	
Year	Retail Sales
1980-81	\$215,049,751
1981-82	\$249,406,245
1982-83	\$272,939,204
1983-84	\$317,123,113
1984-85	\$347,236,653
1985-86	\$379,932,187
1986-87	\$386,584,369
1987-88	\$430,121,730
1988-89	\$470,950,690
1989-90	\$457,743,173
1990-91	\$461,754,600
Source: Carteret County Economic Development Council 1992	

Agriculture Most agricultural lands in Carteret County are Downeast, where two large corporate farms, Open Grounds Farm and Smyrna Farms, operate on some 70,000 cleared acres. A number of small farmers operate in this area as well, growing corn, soybeans, cabbages, and some truck crops.

The number of farms, land in farms, farm populations, and farming operations all declined over the period from 1980 to 1990 as seen in Table 2.4-20. While land in farms declined only slightly, the other variables declined precipitously. Harvested cropland and farm incomes, however, have increased substantially. This is consistent with trends seen in other counties where small farms have been closing down while large corporate farms have been growing -- combining lower labor factors and large-scale higher productivity methods and changing the nature of agriculture as it is practiced locally.

Table 2.4-20 AGRICULTURE INDUSTRY IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Farms	162*	122**	-24.69%
Land in farms (acres)	67,645*	65,541**	-3.11%
Farm populations	623	402	-35.47%
Farming operators	86*	68**	-20.93%
Harvested cropland (acres)	18,100	33,900	87.29%
Farm income (dollars)	8,380,000	13,373,000	59.58%
* 1982 figures ** 1987 figures Source: North Carolina Data Center			

Although corn and soybeans are Carteret's primary crops, the amount of wheat harvested has grown at a substantially faster rate (over 800%). Tobacco, potatoes, and sorghum have all decreased in the county by anywhere from 30% to 60%.

Table 2.4-21 TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN CARTERET COUNTY FOR 1980 AND 1991			
Crop	1980	1991	Percent Change from 1980 to 1991
Corn	6,700	16,000	138.81%
Wheat	450	4,400	877.78%
Soybeans	9,400	16,800	78.72%
Tobacco	940	655	-30.32%
Oats	0	0	0.00%
Potatoes	1,230*	650	-47.15%
Sorghum	660	250	-62.12%
* 1983 data Source: North Carolina Department of Agriculture, Agricultural Statistics Division			

2.4.4.2 Workforce

In 1990, Carteret County had 23,837 individuals (aged 16 and over) working in various civilian jobs and industries. Fifteen percent of these individuals are employed in sales alone. The number of unemployed people in Carteret County in 1990 was 1,063. Increases in employment have exceeded growth in the labor force over the period of 1980 to 1990, resulting in a drop in unemployment. This is consistent with other indicators of economic growth over the decade. Table 2.4-22 illustrates the characteristics of the workforce.

Table 2.4-22 WORKFORCE CHARACTERISTICS IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Labor force by residence	16,500	23,282	41.10%
Employment by place of residence	15,170	22,219	46.47%
Unemployed by place of residence	1,330	1,063	-20.08%
Unemployment rate	8.1	4.6	-43.21%

Source: North Carolina State Data Center

2.4.4.3 Income

Whereas average wages per worker increased in the county by approximately 40% from 1980 to 1990, the increase in median family income more than doubled (see Table 2.4-23). 1980 figures suggest the presence of 1.7 workers per family, while 1990 figures indicate income equivalent to 2.3 workers per family (i.e., a 35% increase in employment within families). Table 2.4-24 reveals total personal income and per capita personal incomes for the county. Personal income has increased over 140% from 1980 to 1990, and per capita incomes have increased over 88% during the same period.

Table 2.4-23 AVERAGE ANNUAL WAGE PER WORKER AND MEDIAN FAMILY INCOME IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Average annual wage per worker (dollars)	9,242	12,904	39.62%
Median family income (dollars)	16,068	30,241	88.21%
Source: North Carolina State Data Center			

Table 2.4-24 PERSONAL INCOME AND PER CAPITA INCOME IN CARTERET COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total personal income (dollars)	316,319,000	760,815,000	140.52%
Per capita personal income (dollars)	7,644	14,419	88.63%
Source: North Carolina State Data Center			

Table 2.4-25 depicts the poverty status in Carteret County for 1980 and 1990. The total number of person whose poverty status was determined in 1990 was 51,517. Of this, 5,977 people had incomes below the poverty level, which represented a numerical increase but a percentage of total population decrease since 1980. Likewise, the total number of families below the poverty level has increased by approximately 4% from 1980 to 1990, but decreased as a percentage of total families.

Table 2.4-25 POVERTY STATUS IN CARTERET COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total persons determined*	40,255	51,517	27.98%
Total persons below poverty level	5,618	5,977	6.39%
Percent persons below poverty level	13.96%	11.60%	-2.36%**
Total families determined*	11,627	15,351	32.03%
Total families below poverty level	1,341	1,400	4.40%
Percent families below poverty level	11.53%	9.12%	-2.41%**
*All persons/families for whom poverty status was determined **Change in percent of total category Source: U.S. Bureau of the Census			

2.4.4.4 Economic Issues and Trends

Of the state's counties, Carteret County's per capita income jumped from 56th in 1970 to 37th in 1986. Carteret County experienced a 120% increase in employed labor force from 1970 to 1988 (Holland 1991:I-26). The "rapidly growing employed labor force" and the "substantial growth in retail trade and personal income since 1980" point, according to the 1991 County Land Use Plan, to a "healthy, diversified local economy, not subject to instability due to seasonal or market fluctuations in any single industry" (Holland 1991:I-27). The county's growing retired population, residential development, military presence, and growth of industry largely "eliminated the wide swings in seasonal and year-to-year employment and income experienced by coastal regions that depend more exclusively on the tourism industry for support" (Holland 1981:I-27).

This optimistic assessment, however, does not reflect the last two years in which Carteret County has felt the effects of a nationwide recession. Nor does it reflect a more gradual trend of decreasing job opportunities in manufacturing, farming, and commercial fishing. For example, in the last five years, the county has lost 1,000 manufacturing jobs with plant closures in textiles, mobile home construction, fishmeal and oil processing, and others (Carteret County Economic Development Council, personal communication). Further

military downsizing in the post-Cold War era has put a chill on defense-related enterprises, and the future of local military installations is unclear.

Economic development officials report a reluctance on the part of new industries to relocate to an area with extensive environmental restrictions. There is also a reported perception of the coastal county being a "playground" for beachgoers, with potential laborers having more of a play ethic than a work ethic. This perception contrasts sharply with the local labor pool in need of more work opportunities.

Commercial fishing, a traditional mainstay of the county, has become an increasingly difficult livelihood for the approximately 10% of the local population who fish fulltime (Carteret County Economic Development Council 1992b). Many factors contribute to this problem, including decline in water quality, the overcapitalization of many fisheries, importation of seafood, and public pressure from sportfishing organizations and environmental groups to restrict several harvesting practices. Increasingly, the political climate seems to disfavor the commercial harvest of domestic fisheries. Few fishermen qualify for unemployment benefits, although the county social service department reports an increase in food stamp applications among local fishing families (Carteret County Department of Social Services: personal communication).

2.4.5 Patterns of Government Service Delivery

2.4.5.1 Structure and Employees

Beaufort, the county seat of Carteret County, houses one of the state's oldest county governments. It was incorporated and designated a port of entry in 1722 (Jones 1981:100) and a courthouse was built in the same year. The county government is comprised of a county manager and a board of commissioners consisting of five elected county commissioners with four-year staggered terms. They are charged to enter orders, adopt resolutions, adopt ordinances, adopt the Carteret County Land Use Plan, hold public hearings and appoint the county manager, the county attorney, and the clerk.

2.4.5.2 Local Government Revenues and Expenditures

Carteret County's total expenditures have generally risen from 1980 to 1990 with the exception of the period 1985 to 1986 in which they decreased by 6%. Likewise, the county's total revenues have generally increased, except the period from 1988 to 1989 in which they remained relatively stable.

Table 2.4-26		
TOTAL EXPENDITURES IN CARTERET COUNTY FOR 1980 THROUGH 1990		
Year	Total Expenditures	Percent Change from 1980 through 1990
1980	\$11,591,000	N/A
1895	\$16,469,000	42.08%
1986	\$15,552,000	-5.57%
1987	\$15,781,000	1.47%
1988	\$17,181,000	8.87%
1989	\$21,316,000	24.07%
1990	\$23,301,000	9.31%
Source: North Carolina State Data Center		

Table 2.4-27		
TOTAL REVENUES IN CARTERET COUNTY FOR 1980 THROUGH 1990		
Year	Total Revenues	Percent Change from 1980 through 1990
1980	\$11,306,000	N/A
1895	\$13,586,000	20.17%
1986	\$16,093,000	18.45%
1987	\$17,150,000	6.57%
1988	\$20,695,000	20.67%
1989	\$20,742,000	0.23%
1990	\$26,294,000	26.77%
Source: North Carolina State Data Center		

2.4.5.3 Education

The Carteret County Board of Education is comprised of five elected members who serve four-year terms. The board meets monthly in open session. The public school system consists of thirteen schools, which had a total enrollment of 8,128 in 1990. The first month average daily membership that year was 7,811. The system employs about 500 teachers, 150 teacher's assistants, and 40 school administrators. The operating budget for the 1991-1992 school year was \$40,621,721. Nineteen percent of the budget was derived from local sources, 74% from the state, and 7% from the federal government. For noncollege-bound high school students who want career training, a new "Tech Prep" program offers training in the following fields: technical applied math, REAL (Rural Entrepreneurship through Action Learning), computerized drafting, agriscience, horticulture technology, junior achievement, child care services, and principles of technology (Nance and Greene 1992:413-414). The public high schools graduated 385 students in 1990.

Table 2.4-28 lists the total public school expenditures in the county for 1990. State funding dominates (73%), federal funds are minimal, and local funds comprise approximately 20% of the total expenditures.

Table 2.4-28 PUBLIC SCHOOL EXPENDITURE BY SOURCE OF FUNDS IN CARTERET COUNTY FOR 1990			
Total Expenditures	Federal	State	Local
29,005,000	2,066,000	21,262,000	5,677,000
Source: North Carolina State Data Center, Statistical Abstract 1991			

2.4.5.4 Law Enforcement and Emergency Services

Law Enforcement The Carteret County Sheriff's Department, which is based in Beaufort, has countywide jurisdiction but functions as a first-responding agency only in unincorporated areas of the county. The sheriff's department employs sixty people and deploys twenty-five vehicles. It averages fifteen calls per day, mostly from the western part of the county. Most calls are reported to be drug related, alcohol related, or domestic disputes.

The sheriff's department is complemented with police departments in incorporated communities of the county. Municipal police departments are found in Atlantic Beach, Beaufort, Cape Carteret, Emerald Isle, Indian Beach, Newport, Morehead City, Pine Knoll Shores, and Swansboro.

Fire Departments Twenty-three fire departments are dispersed throughout the county in both unincorporated and incorporated areas. Fifteen rescue squads dispatch emergency assistance throughout the county. No paramedics are employed in the county.

Emergency Operations Carteret County Emergency Operations undertakes emergency response deployments in the event of natural disasters, war, civil disturbance, the spilling or leaking of hazardous materials, mass casualties, nuclear threat, and other emergency situations (Emergency Operations Plan 1992). Emergency Operations is most active in responding to hurricanes because of their frequency. When the county is threatened by one, the group establishes a hurricane emergency office, manages evacuations to designated shelters, and assesses damage.

The U.S. Coast Guard at Fort Macon conducts search and rescue operations in the event of maritime emergencies. In the event of a maritime accident, such as an oil spill, the Coast Guard deploys a Pollution Response Team.

2.4.5.5 Social Services

The Department of Social Services in Beaufort offers the following public assistance programs: Aid to Families with Dependent Children, Food Stamps, Medicaid, Special Assistance, Low Income Energy Assistance Program, Crisis and Emergency Programs, Adult Foster Care, Health Support Services, Individual and Family Adjustment Services, Housing and Home Improvement Services, Adult Protective Services, In-home Aid Services, Transportation Services, Community Alternatives Program, Child Day Care, Protective Services for Children, Foster Care for Children, Adoption, Individual and Family Adjustment Services, Job Opportunities and Basic Skills Program, and Carteret Home Health Service (Carteret County Department of Social Services 1990).

The department reported a large increase in applicants during 1991 and 1992. This may be attributed in part to the recession and in part to the overall reduction of manufacturing jobs in the county and the increase in minimum-wage service jobs. In recent months, the typical number of applicants visiting Social Services has been about 2,000 in a thirty-day period; for the same period the facility has been averaging about 9,000 calls. The most common types of service requested are Medicaid, Food Stamps, and Aid to Families with Dependent Children (AFDC).

Beaufort Housing Authority provides apartments for low-income residents. Rent for the 100 units in four Beaufort locations is based on the applicant's income and ranges from \$0 to \$600 per month. This Housing and Urban Development (HUD) agency operates under federal guidelines.

2.4.5.6 Health Services

Carteret County Health Department is based in Beaufort, and offers a full-service laboratory for such needs as blood tests, sexually transmitted disease testing, cancer screening, immunizations, and pregnancy tests. The health department offers programs such as Women-Infants-Children (WIC), child/adolescent health, adult health, prenatal care, Baby Love, neurology and speech pathology, general health education, and health promotion.

The health department also offers environmental/public health services such as septic tank inspections, water testing, on-site soil evaluations, food and lodging facility inspections, day care and rest home inspections, and solid waste inspections. The department is instrumental in mosquito and rabies control.

2.4.5.7 Planning

The Carteret County Planning Board is a nine-member advisory body created by the board of commissioners. The planning board is responsible for making studies and plans, and providing input for the development of land-use plans according to CAMA planning guidelines. The board advises on the location of new public facilities, makes recommendations regarding zoning ordinances for the county, and advises in the approval of subdivision plats (Green 1989:301).

The Carteret County Department of Planning does the initial research before requests for rezoning and other matters are put before the planning commission. The planning department plays a central role in developing county land use plans.

2.4.6 Use of Marine Resources

The marine resources of Carteret County's inshore and offshore waters are used heavily by commercial and recreational fishermen. While not marine resource users per se, recreational boaters and land-based tourists who enjoy the beach atmosphere (whether or not they go in or on the water) are drawn to the county by the ocean.

2.4.6.1 Commercial Landings

Tables 2.4-29 and -30 show the pounds and values of finfish and shellfish landings in Carteret County in 1981 and 1991. Carteret leads all other North Carolina counties in the amount of finfish and shellfish landed. In 1988, the county had thirty-one seafood processors, the largest number in the state, including ten scallop processors, eight fish processors, six shrimp processors, five crab processors, and two oyster processors. The

county also has one of the few remaining menhaden processing facilities on the North Carolina Coast. Much of the final seafood products are shipped to northern markets such as Baltimore and New York. All of the processor are located in the Downeast section of the county.

As shown in Table 2.4-29, finfish pounds landed fell approximately 23% over this period, in a pattern similar to that seen in other counties. Increases in value per pound account for a modest (5%) increase in total value over the same time period. Table 2.4-30 displays similar information for shellfish. Of note is the fact that shellfish landings decreased approximately 20% over the period 1981-1991, while rises in value per pound accounted for a 61% total value of catch increase over this period. In 1991, due to the disparity in price per pound, the total value of shellfish landed exceeded that of finfish landed (reversing the 1981 relationship), despite the fact that over fourteen times more pounds of finfish than shellfish were landed.

Table 2.4-29 TOP TEN FINFISH LANDINGS IN POUNDS AND DOLLARS IN CARTERET COUNTY FOR 1981 AND 1991				
Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Menhaden, Atlantic	147,289,450	4,337,179	110,432,731	2,998,248
Herring, Thread	*	*	3,796,220	119,472
Grey trout (weakfish)	3,810,241	1,206,628	2,912,338	924,641
Flounders, Fluke	1,794,283	1,126,597	2,282,180	2,674,419
Spot	1,983,497	456,010	1,811,834	434,920
Croaker, Atlantic	2,169,216	889,672	1,152,482	415,370
Mulletts	516,138	96,920	728,161	488,927
Bluefish	1,518,135	185,178	726,554	121,123
Seatrout, Spotted	53,593	27,020	305,986	238,730
Mackerel, Spanish	27,410	10,021	259,030	96,990
TOTAL FINFISH†	165,968,627	9,714,972	127,559,508	10,224,833
* Denotes confidential data †Includes minor landings of additional species not listed above Source: North Carolina Division of Marine Fisheries				

Table 2.4-30 SHELLFISH LANDINGS IN POUNDS AND DOLLARS IN CARTERET COUNTY FOR 1981 AND 1991				
Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Blue Crabs (hard)	8,762,569	1,863,350	4,074,923	1,092,902
Brown Shrimp	N/A	N/A	1,996,158	3,218,424
Pink Shrimp	N/A	N/A	1,473,441	2,401,749
Hard Clam	827,846	2,704,439	533,640	3,066,335
Sea Scallop	*	*	480,114	1,786,399
White Shrimp	N/A	N/A	310,721	581,728
Bay Scallop	161,572	554,076	39,686	90,066
Conch	19,909	12,851	37,163	19,489
Squid	6,946	1,916	27,339	7,199
Oyster, Spring	35,709	49,674	16,590	57,082
Oyster, Fall	51,753	76,294	14,548	71,559
Blue Crabs (soft)	36,703	55,246	9,528	40,505
Rock Shrimp	N/A	N/A	6,324	5,132
Octopus	N/A	N/A	1,839	869
Unclassified Shrimp	1,093,708	2,055,575	N/A	N/A
TOTAL SHELLFISH†	11,233,497	7,666,965	9,028,474	12,441,021
<p style="text-align: center;">* Denotes confidential data †Includes unclassified species and confidential data Source: North Carolina Division of Marine Fisheries</p>				

2.4.6.2 Vessel Licenses and Registrations

Commercial fishermen in the county use a wide variety of gear types and fish areas that range from shallow bays and rivers entering the nearby sounds, to far-flung ocean areas such as the Grand Banks off of New England and various locales in the Caribbean. Fishing gear includes shrimp trawls, flounder trawls, fly-nets, bay and sea scallop dredges, long-lines, crab pots, and gill nets, among others. Vessels range from 20-to-40 foot boats that work the sound, to 60-to-80 foot boats that ply the offshore waters. There also are a significant

number of small or part-time commercial fishermen who hand-harvest clams and oysters in the estuaries of the county.

Carteret has more licensed commercial fishing vessels than any other county in the state, although, as noted in Table 2.4-31, commercial vessel licenses declined in the county in all categories between 1981 and 1991.

Table 2.4-31 COMMERCIAL VESSEL LICENSES ISSUED IN CARTERET COUNTY FOR 1981 AND 1991				
Category	Carteret County		North Carolina	
	1981	1991	1981	1991
Full-time	1,365	1,222	4,099	4,909
Part-time	1,482	981	7,770	5,396
Pleasure	1,080	601	13,595	9,308
Charter	N/A	40	N/A	185
Head	N/A	2	N/A	13
Totals	3,927	2,846	25,464	19,811
Source: North Carolina Division of Marine Fisheries Licensing Section				

Recreational fishermen also are intensive users of marine resources in the county. Between 1980 and 1987, the North Carolina Division of Coastal Management issued permits for twenty-three marinas in Carteret County. In 1987, more than half of all the marinas in the Albemarle-Pamlico Study Region were located in Carteret and Beaufort counties (Maiolo and Tschetter 1982). A 1985 study of the state's marinas found that on average, boats engaged in recreational fishing comprised more than 59% of all boats found in marinas, while commercial fishing vessels accounted for less than 8% (Johnson 1986). As noted in Table 2.4-32, vessel registrations increased over the period 1980 to 1991 by approximately 26%, as opposed to the decline in commercial vessel licenses seen over the same period. Most recreational fishermen fish the sounds, inlets, and nearshore waters of the county. Morehead City is also home to one of the oldest charter fishing fleets in the state. These vessels, which vary from 30 to 50 feet in length, fish for saltwater game species such as blue and white marlin, sailfish, amberjack, and dorado, approximately 35 miles offshore in the waters of the Gulf Stream. Area businesses host a number of popular fishing tournaments each year, including the Big Rock Blue Marlin Tournament and the Atlantic Beach King Mackerel Tournament which draw fishermen from all along the Atlantic coast.

Table 2.4-32			
VESSEL REGISTRATIONS IN STATE AND CARTERET COUNTY FOR 1980 AND 1991			
Place	1980	1991	Percent Change from 1980 to 1991
Carteret	5,895	7,403	25.58%
Total registrations	193,058	278,598	44.31%
Source: North Carolina Wildlife Resource Commission			

2.4.6.3 Issues and Trends

Like many other counties with large fishing fleets, Carteret County has experienced a general decline in both finfish and shellfish landings over the last decade. Fishermen often cite increased competition, stricter regulations, and the degradation of primary and secondary nursery areas in the sounds from industrial pollution, development, sewage outfall, and agricultural runoff. The regulation mandating turtle-excluder devices in trawls in the sound is highly controversial. Many fishermen are frustrated by the ever-changing technical requirements of the devices, which require them to purchase new TEDs frequently to meet the differing standards.

The growing numbers of sportfishermen coming into the county have fueled a rising conflict with commercial fishermen over the harvesting of certain fish species. Although the commercial fishermen are the traditional users of the resource, their contribution to the local economy pales in comparison to that of recreational fishermen, who spend a substantial percentage of the tourist dollars in the county. Some sportfishing groups are pushing for stricter regulations on the commercial fishing industry, further fueling the conflict.

Another marine/land use issue, as mentioned earlier, concerns sewage treatment and disposal in the growing communities of the county, especially the resort/retirement areas on Bogue Banks. There is an important social dimension to this problem in addition to the environmental aspects. A recent proposal by Atlantic Beach to pump treated sewage to Open Grounds Farms, Downeast, was widely perceived as an attempt by the wealthy populous beach community to take advantage of the rural, fishing communities in the northeastern part of the county. The proposal was rejected over fears of further contaminating estuaries in that section of the county. Atlantic Beach and other beach communities whose septic tank systems become overburdened during summer months, are still searching for effective ways to deal with treated sewage. Many residents are suggesting ocean outfall, but this idea is not without its own problems, including the fact that it could have significant impacts on both marine resources and tourism along the county's beaches.

2.5 BEAUFORT COUNTY

2.5.1 Introduction

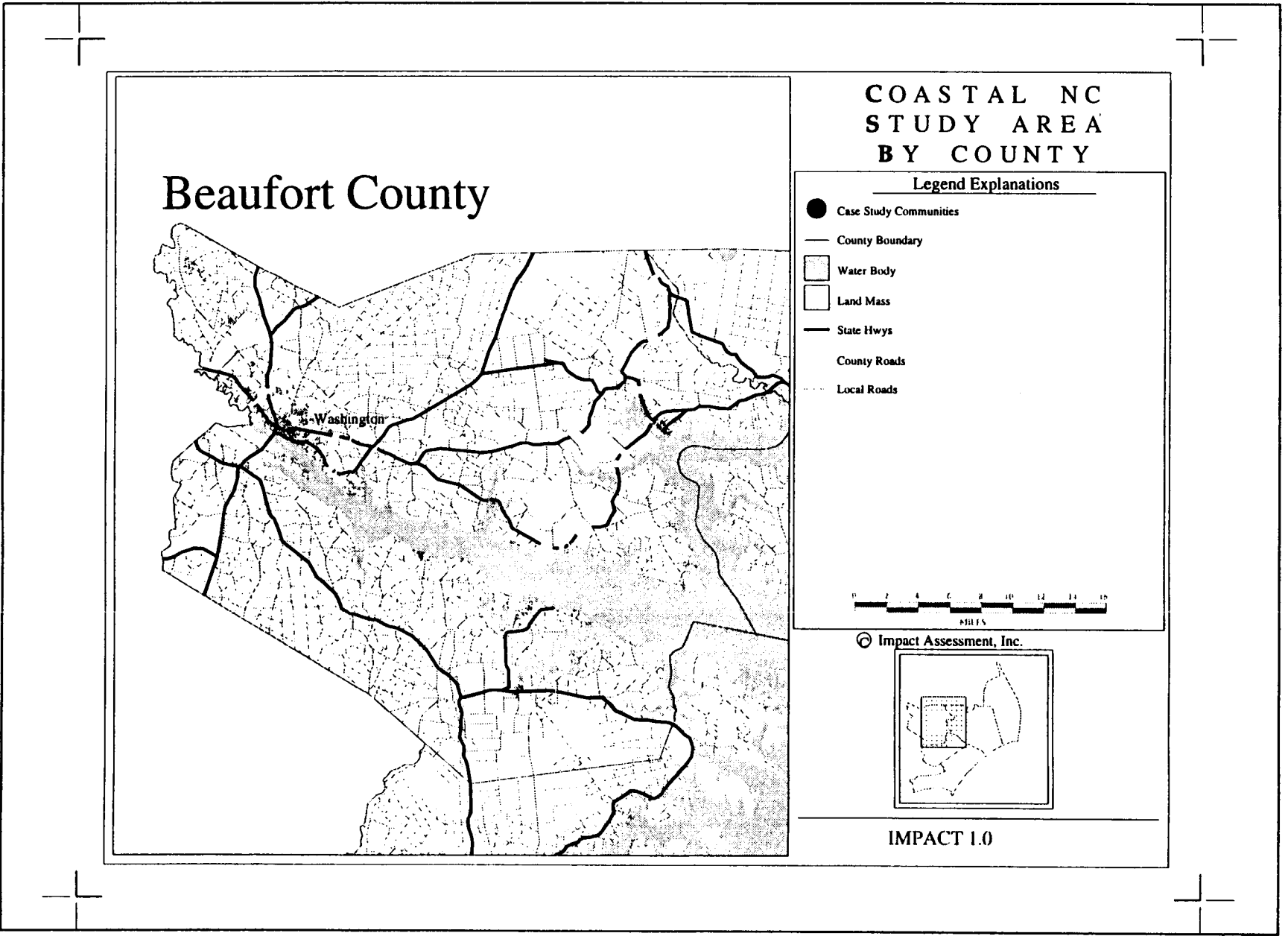
Beaufort County is a large rural county in eastern-central North Carolina that extends along both banks of the Pamlico River (see Map 2.5-1). Inland areas are used for agriculture and silviculture, while commercial fishermen and recreational boaters use the river. The county also has one of the largest phosphate deposits in the world on the southern shore of the Pamlico.

The natural resources of the area that provide commercial and recreational opportunities are affected by resource development and economic and population growth. The phosphate deposit has been mined extensively through the use of open-pit techniques that have contributed to lowering of the water table in the area and some nutrient loading in the Pamlico River. Fisheries have suffered from problems in the river, ostensibly resulting from industrial pollution, treated sewage discharge upstream, and agricultural runoff. During the past decade, the Pamlico River has been the site of numerous fish kills, algal blooms, and outbreaks of disease in crab and fish species.

Beaufort County was originally part of Bath County, which was created in 1696 and covered a large swath of land on the shores of the Pamlico River. By 1705 Bath County had been divided into three precincts and present-day Beaufort County was known as Pampticough Precinct (Paschal 1976:1). Early immigrants, drawn by good soils and rich fisheries in the river and sound, settled along the banks of Pamlico. In 1706 the town of Bath, the oldest town in North Carolina, was established and consisted of twelve houses and a public library. In 1712 Pampticough Precinct was renamed Beaufort Precinct for Henry, Duke of Beaufort, and by 1729 it was recognized as a separate county.

Early relations with local Native American people were poor, and in 1711 the Tuscarora Nation attempted to drive the new inhabitants from the area. Many settlers in communities along the Pamlico were slaughtered. Local tribes were defeated and driven out of the area around 1714, facilitating a westward push of white settlers along the Pamlico. Some of these settlers eventually established plantations (Paschal 1976:1).

One such plantation was located in a strategic location at the head of navigable waters of the Pamlico River. Originally known as "Pea Town," the settlement that evolved from this plantation became known as Washington by 1776, in honor of George Washington. During the Revolutionary War, Washington was a hub of privateer activity. Local merchants outfitted armed ships to partake in this lucrative trade, and early records reported large amounts of seized goods arriving in town from privateer missions (Paschal 1976:2).



Washington was incorporated in 1782. One year later, the Southern Post Road, which originally ran from Edenton through Bath to New Bern, was rerouted through Washington, contributing to the town's growth. In 1785 the county seat of Bath County was moved from Bath to Washington. In the nineteenth century Washington became an important trading center, its large wharfs and warehouses capable of loading or unloading up to twenty sailing ships at a time. Congress declared Washington a port in 1790, and for the next seventy years "the wharves of Washington teemed with the river trade that was her very life blood" (Paschal 1976:5). Exports included tar, pitch, rosin, turpentine, furs, tobacco, beeswax, Indian corn, and peas; imports included fruit, molasses, and other commodities. Trade was primarily with the West Indies (Paschal 1976:4).

Toward the end of the nineteenth century, the Norfolk-Southern railroad extended its operation from Pinetown through Washington and eventually to Greenville, Farmville, Wilson, and Raleigh (Ellison 1976:91). This facilitated a tremendous increase in both passenger travel and freight. The combination of railroad and port spurred a great increase in the wholesale distributing business that lasted into the twentieth century (Ellison 1976:91).

Throughout the twentieth century Beaufort County developed thriving industries in timber, commercial fishing, ship building, farming, iron working, and some tourism. These industries could be found mainly in the county seat of Washington and, to a lesser extent, in the communities of Bath and Chocowinity. The many small villages such as Pantego, Belhaven, and Pinetown were less diversified, supporting commercial fishing, logging, or farming. The town of Aurora has seen extensive phosphate mining activity in the second half of the twentieth century.

2.5.2 Physical Geography and Infrastructure

2.5.2.1 Physical Geography

Beaufort County is bisected by the Pamlico River for about 35 miles and is bordered to the east by the Pungo River and the Pamlico Sound. It is bordered on the north by Martin, Washington, and Hyde counties, on the west by Pitt County, and on the south by Craven and Pamlico counties. Beaufort County has a total of 613,334 acres, or 958 square miles, in central coastal North Carolina, making it the eighth largest county in the state. Thirty-five percent of the land area is forest land, most of which is maintained for commercial forestry. The second largest class of land holdings is for agricultural uses. More than 70% of the county is undeveloped land, including state designated Areas of Environmental Concern (Beaufort County Land Use Plan Advisory Committee 1992:III-2,III-1).

The county is located on the central coastal plane of North Carolina. Most of it consists of flat or gently rolling land, with the exception of some steep slopes in the forest land and along the south side of the Pamlico River. A large area of the county is taken up by swamp

land, marsh land, and the Pamlico River (Beaufort County Land Use Plan Advisory Committee 1992:III-1). The last navigable headwaters of the Pamlico River end in the northwestern portion of the county at Washington, before becoming the Tar River.

Natural resources in Beaufort County with significant commercial value are pine forests, phosphate deposits, agricultural lands, and fisheries. One of the county's leading industries is processing timber for manufacturing. Phosphate mining, in the form of TexasGulf Inc., is another primary industry in Beaufort County. Peat, limestone, and various heavy mineral sands are present but are not yet commercially mined. Prime farmland comprises over 67,500 acres (13%) of Beaufort County. These agricultural lands are managed in compliance with the Federal Farmland Protection Policy Act of 1980. Beaufort County contains numerous tributaries of the Pamlico River, which in turn becomes part of Pamlico Sound. The county thus has important primary and secondary nursery areas for finfish and shellfish. Nonpoint sources of pollution, such as agricultural run-off, that degrade water quality and fisheries resources are a major concern in the county (Beaufort County Land Use Plan Advisory Committee 1992:V-5).

