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VIRGINIA'S COASTAL ZONE - AN ECONOMIC ANALYSIS

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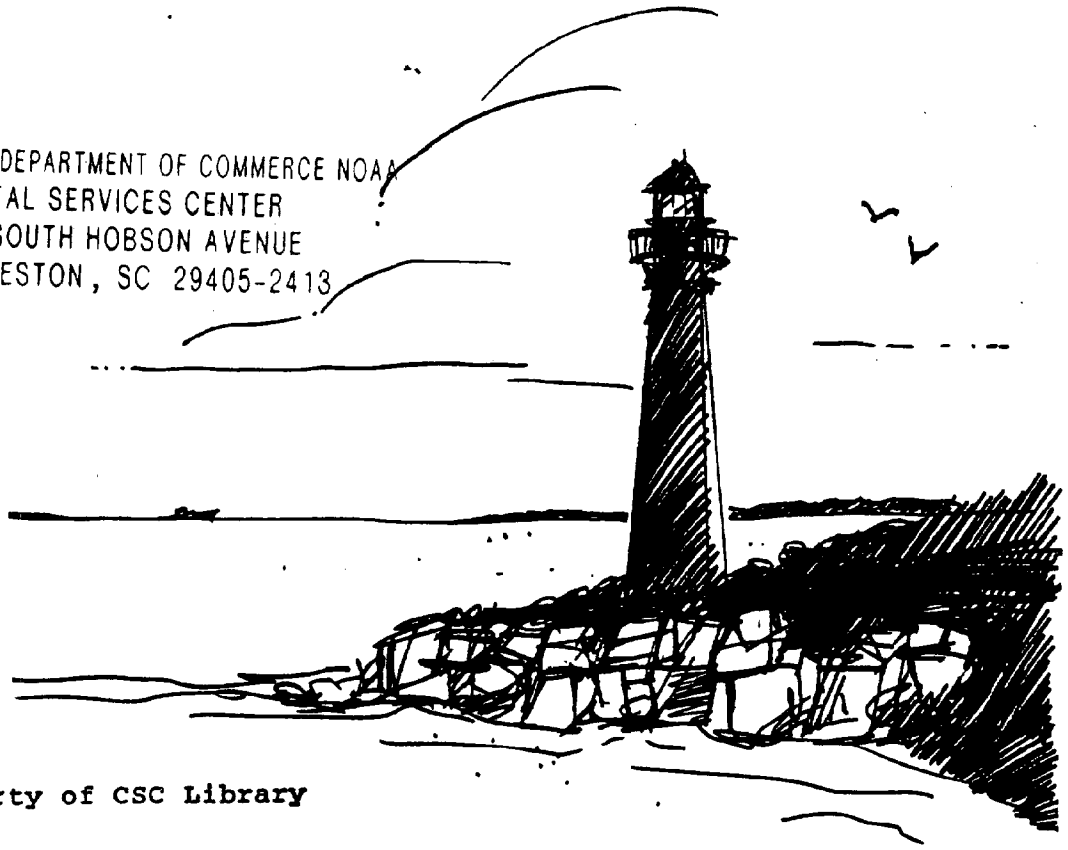

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ABSTRACT

TITLE:	Virginia's Coastal Zone – An Economic Analysis
AUTHOR:	Larry E. Robinson, Senior Economist
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ABSTRACT:	Virginia Coastal Zone – An Economic Analysis is intended to present an overall picture of the State's Coastal Zone economy. Historical trends in various employment sectors are analyzed and their relationships with other characteristics such as income and population growth are examined. Special emphasis is placed on economic activities that are related to the coastal and marine environment.

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INTRODUCTION

An Economic Analysis - Virginia's Coastal Zone presents an overall view of the economy in the Coastal Zone of Virginia which consists of forty-five counties and cities that border tidal waters (See the appendix for a list of localities and a map showing the Coastal Zone boundaries). Each major economic sector is examined and factors such as employment growth, industry characteristics, relationship to the State economy, and geographical concentration of employment within the Coastal Zone are analyzed. The links between each sector and the coastal and marine environment are examined. Because of the nature of the study, the economic activities that are the most closely related to the coastal and marine enviroment are analyzed in greater detail than those activities having little or no relationship. To give an indication of future economic activity, employment is projected to 1985 for each economic sector. In addition to the analysis of economic activities, trends in income growth and population change are also examined.

OVERVIEW OF MARINE-RELATED ACTIVITIES

A wide range of economic activities are related to the marine environment in Virginia's Coastal Zone. Marine transportation probably has the greatest economic impact of any of the marine-related activities because of the economic advantage of inexpensive water transportation to a large number of industries. Huge volumes of goods are shipped through Virginia's ports each year generating activity in various economic sectors. These include the agriculture and forestry sectors that ship a large percentage of their products by water as well as various manufacturing industries that both receive raw materials and ship finished products by water transportation. In addition to these activities, the ports have also been responsible for the Norfolk, Newport-News, and Richmond Areas becoming major wholesale trade centers, particularly for petroleum products.

Besides using the waterways for transport, a number of manufacturing industries, such as shipbuilding and seafood processing, are dependent on a coastal location because of the type of product manufactured. Other manufacturing uses of marine resources include the use of water for cooling, cleaning, and waste disposal purposes.

Commercial fishing, another industry directly related to the marine environment, includes a variety of activities such as menhaden fishing, oystering, crabbing, and clamming. In recent years this industry has been adversely affected by a number of factors including diseases such as MSX (a micro-parasite) that crippled the oyster industry, natural disasters such as Tropical Storm Agnes that severely harmed a number of shellfish species, and pollution, the most notable example being Kepone contamination that closed the James River. However, although certain fishing activities were adversely affected by these conditions, other fishing activities increased significantly in terms of poundage landed.

The extent of marine-related recreational activities is difficult to measure because of the lack of statistics in this area. However, part of the economic activity in the services sector and the retail trade sector is generated by marine-related recreation such as boating, fishing, and swimming. Examples of some of these activities are boat rentals, charter fishing, and resort hotels (services), as well as the sale of boats, fishing gear and water sports equipment (retail trade). Perhaps one indication of the growth in this area is that annual attendance at Virginia's two coastal state parks increased from 205,000 persons in 1961 to 900,000 in 1976, an increase of over 300 percent.

Part of the construction sector is linked to the coastal and marine environment. The marine transportation, manufacturing, wholesale trade and recreational activities previously mentioned generate construction of port facilities, manufacturing plants, marinas, resort hotels, and such. In addition to this, there is a sizable amount of marine construction of jetties, seawalls, docks, etc., that is generated from residential waterfront building.

Finally, there is a potential for mining operations to become a major economic activity within the marine environment. At present mining in the Coastal Zone is restricted to small sand and gravel operations and total employment is relatively small. However with increasing energy needs, drilling for oil and natural gas off Virginia's coast is becoming increasingly more likely.