Areas that are designated as Natural Resource Fragile Areas are estuarine waters, estuarine shorelines, public trust waters, coastal wetlands, other wetlands, the coastal fringe evergreen forest, the estuarine fringe loblolly pine forest, the tidal cypress-gum swamp, the tidal freshwater marsh, and the wet pine flatwoods (Beaufort County Land Use Plan Advisory Committee 1992:V3-4). Such areas provide habitat for federally protected endangered and threatened species such as the bald eagle and the red-cockaded woodpecker.

2.5.2.2 Land Use

As of 1991, over half of Beaufort County residents lived outside of incorporated towns (Beaufort County Land Use Plan Advisory Committee 1992:II-2). According to census records, the most rapid population growth occurred in municipalities from 1980 to 1990. While there was a 9% population increase within city limits, the county as a whole experienced a 5% population increase during the same period (North Carolina Department of Economic and Community Development).

With farmland being increasingly converted for industrial uses, the western portion of the county has experienced the most residential and industrial development, whereas the eastern portion is used primarily for agricultural purposes (Beaufort County Land Use Plan Advisory Committee 1992). Thus, the general growth trend in Beaufort County is oriented toward the western portion of the county where adequate infrastructure and transportation systems are already in place. Most of the industrial and subdivision development has occurred along the recently widened U.S. 264 and a new industrial park has been established along the western edge of Washington (Beaufort County Land Use Plan Advisory Committee 1992:III-3).

Weyerhaeuser owns about one-third of Beaufort County's land mass and not only undertakes forestry and timber activities but also develops real estate. The most recent development is Weyerhaeuser's 865-lot "Cypress Landing" subdivision on Chocowinity Bay, which has a planned eighteen-hole golf course and 325 boat slips. This development is aimed primarily at retirees and will comprise the largest residential subdivision in Beaufort County when it is completed.

On the southern shore of Pamlico River in Beaufort County, TexasGulf Inc. owns 7,000 acres for phosphate mining. It is also applying for permits to mine an additional 5,000 acres of riverside land near Aurora.

Of the county's total acres, 15% are classified for urban, suburban, or industrial land uses. Over 70% of Beaufort County is classified as undeveloped land, including Areas of Environmental Concern. Of this acreage, 20% is classified as agricultural/bare soil and disturbed land while forest covers more than 35%. A large portion of the county is comprised of water, marsh, and swamp land (Beaufort County Land Use Plan Advisory Committee 1992:III1). Table 2.5-1 portrays estimated general land-use statistics for the county.

Table 2.5.-1 ESTIMATED GENERAL LAND USE IN BEAUFORT COUNTY		
Land-Use Classification	Acres	Percent of Total
Rural concentration	117,770	19.20%
Municipal planning jurisdiction	55,823	9.10%
Urbanized	20,915	3.41%
Public recreation	9,241	1.51%
Industrial	8,253	1.35%
Institutional	4,726	0.77%
Privately owned and recreational	1,657	0.27%
Remaining open space/water area	394,949	64.39%
Total acres in county	613,334	100.00%
Source: Beaufort County Land-Use Plan Advisory Committee 1992		

According to the 1992 Land-Use Update for Beaufort County, the major land-use issue in the county is a "land-use compatibility problem," whereby certain land-use types restrict expansion on adjacent properties that have other land uses. The goal of county planners is to protect and preserve resources while protecting "existing public rights of usage and access to navigable waters and other public resources" (Beaufort County Land Use Plan Advisory Committee 1992:III-2).

Specific problems relating to land use compatibility include development in wetland and floodplain areas, especially on waterfronts and shorelines. The protection of primary and secondary nursery areas is also a major concern, as CAMA regulations and North Carolina Division of Marine Fisheries policies restrict marina development in areas where finfish and crustaceans develop from the postlarval to the juvenile stage. Such areas are designated by the Division of Marine Fisheries to "ensure the continuance of a healthy and viable fishing and shellfish industry" (Beaufort County Land Use Plan Advisory Committee 1992:III-2).

The impact of industrial phosphate mining on environmentally sensitive areas is a major issue for the county. According to the land use plan update, Beaufort County officials support mining activities if "they do not have significant impacts on land, air or water resources, keeping in mind the balance between resource protection and management and continued economic growth" (Beaufort County Land Use Plan Advisory Committee 1992:III-3). Environmentalists, such as members of the North Carolina Coastal Federation, and commercial fishermen are not as amenable. Many blame declining water quality in the Pamlico River and the increase in fish kills and ulcers on crabs in recent decades on discharges of effluent from the phosphate mining operations.

2.5.2.3 Infrastructure

Roads In 1987, Beaufort County had 189.39 miles of primary roads and 686.95 miles of secondary roads. Of these, 654.24 were paved and 222.10 were unpaved. The most accessible area of Beaufort County is near the headwaters of the Pamlico River at Chocowinity/Washington. Here U.S. 17 connects the two communities and runs to New Bern to the south and Williamston to the north. U.S. 264 which was recently widened to a four-lane road for 10 miles west of Washington connects Washington to Greenville to the west and continues east through Hyde and Dare counties to Manteo. N.C. 92 and N.C. 99 traverse the northern shore of the Pamlico River to Belhaven, while N.C. 306 traverses the southern shore and extends to Pamlico County and Minnesott Beach. The remaining roadways in Beaufort County are state and county roads that meander through the rural countryside.

Aviation and Other Transportation Beaufort County has one small airport in Washington. The nearest commercial airport is 30 miles west of Washington in Greenville. The Norfolk-Southern railroad runs south to New Bern and north to Plymouth, as well as southeast to the TexasGulf plant in Aurora. Trailways operates a bus terminal in the city of Washington (Beaufort County Land Use Plan Advisory Committee 1992:VI-4).

Waterways The Intracoastal Waterway passes along the county's eastern border along the Pungo River and crosses the Pamlico extending through Goose Creek and Adams Creek to Morehead City. Most of the phosphate products produced by TexasGulf Inc. and some wood products produced by Weyerhaeuser are transported via barges in the Pamlico River and Intracoastal Waterway. The state operates a free ferry across the Pamlico River from Bayview on the northern shore to Aurora on the southern shore.

Landfills Beaufort County has two county landfills. The older landfill is located east of Tranters Creek and has been "secured according to state standards" (Beaufort County Land Use Plan Advisory Committee 1992:V-2). The current one is located west of Bath. Both landfills, as well as the several chemical plants of TexasGulf are considered human-made hazards outside of municipal limits (Beaufort County Land Use Plan Advisory Committee 1992:V-1). Plans are underway for the construction of a regional landfill near Bertie County's present landfill.

2.5.3 Population and Demography

2.5.3.1 Population History and Characteristics

Beaufort County experienced a decline in population from 1950 to 1960. However, from 1970 to 1990 the county's population grew approximately 17%, with the most substantial increase occurring between 1970 and 1980 (see Table 2.5-2). Compared to the surrounding counties of Bertie, Hertford, and Martin, Beaufort was the only county in this region to experience a population increase in the past ten years (Beaufort County Land Use Plan Advisory Committee 1992:II-2). Beaufort County's growth pales in comparison to growth in Dare and Carteret counties, but is consistent with growth in Pamlico County. One reason for Beaufort County's growth is the increasing popularity of Washington and surrounding areas as waterfront bedroom communities to former residents of Pitt County. Washington is less than thirty minutes from the university town of Greenville in Pitt County. The small town of Washington appeals to those looking for a slower pace, a sense of history, and the amenities of waterfront living.

Table 2.5-3 lists the community populations in Beaufort County for 1980 and 1990. Although the total population of Beaufort's communities has increased slightly during this period, individual communities have generally decreased. Washington is the only community that had an increase in growth (9%) and it remains the community with the largest overall

population. Bath has experienced the greatest decline in population since 1980 (26%) and it continues to have the smallest population of the communities.

Table 2.5-2 POPULATION IN BEAUFORT COUNTY FOR 1950 THROUGH 1990		
Year	Population	Percent Change by Decade
1950	37,134	N/A
1960	36,014	-3.02%
1970	35,980	-0.09%
1980	40,355	12.16%
1990	42,283	4.78%

Source: U.S. Bureau of the Census

Table 2.5-3 COMMUNITY POPULATION IN BEAUFORT COUNTY FOR 1980 AND 1990			
Community	1980	1990	Percent Change from 1980 to 1990
Aurora	698	654	-6.30%
Bath	207	154	-25.60%
Belhaven	2,430	2,269	-6.63%
Chocowinity	644	624	-3.11%
Pantego	185	171	-7.57%
Washington	8,418	9,160	8.81%
Washington Park	514	486	-5.45%
Total	13,096	13,518	3.22%

Source: North Carolina State Data Center

The population of Beaufort County is predominantly rural. Although the total population of the county has increased by approximately 5% from 1980 to 1990, the rural population has decreased by 8% (see Table 2.5-4). The urban population, however, has grown significantly (54%), and group quarters have more than doubled during this period.

Table 2.5-4 POPULATION CHARACTERISTICS IN BEAUFORT FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total population	40,355	42,283	4.78%
Urban population	8,418	12,960	53.96%
Rural population	31,937	29,323	-8.18%
Group quarters	207	528	155.07%
Noninstitutional age 16-64	25,707	26,106	1.55%
Source: U.S. Bureau of the Census			

2.5.3.2 Population Composition

Age Persons between the ages of 25 and 54 and persons over 65 account for most of the slight population increase from 1980 to 1990. As such, the median age in Beaufort County has risen from 31.1 in 1980 to 35.7 in 1990. All categories under the age of 24 have decreased during this period, with the exception of persons from 18 to 20 years old. Table 2.5-5 shows information on the age distribution of Beaufort's population. According to the 1992 CAMA land-use plan update, the aging patterns of Beaufort County are such that services and facilities for the elderly will need to be upgraded in upcoming years.

Sex Of Beaufort County's total population, the female population is slightly larger and growing at a faster rate than the male population. In 1990, females comprised 53% of the total population while males comprised 47% of the population (see Table 2.5-6).

**Table 2.5-5
AGE DISTRIBUTION IN BEAUFORT COUNTY FOR 1980 AND 1990**

Age Group	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	40,355	100.00%	42,283	100.00%	4.78%
Total persons under 18	12,005	29.75%	10,955	25.91%	-8.75%
Under 5 years	3,148	7.80%	2,766	6.54%	-12.13%
5 to 17 years	8,857	21.95%	8,189	19.37%	-7.54%
18 to 20 years	1,842	4.56%	1,898	4.49%	3.04%
21 to 24 years	2,566	6.36%	1,954	4.62%	-23.85%
25 to 54 years	14,571	36.11%	17,009	40.23%	16.73%
55 to 64 years	4,195	10.40%	4,347	10.28%	3.62%
65 years +	5,176	12.83%	6,320	14.95%	22.10%
Median age (years)	31.1 years	N/A	35.7 years	N/A	4.6 years*

* Increase in median age in years
Source: U.S. Bureau of the Census

**Table 2.5-6
SEX DISTRIBUTION IN BEAUFORT COUNTY FOR 1980 AND 1990**

Sex	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	40,355	100.00%	42,283	100.00%	4.78%
Females	21,187	52.50%	22,330	52.81%	5.39%
Males	19,168	47.50%	19,953	47.19%	4.10%

Source: U.S. Bureau of the Census

Ethnicity The population of Beaufort County is approximately two-thirds white and one-third African-American. This ethnic composition is similar to that of Hyde and Pamlico counties. Both of these population segments grew at approximately the same rate between 1980 and 1990 (from 3 to 5%). No other groups composed even 0.25% of the total population in either 1980 or 1990. Persons of Hispanic origin declined as a population segment during the decade, while American Indians, Eskimos, and Aleuts and Asian or Pacific Islanders increased both by number and percentage of total population, although they still represent only a very small segment (0.2% or less) of the county's total population.

Ethnicity	1980		1990		Percent Change from 1980 to 1990
	Number of Persons	Percent of Total	Number of Persons	Percent of Total	
White	27,525	68.21%	28,949	68.46%	5.17%
Black	12,786	31.68%	13,194	31.20%	3.19%
American Indian, Eskimo, Aleut	9	0.02%	28	0.07%	211.11%
Asian or Pacific Islander	32	0.08%	48	0.11%	50.00%
Hispanic origin of any race	229	0.57%	197	0.47%	-13.97%
Other	3	0.01%	84	0.20%	2,700.00%

Source: U.S. Bureau of the Census

Household Patterns The total number of households in Beaufort increased faster than the rate of population growth from 1980 to 1990 (13% as compared to 5%). In 1990, family households comprised 73% of the total households, and of this 77% were married-couple families (see Table 2.5-8). Both male and female other family householders increased during this period, but the number of female householders quadrupled in 1990 as compared to their male counterparts. Nonfamily households increased at a faster rate than family households, rising 32% during this period. Although there has been a general rise in total households in the county, householders age 65 and older have decreased substantially (44%), and the number of persons per household has also declined.

Table 2.5-8 HOUSEHOLD PATTERNS IN BEAUFORT COUNTY IN 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total households	14,283	16,157	13.12%
Family households (families)	11,015	11,840	7.49%
Married-couple families	9,025	9,140	1.27%
Percent of total households	63.19%	56.57%	-6.62%*
Other family, male householder	373	514	37.80%
Other family female householder	1,617	2,186	35.19%
Nonfamily households	3,268	4,317	32.10%
Percent of total households	22.88%	26.72%	3.84%*
Householder living alone	3,051	3,915	28.32%
Householder 65 years and over	3,532	1,974	-44.11%
Persons living in households	40,135	41,704	3.91%
Persons per household	2.81	2.58	-0.23*
*Change in percent of total category Source: U.S. Bureau of the Census			

Housing The total number of housing units has increased by 14% in Beaufort from 1980 to 1990 and parallels the county's growth in total households. Of Beaufort's 16,157 occupied housing units in 1990, 74% were owner occupied while 26% were renter occupied (see Table 2.5-9). Although both owner and renter occupancies have risen during this period, homeowner and rental vacancy rates have also risen slightly. Vacant housing units increased by 17%, and of these 54% were for seasonal, recreational, or occasional use in 1990, an increase of 35% since 1980.

Table 2.5-10 lists the units in structure in Beaufort County for 1980 and 1990. All of Beaufort's housing units increased during this period with the exception of two-unit structures, which decreased by 7% and unit structures of 50 or more, which decreased by 100%. Although one-unit detached homes comprise the majority of total structures in the county, Beaufort had 5,011 mobile homes or trailers in 1990, which was a 127% increase since 1980.

Table 2.5-9 HOUSING IN BEAUFORT COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total housing units	17,172	19,598	14.13%
Occupied housing units	14,253	16,157	13.36%
Percent owner occupied	73.4%	74.1%	14.38%*
Percent renter occupied	26.6%	25.9%	10.54%*
Vacant housing units	2,919	3,441	17.88%
Vacant housing for seasonal, recreational, or occasional use	1,380	1,865	35.14%
Homeowner vacancy rate (percent)	1.4%	2.2%	0.80%**
Rental vacancy rate (percent)	7.7%	8.0%	0.30%**
*Percent growth of number of units in category (not change in percent of total category)			
**Change in percent of total category			
Source: North Carolina State Data Center			

Table 2.5-10 UNITS IN STRUCTURE IN BEAUFORT COUNTY FOR 1980 AND 1990			
Units	1980	1990	Percent Change from 1980 to 1990
1, detached	11,940	12,832	7.47%
1, attached	215	299	39.07%
2	635	590	-7.09%
3 and 4	294	356	21.09%
5 to 9	304	318	4.61%
10 to 49	173	192	10.98%
50 or more	65	0	-100.00%
Mobile home, trailer, etc.	2,207	5,011	127.05%
TOTAL	*15,833	19,598	23.78%
*1980 total does not include those vacant housing units for seasonal uses			
Source: U.S. Bureau of the Census			

Beaufort County housing values parallel those of some of the other study counties. The amount of housing in the least expensive cohort has declined in both absolute and relative terms and as value categories increase, relative growth becomes ever larger. Table 2.5-11 shows that in 1990, Beaufort had a total of 7,592 specified owner-occupied units. Of this, the majority of persons resided in units that were less than \$99,999. However, significant growth can be seen in housing units of \$100,000 or more since 1980. The median rent for specified renter-occupied units also increased by 91% during this period.

Table 2.5-11					
VALUE OF SPECIFIED OWNER-OCCUPIED AND RENTER-OCCUPIED UNITS IN BEAUFORT COUNTY FOR 1980 AND 1990					
Census Category	1980	Percent of Total (1980)	1990	Percent of Total (1990)	Percent Change from 1980 to 1990
Specified owner-occupied units	7,066	N/A	7,592	N/A	7.44%
Less than \$50,000	5,542	78.43%	3,543	46.67%	-36.07%
\$50,000 to \$99,999	1,366	19.33%	2,982	39.28%	118.30%
\$100,000 to \$149,000	120	1.70%	649	8.55%	440.83%
\$150,000 to \$199,999	29	0.41%	219	2.88%	655.17%
\$200,000 to \$299,999	9*	0.13%	144	1.90%	1,500.00%
\$300,000 or more	N/A	N/A	55	0.72%	N/A
Median (dollars)	31,200	N/A	51,700	N/A	65.71%
Specified renter-occupied units paying cash rent	3,328	N/A	3,454	N/A	3.79%
Median rent (dollars)	100	N/A	191	N/A	91.00%
* \$200,000 or more					
Source: U.S. Bureau of the Census					

Marriages and Divorces While the number of married persons in Beaufort increased by only 3% from 1980 to 1990, the number of divorced persons nearly doubled (see Table 2.5-12). Divorced persons made up approximately 3% of the total population in 1980, whereas in 1990 they comprised approximately 5% of the population. This trend toward a rising divorce rate may reflect the county's trend in household patterns in which nonfamily and other families with male or female householders increased at significantly greater rates than family households.

Table 2.5-12 MARRIAGES AND DIVORCES IN BEAUFORT COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total married people	18,650	19,205	2.98%
Married women	9,335	9,602	2.86%
Married men	9,315	9,603	3.09%
Total divorced people	995	1,916	92.56%
Divorced women	528	1,057	100.19%
Divorced men	467	859	83.94%

Source: North Carolina Data Center

Births and Deaths A Table 2.5-13 shows, from 1980 to 1990 the rate of births in Beaufort County was lower than the overall rate of population growth for the county, signifying that county growth is a result of other sources. In fact, deaths have increased faster than births over this period, a further indication that in-migration is the source of population increase.

Table 2.5-13 BIRTHS AND DEATHS IN BEAUFORT COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Births	608	623	2.47%
Deaths	459	473	3.05%

Source: North Carolina State Data Center

2.5.3.3 Seasonal Population

A 1989 study found that the seasonal population of Beaufort County was slightly more than 1.2 times the resident population (Maiolo and Tschetter 1982). A primary goal of the Washington Chamber of Commerce is to increase tourism to the point that it is the third most significant source of revenue for the town and county as a whole (Washington County Chamber of Commerce: personal communication). Table 2.5-14 indicates the total number and types of seasonal housing units in Beaufort County for 1980 and 1990. As noted, Beaufort County had a total of 3,593 seasonal housing units in 1990, an 11% increase since 1980. Although private units comprised 48% of the total seasonal units, they decreased by 5% since 1980. Motels and hotels increased slightly during this period, whereas the number of boat slips increased by 74%.

Type of Seasonal Unit	Number of Units		Percent Change from 1980 to 1990
	1980	1990	
Total	3,231	3,593	11.20%
Private housing units	1,815	1,719	-5.29%
Motels/hotels	302	321	6.29%
Campgrounds	524	524	0.00%
Boat slips	590	1,029	74.41%

Source: Adapted from Holland Consulting Planners 1992

2.5.3.4 Migration

Tables 2.5-15 and -16 contain 1980 and 1990 data on county in-migration flows for Beaufort County based on IRS income tax returns. In both years, most tax filers moving into Beaufort County were from neighboring Pitt County. One reason for this is the growing popularity of "Little Washington" and other Beaufort County towns as bedroom communities to the university town of Greenville. Overall, most in-migrants were from the south and in-state. Although in-migration remained significant in 1990, it seems to have slowed compared to the years leading up to 1980. That is, in 1990 the total number of migrant filers was 2,440, which represented a 36% decrease since 1980.

Table 2.5-15
IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN IN BEAUFORT COUNTY FOR 1980

County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Pitt	NC	181	16.12%	397	14.9%	578
Washington	NC	43	3.83%	102	3.83%	145
Craven	NC	41	3.65%	108	4.05%	149
Martin	NC	40	3.56%	99	3.72%	139
Wake	NC	32	2.85%	65	2.44%	97
Foreign	N/A	24	2.14%	51	1.91%	75
Edgecombe	NC	20	1.78%	51	1.91%	71
Chesapeake	VA	20	1.78%	46	1.73%	66
Hyde	NC	19	1.69%	52	1.95%	71
Wilson	NC	19	1.69%	43	1.61%	62
Cumberland	NC	19	1.69%	45	1.69%	64
Pamlico	NC	18	1.60%	34	1.28%	52
Norfolk	VA	18	1.60%	34	1.28%	52
Lenoir	NC	16	1.42%	29	1.09%	45
Virginia Beach	VA	15	1.34%	47	1.76%	62
Nash	NC	15	1.34%	38	1.43%	53
Kings	NY	15	1.34%	43	1.61%	58
Wayne	NC	13	1.16%	32	1.20%	45
Orange	NC	13	1.16%	29	1.09%	42
Guilford	NC	11	0.98%	22	0.83%	33
Halifax	NC	10	0.89%	25	0.94%	35
Same state	NC	148	13.18%	348	13.06%	496
Northeast	N/A	81	7.21%	194	7.28%	275
North Central	N/A	54	4.81%	116	4.35%	170
South	N/A	201	17.9%	515	19.33%	716

Table 2.5-15 IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN IN BEAUFORT COUNTY FOR 1980						
County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
West	N/A	37	3.29%	99	3.72%	136
Total county migrant filers	N/A	1,123	100.00%	2,664	100%	3,787
Total county nonmigrant filers	N/A	11,503	N/A	30,291	N/A	41,794

*Includes total nonexempt and exempt filers
Source: Internal Revenue Service, Statistics Income Division 1992

Table 2.5-16 IRS MIGRATION INFLOW BY COUNTY/PLACE OF ORIGIN INTO BEAUFORT COUNTY FOR 1990						
County/Place of Origin	State	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Pitt	NC	158	19.63%	311	19.02%	469
Craven	NC	45	5.59%	87	5.32%	132
Martin	NC	33	4.10%	68	4.16%	101
Wake	NC	32	3.98%	62	3.79%	94
Washington	NC	22	2.73%	49	3.00%	71
Virginia Beach	VA	15	1.86%	30	1.83%	45
Cumberland	NC	12	1.49%	23	1.41%	35
Hyde	NC	12	1.49%	20	1.22%	32
Edgecombe	NC	12	1.49%	20	1.22%	32
Pamlico	NC	11	1.37%	26	1.59%	37
Lenoir	NC	11	1.37%	29	1.77%	40
Guilford	NC	10	1.24%	14	0.86%	24
Kings	NY	10	1.24%	27	1.65%	37
New Hanover	NC	10	1.24%	17	1.04%	27

Same state	NC	124	15.40%	267	16.33%	279
Northeast	N/A	79	9.81%	156	10.09%	235
Midwest	N/A	25	3.11%	47	2.87%	72
South	N/A	168	20.87%	337	20.61%	353
West	N/A	16	1.99%	32	1.96%	48
Total county migrant filers	N/A	805	100.00%	1,635	100.00%	2,440
Total county nonmigrant filers	N/A	15,488	N/A	34,405	N/A	49,893
*Includes total nonexempt and exempt filers Source: Internal Revenue Service, Statistics Income Division 1992						

2.5.4 Economy

2.5.4.1 Major Economic Sectors

Beaufort County has three employment categories that dominate its economy. These are manufacturing (e.g., textiles and food production), retail trade (merchandise, supply stores, restaurants, gas stations), and services (hotels, insurance, real estate, business services, health care, social services) (Beaufort County Land Use Plan Advisory Committee 1992:II-3).

According to the Washington Chamber of Commerce, Beaufort County is planning for a threefold economy based on industry, agriculture, and tourism (Washington Chamber of Commerce: personal communication). Although "industry" (manufacturing) and agriculture are two of the most significant sectors of the county's economy, tourism has yet to reach its potential.

Major Employers The top three single employers in the county are National Spinning Company (1,600 employees), TexasGulf Inc. (1,500 employees), and Hamilton Beach (1,166 employees). Table 2.5-17 shows the major employers in Beaufort County.

From the 1890s through the 1950s lumber was the most significant industry for Beaufort County. Several firms operated in the area, employing hundreds of workers in this labor-intensive enterprise (May 1976:329). Since 1960 the lumber industry has become increasingly consolidated. Presently one company, Weyerhaeuser, dominates the forestry products industry in the county. As late as 1970 and 1973 Beaufort County ranked first in the state and third in the south for pulpwood production (May 1976:330). Today no paper or

pulpwood factory operates in Beaufort County. Since Weyerhaeuser trucks its logs south to their Craven County plant or north to their Washington County plant, the timber industry's economic significance has declined in Beaufort County in terms of employment and county revenue. Only seventy-five to eighty people are employed by Weyerhaeuser in Beaufort County. The company pays the relatively low farming tax on most acreage it owns. As one Chamber of Commerce official put it: "When you see those logging trucks leaving the county you see the money leaving the county as well." One economic development official felt that Weyerhaeuser's most significant contribution to Beaufort County today is via its real estate dealings.

Phosphate exploration first came to Beaufort County in the early 1960s. Today TexasGulf Inc., owned by a French multinational corporation, dominates the local phosphate mining industry with its mining territory of 7,000 acres and an additional 5,000 acres pending approval. TexasGulf is the second largest single employer in Beaufort County, with some 1,500 employees. Other minerals, such as peat and limestone, are fairly abundant in the county, but these remain unexploited.

Table 2.5-17 MAJOR EMPLOYERS IN BEAUFORT COUNTY		
Company	Description	Total Employed
National Spinning Co.	Yarn and dyeing	1,600
TexasGulf	Phosphate mining	1,500
Hamilton Beach	Appliances	1,166
Flanders Filters	Filters	336
Bonny Products	Kitchen accessories	300
Donnelley Marketing	Direct mailing	300
Samson's Manufacturing	Apparel	289
Hackney and Sons	Beverage truck bodies	273
Stanadyne, Inc.	Fuel injectors	219
Moss Planing Mill	Lumber	118
Fountain Power Boats	Luxury power boats	100
Washington Garment	Dresses	85
Privateer Manufacturing	Boats	57
Atwood and Morrill	Industrial valves	30
Source: Beaufort County		

Contribution by Sector In 1989, manufacturing accounted for 42%, retail trade employed 23%, and the service sector employed 18% of Beaufort County's labor force. Only 1% of the total labor force (250 persons) is currently employed in the travel and tourism industry. The tourism industry in Beaufort County is not strong. Recent travel expenditures in the county have decreased 44% in the past eight years (Beaufort County Land Use Plan Advisory Committee 1992:II-3, 5).

Employment by Sector In 1990, the total number of persons employed in Beaufort's civilian labor force was 19,187, a 16% increase since 1980 (see Table 2.5-18). Employment in health services showed the greatest increase (75%) during this period, and business and repair services and other professional and related services increased over 50%. Retail trade and manufacturing (nondurable goods) have been the largest employers in 1980 and 1990 and have both increased over 30%. Although most of Beaufort's industries have seen a rise in employment levels since 1980, employment in mining has decreased substantially (89%), and employment in agriculture, forestry, and fisheries, wholesale trade, personal services, and public administration has also declined.

Gross Retail Sales Gross retail sales for Beaufort County increased more than 200% from 1970 to 1980 and more than 49% from 1980 to 1990 (see Table 2.5-19). However, data from the mid-1980s show sluggish growth, followed by increasing declines in 1989 and 1990.

Manufacturing, Industry, and Construction Product Values The value of shipments by manufacturers in Beaufort County was \$455 million in 1982 and increased to more than \$613 million in 1987. Products produced in Beaufort County include lumber, phosphate fertilizers, textiles, electronic appliances, fuel injectors, and boats.

Commercial Fishing Of the twenty eastern North Carolina counties with a commercial fishing industry, Beaufort County ranks tenth in terms of the dockside value of fish landed (North Carolina Division of Marine Fisheries). In 1992 Beaufort County had a commercial dockside value of \$1,170,303, with 2,108,611 pounds of seafood. Total finfish and shellfish landings in the county for 1981 and 1991 are presented in Section 2.5.6.

**Table 2.5-18
EMPLOYMENT BY INDUSTRY IN BEAUFORT COUNTY FOR 1980 AND 1990**

Industry Groups	1980	Percent of Total	1990	Percent of Total	Percent Change from 1980 to 1990
Agriculture, forestry, and fisheries	1,408	8.54%	1,108	5.77%	-21.31%
Mining	715	4.34%	82	0.43%	-88.53%
Construction	1,048	6.36%	1,374	7.16%	31.11%
Manufacturing, nondurable goods	2,355	14.29%	3,127	16.30%	32.78%
Manufacturing, durable goods	2,344	14.22%	2,689	14.01%	14.72%
Transportation, communication, and other public utilities	675	4.09%	813	4.24%	20.44%
Wholesale trade	957	5.81%	637	3.32%	-33.44%
Retail trade	2,502	15.18%	3,275	17.07%	30.90%
Finance, insurance, and real estate	497	3.02%	684	3.56%	37.63%
Business and repair services	342	2.07%	527	2.75%	54.09%
Personal services	522	3.17%	450	2.35%	-13.79%
Entertainment and recreational services	99	0.60%	124	0.65%	25.25%
Health services	876	5.31%	1,530	7.97%	74.66%
Educational services	1,099	6.67%	1,503	7.83%	36.76%
Other professional and related services	400	2.43%	674	3.51%	68.50%
Public administration	645	3.91%	590	3.07%	-8.53
TOTAL	16,484	100.00%	19,187	100.00%	16.40%

Source: U.S. Bureau of the Census

Table 2.5-19 GROSS RETAIL SALES IN BEAUFORT COUNTY FOR 1970 AND 1990		
Year	Gross Retail Sales	Percent Change from Previous Data Point
1970	\$73,158,000	N/A
1980	\$223,745,000	205.84 %
1986	\$304,970,000	36.30 %
1987	\$319,855,000	4.88 %
1988	\$348,888,000	9.08 %
1989	\$344,279,000	-1.32 %
1990	\$333,998,000	-2.99 %

Source: U.S. Bureau of the Census

Agriculture Historically, agriculture has been of central importance to Beaufort County. Table 2.5-20 shows farm and harvest statistics for the county. Consistent with trends seen in other counties in this report, the number of farms, farm populations, and farming operators are declining dramatically, while land in farms is declining slowly. Farm income has risen slightly over the period.

The principal crop of the nineteenth and early twentieth centuries, cotton, is all but nonexistent in Beaufort County today. Tobacco dominated the agricultural economy of Beaufort County for the first half of the twentieth century (Loy and Worthy 1976:356), but its role has steadily declined in recent years. Of today's principal crops of soybeans, corn, wheat, and tobacco, only wheat has not experienced a decline in acres harvested from 1980 to 1990, as shown in Table 2.5-21. Livestock production has been slowly increasing, particularly in the eastern portion of the county (Beaufort County Land Use Plan Advisory Committee 1992:III-2).

Table 2.5-20 AGRICULTURE INDUSTRY IN BEAUFORT COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Farms	815*	630**	-22.70%
Land in farms (acres)	158,281*	156,433**	-1.17%
Farm populations	3,043	1,323	-56.52%
Farming operators	560*	384**	-31.43%
Harvested cropland (acres)	140,400	139,900	-0.36%
Farm income (dollars)	62,331,000	67,102,000	7.65%
<p>*1982 figures **1987 figures Source: North Carolina State Data Center</p>			

Table 2.5-21 TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN BEAUFORT COUNTY FOR 1980 AND 1991			
Crop	1980	1991	Percent Change from 1980 to 1990
Corn	55,500	53,000	-4.50%
Wheat	9,330	35,600	281.56%
Soybeans	76,100	72,000	-5.39%
Tobacco	6,930	4,615	-33.41%
Oats	3,470	750	-78.39%
Potatoes	780*	220	-71.79%
Sorghum	600	300	-50.00%
<p>* 1983 Data Source: North Carolina Department of Agriculture, Agricultural Statistics Division</p>			

2.5.4.2 Workforce

The labor force in Beaufort County has declined by 6% from 1980 to 1990 (see Table 2.5-22). The rise in the number of unemployed individuals, coupled with the overall decline in the total workforce, led to a slight rise in Beaufort's unemployment rate for this period.

Table 2.5-22 WORKFORCE CHARACTERISTICS OF BEAUFORT COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Labor force by residence	20,750	20,426	-1.56%
Employment by place of residence	19,620	19,187	-2.21%
Unemployed by place of residence	1,130	1,239	9.65%
Unemployment rate (percent)	5.45%	6.07%	0.62%*

*Change in percent of total category
Sources: North Carolina State Data Center and U.S. Bureau of the Census

2.5.4.3 Income

From 1980 to 1990, the average annual wage per worker in Beaufort county increased substantially (Table 2.5-23). Median family incomes rose at an even faster rate, signifying more employed persons per family at the end of the decade than at the beginning. 1980 figures suggest an equivalent of 1.3 workers per family; 1990 figures imply that there were 1.7 workers per family. Table 2.5-24 indicates the total personal income and per capita personal incomes for the county in 1980 and 1988. Personal incomes in Beaufort County have increased over 70% during this period, and per capita personal incomes have increased by 64%.

Table 2.5-23 AVERAGE ANNUAL WAGE PER WORKER AND MEDIAN FAMILY INCOME IN BEAUFORT COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Average annual wage per worker (dollars)	10,980	*15,772	43.64%
Median family income (dollars)	14,461	26,010	79.86%
*1988 figure Source: North Carolina State Data Center			

Table 2.5-24 PERSONAL INCOME AND PER CAPITA PERSONAL INCOME IN BEAUFORT COUNTY FOR 1980 AND 1988			
Category	1980	1988	Percent Change from 1980 to 1990
Total personal income (dollars)	303,446,000	521,756,000	71.94%
Per capita personal income (dollars)	7,488	12,300	64.26%
Source: North Carolina State Data Center, Statistical Abstract 1991			

Table 2.5-25 contains information on persons below the poverty level in Beaufort County for 1980 and 1990. Whereas the number of persons for whom the poverty status was determined increased during this period, the total number of persons below the poverty level decreased by 4% and families with incomes below the poverty level decreased by 1%. The total number of persons below the poverty level comprised approximately 20% of the population in 1980 and 19% of the population in 1989.

Table 2.5-25 POVERTY STATUS IN BEAUFORT COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change From 1980 to 1990
Total persons determined*	40,137	41,676	3.83 %
Total persons below poverty level	8,437	8,130	-3.64 %
Percent persons below poverty level	21.02 %	19.51 %	-1.51 %**
Total families determined*	11,015	11,885	7.90 %
Total families below poverty level	1,911	1,885	-1.36 %
Percent families below poverty level	17.35 %	15.86 %	-1.49 %**
*All persons/families for whom poverty status was determined **Change in percent of total category Source: U.S. Bureau of the Census			

2.5.4.4 Economic Issues and Trends

One current economic issue for Beaufort County is the Clinton Administration's recently proposed tobacco tax. County commissioners decided to formally oppose this tax, perceived to be a significant threat to the local tobacco industry. A related concern is that held by commercial fishermen and vessel owners regarding the proposed energy tax. One boat owner fretted that his three vessels burn 500 gallons of fuel per day per boat: "If they put a big fuel tax on us, I'll have to tie up."

Another economic issue in Beaufort County is the push to promote tourism and recreation in the county. A marine estuarine center in Washington was recently opened as an educational attraction. A related trend is the increase in retirees moving to the area. A Chamber of Commerce official said 150 retired couples have moved into Beaufort County in the last two years (1991-1992).

County planners say they want to balance the needs of a diverse and steadily growing population with the protection of natural resources, particularly the marine environment that draws more people to this area.

2.5.5 Patterns of Government Service Delivery

2.5.5.1 Structure and Employees

Beaufort County has seven county commissioners. The board of commissioners adopts resolutions, ordinances, and land-use plans; holds public hearings; and appoints the county manager, the county attorney, and the county clerk. Washington is the county seat and the location of numerous county agencies and facilities, including the courts, the county administration building, the tax office, the register of deeds office, the county planning department, the county manager's office, and the Beaufort County Health Center and Health Department. The latter provides services such as immunizations, prenatal care, and well-baby care.

2.5.5.2 Local Government Revenues and Expenditures

The total expenditures and revenues in Beaufort County have increased since 1980, with the greatest growth of expenditures occurring from 1989 to 1990 (50%) and the greatest growth of revenues occurring from 1980 to 1985 (63%). Interestingly, from 1980 to 1987, Beaufort's total revenues exceeded that of its total expenditures, but from 1988 to 1990 this trend reversed. In 1990, Beaufort had a total of \$23 million in expenditures and \$19 million in revenues.

Year	Total Expenditures (dollars)	Percent Change From 1980 Through 1990
1980	7,583,000	N/A
1985	10,108,000	33.30%
1986	10,864,000	7.48%
1987	11,804,000	8.65%
1988	14,774,000	25.16%
1989	15,694,000	6.23%
1990	23,481,000	49.62%

Source: North Carolina State Data Center

Table 2.5-27 TOTAL REVENUES IN BEAUFORT COUNTY FOR 1980 THROUGH 1990		
Year	Total Revenues (dollars)	Percent Change from 1980 Through 1990
1980	7,770,000	N/A
1985	12,686,000	63.27%
1986	12,695,000	0.07%
1987	13,107,000	3.25%
1988	14,223,000	8.51%
1989	15,496,000	8.95%
1990	19,352,000	24.88%

Source: North Carolina State Data Center

2.5.5.3 Education

Beaufort County children currently attend ten public and two private schools. Washington City schools are not part of the Beaufort County school system. The total enrollment of the Beaufort County public schools, located in Aurora, Bath, Belhaven, Chocowinity, Pantego, and Pinetown is 3,919 students. The Washington City schools serve a total of 4,028 students, half of whom are in grades K-5 and half in grades 6-12. Two private schools in the county operate below capacity: Pungo Christian Academy (grades 9-12) has an enrollment of 118, while Terra Ceia Christian School (grades K-12) has an enrollment of 110 (Beaufort County Land Use Plan Advisory Committee 1992:VI-3). In 1990, Beaufort County had 462 high school graduates, 91 of whom entered the labor market (North Carolina Department of Economic and Community Development 1992). Beaufort County is served by one community college, which had a 1990 enrollment of 2,949 students. East Carolina University in Greenville is approximately 20 miles outside of the county (North Carolina Department of Economic and Community Development 1992).

Although there has been an overall increase in school funding in recent years, education was the top issue of concern of respondents from the Beaufort County land-use update survey. There appears to be a general dissatisfaction with the quality of public education and the educational facilities offered to Beaufort County students (Beaufort County Land Use Plan Advisory Committee 1992: Appendix I). The Beaufort County school budget for 1992 was 21,000,000 and the source of this funding was federal, state, food services, and capital outlay. Funding sources for 1980 and 1990 are detailed in Table 2.5-28. In 1990, total

public school expenditures were \$31,028,000, a 135% increase since 1980. Of this total, the state contributed most of the expenditures while the local government contributed 17%.

Table 2.5-28 PUBLIC SCHOOL EXPENDITURES BY SOURCE OF FUNDS IN BEAUFORT COUNTY FOR 1980 AND 1990			
Expenditures	1980 (dollars)	1990 (dollars)	Percent Change from 1980 to 1990
Federal expenditures	1,862,000	2,865,000	53.87%
State expenditures	8,937,000	22,947,000	156.76%
Local expenditures	2,405,000	5,216,000	116.88%
Total expenditures	13,204,000	31,028,000	134.99%
Source: North Carolina State Data Center			

2.5.5.4 Law Enforcement and Emergency Services

Beaufort County municipalities are served by city police departments; unincorporated areas are served by the Beaufort County Sheriff's Department and the North Carolina Highway Patrol. The municipalities have paid and volunteer firemen and rescue squad personnel, and unincorporated areas have volunteer fire stations and rescue squads. Beaufort County currently maintains a total of fifteen fire departments and seven rescue squads (Beaufort County Land Use Plan Advisory Committee 1992:VI-3).

2.5.5.5 Social Services

The Department of Social Services in Beaufort County offers a range of public assistance programs. These include Aid to Families with Dependent Children (AFDC), Food Stamps, Medicaid, Special Assistance, Low Income Energy Assistance Program, Crisis and Emergency Programs, Adult Foster Care, Health Support Services, Individual and Family Adjustment Services, and Foster Care for Children. In the past decade demands for social services in Beaufort County have greatly increased. AFDC and Medicaid programs have expanded through state options. Some of the newer programs added to the county's list of social services include pregnancy planning; Medicaid for pregnant women, infants, children, and beneficiaries; spousal impoverishment; transitional child care; personal care; and medical transportation.

Social services in the state fall under the category of human services (which also includes health, mental health, and county home). The 1990-1991 budget allotted the county's human

service programs \$2,807.821, which was provided by a combination of state, federal, and local funds (State of North Carolina Department of State Treasurer).

2.5.5.6 Health Services

Beaufort County Health Department is based in Washington, and offers a full-service laboratory for blood tests, sexually transmitted disease testing, cancer screening, immunizations, and pregnancy tests. The health department offers programs such as WIC, child/adolescent health, adult health, prenatal care, Baby Love, neurology and speech pathology, general health education, and health promotion.

The health department also offers environmental/public health services such as septic tank inspections, water testing, on-site soil evaluation for sewage, food and lodging facility inspections, day care and rest home inspections, and solid waste inspections. The department is instrumental in mosquito and rabies control.

The Beaufort County Hospital is the only hospital in the county. It contains 150 beds. The hospital is served by thirty-nine physicians (Washington Chamber of Commerce: personal communication). Beaufort County is furthermore served by twelve dentists and at least five nursing homes, three of which are in Washington (Chamber of Commerce: personal communication).

2.5.5.7 Planning and Economic Development

Beaufort County is served by the chamber of commerce, a local development corporation, and a county development program. These facilities have been successful in their coordinated efforts toward furthering economic development in the county. Principally via the efforts of the Industrial Development Council of the Greater Washington Chamber of Commerce, Beaufort County has amassed the most diversified industrial complex in eastern North Carolina (North Carolina Department of Economic and Community Development 1992). The number of commercial businesses in Beaufort County has increased from 249 in 1980 to 284 in 1988. The efforts of the economic development proponents to court new industry is supported by the county (Beaufort County Land Use Plan Advisory Committee 1992:III-3).

2.5.6 Use of Marine Resources

The dominant commercial fishery of Beaufort County is the blue crab industry. Most crabs are harvested by pots, although some are trawled by shrimp trawlers during the off-season months. In 1988 there were eight crab-processing plants and three fish-processing plants operating in Beaufort County. Several 40 to 50 foot boats out of the Belhaven/ Wright's

Creek area fish in Pamlico Sound for shrimp. Portions of the Pamlico River may be opened for shrimping if it is determined to not be a primary or secondary nursery area.

2.5.6.1 Commercial Landings

Tables 2.5-29 and 2.5-30 show the number of pounds and value of commercial finfish and shellfish landings in Beaufort County for the years 1981 and 1991. Finfish pounds landed declined by 78% during the decade, while value dropped over 50%. For the same period, shellfish landings dropped approximately 28%; the value of shellfish landings actually increased more than 14% as a result of increasing prices per pound. Shellfish value exceeded that of finfish by over 700% in 1991, and shellfish landings exceeded finfish landings more than seventeenfold during the year.

Table 2.5-29 TOP TEN FINFISH LANDINGS IN POUNDS AND DOLLARS IN BEAUFORT COUNTY FOR 1981 AND 1991				
Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Flounders, Fluke	388,186	277,345	162,179	203,465
Mulletts	128,307	19,267	45,566	7,846
Other/F (includes confidential)	6,705	3,441	3,691	1,261
Atlantic Croaker	152,178	37,912	3,322	1,871
Catfishes	17,178	2,578	3,243	580
Spot	36,696	8,191	2,288	706
White Perch	24,507	8,144	1,993	1,034
Shad	10,461	7,352	1,603	1,197
Grey Sea Trout (Weakfish)	100,982	21,840	1,467	1,088
Bluefish	*	*	1,386	185
TOTAL FINFISH†	1,097,278	459,514	239,213	220,487
*Denotes confidential data †Includes minor landings of additional species not listed above Source: North Carolina Division of Marine Fisheries				

Table 2.5-30				
SHELLFISH LANDINGS IN POUNDS AND DOLLARS IN BEAUFORT COUNTY FOR 1981 AND 1991				
Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Blue Crabs (hard)	5,615,887	1,145,819	3,616,188	777,381
Brown Shrimp	N/A	N/A	1,053,073	2,736,446
White Shrimp	N/A	N/A	280,988	456,398
Pink Shrimp	N/A	N/A	392,098	507,684
Other/S (includes confidential)	426	160	130	230
Blue Crabs (soft)	*	*	*	*
Oyster, Fall	29,597	36,045	9,771	23,089
Oyster, Spring	4,227	4,763	N/A	N/A
Squid	*	*	N/A	N/A
Unclassified Shrimp	147,742	360,071	N/A	N/A
TOTAL SHELLFISH†	5,797,879	1,546,858	4,147,796	1,769,441
*Denotes confidential data †Includes unclassified species and confidential data Source: North Carolina Division of Marine Fisheries				

2.5.6.2 Vessel Licenses and Registrations

Large ocean-going trawlers from Belhaven cross Pamlico Sound and reach the ocean via Ocracoke, Oregon, or Beaufort Inlet. The largest vessel in Belhaven is 80 feet in length. A 75 foot vessel is docked in Wright's Creek. About three Belhaven vessels are 60 feet in length. These vessels can rarely exit via Ocracoke Inlet, because they draw up to 12 feet of water and Ocracoke Inlet is too often shallow. Therefore, large vessels rely most on Beaufort Inlet, a major deep-water shipping channel. The majority of large ocean-going vessels owned by Beaufort County fishermen/dealers are docked in Wanchese and Norfolk; some are berthed as far away as Connecticut (personal communication).

These vessels participate in the flynet fishery; the sea scallop fishery; the winter trawl fishery for flounder, trout, monkfish; and the summer-fall trawl shrimp fishery, migrating north to New England off George's Banks, the mid-Atlantic states, or south to South Carolina, Georgia, and Florida.

According to the North Carolina Division of Marine Fisheries, there were 319 full-time commercial vessel licenses issued, 204 part-time vessel licenses, and 220 pleasure vessel licenses issued in 1992 for Beaufort County. The county is concerned with regulating both the use of and access to resources for both commercial and noncommercial interests (Beaufort County Land Use Plan Advisory Committee 1992:III-3).

Table 2.5-31 indicates the total number of vessel registrations in the county for 1980 and 1990. As this table reveals, vessel registrations grew at a modest rate in Beaufort County during this period (7%), whereas the total registrations in the state increased by 44%.

Table 2.5-31 VESSEL REGISTRATIONS IN STATE AND BEAUFORT COUNTY IN 1980 AND 1991			
Place	1980	1991	Percent Change from 1980 to 1991
Beaufort	3,845	4,133	7.49%
Total registrations	193,058	278,598	44.31%
Source: North Carolina Wildlife Resource Commission			

2.5.6.3 Marine Use Issues

The issues facing Beaufort County fishermen are not unlike those facing other coastal counties such as Carteret and Dare. Some of these issues include declining water quality, increasing fishing restrictions, pressure from sport-fishing interests, required turtle excluder devices in inshore waters and in flounder trawls, and increasing competition within fisheries from displaced fishermen switching species. Beaufort County crabbers feel the effects of declining water quality, as ulcerated crabs are increasingly common in the Pamlico River. They are also faced with increased competition as displaced fishermen often enter crabbing because of its relatively low capital investment. As local resources become more scarce, some county fishermen are compelled to diversify to sustain their livelihoods.

Some Washington Chamber of Commerce officials felt commercial fishing was not of primary significance to the county economy as a whole, but for port towns such as Belhaven, commercial fishing is of central importance to the economy and culture (Lloyd 1976:354). There is a sentiment among some commercial fishermen that the Beaufort County commissioners are somewhat out of touch with the commercial fishing industry. One fisherman and vessel owner said: "They pay very little attention to commercial fishing. They care more about promoting tourism and turtles.... Truthfully, I think they'd just as soon commercial fishing fall by the wayside. They not only don't care about us, they want us gone."

2.6 PAMLICO COUNTY

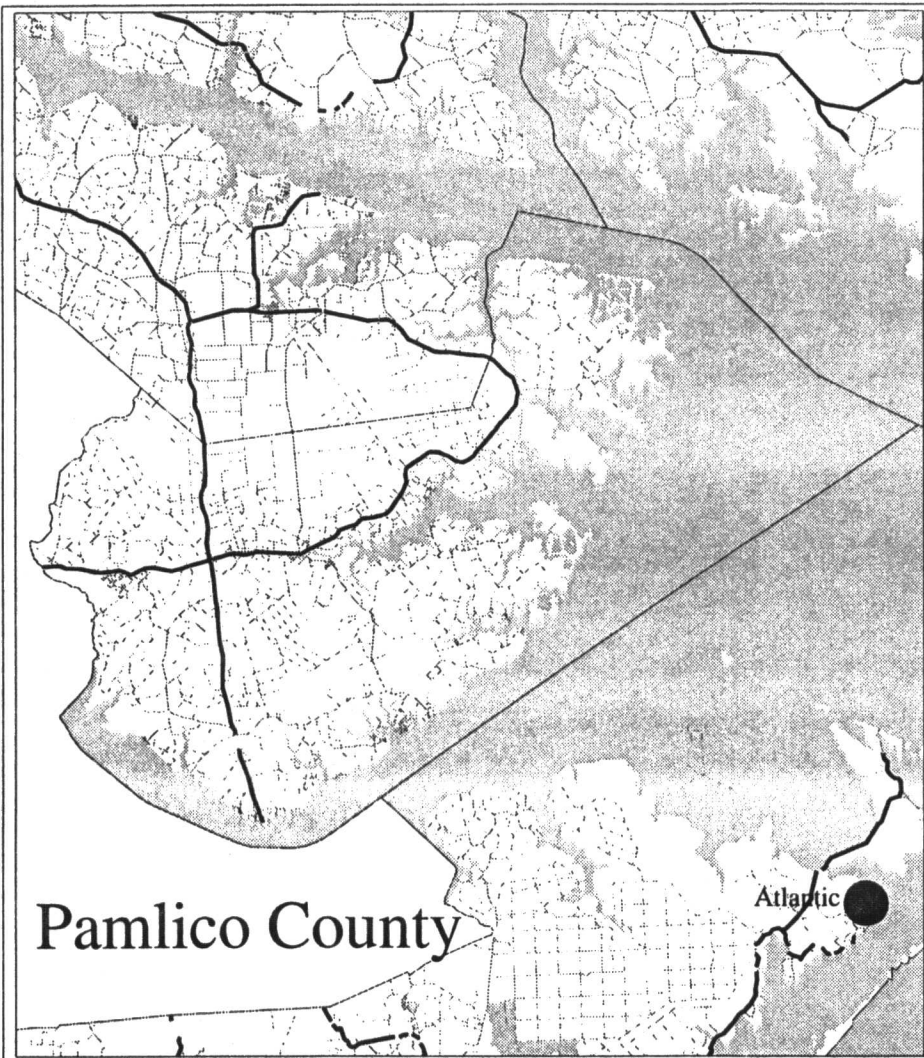
2.6.1 Introduction

Pamlico County lies at the southeast tip of the peninsula that juts into Pamlico Sound between the Neuse and Pamlico rivers. The sound and these rivers are major waterways that shape the geography of the county. Their commercial, recreational, and aesthetic value are important to locals and tourists alike. Pamlico County residents and visitors access the open ocean through several Outer Banks inlets, including Drum, Ocracoke, and Hatteras (see Map 2.6-1).

Pamlico may be characterized as a rural county with agriculture, fishing, and increasingly tourism and land development as major areas of economic activity. The county also has a rich historical heritage that gives it much of its present-day character.

Pamlico County has a population of over 11,000 persons. There are nine incorporated cities within the county, as well as a number of unincorporated towns and rural areas with concentrated residential areas. The population of the county has experienced a moderate rate of growth within the last twenty years, and the patterns of this growth indicate a trend toward in-migration of middle and older age persons and an out-migration of younger local residents.

The North Carolina legislature established Pamlico County on February 8, 1872. Prior to that, the area was part of Craven and Beaufort counties. The lands that eventually became Pamlico County were also inhabited by members of the Secotan and Pamouick tribes, Algonquian-speaking groups of Native Americans and Neusiok and Bay Island tribes who were Iroquoian speakers. Members of these tribal groups first encountered European settlers about the time of the Lost Colony on Roanoke Island in 1587. However, the Lost Colony incident resulted in diminished interest by Europeans in this area until a group of French Huguenots from Virginia moved to an area near the Pamlico River and formed Bath County in 1696, which included portions of present-day Beaufort, Pamlico, and Craven counties. Settlement in what is now Pamlico County was underway in the early part of the eighteenth century. The city of New Bern (the namesake of Bern, Switzerland) occupies a strategic place alongside the Neuse River in what is now Craven County and began to thrive as a center of commerce and trade, servicing areas of present-day Pamlico County, by about 1710. New Bern continued to grow after the Tuscarora Wars, which ended in 1714 (Mobley 1991).



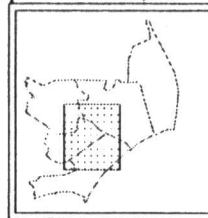
COASTAL NC STUDY AREA BY COUNTY

Legend Explanations

- Case Study Communities
- County Boundary
- Water Body
- Land Mass
- State Hwys
- County Roads
- Local Roads



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IMPACT 1.0

2.6.2 Physical Geography and Infrastructure

2.6.2.1 Physical Geography

Pamlico County is a peninsula bounded on the south and east by the Neuse River, on the north by the Pamlico River, to the east by Pamlico Sound, and to the west by Beaufort and Craven counties. It is composed of approximately 213,400 acres (341 square miles) of land and 151,000 acres (235 square miles) of water. Pamlico's geographical characteristics and patterns of land use are indicative of both the rural character of the county and the past and present significance of its waterways for commerce and social interaction.

The topography of Pamlico is nearly flat, the highest point being 50 feet above sea level. This landscape can be divided into four types of areas: uplands and sand ridges, pocosins (coastal marsh or swamp), floodplains, and salt marshes.

The commercially significant natural resources of the county are its timber lands, coastal wetlands, mineral resources of peat and phosphate, marine resources, and lands suitable for agricultural use. Additionally, there are lands and waterways that are of special significance for conservation purposes, especially the "404 wetlands" and the coastal areas of the county.

2.6.2.2 Land Use

Pamlico County has increasingly developed over the past few years as a result of residential subdivision construction along estuarine shoreline areas (Holland 1992: I-32). These areas currently receive water service, and the county is considering developing a countywide sewer system. The land in Pamlico County is predominately comprised of forests, crops, and pastures. A fairly small percentage of the land in Pamlico County contains coastal wetlands and urbanized or developed structures. Table 2.6-1 illustrates that these land uses have remained relatively stable since 1985, with a slight decrease in forest related uses and a slight increase in land permitted for crops and pastures.

Table 2.6-1 ESTIMATED GENERAL LAND USE IN PAMLICO COUNTY FOR 1985 AND 1991(ACRES)				
Category	1985	Percent of Total Area	1991	Percent of Total Area
Forested	157,000	43.13%	150,000	41.21%
Crops and pasture	34,000	9.34%	39,000	10.71%
Urbanized/developed	3,000	0.82%	5,000	1.37%
Coastal wetlands (marshlands)	19,000	5.22%	19,000	5.22%
Water	151,000	41.48%	151,000	41.48%
Total area	364,000	100.0%	364,000	100.0%
Source: Adapted from Holland Consulting Planners 1992				

Land-use issues in Pamlico County include the county's lack of a central sewer system; rising residential and commercial development resulting in increased traffic and estuarine shoreline crowding; building, agricultural land use, and recreational land-use obstacles; flood hazard areas in residential subdivisions; and a lack of sufficient regulation of developments (Holland 1992: I-36). Pamlico County has also had an increase in unplanned (and locally considered substandard) developments since the 1980s (Holland 1992: I-36,37). Lax zoning laws and subdivision ordinances that have resulted in the poor quality and poor location of numerous developments throughout the county, particularly in areas along the estuarine shoreline, have been a major concern of residents, as has the lack of adequate roads in residential subdivisions (Holland 1992: I-37).

2.6.2.3 Infrastructure

Roads In 1987, Pamlico County had 59.2 miles of primary roads and 213.29 miles of secondary roads. Of these, 212.4 miles were paved and 60.09 were unpaved. The major highways in the county are N.C. 306, which runs north and south through the center of the county from Minnesott Beach to Aurora, and N.C. 55 which runs east to west through the county from Oriental to New Bern.

Waterways The Intracoastal Waterway enters the county near Goose Creek and exits into the Neuse River, where it continues to Adams Creek and Morehead City, then pointing further south. The Intracoastal Waterway is used extensively by barges from TexasGulf, Inc. carrying phosphate fertilizers to the state port in Morehead City. The Neuse River is also utilized by commercial barge, commercial fishing, and recreational vessel traffic. The increase in tourism in the region has also contributed to the continuing increase in waterway traffic in Pamlico County (Holland 1992: I-43).

Landfills Pamlico County has only one sanitary landfill, which is located on Highway 306 North near the city of Silverhill. This landfill remains the sole disposal site for all domestic and commercial waste collected in the county and is scheduled to be a transfer station this year. Several of the towns in Pamlico County participate in recycling programs. The county provides ten mobile recycling collection sites in addition to the collection site located at the landfill (Holland 1992: I-45).

2.6.3 Population and Demography

Pamlico County remains predominately a rural region. Pamlico County has not grown to the extent of its neighboring coastal counties over the past century. However, because of its abundance of estuarine resources and countywide water system, the county's growth has surpassed some of the other small counties in this region (Holland 1992: I-4).

2.6.3.1 Population History and Characteristics

According to the 1990 census Pamlico County had a total population of 11,372 persons, a change of 9% from the 1980 census and a total of 19% during the interval between 1970 and 1990. This magnitude of change is fairly recent however, as Pamlico County had an remarkably stable population from 1910 through 1970 (see Table 2.6.2). The total population during this interval never dropped below 9,000 or rose above 10,000 residents.

The municipalities and unincorporated areas within Pamlico County for 1970, 1980, and 1990 are presented in Table 2.6-3. Although approximately twice as many people live in unincorporated areas as in municipal areas, the county's municipal population has grown at a slightly faster rate (25%) than the unincorporated population (18%) from 1970 to 1990. The communities with the greatest population growth are Arapahoe, Minnesott Beach, and Oriental; the communities with the least population growth are Mesic, Stonewall, and Vandemere, all of whose total populations have declined.

**Table 2.6-2
POPULATION IN PAMLICO COUNTY FOR 1880 AND 1990**

Year	Population	Percent Change from 1880 through 1990
1880	6,323	N/A
1890	7,146	13.02%
1900	8,045	12.58%
1910	9,966	23.88%
1920	9,060	-9.09%
1930	9,299	2.64%
1940	9,706	4.38%
1950	9,993	2.96%
1960	9,850	-1.43%
1970	9,467	-3.89%
1980	10,398	9.83%
1990	11,372	9.37%

Source: U.S. Bureau of the Census

Table 2.6-3 COMMUNITY POPULATION IN PAMLICO COUNTY FOR 1970, 1980, AND 1990				
Community	1970	1980	1990	Percent Change from 1980 to 1990
Alliance	577	616	583	-5.36%
Arapahoe	212	467	430	-7.92%
Bayboro	665	759	733	-3.43%
Hollyville	-	100	102	2.00%
Mesic	369	390	310	-20.51%
Minnesott Beach	41	171	266	55.56%
Oriental	445	536	786	46.64%
Stonewall	335	360	279	22.50%
Vandemere	379	335	299	-10.75%
Total municipalities	3,023	3,734	3,788	1.45%
Total unincorporated areas	6,444	6,664	7,584	13.81%
Pamlico County	9,467	10,398	11,372	9.37%
Source: U.S. Bureau of the Census				

Table 2.6-4 illustrates Pamlico County's population characteristics for 1980 and 1990. The county had no areas classified as urban in either 1980 or 1990; rural residents increased by 9% during this time. The number of group quarters rose from 0 in 1980 to 120 in 1990.

Table 2.6-4 POPULATION CHARACTERISTICS OF PAMLICO COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total population	10,398	11,372	9.37%
Urban population	0	0	0.00%
Rural population	10,398	11,372	9.37%
Group quarters	0	120	N/A
Noninstitutional age 16-64	6,379	6,966	9.20%
Source: U.S. Bureau of the Census			

2.6.3.2 Population Composition

Age The fastest-growing segments of the population in Pamlico are those persons over 55 years old. All age cohorts under 25 show a decline over the decade 1980 to 1990, with the exception of the youngest age group (under 5 years). The median age in the county increased by 6.6 years from 32.2 in 1980 to 38.8 in 1990. This increase may be attributed to a combination of several factors, including birth rates, death rates, and aging patterns, but is most likely a direct result of retirees moving to the county (Holland 1992: I-6).

Table 2.6-5 AGE DISTRIBUTION IN PAMLICO COUNTY FOR 1980 AND 1990					
Age Group	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	10,398	100.00%	11,372	100.00%	9.37%
Total persons under 18	2,960	28.47%	2,710	23.83%	-8.46%
Under 5 years	690	6.64%	716	6.30%	3.77%
5 to 17 years	2,270	21.83%	1,994	17.53%	-12.16%
18 to 20 years	511	4.91%	405	3.56%	-20.74%
21 to 24 years	636	6.12%	463	4.07%	-27.20%
25 to 54 years	3,747	36.04%	4,462	39.24%	19.08%
55 to 64 years	1,120	10.77%	1,420	12.49%	26.79%
65 years +	1,424	13.69%	1,912	16.81%	34.27%
Median age (years)	32.2	N/A	38.3	N/A	
Source: U.S. Bureau of the Census					

Sex As of 1990, males comprised approximately 48% of the Pamlico's total population and females 52% (see Table 2.6-6). The rate of growth of the female segment of the population also exceeds that of the male segment.