MAJOR ECONOMIC SECTORS

Some of the major economic activities using marine and coastal resources have been highlighted in the Overview. The following sections cover the major employment sectors found in the Coastal Zone, both those that are related to the coastal and marine environment and those that have few, if any, links.

Agriculture - The latest agricultural employment statistics available (1976) indicate that approximately 18,700 persons, representing 19 percent of Virginia's total agricultural employment, worked on farms in the Coastal Zone. However, the farming operations in the Coastal Zone tend to be larger and more productive than the average for the State. Statistics from the 1974 Census of Agriculture indicate that: (1) the average size farm in the Coastal Zone was 25 percent larger in land area than the State average; (2) the value of land and buildings per farm was 65 percent higher; and (3) the dollar value of farm products sold per farm was 100 percent higher. Another significant difference between farm operations in the Coastal Zone and for the State as a whole is the major types of farm products produced. For the State, livestock and poultry [1/] accounted for approximately 54 percent of total sales in 1974 while crops accounted for 45 percent (forestry products accounted for the remaining 1 percent). In the Coastal Zone livestock and poultry represented only 29 percent of total agricultural sales while crops accounted for nearly 70 percent of sales (forestry products from farms also accounted for 1 percent of

1/ Includes livestock products and poultry products.

sales in the Coastal Zone).

The transportation of these products is the agriculture industry's main economic link with the coastal and marine environment. Large quantities of grains and other agricultural commodities are shipped through Virginia's ports each year utilizing economical water transportation. In 1976 corn, soybeans, and wheat ranked second, third, and sixth respectively in terms of tonnnage of total products exported through the ports. (See Table 13). Of course not all of these products were grown on farms in the Coastal Zone. However, for those farms located within the Coastal Zone, access to water transportation and port facilities is an important economic advantage.

Looking to the future, the trend towards larger consolidated farming operations is expected to continue as well as the trend towards fewer total agricultural workers. There are a large number of small marginal farms within the Coastal Zone that will be unable to compete with large-scale farming operations and operate profitably. As these small farms cease operations, much of the farmland, particularly in rural areas, will become part of larger production units through various rental, share-cropping, and leasing arrangements. As these consolidated farms become larger there will probably be a greater tendency to invest in more machinery and equipment resulting in a need for less workers. Within the urban portions of the Coastal Zone, residential and industrial development pressures often are responsible for the conversion of farmland to nonagricultural uses and this trend is also expected to continue.

Forestry - Virginia's Coastal Zone has a large forestry industry. In 1976 an estimated 57 percent [1/] of the land in the Coastal Zone was forest land. However the forestry industry is characterized by its diversity, and it is difficult to estimate the extent of forestry-related employment. Most of the employment is included in lumber and wood products firms which are classified as manufacturing establishments. (Not only establishments producing wood products but also firms engaged in harvesting forestry products are classified as manufacturers.) Other forestry employment is counted as agricultural.

The percentage of forest land in each ownership category gives some indication of the characteristics of the Coastal Zone's forestry industry. Forest land owned by farmers (37 percent of the total) and that owned by the forest industry (14 percent of the total) together make up slightly over one-half of total forest land in the Coastal Zone. These two ownership categories tend to be the productive users of forest resources, actually managing and harvesting timber instead of holding forest land for other purposes.

The remaining major ownership category in the Coastal Zone is "miscellaneous individual" which accounts for one-third of the forest land. This is a significant category since owners in this classification are usually interested in recreational uses of forest land, second home develoment or speculation. The percentage of land in this category has increased rapidly in the Coastal Zone in the last ten years perhaps implying that the demand for recreation, second home developments, and such has increased.

Like the agriculture industry, the forestry industry's major link with the coastal and marine environment is the use of waterborne commerce for transportation. For example, logs and lumber and closely related products such as wood pulp and paperboard made up three of the eight largest categories of general cargo exported through Virginia's ports in 1976 (See Table 13). As in the agricultural sector, not all of these products

1/ Includes forest land on farms.

originated in the Coastal Zone but for the forestry industries that are located in the Coastal Zone, access to the waterways is economically beneficial.

Fisheries - This sector is somewhat unique in that virtually all of Virginia's fisheries employment is located in the Coastal Zone and by its nature is all marine related. In 1960 total fisheries employment (including both full-time and part-time) totaled approximately 10,400 persons. By 1976 this figure had dropped to an estimated 6,160 persons yielding an overall decline of 40 percent. Both the number of regular fishermen (full-time) and casual fishermen (part-time) declined but at a significantly different rate - the number of regular fishermen dropped by over 50 percent as opposed to 16 percent for casual fishermen. Possible explanations are reductions in the recruitment of young workers as well as shifts from full-time to part-time fishing as other employment opportunities became available elsewhere.

Fishing activity is the most heavily concentrated in the rural areas adjacent to the bay or ocean. In 1976, the three rural planning districts adjacent to the Chesapeake Bay (Northern Neck, Middle Peninsula and Eastern Shore) had the largest number of fishermen while the two urban planning districts also adjacent to the Bay (Peninsula and Southeastern Virginia) ranked next in size of fisheries employment. (See Table 5 for additional detail).

Total dockside value of fisheries products grew from $20.9 million in 1960 to $44.4 million in 1976, an increase of over 100 percent. Significant gains were registered in catches of menhaden, surf clams, and sea scallops. Two of these products, clams and sea scallops, accounted for a small portion of the seafood market in the early 1960's but became major fisheries products in the 1970's. (See Chart 2 and Table 6).

In the past fisheries employment has shown continuous declines due to diseases, natural disasters, and pollution, as well as more lucurative employment opportunities elsewhere. Although fisheries employment is expected to continue to decline in the future, it is projected to do so at a slower rate of 2.0 percent annually resulting in a 1985 employment total of 5,150 persons. This slower rate of decline is based on factors such as the possible creation of seafood industrial parks that would consolidate a number of operations that are presently somewhat inefficient such as marketing, relaxed harvesting restrictions in the oyster fishery, the new 200 mile fishing limit that should reduce overfishing of certain offshore species, and increased promotion ofVirginia's seafood products.