Table 2.6-6 SEX DISTRIBUTION IN PAMLICO COUNTY FOR 1980 AND 1990					
Sex	1980		1990		Percent Change from 1980 to 1990
	Number of People	Percent of Total	Number of People	Percent of Total	
Total population	10,398	100.00%	11,372	100.00%	9.37%
Total females	5,386	51.80%	5,915	52.01%	9.82%
Total males	5,012	48.20%	5,457	47.99%	8.88%
Source: U.S. Bureau of the Census					

Ethnicity The ethnic composition of Pamlico County in 1980 was approximately two-thirds white and one-third African-American (see Table 2.6-7). Between 1980 and 1990, the white population increased by 19% while the African-American population decreased by 9%. By 1990, approximately one-fourth of the residents of Pamlico County were African-Americans, with nearly the entire balance being white. The American Indian, Eskimo, and Aleut and "Other" categories decreased, and the Asian and Hispanic segments increased; however, none of these categories comprised more than approximately one-half of one percent of the total population in either 1980 or 1990. The shift in the ratio of whites to African-Americans would appear to be due to simultaneous in-migration of whites and out-migration of African-Americans rather than changes in birth and death rates.

Table 2.6-7 ETHNIC COMPOSITION OF PAMLICO COUNTY FOR 1980 AND 1990					
Ethnicity	1980		1990		Percent Change from 1980 to 1990
	Number of Persons	Percent of Total	Number of Persons	Percent of Total	
White	7,029	67.60%	8,362	73.53%	18.96%
Black	3,238	31.14%	2,951	25.95%	-8.86%
American Indian, Eskimo, Aleut	100	0.96%	33	0.29%	-67.00%
Asian or Pacific Islander	15	0.14%	20	0.18%	33.33%
Hispanic origin of any race	54	0.52%	61	0.54%	12.96%
Other	16	0.15%	6	0.05%	-62.50%
Source: U.S. Bureau of the Census					

Household Patterns In 1990, Pamlico County had 4,523 total households, 74.8% of which were family households. In addition, 80% of the family households were comprised of married-couple families. The total households in the county has expanded by approximately 23% from 1980 to 1990 with a slight increase in family households and a significant increase in nonfamily households. The number of other family male householders has decreased slightly while other family female householders has increased by 42%. While the number of total households increased during this period, the average number of persons per household decreased, a pattern seen in some of the other study counties. Table 2.6-8 shows the household patterns for Pamlico County from 1980 to 1990.

Table 2.6-8 HOUSEHOLD PATTERNS FOR PAMLICO COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total households	3,673	4,523	23.14%
Family households (families)	2,918	3,382	15.90%
Married-couple families	2,411	2,717	12.69%
Percent of total households	65.6%	60.1%	-5.5%*
Other family, male householder	123	118	-4.07%
Other family female householder	384	547	42.45%
Nonfamily households	755	1,141	51.13%
Percent of total households	20.5%	25.2%	4.7%*
Householder living alone	740	1,055	42.57%
Householder 65 years and over	418	528	26.32%
Persons living in households	10,387	11,247	8.29%
Persons per household	2.83	2.49	-0.34%*
*Change in percent of total category Source: U.S Bureau of the Census			

Housing According to the North Carolina State Data Center, there are a total of 6,050 housing units in Pamlico County for 1990, a 21% increase in housing units from 1980. Of the total housing units, 4,524 the vast majority are occupied by owners (81%). Table 2.6-9 reveals that the total housing units and vacant housing units in the county grew only moderately from 1980 to 1990. The majority of these vacant housing units are for seasonal, recreational, or occasional usage. In addition, while the homeowner vacancy rate increased slightly from 1980 to 1990, the rental vacancy rate decreased slightly.

Table 2.6-9 HOUSING IN PAMLICO COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total housing units	5,011	6,050	20.73%
Occupied housing units	3,678	4,523	22.97%
Percent owner occupied	83.3%	81.1%	19.71%*
Percent renter occupied	16.7%	18.9%	39.25%*
Vacant housing units	1,333	1,527	17.93%
Vacant housing units for seasonal, recreational, or occasional use	906	1,040	14.79%
Homeowner vacancy rate (percent)	1.0%	1.8%	0.8%**
Rental vacancy rate (percent)	8.4%	7.9%	-0.5%**
*Percent growth of number of units in category (not change in percent of total category) **Change in percent of total category Source: North Carolina State Data Center			

In 1990, over half (3,943) of Pamlico County's total housing units were one-unit detached structures, and one-third (1,920) were mobile homes or trailers. While most of Pamlico's housing structures increased from 1980 to 1990, two-unit structures decreased by 31%, and three- and four-unit structures decreased by 41%. Mobile homes and trailers had the greatest increase of 173% since 1980, and one-unit attached homes increased by more than 100%.

Table 2.6-10 UNITS IN STRUCTURE IN PAMLICO COUNTY FOR 1980 AND 1990			
Units	1980	1990	Percent Change from 1980 to 1990
1, detached	3,237	3,943	21.81%
1, attached	22	54	145.45%
2	61	42	-31.15%
3 and 4	54	32	-40.74%
5 to 9	40	53	32.50%
10 to 49	9	6	-33.33%
50 or more	0	0	0.00%
Mobile home, trailer, etc.	703	1,920	173.12%
TOTAL	4,126*	6,050	46.63%
*1980 total does not include vacant housing units for seasonal uses Source: U.S. Bureau of the Census			

Table 2.6-11 shows the values of specific housing structures in Pamlico County in 1980 and 1990. The number of housing units valued at less than \$50,000 decreased substantially (40%) during this period, while the number of housing units valued at \$150,000 or more increased dramatically (5,600 to 7,600%). In a pattern similar to that seen in several of the other study counties, housing grew by ever increasing rates in progressively higher value categories, with the only absolute or relative decline occurring in the single lowest value category. The median rent for specified renter occupied units also increased by 115%.

Table 2.6-11 VALUE OF SPECIFIED OWNER-OCCUPIED AND RENTER-OCCUPIED UNITS IN PAMLICO COUNTY FOR 1980 AND 1990					
Census Category	1980	Percent of Total (1980)	1990	Percent of Total (1990)	Percent Change from 1980 to 1990
Specified owner-occupied units	2,119	N/A	2,362	N/A	11.47%
Less than \$50,000	1,777	83.86%	1,072	45.39%	-39.67%
\$50,000 to \$99,000	308	17.33%	864	36.58%	180.52%
\$100,000 to \$149,000	31	1.46%	221	9.36%	612.90%
\$150,000 to \$199,999	2	0.09%	114	4.83%	5,600.00%
\$200,000 to \$299,999	1*	0.05%	77	3.26%	7,600.00%
\$300,000 or more	N/A	N/A	14	0.59%	N/A
Median (dollars)	24,100	N/A	54,300	N/A	125.31%
Specified renter-occupied units paying cash rent	535	N/A	629	N/A	17.57%
Median rent (dollars)	102	N/A	219	N/A	114.71%
*Includes all units over \$200,000 Source: U.S. Bureau of the Census					

Marriages and Divorces Although the total number of divorced persons in Pamlico County in 1990 was only approximately 10% of the total number of married persons in the county, the rate of increase in divorced persons from 1980 to 1990 was more than 120%, and the rate of increase for married persons was under 13% (see Table 2.6-12). This pattern of rising divorce rates is consistent with that seen in other counties profiled in this report. While the total number of married men in the county increased at a faster rate than did the total number of married women from 1980 to 1990, the number of divorced women increased at a faster rate than did the total number of divorced men during this period.

Table 2.6-12 MARRIAGES AND DIVORCES IN PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total married people	5,009	5,630	12.40%
Married women	2,505	2783	11.10%
Married men	2,504	2,847	13.70%
Total divorced people	256	564	120.31%
Divorced women	112	273	143.75%
Divorced men	144	291	102.08%
Source: North Carolina State Data Center			

Births and Deaths As seen in Table 2.6-13, the rate of births significantly exceeded the rate of increase of deaths in Pamlico County from 1980 to 1990. However, in 1980 deaths actually exceeded births, an unusual circumstance, particularly during a time of overall population growth. This may be accounted for by the relatively small numbers involved, the growing population of elderly persons, or factors that would cause children of residents to be born and residents to die outside of the county. In any event, it indicates that births played no part in the population growth of the county at that time. By 1990, births exceeded deaths by only six in all of Pamlico County. Thus, they play an insignificant role in county population dynamics.

Table 2.6-13 BIRTHS AND DEATHS IN PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Births	106	143	34.91%
Deaths	117	137	17.09%
Source: North Carolina State Data Center			

2.6.3.4 Seasonal Population

The number of total seasonal housing units in Pamlico County in 1990 is an approximate 60% increase from 1980 and is consistent with the growth of tourism and recreation in the county. The number of private housing units, motel and hotel rooms, and boat slips all increased from 1980 to 1990 by a range of 47 to 64%. These rates far outstrip the rate of permanent resident population growth (9%) over this same period (see Table 2.6-14). As noted, there are no campsites in Pamlico County for 1980 or 1990.

Type of Seasonal Unit	Number of Units		Percent Change from 1980 to 1990
	1980	1990	
Total	1,288	2,049	59.08%
Private housing units	967	1,527	57.91%
Motels/hotels	30	44	46.67%
Campgrounds	0	0	0.00%
Boat slips	291	478	64.26%

Source: Adapted from Holland Consulting Planners 1992

Although Pamlico County is predominately a rural county, it remains a site of seasonal population fluctuations (Holland 1992: I-13). As noted in Table 2.6-15 the total peak population capacity of the county has risen from 1980 to 1990 by approximately 23%. "Peak Seasonal Population Capacity" refers to the total number of persons in all seasonal housing units if those units were occupied at full capacity based on average assumed household sizes for each type of unit (Holland 1992: I-12). This figure does not indicate the true number of persons in the county during peak seasons, but is an estimate of the total population that would be possible if all housing units (permanent and seasonal) were full during peak periods (e.g. Labor Day and Memorial Day). Although the county's permanent population is greater than the seasonal population capacity, the increase in the seasonal population capacity between 1980 and 1990 is almost six times greater than the county's permanent population during this period (Holland 1992: I-13). This rapidly growing capacity has both positive and negative effects on Pamlico County. Increased seasonal populations result in greater local support for recreational development, but create problems for local planners and necessitate the construction and maintenance of adequate infrastructures (Holland 1992: I-13).

**Table 2.6-15
RELATIONSHIP OF SEASONAL POPULATION CAPACITY/PERMANENT POPULATION IN
PAMLICO COUNTY FOR 1980 AND 1990**

Year	Permanent Population	Percent of Total Peak Population Capacity	Peak Seasonal Population Capacity	Percent of Total Peak Population Capacity	Total Peak Population Capacity*
1980	10,398	71.73%	4,098	28.27%	14,496
1990	11,372	63.57%	6,516	36.43%	17,888
Percent change	9.37%	-8.59%	59.00%	28.86%	23.40%
*Refers to the sum of permanent population and peak seasonal population Source: Adapted from Holland Consulting Planners 1992					

2.6.3.5 Migration

Tables 2.6-16 and -17 contain 1980 and 1990 data on in-migration flows for Pamlico County based on IRS income tax returns. According to these data, the total number of persons who migrated to Pamlico County in 1990 was 741, a 36% decrease from 1980. This migration trend contrasts with the total number of nonmigrant filers who totaled 10,806 in 1990, a 10% increase from 1980. In addition, the inflow into Pamlico County appears to be relatively equal for persons migrating from the same region (different state) and those migrating from different regions in both 1980 and 1990. Migration from the same state, however, more than doubles these figures combined. It is important to note that of the total 632 same state migrants in 1990, 48% were from Craven County. Similarly, 47% of the same state migrants were from Craven County in 1980.

Table 2.6-16					
IRS MIGRATION INFLOW BY PLACE OF ORIGIN INTO PAMLICO COUNTY FOR 1980					
Place of Origin	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of Total Exempt Filers	*Total Tax Filers
Same state	189	56.08%	443	54.29%	632
Same region (different state)	81	24.04%	211	25.86%	292
Different region	67	19.88%	162	19.85%	229
Total county migrant filers	337	100.00%	816	100.00%	1,153
Total county nonmigrant filers	2,647	N/A	7,152	N/A	9,799
*Includes total nonexempt and exempt filers Source: Internal Revenue Service, Statistics Income Division 1992					

Table 2.6-17					
IRS MIGRATION INFLOW BY PLACE OF ORIGIN INTO PAMLICO COUNTY FOR 1990					
Place of Origin	Nonexempt Filers	Percent of Total Nonexempt Filers	Tax-Exempt Filers	Percent of total exempt filers	*Total Tax Filers
Same state	133	55.42%	286	57.09%	419
Same region (different state)	49	20.42%	97	19.36%	146
Different region	58	24.17%	118	23.55%	176
Total county migrant filers	240	100.00%	501	100.00%	741
Total county nonmigrant filers	3,361	N/A	7,445	N/A	10,806
*Includes total nonexempt and exempt filers Source: Internal Revenue Service, Statistics Income Division 1992					

2.6.4 Economy

2.6.4.1 Major Economic Sectors

The economy of Pamlico County is based on its natural resources of land, water, minerals, and aesthetic beauty and the fishing, forestry, recreation, and tourism industries built thereon. Recent statistics indicate gross annual incomes of approximately \$15 million for agriculture, \$8 million for the seafood industry, \$4 million from tourism, and \$2 million for forestry. These are the major industries in the county, although there is an effort to develop more light manufacturing, such as the Hudson Manufacturing plant in Reelsboro, which is a company that manufactures garments. Yet the reliance on these natural resources and the limited opportunities for employment in manufacturing means that many county residents travel to work locations outside of the county, including Havelock (Cherry Point) and New Bern in Craven County and Aurora in Beaufort County.

Major Employers The major employers of the residents of Pamlico County are indicated in Table 2.6-18. The board of education is the largest single employer in the county, followed by local government and Hudson Industries. Local businesses, however, are still dominated by fishing-related and seafood-processing enterprises.

Contribution by Sector In 1988, personal earnings in Pamlico County totaled more than \$52.5 million. Approximately 12% of that amount were from farm earnings, while approximately 69% comprised private earnings. The single highest-ranking sector in personal earnings was state and local government, with earnings equaling more than \$9.1 million. County services earned approximately \$7.1 million, while manufacturing earned an approximate \$6.4 million. In addition, agricultural services, forestry, and fishing combined equaled \$5.7 million, and gross retail sales contributed approximately \$5.6 million to Pamlico County's economy (Holland 1992: I-23).

Employment by Sector In 1990, Pamlico had a total of 4,718 persons employed, which represented a 26% increase in employment since 1980. The retail trade industry was the greatest employer of county residents in 1980 and 1990, and increased over 50% during this period. Since 1980, employment in business and repair services increased by 184%, other professional and related services by 140%, and transportation, communication, and other public utilities by 105%. Employment levels have increased in all of Pamlico's industries with the exception of agriculture, forestry and fisheries, which decreased by 15%, mining, which decreased by 70%, and wholesale trade, which decreased by 16%.

**Table 2.6-18
MAJOR EMPLOYERS IN PAMLICO COUNTY**

Employer	Employees
Board Of Education	321
Hudson Manufacturing	120
Pamlico County Local Government	119
Fulcher Seafood and Crab	60
Pamlico Packing	55
G&C Fishery	45
Caroon Brothers, Inc.	35
C.M. Muse Seafood	30
Lowland Seafood	25
Harbor Packing	25
Gaskill Seafood	20
Holton's Dockside Seafood	25
McCotter Seafood	15
Sound Packing	15
Custom Steel Boats	10

Source: North Carolina Department of Economic and Community Development

**Table 2.6-19
EMPLOYMENT BY INDUSTRY IN PAMLICO COUNTY FOR 1980 AND 1990**

Industry Groups	1980	Percent of Total	1990	Percent of Total	Percent Change from 1980 to 1990
Agriculture, forestry, and fisheries	503	13.47%	427	9.05%	-15.11%
Mining	159	4.26%	50	1.06%	-68.55%
Construction	294	7.87%	322	6.82%	9.52%
Manufacturing, nondurable goods	375	10.04%	431	9.14%	14.93%
Manufacturing, durable goods	296	7.93%	324	6.87%	9.46%
Transportation, communication, and other public utilities	170	4.55%	348	7.38%	104.71%
Wholesale trade	258	6.91%	218	4.62%	-15.50%
Retail trade	476	12.75%	717	15.20%	50.63%
Finance, insurance, and real estate	116	3.11%	185	3.92%	59.48%
Business and repair services	74	1.98%	210	4.45%	183.78%
Personal services	120	3.21%	177	3.75%	47.50%
Entertainment and recreational services	17	0.46%	27	0.57%	58.82%
Health services	175	4.69%	305	6.46%	74.29%
Educational services	329	8.81%	476	10.09%	44.68%
Other professional and related services	77	2.06%	185	3.92%	140.26%
Public administration	295	7.90%	316	6.70%	7.12%
TOTAL	3,734	100.00%	4,718	100.00%	26.35%

Source: U.S. Bureau of the Census

Gross Retail Sales The gross retail sales in Pamlico county for selected years between 1970 and 1990 are indicated in Table 2.6-20. As shown, retail sales have greatly increased over the past twenty years, a 430% increase in 1990 since 1970. Although there has been an overall rise in Pamlico County's gross retail sales, there has been a slight decrease (3%) from 1989 to 1990.

Table 2.6-20 GROSS RETAIL SALES (IN DOLLARS) IN PAMLICO COUNTY FOR 1970 THROUGH 1980		
Year	Sales (dollars)	Percent Change from 1970 through 1990
1970	8,009,000	N/A
1980	21,894,000	173.37%
1986	35,132,000	60.46%
1987	37,936,000	7.98%
1988	41,011,000	8.11%
1989	43,792,000	6.78%
1990	42,404,000	-3.17%

Source: North Carolina State Data Center, Statistical Abstract 1991

Manufacturing, Industry, Construction Product Values In 1990 there were 24 manufacturing facilities in the county, which was an increase of nine industries since 1988. The majority of manufacturing output of the county is related to seafood processing, boat building, and the garment industry (Holland 1992: I-27). This increase in manufacturing facilities, however, is a relatively new trend in the county. For instance, from 1980 to 1988 the total number of manufacturing establishments increased by only two (North Carolina State Data Center Statistical Abstract 1991). Subsequently, manufacturing growth in Pamlico County has been a result of total earnings rather than employment since 1970 (Holland 1992: I-27). Employment in the construction industry, however, has increased over 120% since 1970 (Holland 1992: I-30). This significant increase in construction employment is because of rapid growth of residential and commercial developments in the county.

Commercial Fishing The earnings related to commercial fishing in Pamlico County has steadily increased in the last decade (Holland 1992: I-28). In addition to the full-time fishermen in the county, many individuals maintain nonfishing occupations but engage in commercial fishing on a part-time basis. According to some estimates (Holland 1992: I-28), perhaps as much as 10% of Pamlico's total population is either directly or indirectly involved in the commercial fishing industry.

Agriculture Although agricultural is an important aspect of Pamlico County’s overall economy, agricultural production has decreased from 1980 to 1990 (Holland 1992: I-27). Table 2.6-21 shows the number of farms, farming operations, and farm income in the county for 1980 and 1990. In a pattern similar to other counties profiled in this report, the rate of decline in land in farms was much less than the rate of decline in the number of farms, farm populations, and farming operators. Percentage of loss of land in farms, however, is high relative to other counties. Farm incomes have remained virtually unchanged during this period and are consistent with the pattern of increases in efficiency combined with the displacement of small operations by larger corporate farms.

Table 2.6-21 AGRICULTURE INDUSTRY IN PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Farms	*136	**86	-36.76
Land in farms (acres)	44,045*	**38,270	-13.11
Farm populations	363	178	-50.96
Farming operators	*90	**67	-25.56
Harvested cropland (acres)	40,500	37,600	-7.16
Farm income (dollars)	15,141,000	15,025,000	-0.77
*1982 figures **1987 figures Source: North Carolina State Data Center			

Table 2.6-22 provides information on major crops harvested in Pamlico County for 1980 and 1991. Although soybeans were the largest crop for both 1980 and 1991, the number of acres harvested declined over the decade. Among the major crops, corn alone showed an increase during this period. Wheat, tobacco, and potatoes production declined, while sorghum, which is a minor crop in Pamlico County, increased over 200%.

Table 2.6-22			
TOTAL GRAIN HARVESTED (ACRES) BY MAJOR CROPS IN PAMLICO COUNTY FOR 1980 AND 1991			
Crop	1980	1991	Percent Change from 1980 to 1991
Corn	10,300	12,500	21.36%
Wheat	8,670	8,300	-4.27%
Soybeans	22,400	19,300	-13.84%
Tobacco	690	565	-18.12%
Oats	0	0	0.00%
Potatoes	3,010*	2,400	-20.27%
Sorghum	80	250	212.50%

* 1983 data

Source: North Carolina Department of Agriculture, Agricultural Statistics Division

2.6.4.2 Workforce

The current county population in Pamlico is 11,367, with approximately 4,476 of those persons in the labor force. It is estimated that about 25% of the working population is employed outside of the county at facilities such as Marine Corps Air Station Cherry Point (Craven County), the TexasGulf phosphate mining operation in Aurora (Beaufort County), and various industries in New Bern (Craven County).

The total number of individuals in Pamlico County's labor force has increased by 14% from 1980 to 1990, while the total number of persons unemployed has decreased by 30%. As a result, the unemployment rate dropped from 7.0% in 1980 to 4.3% in 1990. Employment increases have exceeded the rate of overall population growth rate of the county. Table 2.6-23 shows the workforce characteristics of Pamlico County.

Table 2.6-23 WORKFORCE CHARACTERISTICS OF PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Labor force by residence	4,130	4,713	14.12%
Employment by place of residence	3,840	4,508	17.40%
Unemployed by place of residence	290	205	-29.31%
Unemployment rate (percent)	7.0%	4.3%	*2.7%
*Change in percent of total category Source: North Carolina State Data Center			

2.6.4.3 Income

According to data collected from the North Carolina Data Center, the average annual wage per worker and median family income have increased substantially for residents in Pamlico County from 1980 to 1990 (see Table 2.6-24). In 1990 the average annual wage was \$10,665, more than double the figure for 1980. Similarly, the median family income in 1990 saw an increase in excess of 80% compared to 1980. Comparison of wage to family income figures indicates that average family income in 1980 was generated by 2.90 workers, while average family income in 1990 decreased, requiring only 2.45 workers. This is a reverse of the trend seen in other counties described in this report.

Table 2.6-25 reveals total personal income and per capital personal incomes in Pamlico County for 1980 and 1990. Personal incomes have more than doubled over this period, and per capital income has risen close to 90%.

Table 2.6-24 AVERAGE ANNUAL WAGE PER WORKER AND MEDIAN FAMILY INCOME IN PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Average annual wage per worker (dollars)	5,076	10,665	110.11%
Median family income (dollars)	14,509	26,168	80.36%
Source: North Carolina State Data Center			

Table 2.6-25			
PERSONAL INCOME AND PER CAPITA INCOME IN PAMLICO COUNTY FOR 1980 AND 1990			
Category	1980	1990	Percent Change from 1980 to 1990
Total personal income (dollars)	74,910,000	154,481,000	106.22%
Per capita personal income (dollars)	7,195	13,565	88.53%
Source: North Carolina State Data Center			

The total number of persons in Pamlico County for whose poverty status could be determined in 1990 was 11,217, an 8% increase since 1980 (see Table 2.6-26). Between 1980 and 1990, persons with incomes below the poverty level decreased slightly from 21% of the total persons for whom poverty status was determined in 1980 to 18% of the total persons determined in 1990. On the other hand, the number of families with incomes below the poverty level increased 4%, a slower rate than overall county growth, signifying that the relative number of families below the poverty line has decreased.

Table 2.6-26			
POVERTY STATUS IN PAMLICO COUNTY FOR 1980 AND 1990			
Census Category	1980	1990	Percent Change from 1980 to 1990
Total persons determined*	10,396	11,217	7.90%
Total persons below poverty level	2,142	2,119	-1.07%
Percent persons below poverty level	20.60%	18.89%	-1.71%**
Total families determined*	2,918	3,377	15.73%
Total families below poverty level	512	534	4.30%
Percent families below poverty level	17.55%	15.81%	-1.74%**
*All persons/families from whom poverty status was determined ** Change in percent of total category Source: U.S. Bureau of the Census			

2.6.4.4 Economic Issues and Trends

Immediate and future concerns in Pamlico County focus on improving the county's economic base and providing efficient operation in a small county with limited fiscal resources. Expanding the economic base of the county involves a complex set of issues that hinge on development or improvement of various facets of the county's infrastructure, including constructing a countywide sewer system, improving highway access to the county, and upgrading the physical plants of county schools. Currently, the absence of a countywide sewer system limits the development of light industry facilities that Pamlico County would prefer to attract, and, at the same time, limits the development of waterfront real estate that has attracted retirees to the county. Often the water front properties will not pass required soil percolation tests or are simply too close to waterways for a septic system. Consequently, these properties cannot be developed for residential purposes.

Given that the county is approximately 75% wetlands, the question of septic systems also includes developing additional residences on existing properties. The county is currently formulating plans to construct a countywide sewer system, but funding poses major obstacles. Similarly, the county is actively promoting the widening of access highways into the county, specifically Highway 55 from New Bern. Increasing the width of this highway should decrease highway congestion and travel times throughout the county, thereby increasing the desirability of the county as a site for future businesses and residences. These two issues -- increased access to the county and a countywide sewer system -- in conjunction with promoting the county as a site for industry, business, and retirees, are major priorities. In fact, through the activities of the county planner, the county is working to attract industry to Pamlico and to publicize the benefits of the county as a retirement location. The county is also trying to increase its efficiency and effectiveness via cooperative efforts with other counties. This has been manifested in their efforts with Craven County to develop a joint-use landfill that will decrease Pamlico County's cost while increasing the level of service to local residents.

2.6.5 Patterns of Government Service Delivery

2.6.5.1 Structure and Employees

Local governments, especially county government, deliver a range of public services to the citizens of Pamlico. Pamlico County government is presided over by a county board of commissioners and several other countywide boards that employ personnel to administer specific services. The board is composed of seven members, one from each of the five townships in the county, and two members at large, including the chairman of the board. Bayboro is the county seat.

The board of commissioners hires a county manager who is responsible for the day-to-day administration of county government functions with the exception of health, education, and social services. The Pamlico County Health Board hires the director of the department of health, the county board of education hires the superintendent of schools, and the county social service board hires the director of social services. Although the county manager administers the county funds provided to these agencies, each director is responsible for the day-to-day operations of their respective departments.

The personnel resources for operating county government have remained relatively steady over the past few years. Table 2.6-27 shows the number of personnel (in Full-Time Equivalent units) in each of the major county departments, with the exception of school personnel.

The sheriff's department (20.0 full-time equivalent positions [FTEs]), social services (31.3 FTEs), and health services (16.4 FTEs) together account for approximately 54% of the total county government employment. In addition, these personnel operate in programs that operate at or over capacity and these limited personnel resources are important when considering the leadership resources within the county. As a small and frugal county, Pamlico has certain demands on its county government leadership resources that may not exist in larger jurisdictions. In several areas department heads perform more than one function. For example, the county manager is also the fiscal officer, and the county planner serves as the fire protection officer and maintains the emergency management. Additionally, the tax collector serves as the volunteer chief of the rescue squad. The other major departments, such as health and social services, are operating at capacity and essentially leave no time for additional responsibilities. The effect of limited leadership resources is that for any unexpected emergency or perturbation in the county's socioeconomic environment, other extra-county resources would likely be required to respond.

**Table 2.6-27
PERSONNEL BY MAJOR COUNTY DEPARTMENT IN PAMLICO COUNTY FOR 1990**

Department	Full-time Equivalent Positions
Administration and Finance	6.0
Tax collector/Assessor	7.0
Supervisor of Elections	0.6
Register of Deeds	3.0
Sheriff	20.0
Planning and Emergency Management	2.0
Building Inspections	3.0
Emergency Medical Services	2.0
Waste Management	8.0
Senior Services	3.0
Social Services	31.3
County Extension	4.8
Maintenance	3.0
Health Services	16.4
Veterans Services	1.0
Library	1.8
Recreation	4.0
Operations	7.0
Additional part-time personnel	2.2
TOTAL FULL-TIME EQUIVALENT POSITIONS	126.1
Source: Pamlico County	

2.6.5.2 Local Government Revenues and Expenditures

Pamlico County had both increases and decreases in its total expenditures and revenues from 1980 to 1990. The county's expenditures have generally been greater than the revenues except in 1985 and 1987. In 1990, Pamlico had a relatively equal number of expenditures and revenues (21%) which was unlike other years in which they differed. The county experienced the greatest increase in expenditures from 1985 to 1986 and the largest increase in revenues from 1988 to 1989.

Table 2.6-28 TOTAL EXPENDITURES IN PAMLICO COUNTY FOR 1980 THROUGH 1990		
Year	Total Expenditures	Percent Change from 1980 through 1990
1980	5,150,000	N/A
1985	3,622,000	-29.67%
1986	4,557,000	25.81%
1987	4,442,000	-2.52%
1988	5,492,000	23.64%
1989	6,619,000	20.52%
1990	8,010,000	21.02%

Source: North Carolina State Data Center

Table 2.6-29 TOTAL REVENUES IN PAMLICO COUNTY FOR 1980 THROUGH 1990		
Year	Total Revenues	Percent Change from 1980 through 1990
1980	4,421,000	N/A
1985	3,846,000	-13.01%
1986	4,213,000	9.54%
1987	4,784,000	13.55%
1988	4,948,000	3.43%
1989	6,273,000	26.78%
1990	7,572,000	20.71%

Source: North Carolina State Data Center

2.6.5.3 Education

Pamlico County has five educational facilities: one technical junior college, two elementary schools, one junior high school, and one high school. Approximately 160 students attend the junior college. Table 2.6-30 shows the total student enrollment in the county for grades K-12 from 1990 to 1993. The total number of students in these grades have remained relatively stable for the past four years, with a 6% increase from 1990 to 1993.

Table 2.6-30 STUDENT ENROLLMENT FOR GRADES K-12 IN PAMLICO COUNTY FOR 1990-1993		
Year	Enrollment	Percent Change from 1990 through 1993
1990	2,016	N/A
1991	2,070	2.68%
1992	2,073	0.14%
1993	2,130	2.75%

Source: North Carolina State Data Center

Although there are significant expenses allotted toward education in Pamlico County, there are still levels of concern within the county about education issues. For example, interviews with local residents indicate that the following educational concerns exist within the county: developing new programs from the state to address the needs of an economically disadvantaged county; upgrading the physical plants throughout the school system; providing custodial care for children when school is canceled because of bad weather or other reasons; continuing consolidation of the school system; developing technical and vocational education programs; developing a job base so that students can find local work; providing drug education; and developing and expanding the advantages of education expenditures to all areas of the county.

Table 2.5-31 presents the total public school expenditures in Pamlico County for 1990. The total public school expenditures during this time equaled \$8,227,000. Of this, 11% were from federal funds, 77% were state funded, and 12% were locally funded.

Table 2.5-31 PUBLIC SCHOOL EXPENDITURES BY SOURCE OF FUNDS IN PAMLICO COUNTY FOR 1990			
Total	Federal	State	Local
8,227,000	931,000	6,305,000	991,000
Source: North Carolina State Data Center, Statistical Abstract 1991			

2.6.5.4 Law Enforcement and Emergency Services

Pamlico County Sheriff's Department The Pamlico County Sheriffs Department delivers patrol, jail, and other law enforcement services to the residents of Pamlico. Of the approximately twenty personnel in the sheriff's department, there are eight full-time deputies, four full-time road patrol officers, one canine officer, and one investigator who also spends about 100 hours per month supplementing the patrol officers. Additionally, federal and state funds provide a full-time Drug Abuse Resistance Education officer for drug-related law enforcement and education services. The sheriff and chief deputy provide primarily administrative services, but they are available for direct service delivery. However, because of the current configuration of personnel and the demands on the department there is no round-the-clock patrol coverage. Other personnel in the department are jailers (four), dispatchers (four), and the administrative staff.

Pamlico County does not have a high occurrence of crime. Officials in the sheriff's department report that the crime that does exist in the county is a result of increased drug use (i.e., crack and powder cocaine) and the break-ins that are associated with drug use (i.e., to acquire property that can be sold to buy drugs.) Otherwise, these same officials report that other crime is not a major issue in the county.

Emergency Services Fire protection, emergency management, and emergency medical services (i.e., the rescue squad) are other important public safety services delivered by the county. Currently, there are no full-time paid fire protection staff members in Pamlico County. The administrative services for fire protection are provided by the county planner/emergency manager coordinator and the direct fire protection services are delivered by nine volunteer fire departments. The planner/emergency manager also develops and coordinates the county emergency operations plan. This plan includes a role for most county department head personnel as well as county commissioners. The county has not experienced a major natural or technological disaster since Hurricane Hazel in 1957, although the emergency operations plan was put into operation in September 1991 when Hurricane Bob threatened the region. Once a year there is a drill to practice the county emergency operations plan. This plan includes close coordination with state emergency management personnel and the U.S. Coast Guard station at Hobucken. Both state and Coast

Guard resources would be necessary assets in the case of any major emergency in the county because of the county's limited emergency management resources.

Pamlico County has four physicians, but no hospital. However, the county recently hired two new full-time emergency medical technicians who staff the rescue squad. As noted previously, the county tax assessor/collector also serves as the volunteer captain of the rescue squad. Currently, the county has a basic level of 911 service, but it is exploring the feasibility of adding extended 911 services.

2.6.5.5 Social Services

Basic social services are delivered by the Pamlico County Department of Social Services, which operates under the supervision of the county social services board (i.e., social services is a state-run but county-administered program). To deliver social services, the department has seven social workers, income maintenance caseworkers, and an income maintenance investigator on staff, plus additional administrative personnel among its 31.3 FTE positions. These personnel deliver services to approximately 3,500 clients in all programs.¹ Medicaid accounts for the largest portion of these clients (1,364), followed by clients in the Aid for Families with Dependent Children (AFDC) program (762), and those in the food stamp program (602). Other major programs operated by the department are adult and child protective services, energy assistance payments, day care and in-home aid, and provision of food commodities to needy persons and families.

Within the last five years total expenditures for social services in Pamlico County have increased from about \$5.2 million to the current \$9.8 million. This increase is related to a decline in the local economy which results in more needs for public assistance. Additionally, there has been an increase in the delivery of Medicaid services that is partially a result of an aging population and the influx of retirees into the county. As the county's population ages and as in-migration of retirees continues, Medicaid will continue to be an increasing area of social services. Further, housing for those with limited incomes, services for the mentally ill (especially transportation services to treatment facilities in New Bern), job promotion, and child and adult protective services are areas of mounting needs in Pamlico County.

2.6.5.6 Health Services

The health department has a budget of approximately \$640,000 per year, with about 65% of these funds being provided by state and federal sources. The services of the health department are delivered by four public health nurses, three environmental health specialists, one nutritionist, two health educators, and two paraprofessional community health aids.

¹ These total figures indicate clients in each program. Since there are some persons who are clients in several programs, these numbers inflate the total numbers of persons receiving social services.

Additionally, there are three administrative and support staff. The health department provides traditional basic public health services to the citizens of Pamlico County, including control of communicable diseases, chronic disease prevention, environmental health and sanitation, and maternal child health. The department does not administer any primary care services. Communicable diseases are currently not a major issue in the county. There is a relatively low occurrence of tuberculosis, and there are about six cases of HIV in the county. Maternal child health issues focus on adverse birth outcomes, especially birth defects and low birth weight babies. Currently, about one-half of all births in the county are to Medicaid mothers, a population that is traditionally at risk for low-birth-weight babies and other adverse birth outcomes. The health department is currently engaging in health promotion programs to reach these and other at-risk populations in the county.

One of the major issues in the county is waste water treatment. The low-lying topography of the county, the absence of a countywide sewer system, and the consequent reliance on septic systems for waste disposal means that ensuring water quality is a primary concern of the health department. Although the current focus of activity in the health department is on the delivery of services to low-income clients, the department is increasingly positioning itself to emphasize health promotion and life-style health issues that affect all of the residents of Pamlico County.

2.6.5.7 Planning and Economic Development

The planning program in Pamlico County has remained active in recent years and the county's planning commission meets on a regular basis, usually once a month (Holland 1992: I-71). In addition, local revenues support a full-time staff planning position and the county's building inspections department regulates building inspections and enforces subdivision regulations (Holland 1992: I-71). As a result of the Pamlico County's 1987 Land Use Plan, policies regarding housing, recreation and open space, and public facilities and services were implemented (Holland 1992: I-75). Improving the county's current water system and establishing a countywide sewer system were also issues that were emphasized during the planning period (Holland 1992: I-75). In 1990 the county began implementation of an estuarine shoreline access plan that focused on current and future estuarine, creek, and river access needs (Holland 1992: I-72).

2.6.6 Use of Marine Resources

There are numerous valuable marine resource areas within Pamlico County (Holland 1992: I-66). The most significant areas are located in the bay, creek, and sound areas adjacent to the coastal wetlands of the county's eastern and southeastern shoreline along Pamlico Sound and the Neuse River (Holland 1992: I-66). Most of the waters within the county's planning jurisdiction are utilized for commercial shellfishing, while a smaller number are used for recreation and fish and wildlife propagation (Holland 1992: I-66).

2.5.6.1 Commercial Landings

Table 2.6-32 lists the top ten finfish landings in Pamlico County for 1981 and 1991. Total landings decreased precipitously (82%) during this decade. Total value also declined substantially over this period, but at a much lesser rate (45%) because of increases in price per pound. This type of a decline in finfish production is common to all of the counties reviewed in this report.

Table 2.6-33 provides data on shellfish landings in Pamlico County for 1981 and 1991. Unlike finfish, shellfish landings increased over this time period, by a total of 9%. The value of the catch landed increased 94% over the same period.

As can be seen by comparing the two tables, the relative importance of finfish and shellfish to commercial fishermen in Pamlico County has been reversed between 1981 and 1991. In 1981, 2 million more pounds of finfish than shellfish were landed, and the value of the finfish was over \$1 million higher than that of the shellfish landed. On the other hand, by 1991, shellfish landings exceeded finfish landings by over 6.5 million pounds, and the value of the shellfish landings was approximately \$3.4 million higher than the value of finfish landings.

Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Flounders, Fluke	3,673,113	2,334,721	1,558,863	2,041,829
Mulletts	63,957	10,560	47,743	9,826
Anglerfish (Goosefish)	76,752	30,546	29,429	22,533
Sea Basses	34,659	19,247	22,067	21,946
Kingfishes (Sea Mullet)	7,854	2,190	17,339	8,004
Bluefish	355,529	48,410	16,662	3,034
Spot	131,869	31,935	14,925	3,957
Swellfishes (Puffers)	18,186	5,129	12,267	9,258
Grey Seatrout (Weakfish)	3,210,894	947,670	8,864	5,222
Spotted Seatrout	4,023	1,773	8,733	8,068
TOTAL FINFISH†	9,676,736	3,871,131	1,771,906	2,149,597

†Includes minor landings of additional species not listed above
Source: North Carolina Division of Marine Fisheries

Table 2.6-33 SHELLFISH LANDINGS IN POUNDS AND DOLLARS IN PAMLICO COUNTY, 1981 AND 1991				
Species (in order of pounds landed in 1991)	1981		1991	
	Pounds	Value (\$)	Pounds	Value (\$)
Blue Crabs (hard)	7,098,275	1,720,822	6,265,486	1,710,924
Brown Shrimp	N/A	N/A	1,374,914	2,616,862
Pink Shrimp	N/A	N/A-	415,360	636,551
White Shrimp	N/A	N/A	156,382	324,918
Sea Scallop	22,018	66,520	57,160	198,257
Squid	39,065	9,194	56,893	16,246
Conchs	*	*	19,074	4,742
Rock Shrimp	N/A	N/A	1,809	1,135
Octopus	N/A	N/A	435	377
Oyster, Spring	28,662	29,704	*	*
Other/S (includes confidential)	3,354	1,283	*	*
Unclassified Shrimp	428,129	965,896	N/A	N/A
Blue Crab Soft	12,902	19,654	N/A	N/A
Oyster, Fall	20,049	26,161	N/A	N/A
TOTAL SHELLFISH†	7,652,454	2,839,234	8,347,513	5,510,012
*Denotes confidential data †Includes unclassified species and confidential data Source: North Carolina Division of Marine Fisheries				

2.5.6.2 Vessel Licenses and Registrations

The North Carolina Division of Marine Fisheries issued 731 commercial vessel licenses in Pamlico County in 1991. This is a decrease of approximately 16% of total licenses issued since 1981. This decrease in licenses issued to the county parallels the overall decrease of licenses issued in the state. In addition, in 1990 the majority of licenses issued in Pamlico County were for full-time and pleasure uses. These uses contrast with the overall number of licenses issued in North Carolina, which were overwhelmingly for pleasure and part-time uses.

Table 2.6-34 COMMERCIAL VESSEL LICENSES ISSUED IN PAMLICO COUNTY AND STATE FOR 1981 AND 1991				
Type	Pamlico		North Carolina	
	1981	1991	1981	1991
Full-time	299	326	4,099	4,909
Part-time	193	160	7,770	5,396
Pleasure	384	244	13,595	9,308
Charter	N/A	1	N/A	185
Head	N/A	0	N/A	13
Totals	876	731	25,464	19,811
Source: North Carolina Division of Marine Fisheries Licensing Section				

The total number of vessel registrations in Pamlico County was 1,570 in 1991. This is a 36% increase from 1980 vessel registrations and corresponds with the 44% increase in the registrations for all of North Carolina.

Table 2.6-35 VESSEL REGISTRATIONS IN PAMLICO COUNTY FOR 1980 AND 1991			
Place	1980	1991	Percent Change From 1980 to 1991
Pamlico County	1,159	1,570	35.46%
Total Registrations	193,058	278,598	44.31%
Source: North Carolina Wildlife Resource Commission			

2.7 NORTH CAROLINA'S MARINE FISHERIES: LOCATIONS AND STYLES OF PARTICIPATION

2.7.1 Introduction

The sounds within the North Carolina study area, and the adjacent portions of the Atlantic ocean, provide a rich and varied abundance of living marine resources from which thousands of North Carolinians make their living and thousands of others, both residents and visitors, use for recreational purposes. This section examines the patterns of capture of North Carolina's most lucrative and popular living marine resources; describes changes in activity throughout the calendar year; and identifies, where possible, the communities from which the fishermen come.

This section is framed around ocean use patterns rather than the geography of counties. The discussion is anchored by two points: the five-county region that is the focus of this report and the Manteo Prospect site that is the focus of potential OCS activities.

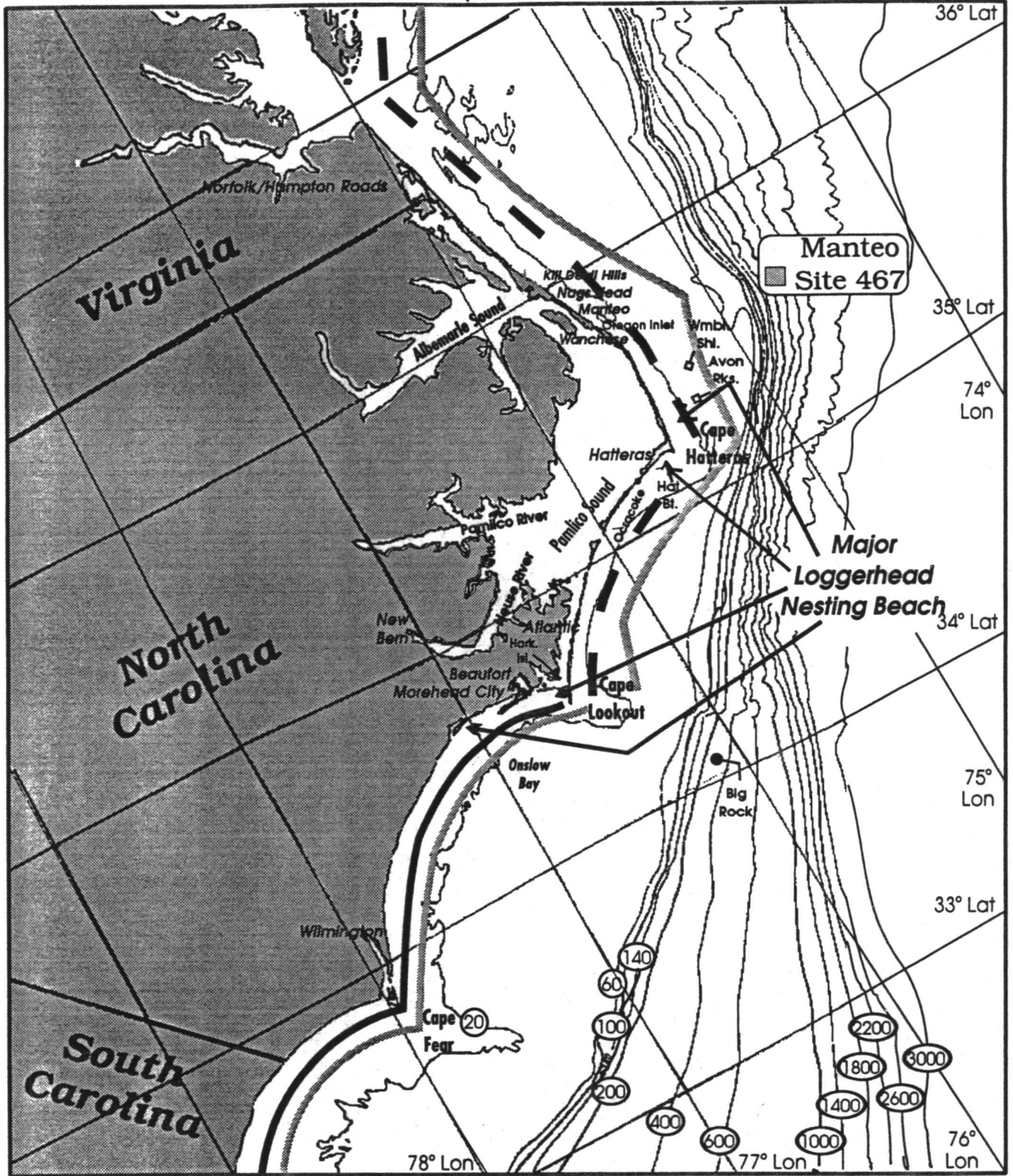
If there is one term that describes virtually all of North Carolina's commercial fishermen and many of the state's saltwater recreational fishermen, that term is "opportunistic." Fishermen take advantage of seasonal fish migrations and feeding patterns by changing gear and harvest locations and by targeting different species. For some large commercial boats changing fishing locations means traveling long distances, to other states or even, to another country. For most fishermen, however, all their activities occur in waters adjacent to the state's shoreline or within the estuaries and sounds.

For the most part, changing strategies are quite regular, occur similarly each year, and are quite predictable (Acheson 1981). Fishermen settle into a pattern which is referred to as an "annual round."

Maps 2.7-1 through 2.7-6, 2.7-8 through 2.7-10, and 2.7-12 through 2.7-15 provide the geographic locations and ranges, by specie, of North Carolina's marine species of importance to local fisheries (either as target species or as protected species whose regulatory status influences fishing effort). The range for all species combined extends from the shoreline out to about 400 meters in the North (220 fathoms), and to 200 meters in the South (110 fathoms). Map 2.7-7 portrays sink net fishing grounds. Map 2.7-11 displays the range of benthic fish assemblages which are primarily found within the 60 meter line except off of Cape Hatteras, where the range extends to approximately 140 meters.

Tables 2.7-1 through 2.7-12 present information on season, location, boats, gear, and incidental catch.

Map 2.7-1



100 Water Depth in Meters

Green Turtle

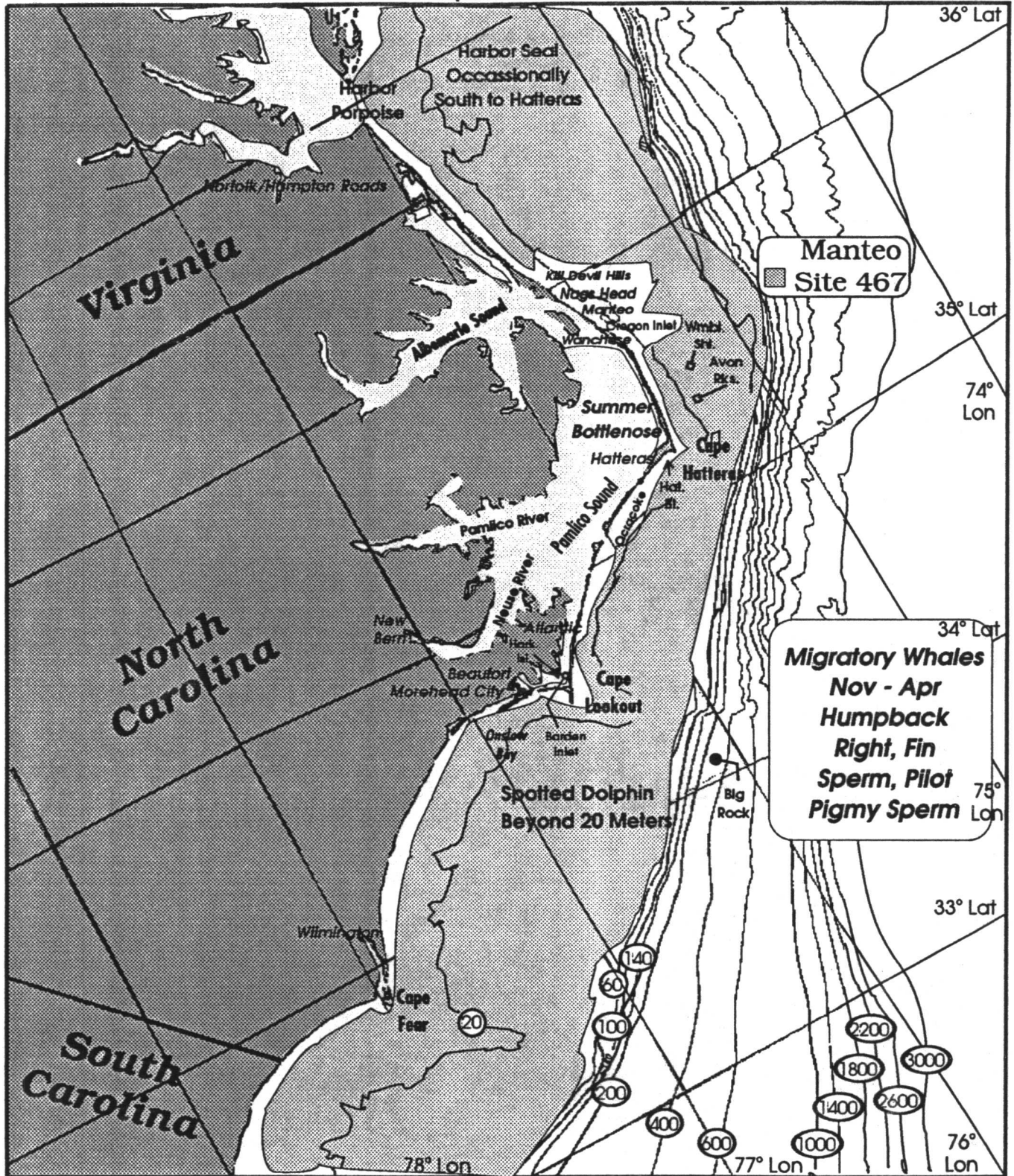
Range  Occasional Range 

Loggerhead Turtle

Range 

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-2



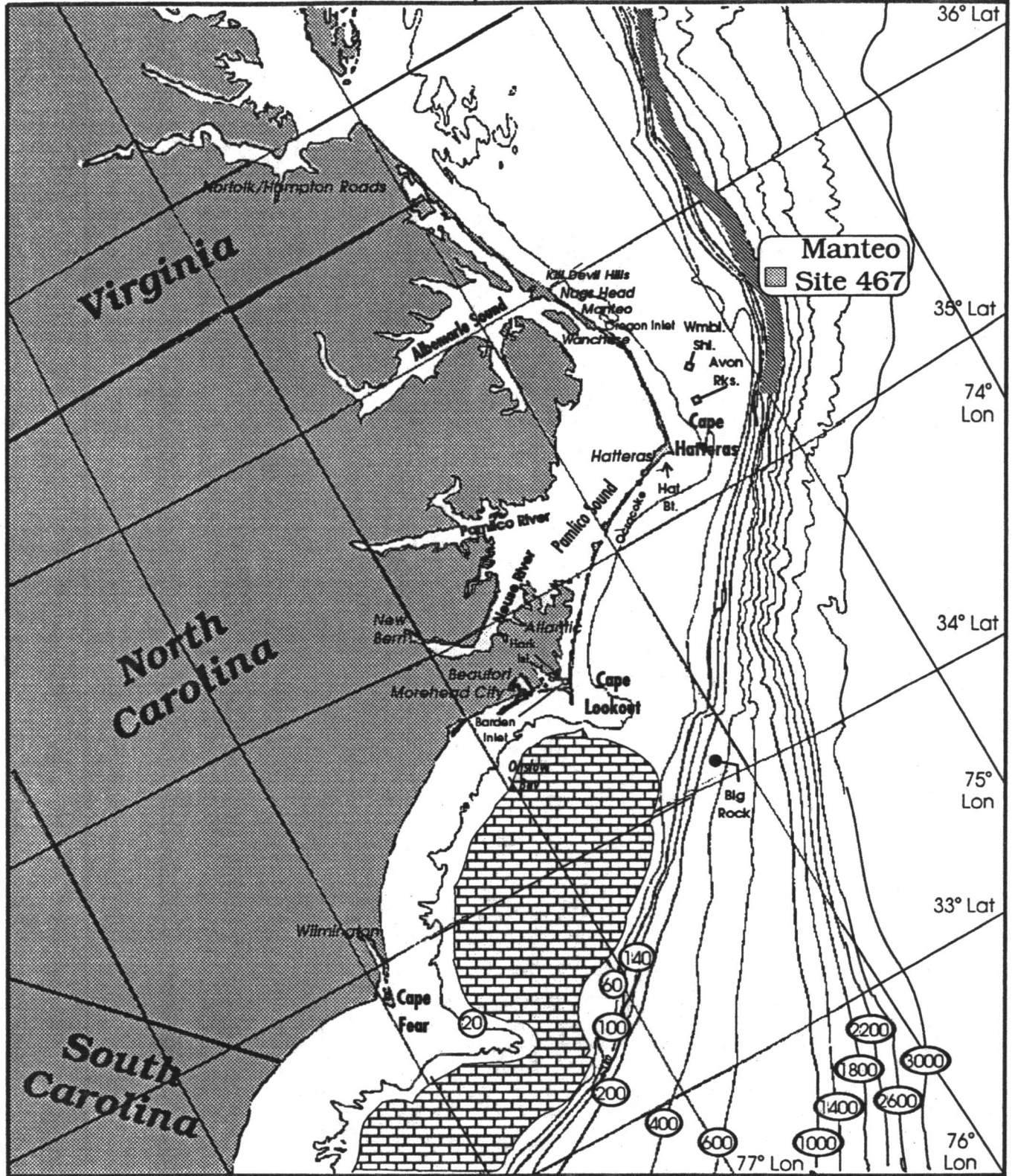
⑩ Water Depth in Meters

Marine Mammals: Dolphins, Whales & Seals

Bottlenose Dolphin Throughout Ocean Range All Year
 Sounds & Rivers During Summer