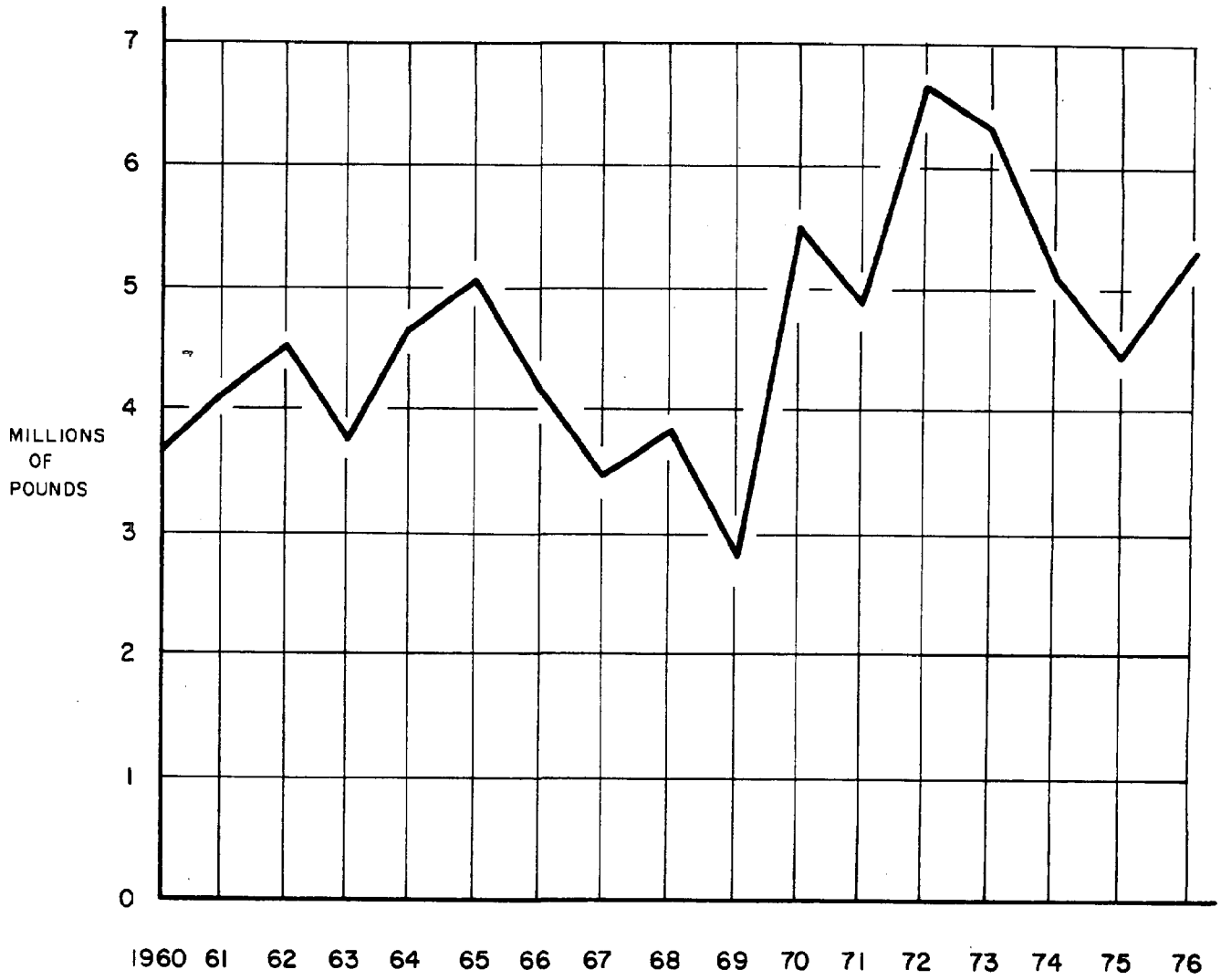
Construction - Activities in this sector include the building of houses, office buildings, stores, highways, bridges, tunnels, piers, etc. as well as the more specialized construction jobs such as plumbing, painting, electrical work, and carpentry.

In 1976, employment in the Coastal Zone's construction sector totaled 59,000 persons and represented 57 percent of the construction employment in the State, roughly proportionate to the Coastal Zone's share of total employment. Construction employment in the Coastal Zone averaged a much faster growth rate in the 1960's than in the 1970 to 1976 period. This was due to a 1976 employment figure that was still somewhat depressed because of the 1974-75 recession and also because some major projects were under construction and completed during the 1960's. Among those projects that provided a major stimulus to the industry were the construction of portions of Interstate Highways 64 and 95 and the Chesapeake Bay Bridge-Tunnel.

Construction activities directly related to the coastal and marine environment include large scale bridge and tunnel projects as well as smaller scale jobs such as marina, pier, and seawall construction. Also included in marine construction are activities such as

CHART I

WEIGHT OF FISHERIES CATCHES IN VIRGINIA 1960-1976



Source : National Marine Fisheries Service, Fisheries Statistics of the United States, selected years.

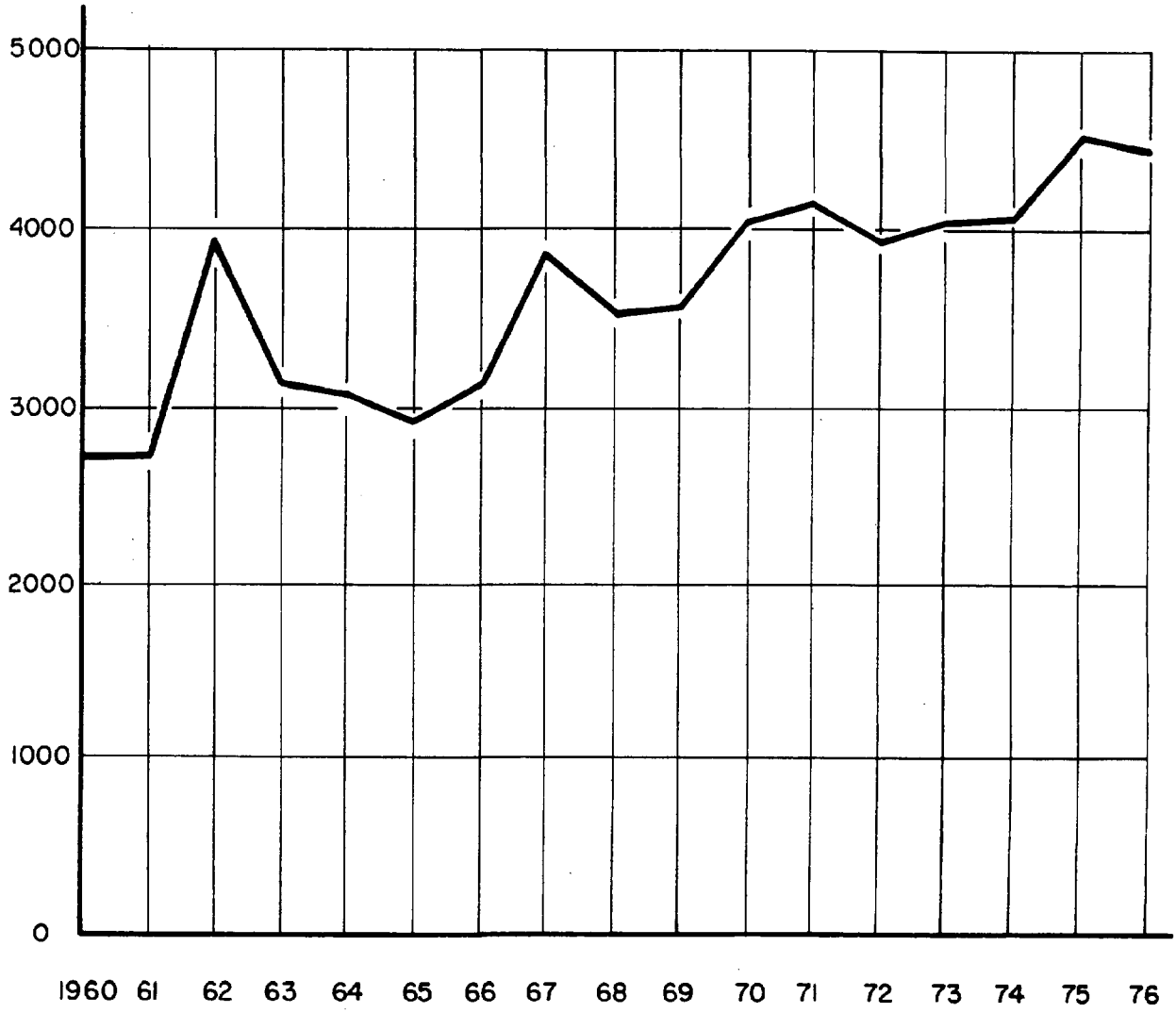
CHART 2

DOCKSIDE VALUE OF FISHERIES CATCHES IN VIRGINIA 1960 - 1976

Source : National Marine Fisheries Service, Fisheries Statistics of the United States, selected years.

CHART 3

EMPLOYMENT IN FISHERIES PROCESSING PLANTS
AND WHOLESALING ESTABLISHMENTS 1960-1976



Source : National Marine Fisheries Services

dredging. Separate statistics are not available on these marine-related activities but it is probably safe to assume that as port activity, marine-related recreation, and waterfront residential home development have increased, marine construction has no doubt intensified.

There appears to be a high correlation between population and construction activity. More than 80 percent of construction employment in the Coastal Zone is found in the Northern Virginia, Richmond Regional, and Southeastern Planning Districts which are the areas with the greatest concentrations of population.

For the Coastal Zone as a whole construction employment is expected to increase by 2.9 percent annually during the 1976 to 1985 period, reaching a total employment of 76,400 by the end of that period. This rate of growth, one of the higher rates projected, reflects not only recovery from the 1974-75 recession but continued growth in residential and commercial activity.

Manufacturing - For the State as a whole, manufacturing ranks as the largest private economic sector, but in the Coastal Zone the manufacturing sector only ranks third in size of employment. During recent years growth in manufacturing employment has also occurred at a somewhat slower rate in the Coastal Zone than in the State as a whole, increasing by 35 percent during the 1960 period as compared to a total State increase of 41 percent.

Within the Coastal Zone, employment in durable goods industries [1/] has increased at a faster rate than employment in nondurable goods industries [2/], 54 percent as compared to 22 percent during the 1960 to 1976 period. This trend has several implications. Wages in durable goods industries tend to average higher than those in nondurable goods industries but demand for durable goods is subject to greater fluctuations and these industries are more sensitive to economic cycles. This often results in variations in demand for employment. However, only in the Peninsula Planning District does employment in durable goods industries represent a large majority of manufacturing employment.

Much of the manufacturing activity is linked closely with the marine and coastal environment. A number of manufacturing operations, by their very nature, must be located adjacent to the waterways. Shipbuilding, boatbuilding, and repair, which has been responsible for 15 to 20 percent of total manufacturing employment in the Coastal Zone during the 1960 to 1976 period, is the most obvious example. Seafood processing, which has employed an additional 3 to 5 percent of manufacturing employment, must also be located in proximity to commercial fishing activities because of the perishability of the products. An example of other manufacturers that fall into this category would include a fabricated metal industry which manufactures offshore drilling platforms.

Other manufacturing industries are not dependent on a coastal location but the proximity to water transportation, which is usually the least expensive mode of transportation, give these industries an economic advantage in both receiving raw materials for inputs and for shipping finished goods. Large quantities of tobacco products, wood pulp, lumber, chemicals, paper and paperboard, etc., are exported through Virginia's ports and many of these products were manufactured in industries within the Coastal Zone.

[1/] Durable goods industries include manufacturers of lumber and wood products; furniture; stone, clay and glass products; primary metals; fabricated metals; machinery transportation equipment; and instruments.

[2/] Nondurable goods industries include manufacturers of food; tobacco; textiles; apparel; paper; printing and publishing; chemicals; petroleum, rubber, and plastic products; and leather.

Still other manufacturing uses of coastal and marine resources include the use of water for cleaning, cooling, and waste disposal purposes.

Manufacturing employment is projected to increase by 1.6 percent annually during the 1976 to 1985 period resulting in the employment of 74,400 persons by 1985. One significant trend that is expected is that durable goods employment is anticipated to grow at a slower rate than that experienced historically. Shipbuilding and repair, which accounts for a large percentage of durable goods manufacturing employment in the Coastal Zone, is not expected to experience growth similar to that which occurred in the 1960's and early 1970's.

Transportation and Public Utilities - This sector consists of the following activities: railroads and railway express services; trucking services and warehousing; other transportation including urban transit, bus, water, and air transportation; communications including radio, television, telephone, and telegraph communication services; and utilities and sanitary services including electric, gas, and water.

The Coastal Zone's employment in this sector totaled approximately 66,000 persons in 1976 and has increased moderately from a total of 52,500 persons in 1960. During both time periods, the Coastal Zone's share of total State employment in this sector stood at approximately 64 percent.

The activity within this sector most closely related to the coastal and marine environment is marine transportation which includes freight and passenger transportation as well as incidental services such as cargo handling and towing. Employment in this subsector averaged 5,200 persons in 1976 and has ranged between 3,900 and 5,200 persons during the 1960 to 1976 period (See Chart 4 and Table 10).

Although employment in marine transportation has not grown rapidly, the volume of goods passing through Virginia's ports has increased substantially. Foreign trade tonnage, which does not include the considerable volume of inland and coastal shipments, increased from approximately 33 million tons in 1960 to approximately 52 million tons in 1976 (See Chart 5 and Table 11). Responsible for this increase in volume without a large increase in personnel have been trends towards mechanization and larger ships.