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA

Map 2.7-3



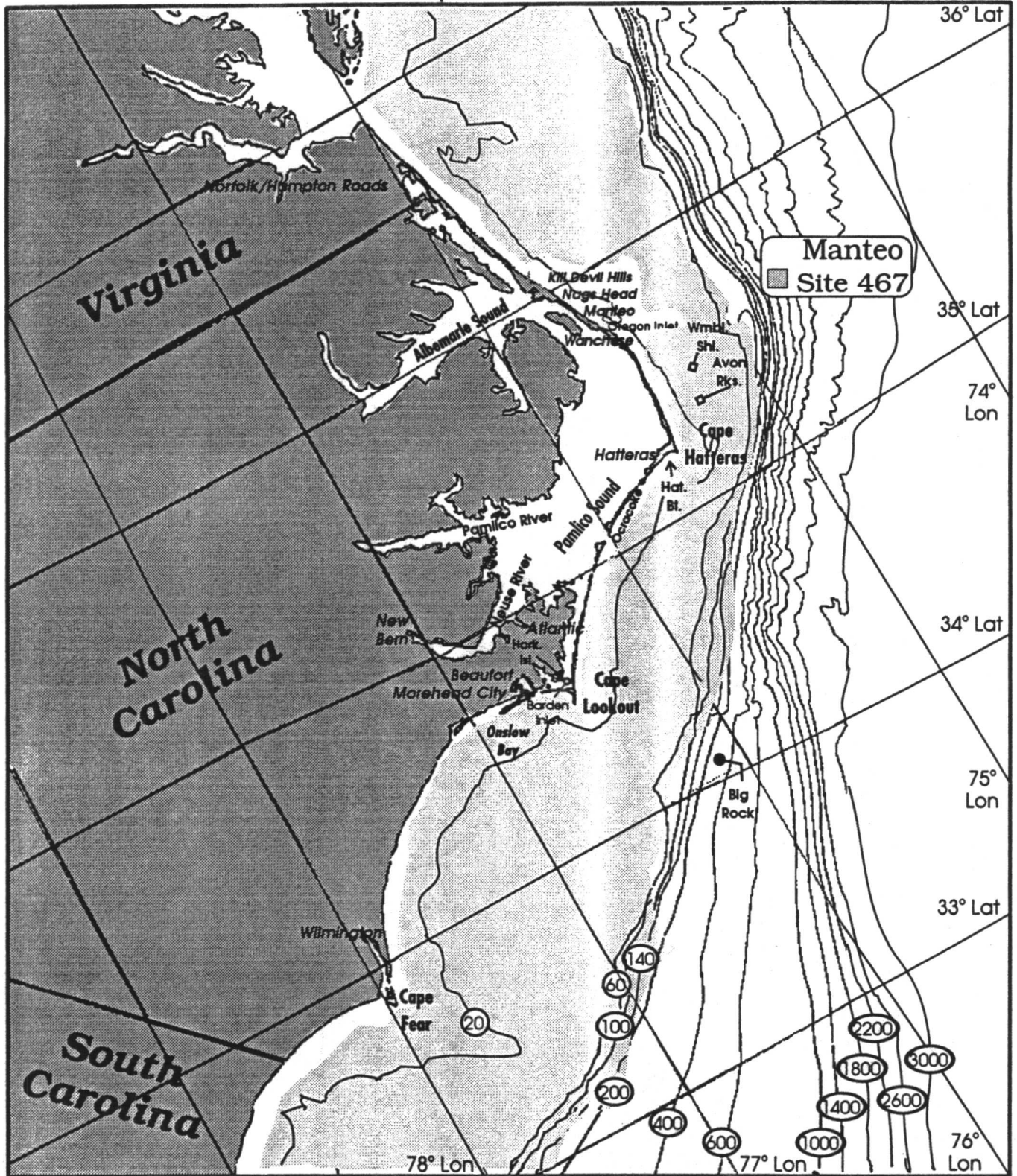
⑩ Water Depth in Meters

Lobsters

-  Spiny Lobster: Non-commercial Concentrations
-  American Lobster

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA
 August 1980

Map 2.7-4



⑩ Water Depth in Meters

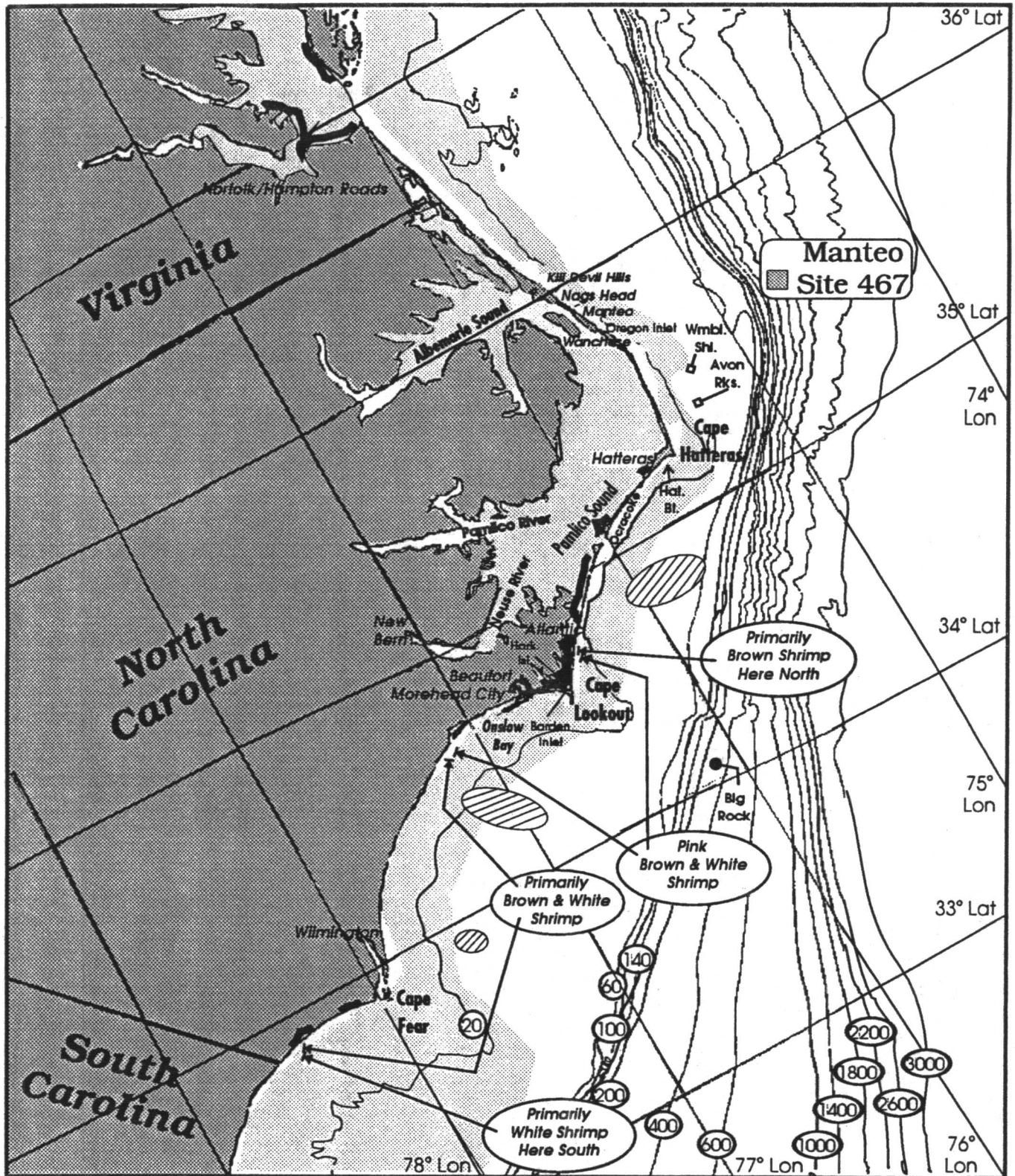
Atlantic Menhaden

North of Cape Lookout Is Major Spawning Area

South of Cape Lookout Is Major Winter Area

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-5



100 Water Depth in Meters

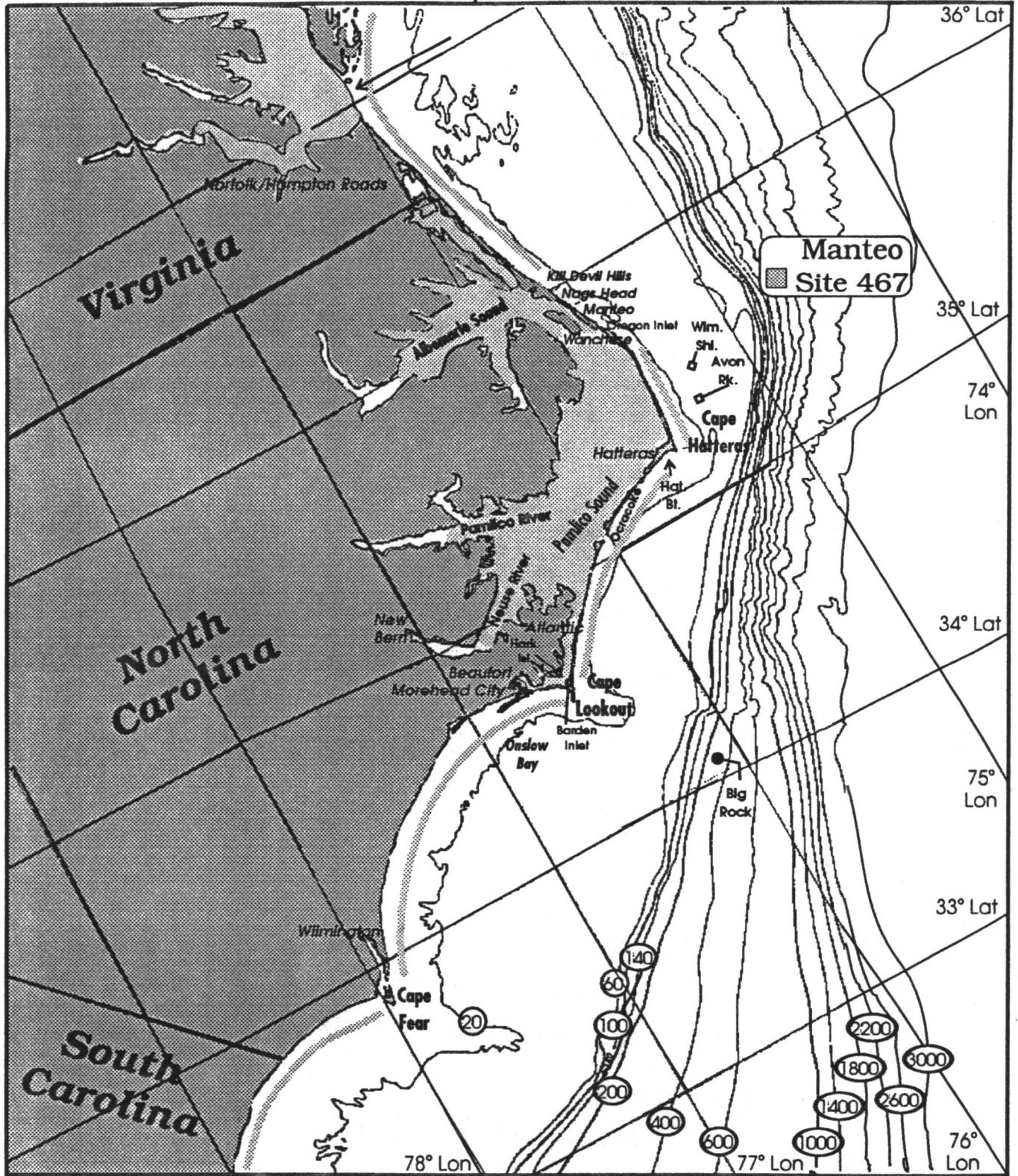
Shrimp: White Brown & Pink Range

Scallops: Range Major Concentrations

Hard Clam:

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA
 August 1980

Map 2.7-6



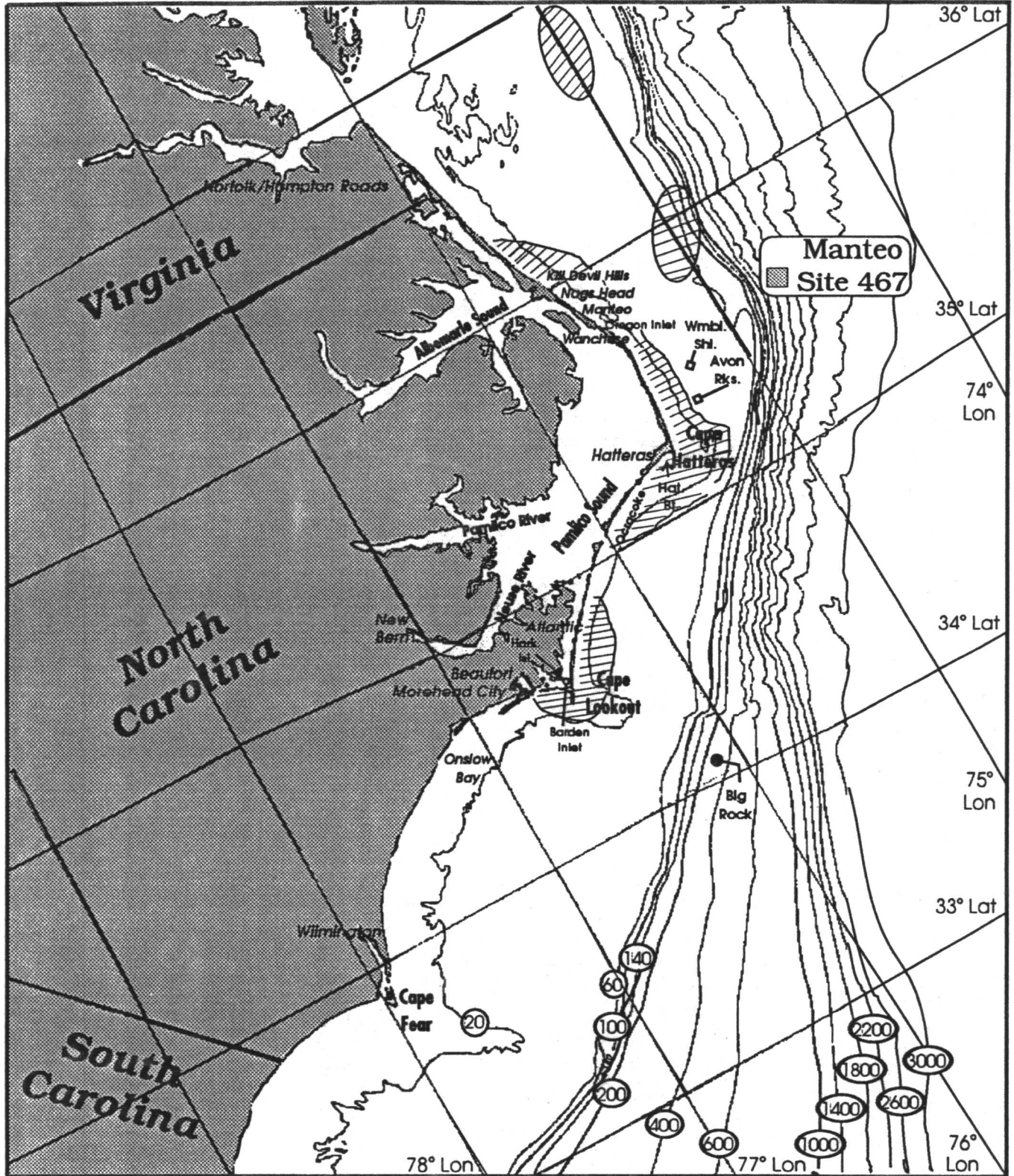
⊙ Water Depth in Meters

Blue Crab

Range 

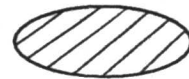
Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-7



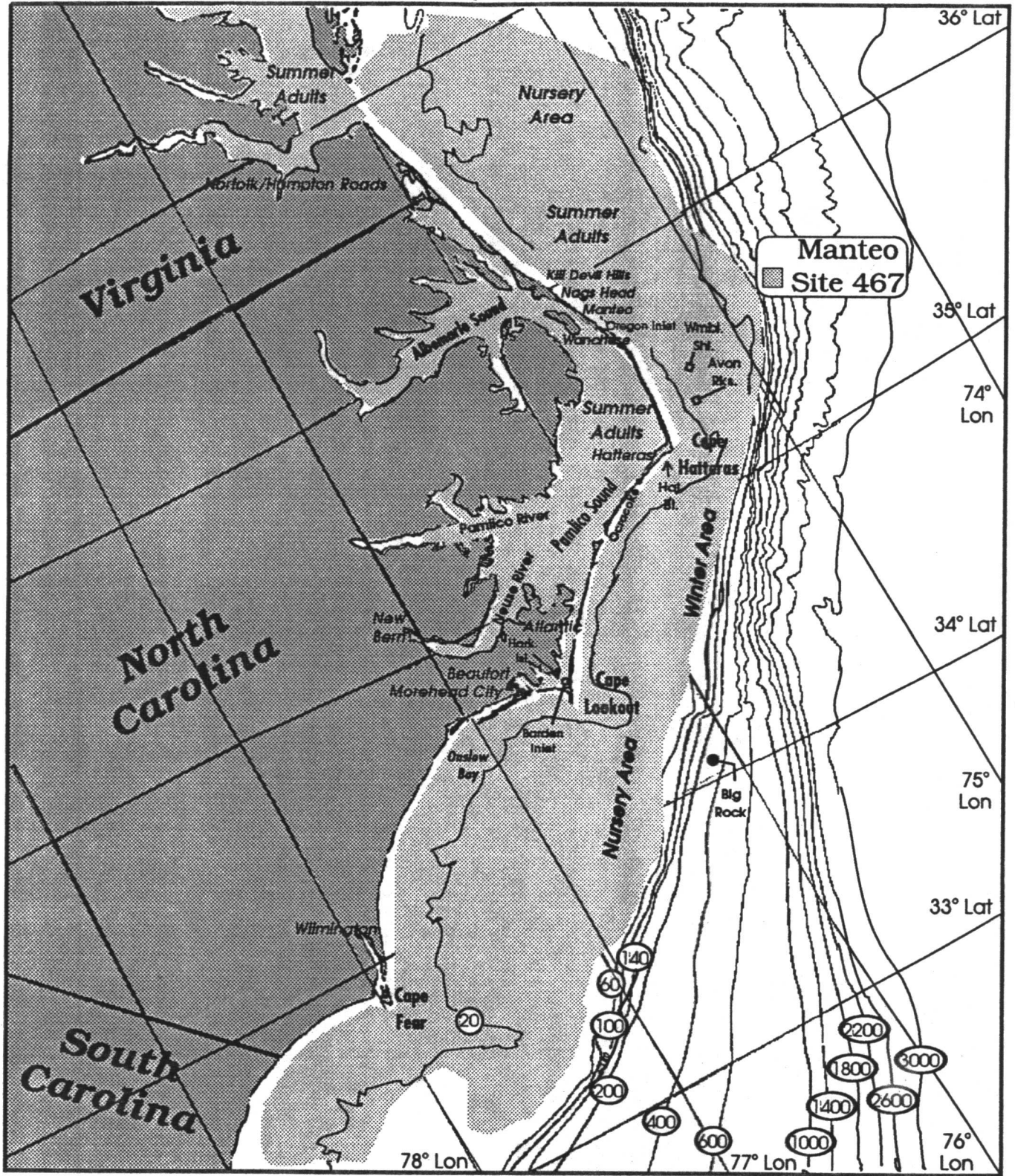
100 Water Depth in Meters

Sink Net Fishing Grounds



Source: Assessment of North Carolina Commercial Finfisheries
North Carolina Dept. of Environment, Health & Natural Resources
Division of Marine Fisheries
May 1992

Map 2.7-8

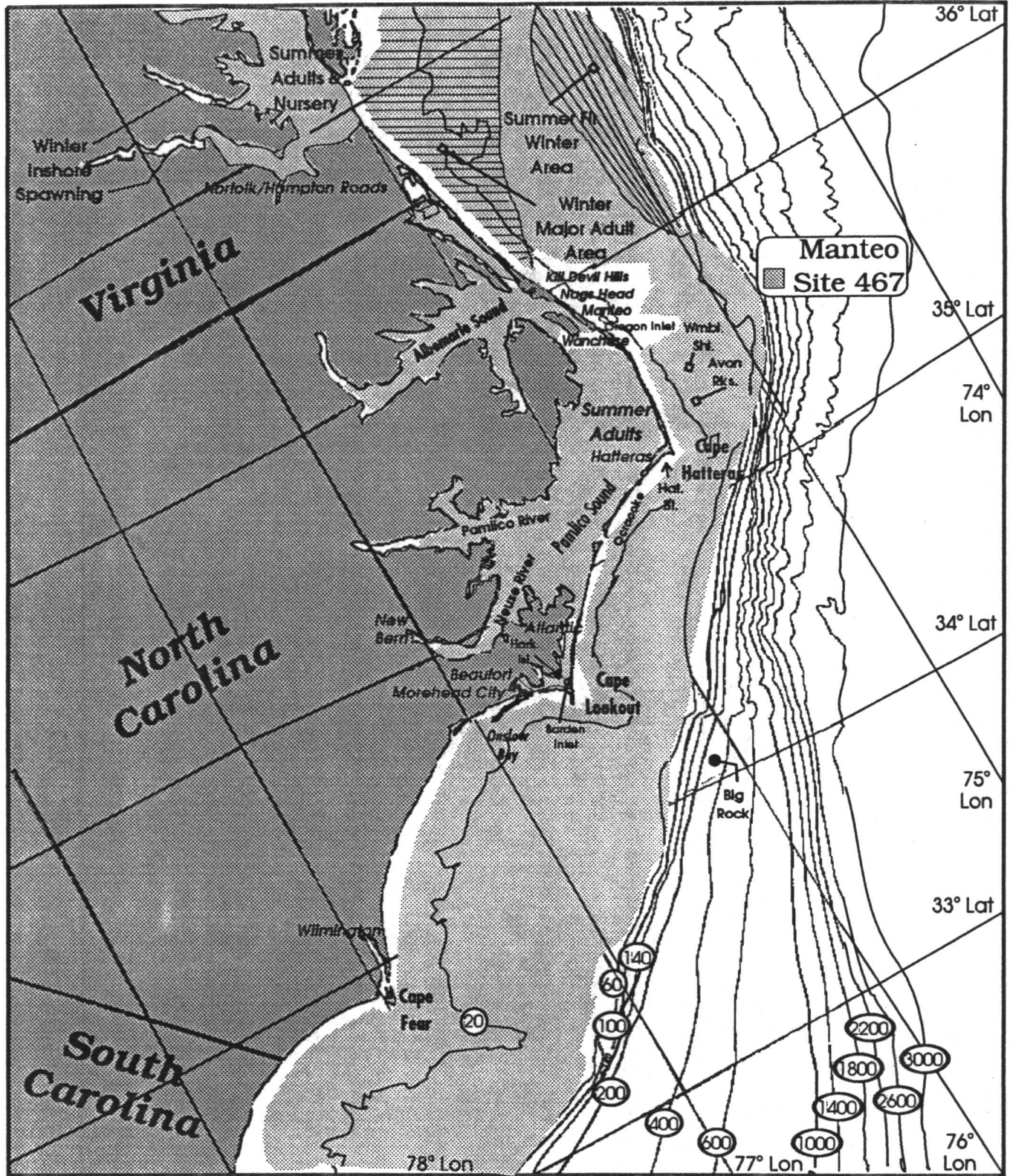


⊙ Water Depth in Meters

Atlantic Croaker Spot

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-9



⊙ Water Depth in Meters

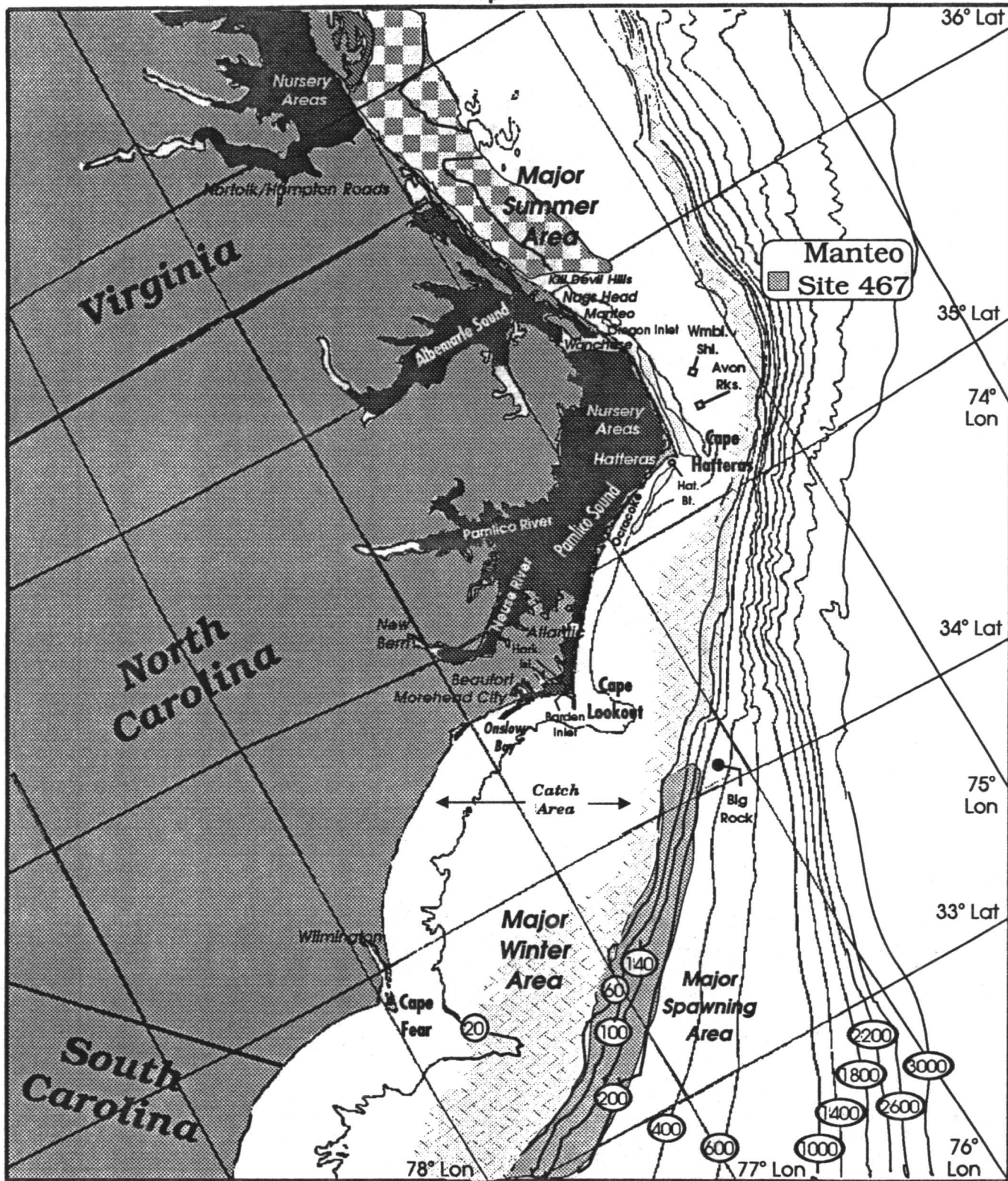
Flounders - Winter & Summer

▨ Range

Summer Adults & Nursery: Sounds out to 20 meters
Spawning 30 to 60 meters.

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-10



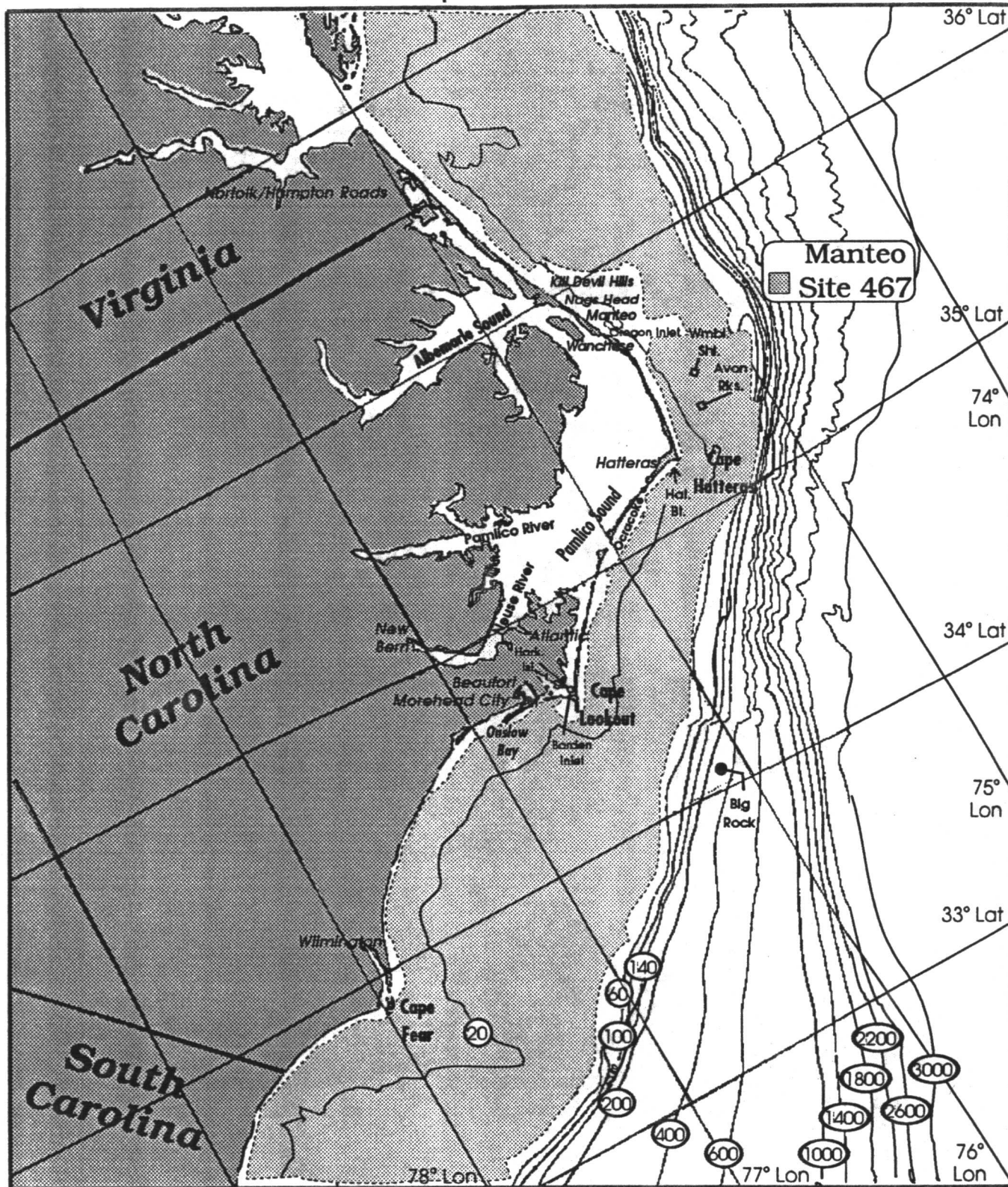
Bluefish

- Nursery Areas
- Major Summer Areas
- Major Winter Areas

⊙ Water Depth in Meters

Major Spawning Areas

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA
 August 1980



⊙ Water Depth in Meters

Benthic Fishes

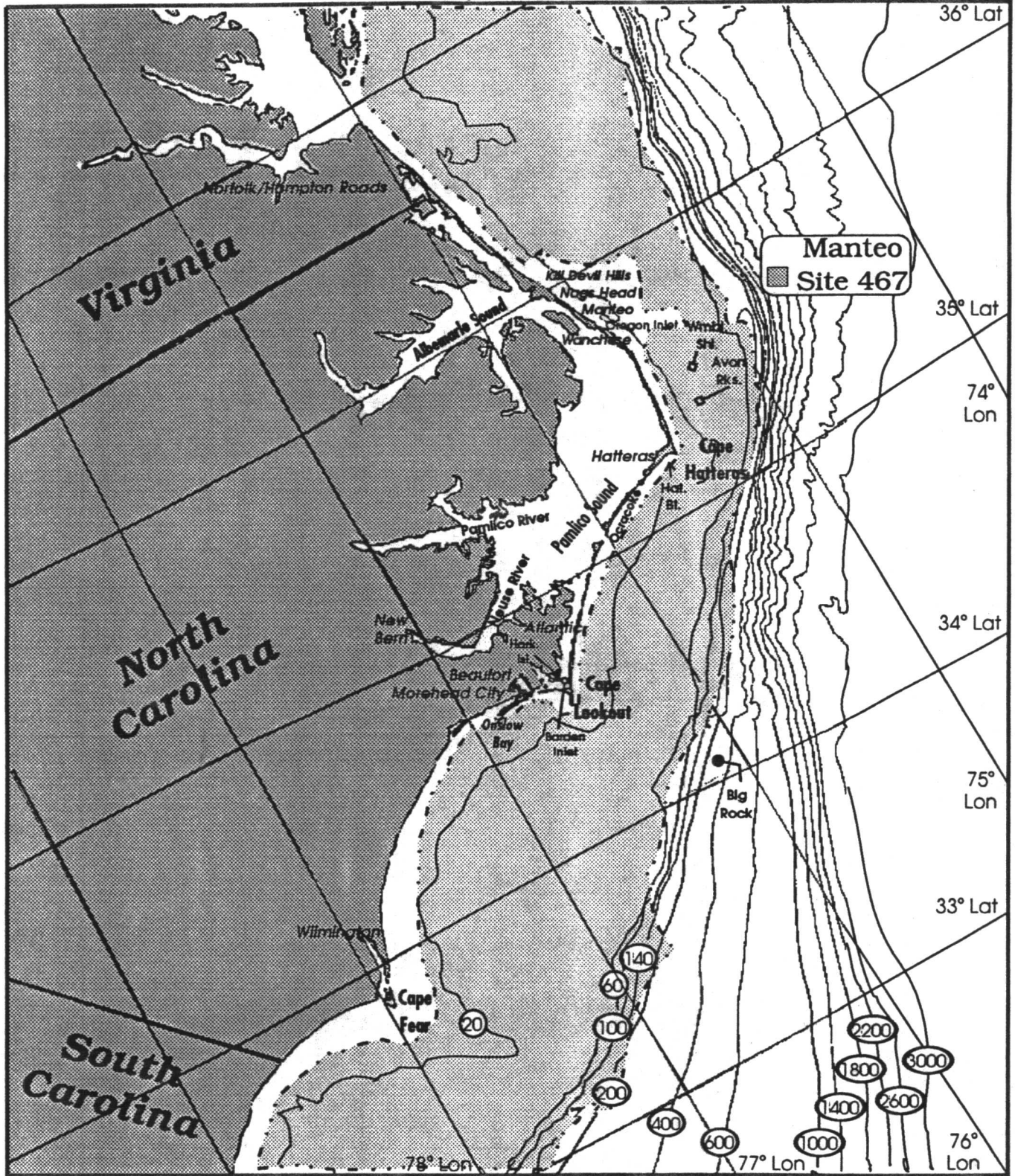
Coastal Inshore Faunal Assemblage to 20 Meter Line

Sub-tropical-tolerant Faunal Assemblage to 60 Meter Line

Warm-Temperate-tolerant Faunal Assemblages beyond 60 Meter Line

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA
 August 1980

Map 2.7-12



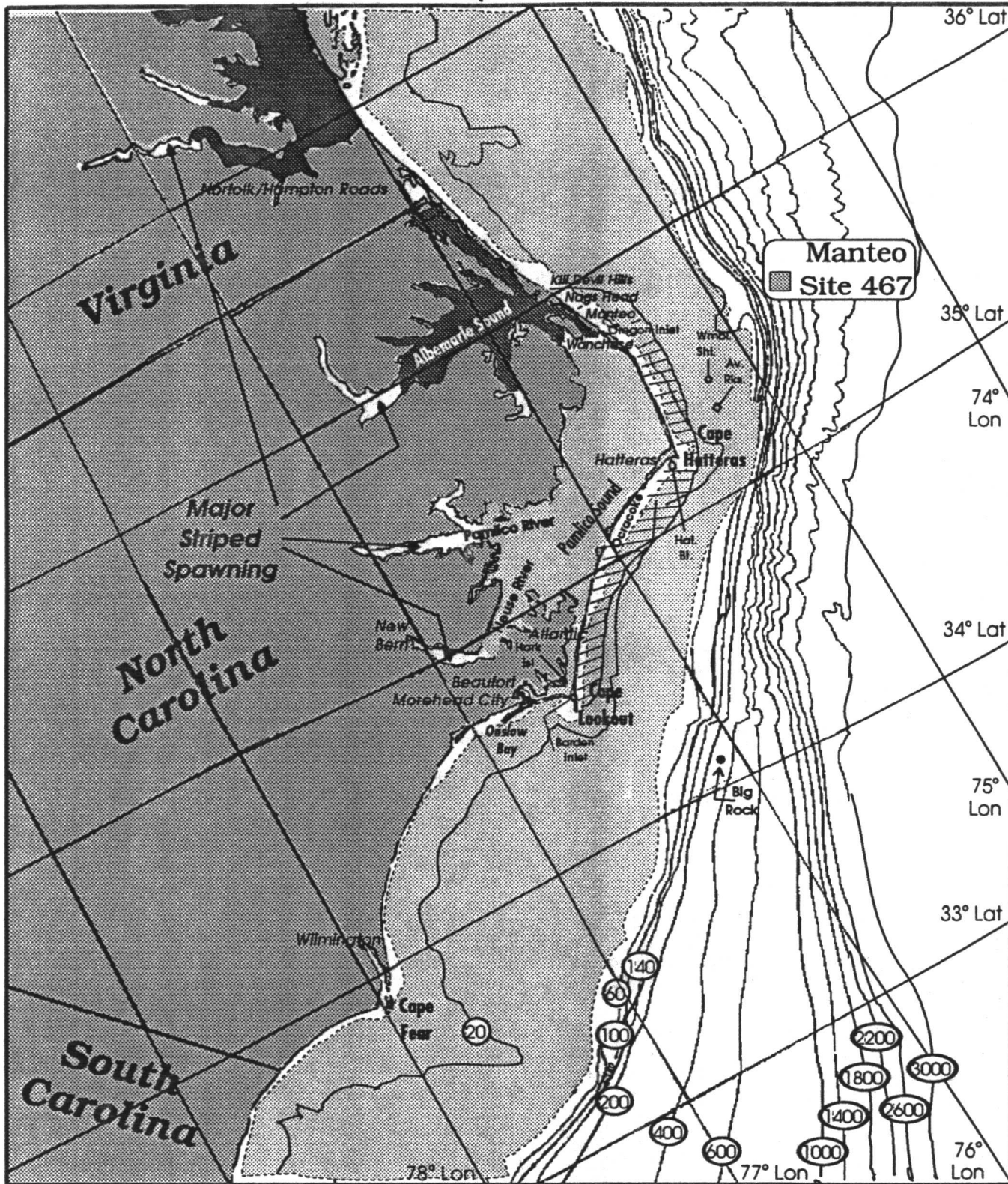
⑩ Water Depth in Meters

Porgies

Scup: from approx. 10 to 40 meters
Red Porgy: approx. 20 to 250 meters

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-13



⊙ Water Depth in Meters .