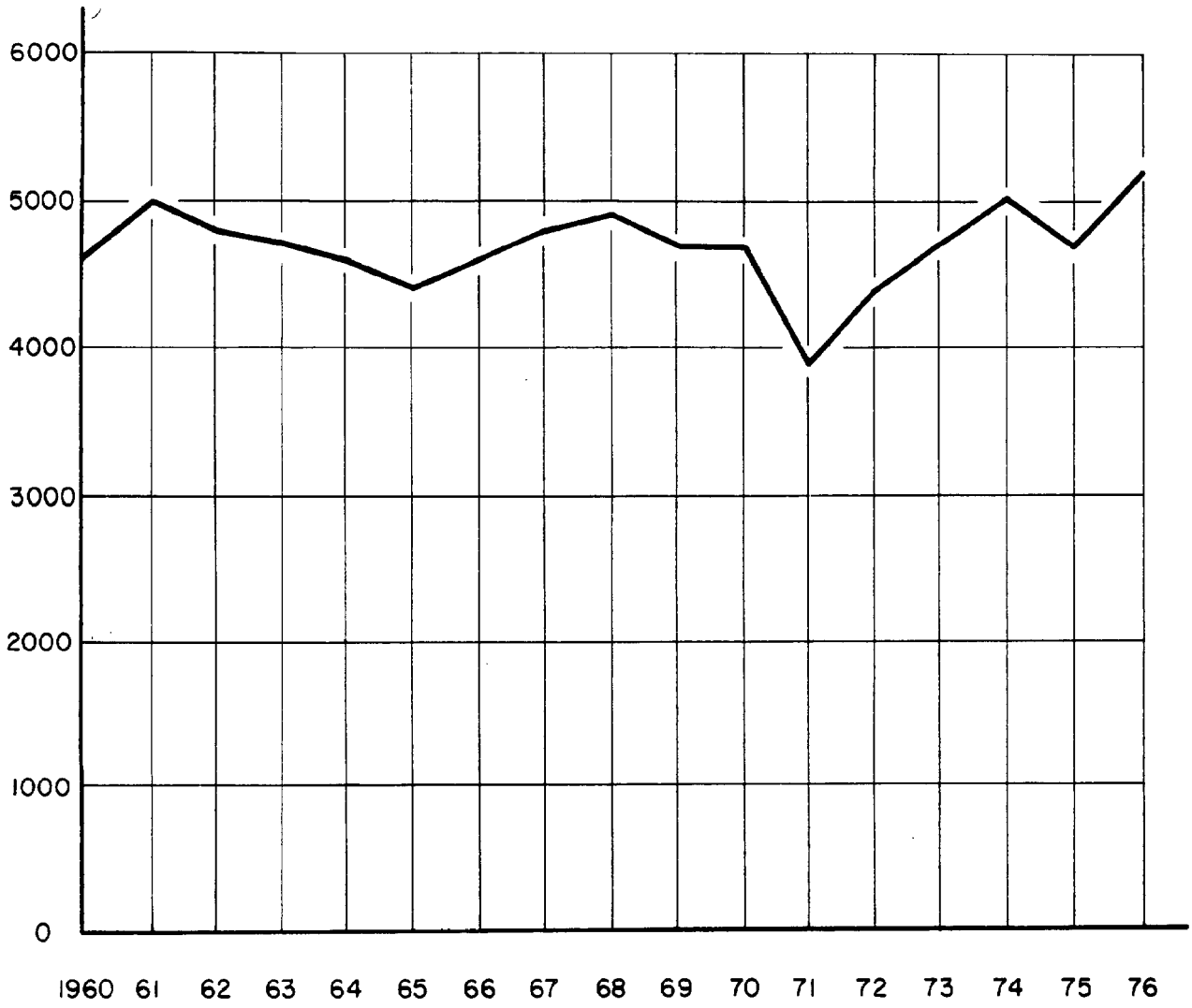
Much of the cargo passing through Virginia's ports is bulk including large quantities of coal, petroleum, and grains. The transfer operations for handling these commodities have become highly mechanized. A similar trend has occurred with general cargo as container shipping has become more prevalent. The following statistics indicate how container shipping has increased: in 1968, only 11 percent of the general cargo passing through Virginia's ports was in containers; by 1974 this percentage had risen to 65 percent.

There has been a trend toward larger size ships which has reduced shipping costs in two ways. First, larger ships do not require a proportional increase in size of crew since many functions require approximately the same number of persons regardless of ship size (standing watch would be an example). Second, in terms of fuel cost per ton of cargo transported, larger ships are most cost efficient. This has become an increasingly important factor as fuel costs have increased.

Marine transportation is a direct user of marine resources but other transportation activities (as well as activities in other economic sectors) are generated. The Port of Hampton Roads is served by six railroads as well as over fifty truck lines. Much of this railroad and trucking activity is directly related to the existence of the port.

CHART 4

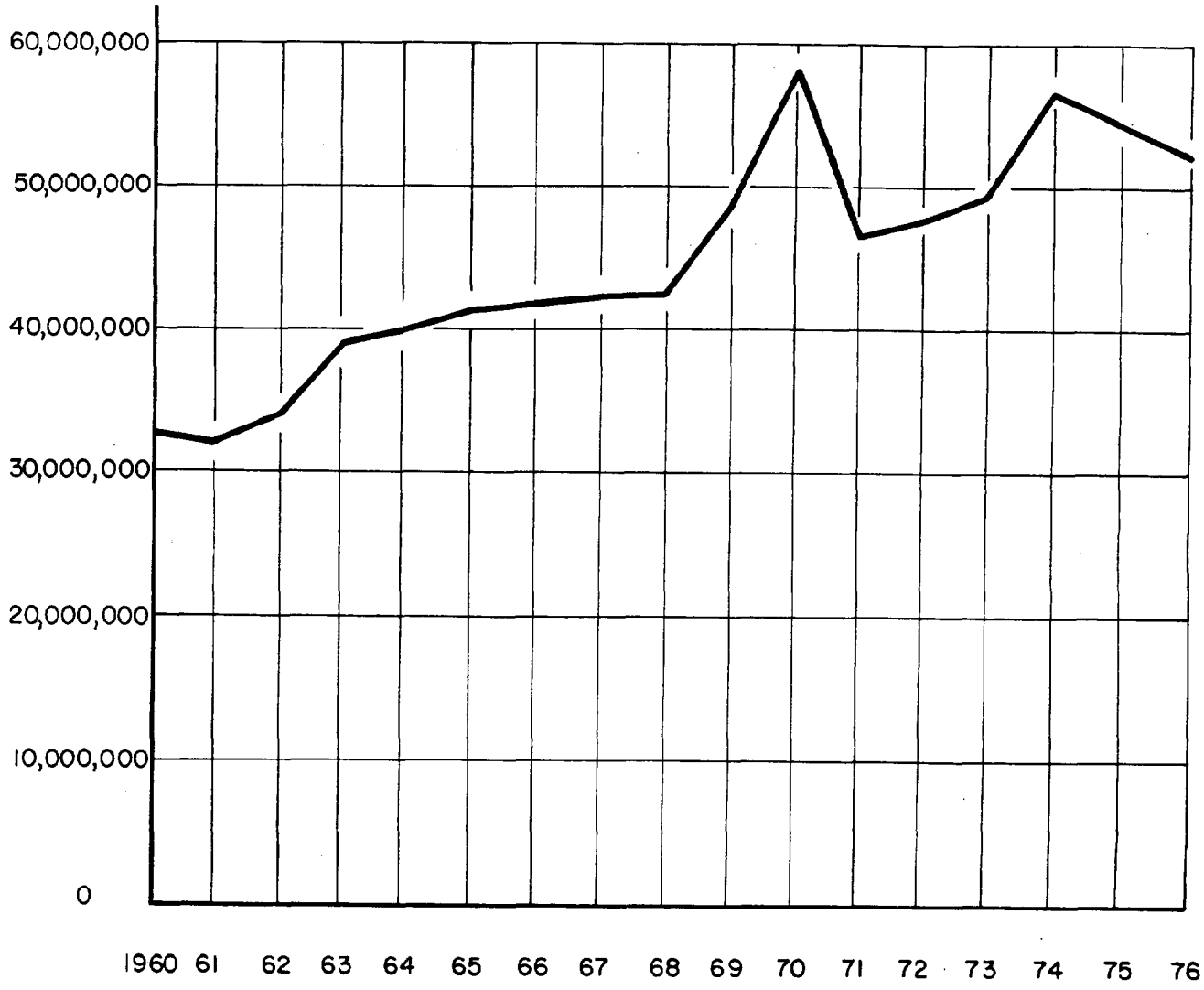
EMPLOYMENT IN MARINE TRANSPORTATION IN
VIRGINIA'S COASTAL ZONE 1960 - 1976



Source : Virginia Department of Labor and Industry

CHART 5

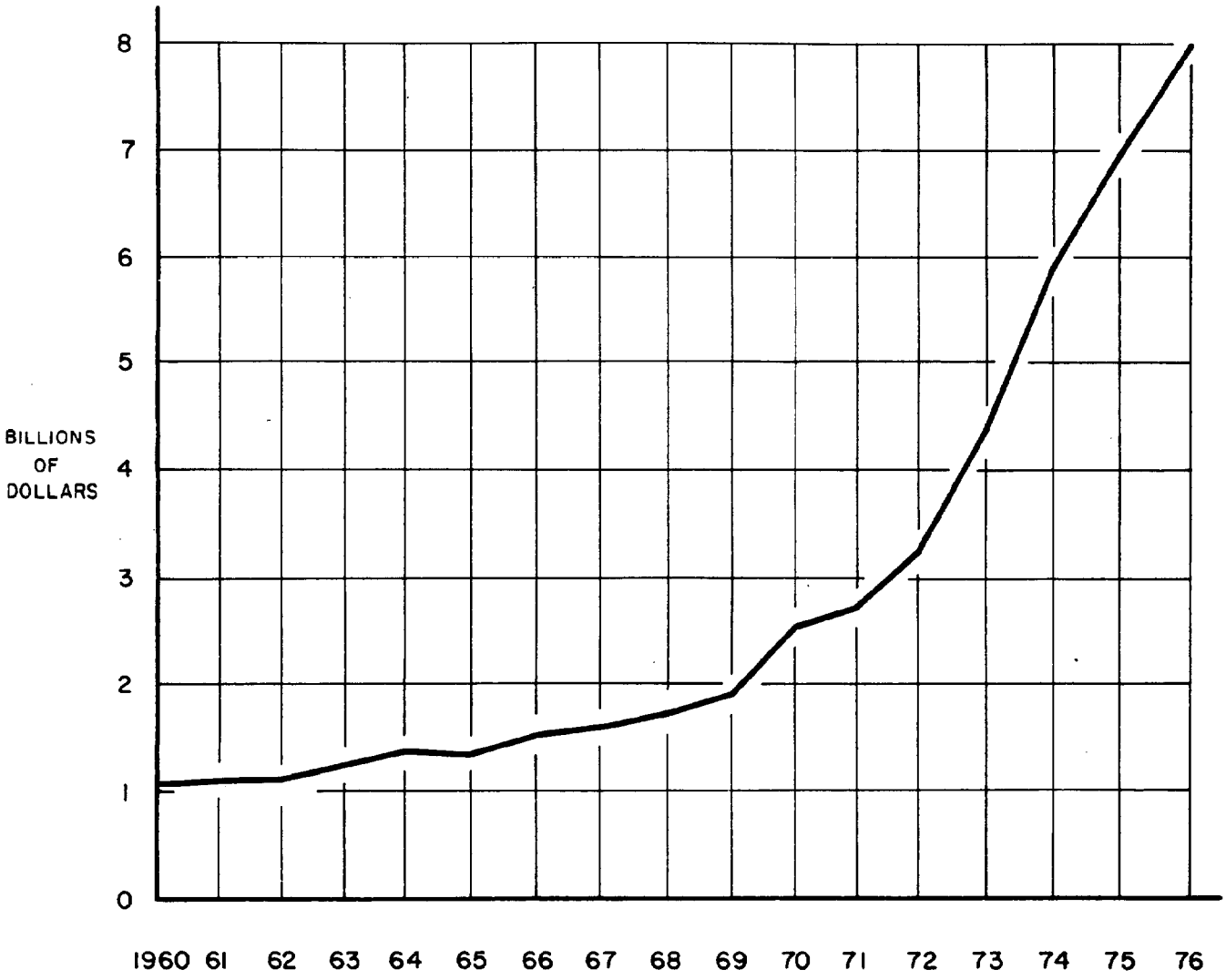
TOTAL FOREIGN TRADE FOR THE PORTS
OF VIRGINIA 1960-1976 - TONNAGE



Source: Virginia Port Authority

CHART 6

TOTAL FOREIGN TRADE FOR THE PORTS
OF VIRGINIA 1960-1976 - VALUE IN DOLLARS



Source: Virginia Port Authority

Within the public utilities subsector, the generation of electricity from nuclear power sources is probably the activity most closely linked to the coastal and marine environment. Nuclear power plants are usually located where large volumes of water are available for cooling and this often makes sites within the Coastal Zone prime locations.

Demand for electricity is closely tied to increases in population and commercial activities. Virginia Electric and Power Company (VEPCO), which serves much of the Coastal Zone, is one of the leading utility companies in the nation using nuclear sources for electric power generation and once units in Surry County and Louisa County (adjacent to the Coastal Zone) are fully operational, additional construction of nuclear facilities should not be required in the near future.

Employment in transportation and public utilities is projected to increase to 75,700 persons by 1985, implying an annual growth rate of 1.6 percent. Most of this projected increase is expected to occur in areas where population and industrial growth is anticipated to be the greatest, which is in areas in proximity to the major urban centers.