Striped Bass

Range

Resident Populations

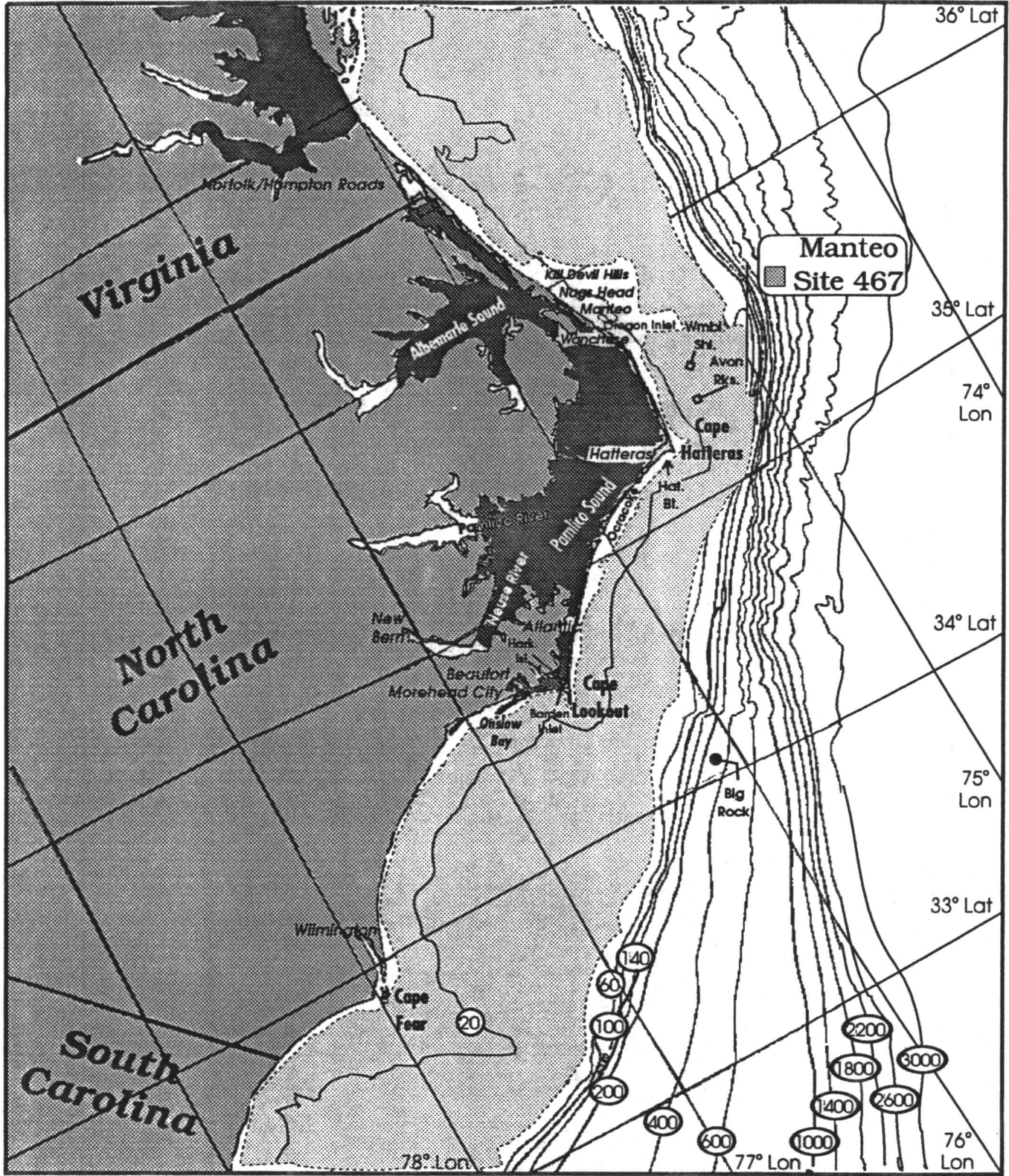
Winter Migratory

Black Sea Bass

Range: Spawning Ocean - Nursery Sounds

Source: Data Atlas
 Eastern United States Coastal and Ocean Zones
 Council on Environmental Quality - NOAA
 August 1980

Map 2.7-14



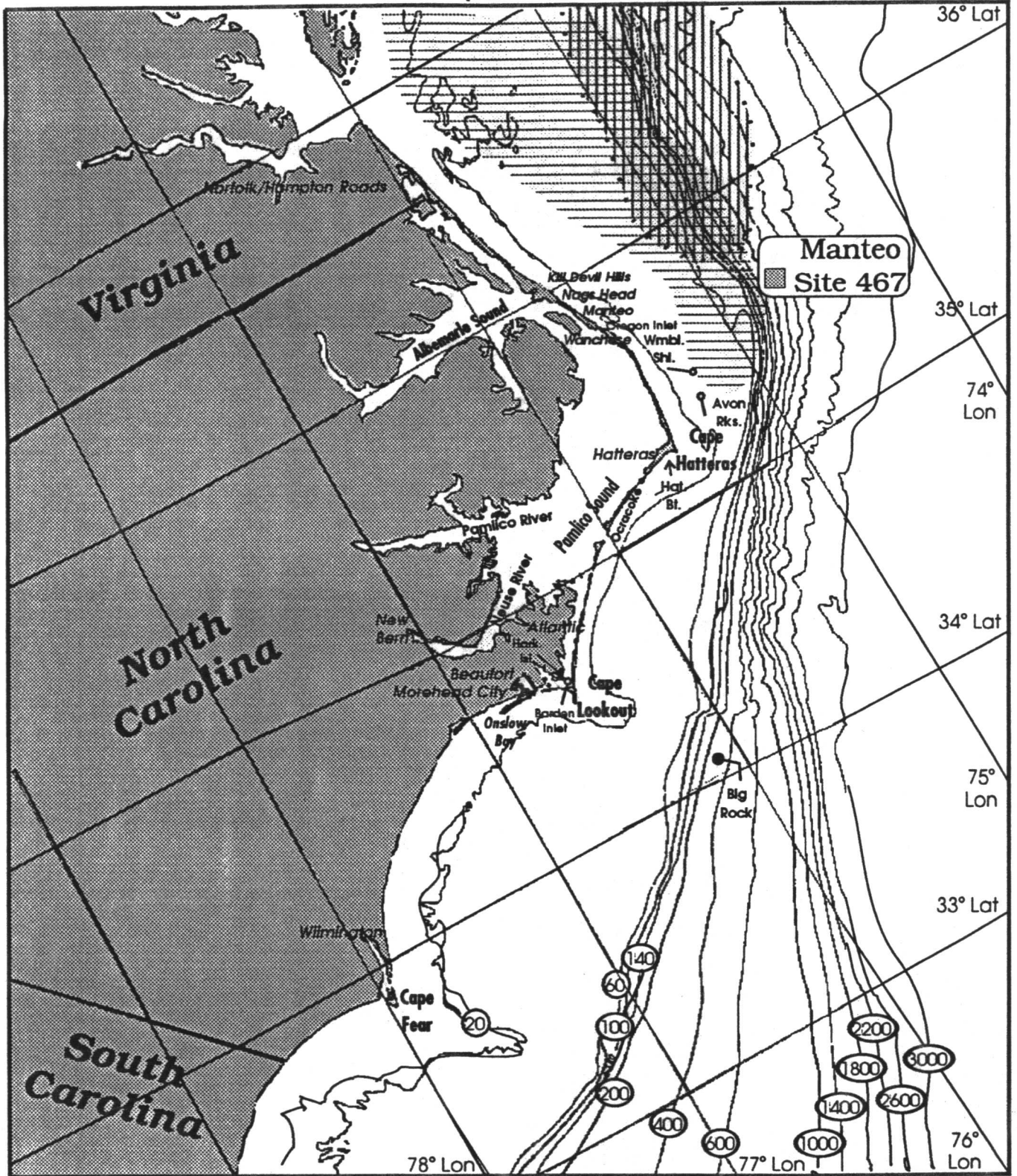
⑩ Water Depth in Meters

Mackerels - Spanish & King

- Summer Spanish & Kings
- Summer Spanish



Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

Map 2.7-15



⊙ Water Depth in Meters

Bluefin Tuna
White Marlin

 Summer Range
 Summer Range

Source: Data Atlas
Eastern United States Coastal and Ocean Zones
Council on Environmental Quality - NOAA
August 1980

2.7.2 Annual Rounds of Commercial Fishermen

2.7.2.1 Near and Offshore Ocean Fishing

North Carolina's commercial fishing industry can be divided into two distinct domains. The first, menhaden, is a large-vessel industrial fishery targeting a fish currently processed into animal feed and oil, mostly for export to Europe (Garrity 1985; Maiolo 1992). The second is the small to large vessel food fishery in which shrimp is king but a great variety of other foodfishes are harvested as well (Maiolo and Bort 1980).

Menhaden The menhaden fishery (Map 2.7-4) involves three major companies and a few small operators. In North Carolina, this fishery ranges from the Virginia line to Cape Fear. Some menhaden boats operate in the Gulf of Maine in the summertime although the North Carolina menhaden season extends throughout the year.

The fishing vessels are in the 90 to 100 foot range. They carry aluminum skiffs which set nets to encircle the schools of menhaden. The nets are pursed and the fish are slurried on board the larger vessels. Schools of fish are found by single engine spotter planes.

Even though the species range east to the 200 meter line (110 fathoms), ninety-five percent of the takes are within three miles of the coastline. The largest percentage of North Carolina's harvests occur from the Virginia line to Hatteras Inlet (50% or more). These fish are caught by Reedville, VA and Carteret County, NC fishermen.

Some vessels follow the migratory path of the fish, beginning May first in the Chesapeake Bay and moving up the coast of eastern Virginia, Delaware, New Jersey and New York as far north as Long Island. In September, the fish move south and are off the eastern shore of Virginia to Cape Hatteras through Christmas. Fall fishing is very weather dependent. If the winter is mild, fishing continues close to east/west oriented beaches of Carteret County where the prevailing winter north winds do not present a problem for harvesting the fish.

Carteret County, particularly the communities of Beaufort and North River, is where most North Carolina menhaden fishermen reside. Beginning with the southern purse seine fishery in the spring, these fishermen will either fish locally in the sounds, nearshore ocean, migrate to Reedville in the Northern Neck of Virginia to join the approximately 280 Virginia fishermen on 20 large vessels, or migrate to the Gulf of Mexico to fish on vessels located there. The magnitude and direction of migration depends upon labor demand, the vessel assignment, and the choice of fishing area by the captain and company. Late fall and early winter are productive times for the North Carolina fishery, and draw the migrating fishermen back to the state. However, some North Carolina fishermen and their families have moved permanently to the Gulf (Garrity 1985, and Maiolo 1992).

Orbach (1989:202) has noted:

The menhaden fishery has as its "human component" rural black fishermen, commercial and industrial users such as farmers . . . and food processing companies . . . boatyards and chandleries which service large commercial craft. Certain portions of this constituency are relatively "invisible" and more importantly, economically and politically marginal--in particular the rural black crews and their communities. Other portions, for example the poultry industry, are economically and politically important but their ties to the menhaden fishery are weak--soy meal is viewed by many as a generally acceptable substitute for fish meal in poultry feed. (See, also, Blomo, Orbach and Maiolo 1988).

Shellfish The shrimp fishery is located in North Carolina's sounds and nearshore ocean up to 20 meters (10 to 11 fathoms) (Map 2.7-5). From the standpoint of exvessel values (the amount of revenue the fishermen receive from the dealer/processor at the dock, sometimes called "dockside" value), shrimping ties with menhaden as the leading fishery. However, if one considers the number of licensed vessels and the shoreside processing personnel and sales from processing plants, then the sound based blue crab fishery is the most important fishery economically (Map 2.7-6).

In 1991, there were 7,105 boats for which fishermen indicated on their commercial fishing license application that they fished for shrimp. This includes full- and part-time fishermen. About half of these fish out of Carteret County communities and the northern portion of the study area. At the state level, exvessel shrimp revenues have ranged from a low of \$5 million to a high of \$21 million in recent years. As with menhaden, Carteret County has been the most productive county in the state in terms of revenues. Three species are harvested. Brown, or summer shrimp, is the most important of the three in terms of exvessel value. While concentrations of all three species are found throughout adjacent waters in North Carolina, the most productive waters for each of the species may be described as follows: Brown -- from the northern extreme of the study area to waters just north of Wilmington; Pink -- concentrations found north to Cape Lookout, but most found from Cape Lookout south; White -- found throughout the study area, but the most significant concentrations begin in the Morehead City area and range to the south. Variations in concentrations occur due to salinity (in the sounds), water temperature and other climatological conditions from year to year in the ocean. In the northern area, shrimping activity starts later in the summer than in other areas, opening in mid-July. Pink shrimp are most abundant, year-to-year, in the mid-coastal region, with peak landings from May through September. White shrimp are mainly harvested in the late summer and fall.

The characteristics of the three different species influence the when and where the harvesting for shrimp and other foodfish takes place. Vessels of 30 feet and larger are used most frequently for ocean fishing and frequently move along the coastline to take advantage of

various fishing activities (Maiolo and Bort 1980.) The smaller of these vessels mostly trawl for shrimp but are converted for sinknetting (see below).

Some Carteret County shrimp fishermen in larger craft (45 to 90 feet) travel to other states for shrimp trawling when the opportunities prevail (Johnson and Orbach 1991). Others including fishermen from inland counties near the Pamlico Sound such as inhabitants of the Atlantic, trawl for finfish near the Manteo Prospect during the winter months (Maiolo and Bort 1980).

In the late 1970s, opportunities in New England's deep sea scallop fishery and Florida's calico scallop fishery provided shrimpers in Dare (Wanchese) and Carteret (Morehead City) counties with large incomes. These fishermen had been harvesting calico scallops north and south of Cape Lookout on a sporadic basis (Map 2.7-5), but the abundance of the species varied greatly (note that major concentrations, as depicted on the map, often occur outside of the "normal" range) and the fishermen looked for opportunities elsewhere. Approximately one-half dozen began to work on a regularly contracted basis with scallop processors in Cape Canaveral. Twenty-seven others fished along with two North Carolina dredgers for deep sea scallops in New England during the shrimp "off season," or in years when shrimping was poor (Maiolo 1981a). Recently, between six and a dozen boats from North Carolina (Wanchese and Morehead City) have continued the contracted relationship in the Florida calico scallop fishery, some on a year round basis, others as part of their annual round which included shrimping in the Carolinas. Recently, the efforts of a half dozen boats have occurred off the coast of western Florida, with their harvests trucked to Cape Canaveral for processing. On occasion, some of the scallops are trucked to North Carolina for processing (Carteret and Onslow Counties). One firm from the Wanchese area has continued to harvest sea scallops in New England since the late 1970s with one or two boats, depending on abundance.

Other Foodfish Much of the shrimp trawler fleet harvests finfish in the winter months. The remainder of the study area's ocean fleet consists of three different types. First, about 80 trawlers (50 to 75 feet) which target only finfish. Second, the ocean gillnet fishery consists of about 100 smaller vessels (30 to 40 feet). Third, a small fleet of fifty to sixty medium sized vessels are used by hook and line fishermen to target reef fish throughout the year. The exception to this are headboats, two to four of which also target finfish on the reefs.

The larger vessels in the winter trawl fishery operate from mid-September through April from Cape Lookout north to the Virginia line, and east to the shelf. The gear changes from nearshore flounder trawls to deepnet and flynet rigs for different targeted species, water depths and seasons. Summer flounder, scup, black sea bass, weakfish, bluefish and croaker (Maps 2.7-8, 2.7-9, 2.7-10, and 2.7-12) are targeted from near the shoreline to the 90 meter line (50 fathoms). Catches are landed in Wanchese, where six fish houses serve 30-40 vessels, Morehead City, where six fish houses serve between 10 and 15 vessels, and the lowland areas of Vandemere, Engelhard, and Oriental, which serve 26-32 trawlers from North Carolina. Dealers in other states, such as Hampton, VA and New Bedford, MA, receive catches from North Carolina fishermen as well (NCDMF 1990). Some of the nearshore trawlers from North Carolina fish in New England in the summer, and then follow the fish south during the

fall along the Delaware and Virginia coasts in October and November to the Outer Banks of North Carolina by mid-November.

The deepwater winter trawl fishery is prosecuted by vessels from Wanchese when the nearshore flounder fishery slows in late December or early January. Flounder trawls are used in Norfolk Canyon, and north on the shelf edge when summer flounder, scup, and black sea bass are targeted. Flynets are used when weakfish, croaker, bluefish, and butterfish are targeted in depths less than 36 meters from Oregon Inlet to the west of Cape Lookout from late September through April. In depths of 38 to 128 meters, December and January are the popular months for flounder trawling. The flynet fishery is prosecuted by some of the deepwater vessels during the same period floundering occurs. The season begins in September or October, and targets weakfish, croaker, bluefish, and butterfish.

Smaller vessels which target shrimp during the summer are converted to a stationary gill net or sink net fishery from November through April. Using gill nets set on the bottom, the fishermen target such species as weakfish, bluefish and croaker. They are caught from the Virginia/North Carolina line to Beaufort Inlet in depths from two to 72 meters. Vessels in this fleet are identified by the inlet used to access the fishing grounds. Wanchese vessels use Oregon Inlet and target weakfish near Avon Rocks and Wimble Shoals, and bluefish from Hatteras Island to Wimble Shoals up to 18 miles offshore. Vessels from Hatteras Inlet target weakfish, bluefish and croaker near Hatteras Bight and north to Avon Rocks, and south to Ocracoke Inlet. Vessels from Harkers Island use Barden and Beaufort Inlets, targeting weakfish, croaker and spot from Drum Inlet to Cape Lookout shoals, and west to Bogue inlet in depths of seven to seventeen meters (four to nine fathoms).

Atlantic coast landings of croaker have been dominated by North Carolina since the early 1960s. The ocean net fishery is the primary producer of weakfish along the east coast. Sink nets are responsible for 51% to 70% of the bluefish landed in North Carolina with Dare County landings responsible for more than 80% since the early 1980s. Carteret County has dominated the croaker landings.

In North Carolina, most reef fish vessels fish full-time using handlines with hydraulic or electric "bandit" reels, longlines and fish traps. Snapper and grouper are the most popular species, but also targeted are king and spanish mackerel, wahoo, trigger and tilefish, and dolphin fish. The hook and line fleet operates a great deal from Oregon Inlet south as far as South Carolina; it operates to the 140 meter line which brushes the Manteo Prospect (Maps 2.7-12 and 2.7-14). With the exception of summer tourist oriented headboats, which enter the commercial fishery in the winter, this fleet is not characterized by regular changeovers in harvest targets throughout the year. Fishing effort is mostly governed by weather conditions which bring slow periods during the winter months. These fishermen may pursue king and spanish mackerel on an opportunistic basis in the spring and summer months, and to a limited extent during the winter (Maiolo 1989).

A small scale sea bass trap fishery (Map 2.7-13) is pursued from November through March, usually by some charter boats in off-season or by fishermen who spend April through October fishing for snapper, grouper, or shrimp. In the central Morehead City/Beaufort district, vessels of 30 to 50 feet fish in the deep waters as far south as Wilmington and as far North as Cape Hatteras. Vessels from the northern district, including Hatteras and Wanchese, fish in the Raleigh Bay area (NCDMF 1990). The chief landing ports for reef fish in the study area are Beaufort, Morehead City, and Hatteras.

A few small gillnet vessels in the Morehead City area have adopted special gear (roller rigs) to harvest spanish mackerel in the late spring to early fall as part of their annual rounds. These 35 foot vessels do not venture far from Beaufort Inlet.

2.7.2.2 Small Scale Commercial Vessels in the Sounds

One of the important differences between the larger and smaller scale commercial fishermen is that the latter consists of part as well as full-time fishermen. Unlike full-time fishermen, the part-timer's primary income is derived from sources other than fishing. The presence of the part-timers, particularly in the shrimp fishery, is a major source of hostility between full- and part-timers (Maiolo 1981b, Maiolo et al. 1986). This hostility has grown out of competition for a limited resource, and an example of its manifestation are the efforts on the part of full-time fishermen to have the regulations changed to exclude or disadvantage part-time fishermen. Further, part-time fishermen participate in a slightly different annual round than that of the commercial full-time fishermen. Full-timers who fish in the sounds increase shrimp effort dramatically from April on, and gradually decrease their effort in the fall. Crabbing activity picks up in the early spring, drops off during the summer, and increases again in the fall. Gillnetting is an option for those who do not engage in crabbing, and their effort parallels that of the crab fishermen. The shrimping effort of part-timers crests several weeks earlier than it does for their full-time counterparts and most part-timers switch to gillnetting with crabbing a distant third (See Figures 1 and 2 in Maiolo 1981c).

Shrimp trawling is the most popular and lucrative fishing activity for the "inside" commercial fishermen in the North Carolina study area. This is combined with a variety of other activities which are selected based on the abundance of shrimp and the season of the year. Crab trawling has become an increasingly popular alternative to shrimping (see Map 2.7-6 for the range of this species). In 1991, there were 7,605 boats for which fishermen indicated on their commercial fishing license application that they fished for crab, including pots and trawls. However, as many as half of these licenses were held by part-timers and recreational fishermen and were not used extensively. For the serious commercial fishermen, crabbing involves less capital than does shrimping. It has become an increasingly popular commercial activity.

The crab fishery in the Ocracoke area is a 12 month operation. In the remainder of the study area, crabbing has increasingly become an April to November fishery with gillnetting being

the winter alternative for some and long haul seining in Pamlico Sound for others (Maiolo and Bort 1980). For some of the smaller boats, bay scallop dredging is the winter alternative.

During the spring and summer, some shrimp vessels are rigged for "channel netting" in the waters near Harkers Island (Maiolo and Bort 1980). This technique uses an anchored boat and stationary trawl. Water currents move the shrimp into the net. These same craft are equipped for scallop and crab dredging. Similar types of boats are used for oyster dredging in the northern areas near and within the Pamlico Sound.

The smallest scale fishing activities in the study area use skiffs and include clam raking throughout the area (year round when permitted), oyster tonging throughout the area (September through April), pound net fishing from Roanoke Island to Harkers Island (fall and winter months), flounder gigging (summer) and gill net fishing (striped bass fishing in the northern portion of the study area in the spring, other finfish throughout the area in summer and fall).

The sciaenid pound net fishery is a major estuarine activity in the Outer Banks communities from Ocracoke Inlet to Rodanthe. The majority of this activity occurs northeast of Hatteras Inlet in Pamlico Sound in depths of 16 to 20 feet. The fishery is prosecuted from May to late September or early October (NCDMF 1990). The targeted species are croaker and weakfish, with significant bycatches of flounder, spot, bluefish, butterfish and spanish mackerel.

Pound nets targeted specifically for flounder are set from September through November in water depths less than seven feet. The three main fishing areas in Core Sound, Back Sound and southeastern Pamlico Sound are all in Carteret County; Ocracoke; and Roanoke Island.

Long haul seining for croaker, spot, weakfish, and bluefish is an important activity from March through early November in various sections of the study area and is the exception to the otherwise small scale operations in the sounds of North Carolina. Nets averaging over 1000 meters long by 3.7 meters deep and with more than 10cm of stretched wing mesh are towed between two trawlers. After a specified time, the net is pulled onto shoals and brought together around a stake. The net is then pursed or "bunted" so the catch is enclosed and placed into a run-boat for transport to the fish house.

From 1988 to 1990, about two dozen long haul rigs worked in the northern Pamlico and Croatan Sounds from Long Shoal north including four deep water and two shallow rigs from Wanchese; four trawler rigs from Stumpy Point; one deep water rig from Mann's Harbor; and three trawler rigs from Engelhard. Another six hailed from Avon and Hatteras (three each); and five more from Atlantic, Sea Level and Davis in Carteret County.

Since peak catches of croaker, spot and weakfish in the early 1980s, catches coastwide have declined due to "...fishing mortality, variable climatic conditions affecting spawning, and changes in habitat and water quality (NCDMF 1990).

2.7.2.3 The Impact of Fishing Regulations on Commercial Fishing

The regulatory framework within which North Carolina fishermen operate involves various entities at the national and federal, regional, and state levels. The formal boundary of jurisdiction is a line three miles off the coast dividing state waters (0-3 miles, including sounds and estuaries) from federal waters (3-200 miles offshore).¹ Since most ocean-going commercial fishermen and fish species continually transverse this line, overlap of authority between levels of government is necessary and considerable. While specific state and federal legislative mandates govern management of North Carolina's commercial fisheries, federal and state agencies also have coordinated their regulatory efforts through Marine Fisheries Commissions, the Regional Marine Fisheries Councils and special joint programs such as the "88-309" (North Carolina Marine Science Council 1984:35).

The guiding legislation at the federal level is the Magnuson Fishery Conservation and Management Act (MFCMA) of 1976, as amended. This mandated institution of regional marine fisheries councils to implement fisheries management plans, primarily in the Federal Fishery Conservation Zone (3-200 miles offshore). In North Carolina, the council with primary management authority is the South Atlantic Fishery Management Council. Given that some fisheries are coast-wide, however, management plans for some North Carolina fisheries may come under the individual or joint responsibility of the New England, Mid-Atlantic, Gulf of Mexico, or Caribbean Fishery Management Councils. These seek to conserve living marine resources through regulation of the number/amount of fish landed, the size of fish brought to market, or the overall vitality of local species populations. The "tools" for management include quotas, size limits, gear restrictions, seasonal closures, or limited licensing. Further, limits may apply to a targeted species, a group of species, or bycatch (e.g., endangered species such as turtles). This management system involves assessment of a given species, identification of problem areas, and selection of appropriate regulatory solutions. All affected parties must be consulted through advisory groups, public hearings, and representation on the councils. Regulations are based on scientific, cultural, and economic factors. Some notable plans affecting North Carolina fishermen involve mackerel, snapper/grouper, and bluefish.

Another regional entity with management responsibility in the federal waters offshore North Carolina is the Atlantic States Marine Fisheries Commission (ASFMC). It operates on the same principles as the Councils noted above, and also produces fishery management plans. Further, the ASFMC bridges the work of the Fisheries Management Councils with state regulatory agencies charged with management of species found in both state and federal

¹ The state exercises jurisdiction over the territorial sea (from the mean low water mark on the shore or from the seaward limit of a bay or mouth or mouth of a river a marine league or 3 geographical miles outward toward the open sea) and inland waters. Federal jurisdiction is defined by two overlapping zones: (a) the territorial waters exclusive of the territorial sea, an area that extends from 3-12 miles offshore; and, (b) the exclusive economic zone which covers the area from the state jurisdiction to 200 nautical miles offshore.

waters. Species targeted for regulation by the ASFMC include trout and flounder, which are found in the sounds and nearshore ocean waters of North Carolina.

The primary federal agency involved in managing North Carolina commercial fisheries is the National Marine Fisheries Service (NMFS). NMFS is central in research and development of strategies to manage commercial fish species in federal waters, and coordinates with the state toward this end. NMFS shares regulatory authority with the U.S. Fish and Wildlife Service to implement the Endangered Species Act.

In state jurisdiction waters, the principal fishery management decision-making body is the Marine Fisheries Commission (MFC) which receives staff support from the Division of Marine Fisheries (DMF). Research and data gathering guide the development of state commercial and recreational fishing activity under the MFC/DMF framework. Fisheries management in state waters may call for cooperation with federal or regional regulating agencies. For example, the management of the North Carolina shrimp industry is coordinated with federal regulations protecting endangered turtles. In this case, the DMF assists the federal government in the regulation of gear. DMF works closely with NMFS to gather data and develop regulations that meet management needs in both state and federal waters. This includes management of popular commercial species such as mackerel, flounder, and bluefish.

In certain instances under the MFCMA and the North Carolina General Statutes 113-134, the state's authority to regulate fisheries can extend into federal waters. Conversely, the federal government retains regulatory authority, in some instances, in state waters. According to the Marine Science Council (1984:36), however, "North Carolina enjoys a solid working relationship with the federal and regional fishery management and policy entities," and case law in these areas is largely untested.

Enforcement of federal regulations in state and federal waters is implemented primarily through NMFS. NMFS also works closely with the U.S. Coast Guard in this respect. Enforcement of regulations in state waters is implemented through DMF enforcement officers. In situations where federal regulations are being violated in state waters, DMF will contact regional NMFS officers. Conversely, NMFS may contact DMF if they encounter violations in state waters. Shellfish regulations and standards are partly under the purview of the Division of Environmental Health.

Some examples of the impacts of regulations on North Carolina commercial fishing include the following. Shrimping regulations were first developed in the state by the NCDMF nearly thirty years ago to enhance revenues and to protect nursery areas from trawling. The regulations, which are constantly revised, have proven to be very effective. The only negative effect on fishing of these types of regulations is to restrict shrimp fishing in certain areas during specified periods (secondary nurseries), and in other areas permanently (primary nurseries). The positive consequence for both abundance and size of the shrimp, however, more than makes up for such restrictions.

The federal government regulations aimed at protecting endangered species of turtles are considered a hardship by many shrimp fishermen. Shrimp fishermen are required to limit tow times, or install Turtle Excluder Devices (TEDs) in their towing configuration. This device allows turtles to escape, usually unharmed. Fishermen complain that the device also allows shrimp to escape and that the tradeoff is not worth the added effort and cost. The federal government has remained firm, however, and while negotiations continue, it is safe to say that TEDs or tow times are here to stay.

Shellfishing regulations governing commercial activity in the sounds (clams, oysters and bay scallops) focus on animal size, and seasonal and area closures. There is no evidence of impacts on annual rounds of fishing activity even though effort within a given period may be impacted.