Wholesale and Retail Trade - In 1976, wholesale and retail trade employment in the Coastal Zone totaled approximately 59,000 persons and represented 64 percent of the State's total employment in this sector. Nearly 95 percent of the employment in this sector was contained in the more urban planning districts (Northern Virginia, Richmond Regional, Crater, Southeastern Virginia, and Peninsula). This concentration would be expected since both retail and wholesale trade thrive in areas with high population density and major transportation systems.

Both wholesale and retail trade activities are linked to the coastal and marine environment in some aspects. The port facilities have made the Norfolk, Newport News and the Richmond Areas centers of wholesale trade activity for a variety of products but particularly in the supply of petroleum. In terms of tonnage, petroleum and petroleum products accounted for over 80 percent of the imports entering Virginia's Ports. (See Table 14).

Other activities related to marine and coastal resources include retail trade generated by marine-based recreation such as boating, swimming, and fishing. Although little data are available, surveys indicate that marine recreational sales are probably quite substantial. 1/

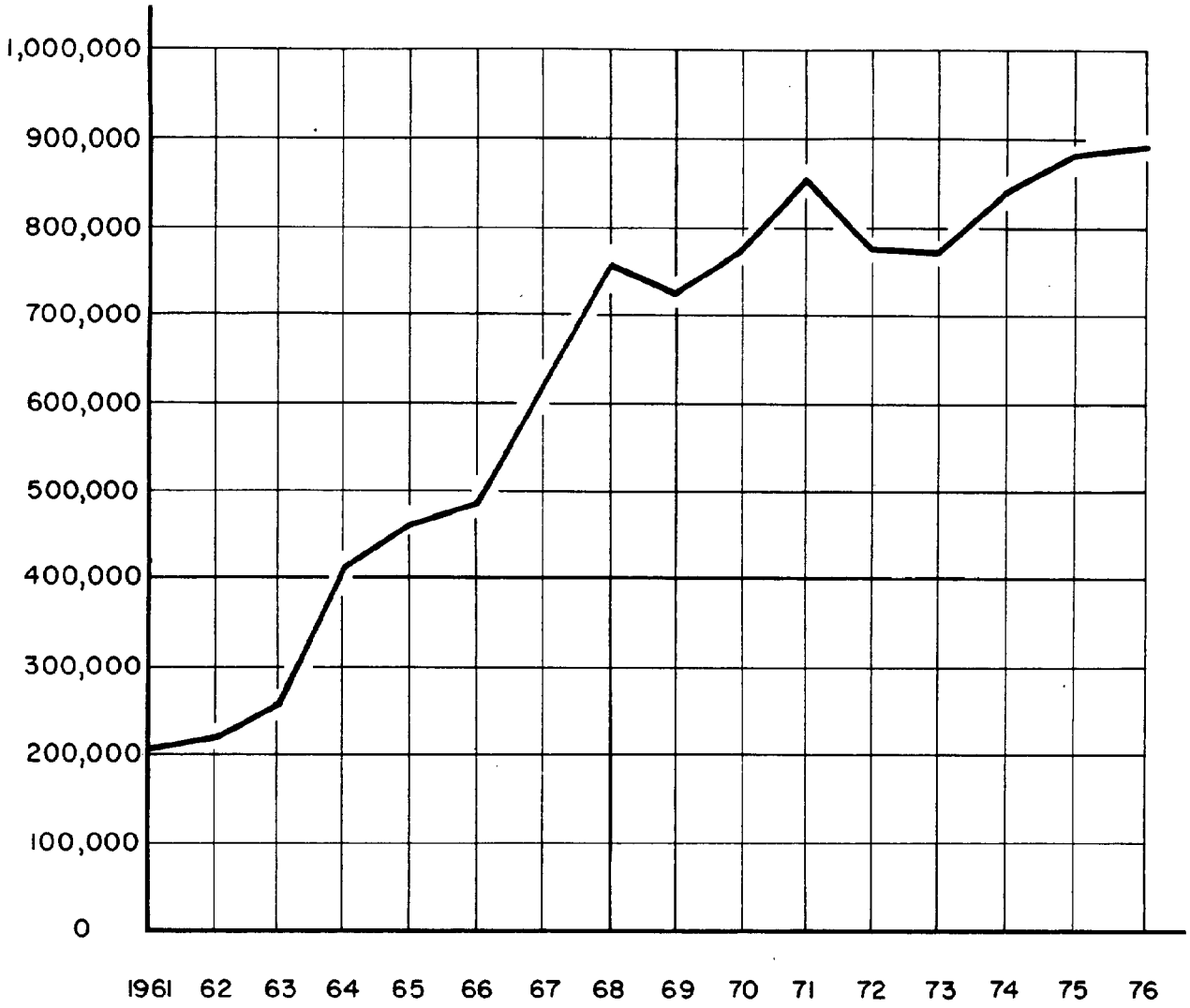
Wholesale and retail trade has experienced a trend towards increased mechanization and it is likely that this trend will continue resulting in slower employment growth. Also wholesale and retail trade employment is closely tied to changes in population, and the Coastal Zone is expected to experience a slower rate of population growth in the future than in the past. On the positive side, increased income levels are expected to generate additional sales. Based on these factors, this sector is projected to increase in employment by 2.4 percent annually during the 1976 to 1985 period, resulting in approximately 294,200 employees by 1985.

Finance, Insurance, and Real Estate - Finance includes banks and trust companies, credit agencies, holding companies, brokers and dealers in securities, and security exchanges. Insurance consists of carriers of all types of insurance, and insurance agents and

1/ The 1970 National Survey of Hunting and Fishing. (U.S. Department of the Interior Publication 95) estimated that total expenditures on saltwater sport fishing and wetland hunting were $79.4 million and $13.9 million respectively in 1970 in Virginia.

CHART 7

ANNUAL ATTENDANCE AT VIRGINIA'S COASTAL STATE PARKS 1961-1976



Source: Virginia Division of State Parks.

brokers. Real estate includes lessors, sellers, agents, and developers of real estate.

Employment in this sector has increased rapidly, growing from 27,600 persons in 1960 to nearly 59,000 in 1976. The Coastal Zone's share of finance, insurance, and real estate activity has increased relative to the State, growing from 65 percent of the State's employment in this sector in 1960 to 71 percent in 1976. Most of the actvity in this sector is in the urban areas of the Coastal Zone. In 1976, four of the urban planning districts in the Coastal Zone (Northern Virginia, Richmond Regional, Southeastern Virginia, and Peninsula) accounted for 95 percent of the employment in this sector.

With the exception of real estate develoment, this sector has few major economic links with the coastal and marine environment. Real estate development, however, has been increasingly attracted to coastal locations and activities associated with development such as marine construction have a direct effect on coastal resources.