Regulations governing deep sea scalloping in New England had a significant impact on North Carolina fishermen who steamed to the area during the shrimp off-season, or during periods with poor shrimp crops (Maiolo 1981). Of the nearly thirty vessels in the fishery during the late 1970s, only one remains. The others either have remained in North Carolina, or shipped out elsewhere, some temporarily and/or seasonally, others seemingly permanently, to other parts of the Southeast.

The mid-1980s saw the introduction of regulations by the South Atlantic and Gulf of Mexico Fishery Management Councils on fishing for mackerels and reef fish. The late 1980s saw the introduction of restrictions on the harvesting of bluefish by the Mid-Atlantic Council. While the restrictions have placed annual quotas on harvesting and restrictions on gear, it has not appeared to have reduced the number of operating vessels. Also, annual rounds described above seem not to have changed. By the same token, there has been no systematic research on the effects of these regulations. Impending regulations in the flounder, trout, sea bass, spot and other finfish fisheries will further curtail harvesting in certain areas and at certain times.

2.7.3 Annual Rounds of Recreational Fishermen

2.7.3.1 Medium to Large Recreational Vessels for Nearshore and Offshore Ocean Fishing

Privately owned and charter sportfishing vessels ranging from 22 feet make up most boats in this category. About a six headboats in the 75 to 100 foot class are also part of this fishery. There are thousands of boats owned and operated by coastal residents and thousands more owned and generated by people who live inland. Probably 70% of these are under 30 feet in length and most of the remainder are between 31 and 50 feet. Dry and wet storage facilities are numerous and dispersed; Mann's Harbor and Atlantic Beach are primary locations for head boats.

Larger boats are stored in wet slips. Those under 30 feet can be stored in dry stack marinas, parked on leased land, or trailered home. The private vessels in this category are owned and

operated almost entirely by white males, although minority participation associated with the smaller boats has increased in this class.

Charter and headboats have successfully attracted a significant number of minority males from outside of the region, many of whom belong to social clubs and organize fishing trips by group. Headboats target bottom species which can be caught in deepwater by driftfishing (snapper, grouper, triggerfish, tilefish). The season runs from late spring to late fall. A few of the headboats are then converted to commercially fish for the same species during the winter months.

The most popular species targeted by the charter and privately owned vessels are the pelagics: billfish, wahoo, dolphin fish, and king and spanish mackerel. The larger the boat the more likely the targets are billfish (blue and white marlin, sailfish), wahoo and dolphin, with incidental and opportunistic fishing for the mackerels (see Maps 2.7-14 and 2.7-15). The smaller the vessel, the more likely the targets are first, king mackerel, followed by dolphin, wahoo, and spanish mackerel. Billfish are not targeted, but it is not uncommon for the smaller vessels to experience incidental catches of sailfish and white marlin.

The larger vessels troll with natural baits (preferably small spanish and ballyhoo), and elaborate artificial baits with teasers. The smaller vessels in this class troll as well, mainly with ballyhoo and artificial baits. Increasingly, however, these vessels are showing preference for slow trolling with live bait, mainly menhaden.

The season begins in early spring and ends in the fall. Depending on the weather in March, people prepare their boats and gear and they begin fishing when word gets out that the fish are running. The tournament season begins in June and ends in the early fall, with some tournaments bringing in hundreds of thousands of dollars in prize money (e.g., the Big Rock Blue Marlin Tournament, and the Hardee's King Mackerel Tournament). Increasingly, tournaments are emphasizing catch and release, as opposed to bagging large quantities of fish. Indeed, penalties are imposed for killing fish under a specified size, that is normally larger than that required by law.

Not uncommonly, fishing vessels from the northern and southern edges of the study area will fish the same locations. From the south, this may mean driving fifty or more miles to fish the popular Big Rock area, southeast of Beaufort Inlet. Boats traveling from Oregon Inlet have to travel more than 100 miles to fish the same area, and they do this for the tournaments. More often, boats from Oregon Inlet fish near the "Point," an area off of Cape Hatteras, slightly north of the proposed drill site. With good weather, boats under 26 feet venture to the Big Rock area from Morehead City. Most of the vessels in this class, with the exception of some of the smaller 22 footers that fish inside the inlets during the winter months for trout, do not fish year round.

2.7.3.2 Long Distance Migratory Fishing

Vessel Size and Activities Many of the larger boats in this class are owned by residents from outside the coastal zone, and more than a few from outside of the state. While the vessels serve as vacation cottages for some, most of the owners own separate cottages or condominiums. Some of the larger boats in this class overwinter in Florida and the Bahamas for the specific purpose of fishing for large pelagics. Some of these enter tournaments. The owners, as might be expected, are successful businesspeople and professionals. The vessels range in price from \$200,000 to over \$1 million dollars. Costs for sportfishing for one year, including tournament billfishing can range from one to three hundred thousand dollars. These boats normally have full- or part-time captains and mates (Kitner and Maiolo 1988. Also, see Johnson et. al 1986 for a comparison of demographic characteristic of boat versus other types of fishermen).

Cultural Framework There are two distinct socioeconomic groups within this class of recreational fishing. The larger boats are owned by comparatively wealthy people who often know each other from elsewhere or become acquainted because of the proximity of their docks. They may belong to the same fishing organizations (e.g., the Billfish Foundation, Raleigh Sportfishing Club). Friendship ties are strengthened through participation in tournaments and long distance fishing. A distinct subculture is present, as outlined by Kitner and Maiolo (1988), with shared values, norms for conduct, and even patterns of dress.

The smaller boats in this class are owned by professionals as well, but a large number of the owners are middle class, semi-professionals, and blue-collar workers. They, too, share a sense of subculture, which is initiated and reinforced by entry into tournaments, participation in sportfishing clubs, socializing at the marinas, and the exchange of information on marine radios. Occupation is not regarded to as important in forming this group; rather, conversation focuses on fishing, the technical skills of fishing, and people are judged by their ability to get along with others.

2.7.3.3 Small Scale Recreational Vessels: Fishing in the Sounds and Rivers

Smaller vessels (up to 21 feet) fish mostly in the sounds and rivers, but those in the 17-21 foot class venture out of the inlets during calm weather to fish for king and spanish mackerel, bluefish, and some bottomfish. They use small artificial baits for trolling, and menhaden for slow trolling.

About half of these fishermen live outside of the coastal zone, a fifth coming from outside of the state, mostly from Virginia (Johnson et. al 1986). Thus they bring significant revenue to the study area on a seasonal basis. About one-fifth of the parties fishing by small boat have at least one female on board; and about 3% of the parties were found to be African-American.

Most of the fishermen do not have a particular target species in mind when they make a trip, but trout, flounder, bluefish, and croaker are the more popular species. The composition of the catch is more or less dictated by seasons of the year. Bluefish ("Hatteras Blues") are popular in the spring and fall from Hatteras Island north in the study area, attracting tourists from outside the state. In the mid-coastal section, bluefish are targeted in the spring until the other more popular species show up. Grey trout are targeted from the spring through the fall; the very popular and elusive speckled trout is a cold month species; flounder is a warm season target; and the spot is a fish targeted in the fall. In the southern edge of the study area, there is sporadic trout fishing.

Increasingly, smaller boats are dry stacked or stored in rented yards in the coastal zone. Many, if not most, however, are trailered, either from privately owned cottages, or from inland residences.

2.7.3.4 Pier and Bank Fishing

Surf fishing and fishing from wooden piers are popular recreational fishing activities in the study area and occur virtually all year round, although spring, summer and fall are most popular because thousands of tourists take part in the activities. Over half of the surf fishermen resided in non-coastal counties and in one study 49% resided in other states. The majority of out-of-state boat and surf fishermen did most of their fishing in the Croatan, Roanoke, Oregon Inlet area (Johnson et al. 1986).

The Outer Banks--that is, the barrier islands from Core Banks north to beyond Nag's Head--are particularly popular for their renowned "Hatteras Blues," large bluefish which blitz the beaches during the spring and fall. Trout and red drum fishing also are very popular during the warm months. Surf and pier fishermen target flounders, croakers, king and spanish mackerels (spring, summer, fall), and spots (fall), as well. Shad, striped bass, and perch are popular species in the brackish waters of the Albemarle Sound during the spring.

Commercial ferries are available to transport fishermen to surf fishing areas where water travel is the only access and both private and governmental lodging is available for rent. For example, people take the ferry from Harkers Island to Cape Lookout for either day trips or to stay in one of the federal cabins overnight; similarly people from Atlantic go to the Core Banks. Many fishermen plan weekend or weeklong fishing trips to the Outer Banks in order to fish from privately owned piers, or from the National Seashore along the Outer Banks. The spring and fall are the most popular periods.

2.7.3.5 The Impact of Fishing Regulations on Recreational Fishing

The same federal, regional, and state agencies that produced regulations for commercial fishing since the late 1970s produced analogous regulations for recreational fishing. However, these regulations seem not to have affected recreational fishing annual rounds.

The regulations address mainly size limits, although some seasonal restrictions have been instilled as well. Offshore fishing now operates under harvest restrictions for billfish, dolphin fish, king mackerel, and the deepwater bottom species (e.g., snapper/grouper complex). Nearshore, inshore, and sound fishing are affected by restrictions on the harvest of king and spanish mackerel, bluefish, flounder, and trout. Increasingly, recreational fishermen have pushed limits on "commercial" takes, a practice which has been a tremendous source of irritation to commercial fishermen. The recreational harvest shellfish is governed by the same regulations imposed on commercial fishermen.

Table 2.7-1
 North Carolina Finfishery Description: Menhaden, 1988-1991
 Data Source: NOAA Laboratories, Beaufort, NC

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Menhaden	Throughout calendar year	<p>Virginia to Cape Fear. Independent fishermen migrate to Gulf of Maine in summer following migratory path of menhaden.</p> <p>Chesapeake Bay May-June, migrate north to New York then in September begin the southward migration to Cape Hatteras through Christmas.</p> <p>Mild winters include the areas within 3 miles of shore for east/west oriented beaches of Carteret County.</p> <p>95% of sets are within 3 miles of the beach.</p>	<p>3 companies, (1 NC and 2 Virginia) vessel length 90' or more. 21 Reedville Virginia vessels with 280 fishermen plus the NC fleet (3 vessels).</p> <p>24 company vessels provide survey data to NOAA. NC fleet is located in Beaufort (Carteret County).</p>	One large mother vessel and two aluminum skiffs with encirclement nets	<p>Menhaden are incidental catch in Sciaenid pound net fishery from May-October off the Outer Banks.</p> <p>Incidental catch in sink nets along with spot, little tunny, butterfish and kingfishes.</p> <p>Targeted species for sink nets: weakfish, bluefish, croaker</p>	None

Table 2.7-2
 North Carolina Fishery Description: Shrimp and Blue Crab, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Brown shrimp - only significant species in commercial quantities extreme northern study area	northern season for Brown shrimp begins mid-July (later than other areas)	sounds and nearshore in depths up to 20 meters; midcoast south to Wilmington	7105 licensed vessels including part-time estimated 50% of licensed vessels fish in Carteret County waters and communities in the northern study area.	trawler nets; Some Harkers Island vessels are equipped for channel netting in spring and summer-anchored boat and stationary trawl	Sciaenids blue crabs turtles are caught in trawler nets and channel nets	Scallops Sciaenids Bluefish Flounder are pursued by some of these vessels in the offseason
Pink shrimp	May-September	sounds and nearshore in depths up to 20 meters; midcoast-south	Vessels 30' plus fish in ocean along the coastline smaller vessels trawl for shrimp and can convert for sinknetting. Larger vessels 45-90' go to other states when opportunities prevail.			
White shrimp	late summer and fall	sounds and nearshore in depths up to 20 meters; southern regions late summer and fall	Offseason or year round 6-12 boats travel to Florida to fish for calico scallops. 1-2 boats go to New England for deep sea scallops.			
crab	12 months in Ocracoke April-November remainder of study area	sounds and inlets throughout the study area	7605 licenses to pot or trawl, about half of which are spread throughout inland and coastal communities in the study area.	trawler nets, crab pots, and dredges		Scallops Shrimp Some species of finfish

Table 2.7-3
 North Carolina Finfishery Description: Atlantic Croaker, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Atlantic Croaker	April-September	N. Pamlico Sound, Croatan Sound	10-23 rigs: Wanchese, Stumpy Point, Mann's Harbor, Avon, Engelhard, Hatteras, Atlantic, Sea Level, Davis in the study area.	long haul seine	Juvenile finfish, variety of species; non-marketable species as well.	Shrimp Trout Bluefish Spot Atlantic mackerel
	April-early November	Southern Pamlico Sound		long haul seine		
	May-October	Ocracoke Island to Roanoke Island Pamlico Sound NE of Hatteras Inlet depths 16-20' (4.5-6 m)		Sciaenid pound net		
	November-April	VA/NC line to Beaufort Inlet		sink nets		
	late September - April	Oregon Inlet to west of Cape Lookout depths less than 20 fathoms (39 m)		winter trawl/flynet		

Table 2.7-4
 North Carolina Finfishery Description: Spot, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Spot	March/April- early November	Bogue Sound to northern Pamlico Sound and tributaries of Pamlico and Core Sounds	Home ports for boats are located in Carteret, Dare, Hyde, and Pamlico Counties (Wanchese, Stumpy Point, Engelhard, Mann's Harbor, Avon, Hatteras, Atlantic, Sea Level, Davis, Harkers Island, Bayboro, Vandemere) in the study area.	long haul seine 69% of 1990 NC landings of spot	Juvenile finfish; some bycatch when Atlantic croaker and weakfish targeted; some bycatch caught along with croaker and butterfish; some bycatch caught with croaker and weakfish.	Atlantic croaker weakfish
	May-October	Outer Banks, sounds, and nearshore		Sciaenid pound net		
	Largest catches in October Largest trawl catches of spot in November and December	north of Cape Hatteras Cape Hatteras to Cape Lookout		winter trawl flynet		
	November-April	west of Cape Lookout		sink net		

Table 2.7-5
 North Carolina Finfishery Description: Flounder, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Flounder	September-November	Shallow waters less than 2 meters in depth along mainland and barrier island shoreline sounds of Roanoke Island, south to Back Sound near Cape Lookout. Carteret County: Core Sound, Back Sound and southeastern Pamlico Sound. Ocracoke: behind Cape Hatteras and Ocracoke Island. Roanoke: Roanoke Island	In the study area: Wanchese landings, 6 fish houses serve 30-40 local vessels. Morehead City/Beaufort, 5-6 fish houses serve 10-15 local trawlers. Vandemere, Bayboro, Engelhard, Wright's Creek and Oriental involve 26-32 trawlers. Landings in other states include Hampton, VA and New Bedford, MA	pound net	red drum butterfish gulf flounder Atlantic menhaden harvestfish striped mullet black sea bass squid scup Atlantic mackerel Roanoke bycatch: freshwater fish grizzard shad, channel catfish redecor sunfish	Southern flounder summer flounder scup black sea bass weakfish bluefish Atlantic Croaker flounder scup Black sea bass
	Mid-September-April	Offshore Long Island, NY to west of Cape Lookout; New England coast in summer, south during fall Delaware and Virginia waters October and November. Outer Banks of NC by mid-November; 8-40 meters VA line to Beaufort Inlet the majority of the landings coming from northern part near Oregon Inlet.		winter trawl	Flounder is bycatch in Sciaenid pound net fishery on the Outer Banks, May-October, when Atlantic croaker and weakfish are targeted.	
	December and early January when nearshore flounder decline Wanchese vessels prosecute deep water trawls	8-40 meters VA line to Beaufort Inlet the majority of the landings coming from northern part near Oregon Inlet.		winter trawl: nearshore flounder fishery		
	December-March	Northern ports including Wanchese dominated winter trawl landings of flounder 1985-91. Depths of 38-128 meters represent fishing areas north of Cape Lookout.		deep water trawl fishery		

Table 2.7-6
 North Carolina Finfishery Description: Bluefish, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Bluefish	November-April	VA/NC line to Beaufort Inlet beach to 40 fathoms (73 m)	In the study area: Oregon Inlet vessels fish Hatteras Island north to Wimble Shoals up to 18 mi offshore depths 2-75 meters	sink net	non-commercial species, plus juvenile finfish of commercial value	weakfish Atlantic croaker
	December	Oregon Inlet to Cape Hatteras	Hatteras Inlet vessels depths 3-27 meters	trawls		
	December-March	south of Cape Hatteras	Hatteras Inlet vessels depths 3-27 meters	trawls		
	March & April	north of Cape Hatteras; Bogue Inlet to Carolina Beach	Hatteras Bight, Avon Rocks and Ocracoke Inlet	trawls anchored gill nets		
	March/April-early November	Bogue Sound northern Pamlico Sound, Core Sound	Bayboro, Engelhard, Vandemere	long haul seine		
	mid-September-April	Long Island, NY to west of Cape Lookout	Wanchese	winter trawl flynet		
	May-October	Outer Banks	Throughout the study area	anchored gill nets shallow trawls		

Table 2.7-7
North Carolina Finfishery Description: Sink Net Fishery, 1988-1991
Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
<p>weakfish Atlantic croaker bluefish</p>	<p>November-April</p>	<p>Virginia/NC line to Beaufort Inlet Sink net fleet vessels identified by inlet used Wanchese - Oregon Inlet fish Avon Rocks and Wimble Shoals (5-27 m) for weakfish and croaker & Hatteras Island to Wimble Shoals up to 18 miles off shore for bluefish Hatteras Village-Hatteras Inlet target weakfish, bluefish and croaker in Hatteras Bight to Avon Rocks and Hatteras Inlet 3-27 m. In recent years the fishable concentration of weakfish in the winter has been at Avon Rocks. Bluefish migratory patterns have also changed to further off shore and to more northern waters. Harkers Island-Barden Inlet and Beaufort-Beaufort Inlet target weakfish, croaker and spot from Drum Inlet to Cape Lookout Shoals and west to Bogue Inlet 7-16 m.</p>	<p>In the study area: Sink net fleet vessels identified by inlet used In 1980s there were 100 vessels in Dare County sink net fleet. 1988-89 seasons 74-75 vessels targeted weakfish. In the 1991-92 season only 27 vessels participated--crews left the weakfish fishery to target bluefish, king mackerel, tuna and dogfish.</p>	<p>sink nets</p>	<p>Spot, non-commercial species</p>	<p>weakfish, bluefish, Atlantic croaker, dogfish</p>

Table 2.7-8
 North Carolina Finfishery Description: Snapper, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Snapper	highest reported catches in winter	central district (Cape Hatteras to Cape Lookout)	50-60 of the 122 commercial vessels landing reef fishes at NC ports in the study area 1983-1991, fish full time. The remainder fish part-time in NC waters or landed catches in South Carolina or Florida depending on the weather and market prices. Home ports are mainly Carteret and Dare Counties in the study area.	Handlines with hydraulic or electric "bandit" reels, longlines 1600-9656m in length with 250-1200 hooks or fish traps.	Other reef fish, some pelagics	Sea bass, Vermillion snapper
	highest reported catches in summer	southern district (west of Cape Lookout)	Recreational headboats and commercial fishery throughout the study area.	Hand lines near bottom - 2 hooks. Special "pinky" rig with 5 smaller hooks for vermillion snapper and red porgy.		

Table 2.7-9
 North Carolina Finfishery Description: Porgy, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Red Porgy	12 months	<p>nearshore sponge coral habitats or offshore rocky outcrop habitats</p> <p>Dominant ports for reef fish landings in study area Hatteras for northern district, Beaufort and Morehead City for central district</p>	<p>50-60 of the 122 commercial vessels landing reef fishes at NC ports in the study area 1983-1991, fish full time. The remainder fish part-time in NC waters or landed catches in South Carolina or Florida depending on the weather and market prices. Home ports are mainly Carteret and Dare Counties in the study area.</p> <p>Recreational headboats and commercial fishery throughout the study area.</p>	<p>Handlines with hydraulic or electric "bandit" reels, longlines 1600-9656m in length with 250-1200 hooks or fish traps.</p> <p>Hand lines near bottom - 2 hooks.</p> <p>Special "pinkie" rig with 5 smaller hooks for vermillion snapper and red porgy.</p>	Other reef fish, some pelagics	Reef fish population outer continental shelf of southeastern United States: snappers, sea basses, groupers, porgies, tilefishes, grunts, triggerfishes, wrasses and jacks.

Table 2.7-10
 North Carolina Finfishery Description: Bass, 1988-1991
 Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Bass	12 months	16-48 km offshore bass moving farther offshore as season progresses. Trips range 1-3 days.	<p>Some fishermen in the study area who target snapper, grouper or shrimp or who operate charter boats April-October switch to sea bass traps November-March</p> <p>Vessels in the central district are 9-13m in length (Carteret County). Bass are targeted throughout the state by traps and longlines.</p>	<p>sea bass traps</p> <p>long line gear</p> <p>deep water trawl gear</p> <p>21-46% of landings black sea bass in NC</p> <p>majority of black sea bass caught by trawlers in NC waters were landed in Wanchese or other northern Pamlico Sound ports.</p>	Other reef fish, some pelagics	<p>Caught along with Snappers, porgies, wreckfish and tile fish.</p> <p>Targeted with summer flounder and scup.</p>

Table 2.7-11
North Carolina Finfishery Description: Mackerel, 1988-1991
Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Mackerel	May-October	Oregon Inlet - Wilmington	In the study area: handline, head boat and charter vessels fishing commercially for Mackerel and located in Carteret, Dare and Hyde (Ocracoke) County ports.	Handlines near surface 2-6 reels/boat troll artificial bait, drift natural bait or surface longlines.	mackerel bycatch in Sciaenid Pound net fishery 27-38% of landings 1987-89. Pelagics other than tuna can be taken incidentally when bottom fishing for snapper and grouper or large game fish.	Atlantic croaker & weakfish; dolphin, bluefish, wahoo, cobia and tunas; for recreational fishermen, billfish.
	November-April			Sink nets in ocean		

Table 2.7-12
North Carolina Finfishery Description: Tuna, 1988-1991
Data Source: North Carolina Division of Marine Fisheries

Species	Season	Location	Boats	Gear	Incidental Catch	Other Targeted Species
Tuna	September - November; March - June	Throughout the study area	All handline, longline and recreational boats described in tables above throughout the study area in the coastal counties.	Trolling artificial bait; handlines; longlines.	Other pelagics, including billfish; reef fish.	Other pelagics, including billfish; reef fish.

2.8 GLOSSARY OF SELECTED U.S. BUREAU OF THE CENSUS TERMS

The following definitions are taken verbatim from appendices that are included in the 1980 and 1990 Bureau of the Census volumes. The tables in this report which present Census data utilize these classifications.

FAMILY

A family consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption. All persons in a household who are related to the householder are regarded as members of his or her family. Families are further classified as MARRIED-COUPLE FAMILIES and OTHER FAMILY.

GROUP QUARTERS

Defined as any living quarters which are not classified as housing units. Institutional group quarters are living quarters occupied by one or more persons under care or custody and include homes, schools, hospitals or wards for the physically or mentally handicapped; hospitals or wards for mental, tubercular, or chronic disease patients, homes for unmarried mother; nursing, convalescent, and rest homes for the aged and dependent; orphanages and correctional institutions. Noninstitutional group quarters include living quarters such as college-owned and/or operated dormitories, fraternity and sorority houses, nurses' dormitories, communes, and boarding houses.

HOMEOWNER VACANCY RATE

The homeowner vacancy rate is the percentage relationship between the vacant year-round units for sale and the total homeowner inventory. It is computed by dividing the number of vacant year-round units for sale by the sum of the owner-occupied units and the vacant year-round units for sale only. Vacant units that are seasonal or held off the market are excluded.

HOUSEHOLD

A household consists of all the persons who occupy a housing unit. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

HOUSEHOLDER

One person in each household is designated as the "householder." In most cases, this is the person, or one of the persons, in whose name the home is owned or rented. If there is no such person in the household, any adult household member could be designated as the "householder". Two types of householders are distinguished - a family householder and a nonfamily householder. A family householder is a householder living with one or more persons related to him or her by birth, marriage, or adoption. The householder and all persons in the household related to him or her are family members. A nonfamily householder is a householder living alone or with nonrelatives only.

HOUSING UNITS

Defined as a house, an apartment, a group of rooms, or a single room, occupied as a separate living quarters or, if vacant, intended for occupancy as a separate living quarters. Occupied and vacant housing units are included in the housing unit inventory. Boats, tents, vans, caves, etc. are included only if they are occupied as someone's usual place of residence.

INDUSTRY

The Census defines the following as major industry groups:

Agriculture, forestry, and fisheries

Agriculture, Forestry, and Fisheries

Mining

Mining

Construction

Construction

Manufacturing

Nondurable goods

Food and kindred products; Textile mill and finished textile products; Printing, publishing, and allied industry; Chemicals and allied products; Other nondurable goods.

Durable goods

Furniture, lumber, and wood products; Primary metal industries; Fabricated metal industries, including ordnance; Machinery, except electrical; Electrical machinery, equipment, and supplies; Transportation equipment; Other durable goods, including not specified manufacturing

Transportation, communication and other public utilities

Railroads; Trucking service and warehousing; Other transportation; Communications; Utilities and sanitary services.

Wholesale trade

Wholesale trade

Retail trade

General merchandise stores; Food, bakery, and dairy stores; Automotive dealers and gasoline stations; Eating and drinking places; Other retail trade.

Finance, insurance, and real estate

Banking and credit agencies; Insurance, real estate, and other finance.

Business and repair services

Business services; Repair services.

Personal services

Private households; Other personal services.

Entertainment and recreation services

Includes theaters, motion pictures, bowling alleys, and billiard parlors.

Professional and related services**Health services**

Hospitals; Health services, except hospitals;

Educational services

Elementary and secondary schools and colleges; Other educational services.

Other professional and related services

Social services, religious and membership organizations; Legal, engineering, and other professional services.

Public administration

Public Administration

MARRIED COUPLE FAMILIES

A married-couple family is a family in which the householder and spouse are enumerated as members of the same household.

NON-FAMILY HOUSEHOLD

A non-family household is a householder living alone or with nonrelatives only.

OCCASIONAL USE HOUSING UNITS

This classification covers vacant year-round units which are held for weekend or other occasional use throughout the year. Shared ownership or time-sharing condominiums are also classified as "held for occasional use".

OCCUPIED HOUSING UNITS

A housing unit is classified as occupied if it is the usual place of residence for the person/group of persons living in it at the time of enumeration, or if the occupant(s) are only away temporarily. A household includes all the persons who occupy a housing unit as their usual place of residence.

OTHER FAMILY

The other family classification is divided into "Male Householder, No Wife Present" which indicates a family with a male householder and no spouse of a householder present; and "Female Householder, No Husband Present", which represents a family with a female householder and no spouse of householder present.

PERSONS FOR WHOM POVERTY STATUS IS DETERMINED

Poverty status was determined for all persons except institutionalized persons, persons in military group quarters and in college dormitories, and unrelated individuals under 15 years old. These groups also were excluded from the denominator when calculating poverty rates.

PERSONS PER HOUSEHOLD

This measure is obtained by dividing the number of persons in households by the number of households (or householders).

POVERTY STATUS

Poverty status is determined by using the poverty index originated at the Social Security Administration in 1964 and revised by Federal Interagency Committees in 1969 and 1980. The income cutoffs used by the Bureau of the Census to determine the poverty status of families and unrelated individuals consist of a set of 48 thresholds arranged in a two-dimensional matrix consisting of family size cross-classified by presence and number of family members under 18 years old (from no children present to 8 or more children present). The total income of each family or unrelated individual in the sample is tested against the appropriate poverty threshold to determine the poverty status of that family or unrelated individual. If the total income is less than the corresponding cutoff, the family or unrelated individual is classified as below the poverty level. The number of persons below the poverty level is the sum of the number of persons in families with incomes below the poverty level and the number of unrelated individuals with incomes below the poverty level. Poverty thresholds are computed on a national basis only. The weighted average poverty threshold for one person in the 1980 Census was \$3,686 and in the 1990 Census it was

\$6,310. The weighted average poverty threshold for families in the 1980 Census ranged from \$4,723 to \$14,024, depending on family size and related children present. In the 1990 Census the weighted average poverty threshold for families ranged from \$8,076 to \$23,973, again depending on family size and related children present.

RACE/ETHNICITY

White

This category includes persons who indicated their race as White, as well as persons who did not classify themselves in one of the specific race categories listed on the questionnaire but entered a response such as Canadian, German, Italian, Lebanese, or Polish.

Black

This category includes persons who indicated their race as Black or Negro, as well as persons who did not classify themselves in one of the specific race categories listed but reported entries such as Jamaican, Black Puerto Rican, West Indian, Haitian, or Nigerian.

American Indian, Eskimo, and Aleut

These categories include persons who classified themselves as such as well as persons who did not report themselves in one of the specific race categories, but entered the name of an Indian tribe or entered Canadian Indian, French-American Indian, or Spanish-American Indian.

Asian or Pacific Islander

This category includes person who indicated their race as Chinese, Filipino, Japanese, Asian Indian, Korean, Vietnamese, Hawaiian, Samoan, and Guamanian, as well as persons who provided write-in entries of such Asian and Pacific Islander groups as Cambodian, Laotian, Pakistani, and Fiji Islander

Spanish/Hispanic origin

Persons of Spanish/Hispanic origin or descent are those who reported either Mexican, Puerto Rican, Cuban, or other Spanish/Hispanic origin in question 7. Persons who reported "other Spanish/Hispanic" origin were those whose origins are from Spain or the Spanish-speaking countries of Central or South America, or they are persons identifying their origin or descent as being Spanish, Spanish-American, Hispano, Latino, etc.

RENTAL VACANCY RATE

The rental vacancy rate is the percentage relationship of the vacant year-round units for rent to the total rental inventory. It is computed by dividing the number of vacant year-round units for rent by the sum of the renter-occupied units and the vacant year-round units for rent. Vacant units that are seasonal or held off the market are excluded.

RURAL POPULATION

The rural population consists of the population not classified as urban. See URBAN POPULATION for more context.

SEASONAL HOUSING UNITS

Seasonal housing units are one type of vacant housing. These units are intended for occupancy during only certain seasons of the year. Examples are units intended for recreational use, such as beach cottages and hunting cabins; units offered to vacationers in the summer for summer sports or in the winter for winter sports; and vacant units held for herders and loggers.

UNITS IN STRUCTURE

A structure is a separate building that either has open space on all sides or is separated from other structure by dividing walls that extend from ground to roof. In the determination of the number of units in a structure, all housing units, both occupied and vacant were counted. The statistics are presented for the number of housing units in structures of specified type and size, not for the number of residential buildings. The classification "Mobile home or trailer, etc" includes mobile homes, trailers, boats, tents, vans, etc.

URBAN POPULATION

The urban population consists of all persons living in (1) places of 2,500 or more inhabitants incorporated as cities, villages, boroughs, and towns, but excluding those persons living in the rural portions of extended cities; (2) census designated places of 2,500 or more inhabitants; and (3) other territory, incorporated or unincorporated, included in urbanized areas.

VACANT HOUSING UNITS

A housing unit is defined as vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. New housing units not yet occupied are classified as vacant housing units if all exterior windows and doors, and final usable floors are in place. Vacant units are excluded if they are open to the elements or if there is positive evidence that the unit is to be demolished or is condemned.

VALUE OF HOUSING UNITS

Value is the respondent's estimate of how much the property, house and lot, or condominium unit would sell for if it were for sale.

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