Increasing activity in finance, insurance, and real estate is expected to generate a considerable number of new job opportunities. The rapid growth sustained by this sector during the 1960's and first part of the 1970's should give way to a somewhat slower, but nonetheless, very significant growth between 1976 and 1985. Employment is projected to grow by 3.2 percent annually resulting in an employment total of 77,800 persons.

Services - Included in this sector are activities ranging from health, legal, and educational services to marine-related services such as resort hotels, boat rentals, and charter fishing. The services sector, one of the largest in the Coastal Zone, employed approximately 190,000 persons in 1976 and has experienced a rapid rate of growth, increasing in employment from 77,000 persons in 1960. This increased demand for services is the result of such factors as growth in population, increases in income, changes in the composition of the work force, and reductions in the length of the work week.

Like wholesale and retail trade, a portion of employment in services is related to marine recreation. However employment statistics are not available but indications are that recreational pursuits, particularily in coastal areas, are increasing at a rapid pace. One indication is that attendance at Virginia's two coastal state parks increased from 205,000 persons annually in 1961 to nearly 900,000 in 1976 (See Chart 7 and Table 15).

The services sector is expected to be the fastest growing employment sector in the Coastal Zone during the 1976 to 1985 period. An annual growth rate of 3.3 percent is projected which would result in a total employment of 254,600 persons by 1985. This projection is based on two assumptions: (1) a continuation of trends toward increased urbanization, higher incomes, and more leisure time and, (2) services are highly labor intensive and capital cannot be substituted for labor as easily as in other sectors.

Government - Examining the employment composition in Virginia's Coastal Zone, government (consisting of civilian federal, state, and local government employment) ranks as the largest employment sector. This is not surprising considering: (1) Richmond is Virginia's capital and many State government activities are concentrated in that area, (2) a large number of federal agencies are located in the Northern Virginia portion of the Coastal Zone, and (3) a large amount of civilian federal employment is connected with the military installations that are heavily concentrated in parts of the Coastal Zone.

Total government employment in the Coastal Zone increased from 164,000 persons in 1960 to 301,000 in 1976. A number of factors have been responsible for this rapid growth. First, population increases have been responsible for additional expenditures in traditional areas such as education and transportation. Second, increasing

urbanization has expanded the need for such services as sewage disposal, water supply, and crime prevention. Third, new programs such as environmental protection and social services have been instituted.

Government employment is expected to grow at a slower rate in the future. Factors indicating a less rapid rate of growth include a slower growing population as well as an emerging philosophy to limit the expansion of the public sector. Total nonmilitary government in the Coastal Zone is projected to grow at a rate of 2.6 percent annually during the 1976 to 1985 period resulting in a total of 379,200 persons by 1985.

Military - Practically all of Virginia's military employment is located within the Coastal Zone. This can largely be attributed to the natural harbor of Hampton Roads that attracted numerous Naval facilities to that area. Approximately 70 percent of the military employment is found in the Southeastern Virginia Planning District and the Peninsula Planning District (the two areas adjacent to the Hampton Roads Harbor), while other concentrations of military personnel are found in the Northern Virginia Planning District and the Crater Planning District. Much of this military activity is linked with the Government Sector since military installations also employ large numbers of federal civilian workers.

Military personnel stationed in the Coastal Zone grew from approximately 132,500 persons in 1960 to 154,000 in 1970 but by 1975 1/ had fallen to 121,000. The buildup can largely be attributed to the escalation of the Viet Nam War, and similarly the reduction can be attributed to the termination of the war.

Information on future levels of military strength is uncertain. However one projection places the 1985 total at 124,400 persons, a slight increase over the 1975 level.

INCOME

Personal income is defined as the current income of residents of an area from all sources measured after the deduction of personal contributions to social security and government retirement. It represents a measure of the general welfare of an area, because through current consumption, personal income becomes a major component of a standard of living.

Residents of the Coastal Zone receive a large share of the State's income. Although only 59 percent of Virginia's total employment and population is found in the Coastal Zone, its residents receive approximately 66 percent of the State's total personal income.

Per capita income, which is defined as total personal income divided by population, highlights the regional differences in income levels. In 1976, per capita income estimates indicate that average income in the Coastal Zone was 11 percent higher than the State figure. However, this was somewhat skewed by the Northern Virginia and Richmond Regional Planning Districts that had per capita income figures 45 percent and 16

1/ Military estimates for 1976 were not available.

percent higher respectively than the State average. The remaining planning districts had per capita income figures lower than the State average with the Eastern Shore, the Northern Neck, and Middle Peninsula Planning Districts ranking as the areas with the lowest income levels. However these three planning districts have had the most rapid growth in per capita income, growing annually at 10.4 percent, 10.9 percent, and 9.3 percent respectively during the 1970 to 1976 period.

Rising income levels have a number of implications, and three possible impacts on coastal resources would be increased demands for environmental quality, recreation, and second home development.

Generally as income levels rise the desire for environmental quality increases. People place greater emphasis on a clean environment and are more willing to allocate part of their incomes to this goal, although perhaps indirectly through government programs. This may mean, for example, greater support for a program designed to prevent oil spills.

Second, higher incomes (along with more leisure time) increase the demand for recreation and recreational facilities. This would be reflected in greater demand for beaches, marinas, and resort complexes as well as increased sales of boats, water sports equipment, etc.

Another consequence of rising income levels is second home development. As income increases, the demand for vacation homes, particularly on the waterfront, increases and becomes another demand on coastal resources. Also, as incomes rise there is the possibility of increased commuting from waterfront residences in rural areas to jobs in metropolitan areas. Not only does higher income help to defray commuting costs but rural land, waterfront especially, is usually less expensive outside of urban areas.

POPULATION

Between 1960 and 1976, Virginia's Coastal Zone expanded its population by 37 percent, increasing from roughly 2.2 million persons to nearly three million. During the same period the State as a whole grew at a slower rate of 2.8 percent. These two trends together resulted in the Coastal Zone increasing its share of Virginia's total population from 55.1 percent to 59.2 percent.

The growth patterns experienced during the 1960's and 1970's are somewhat dissimilar. During the 1960's overall growth in the Coastal Zone averaged 2.4 percent annually with growth rates ranging from a positive 4.3 percent in the Northern Virginia Planning District to a negative 0.9 percent annual decline in the Eastern Shore Planning District. During the 1970 to 1976 period overall growth in the Coastal Zone occurred at a slower rate of 1.3 percent annually but growth in each of the predominently rural planning districts (RADCO, Northern Neck, Middle Peninsula, Eastern Shore) accelerated significantly.

Projections for the future indicate that the Coastal Zone's population growth will occur at a slower rate than that experienced historically. Nevertheless, a population of 3.3 million persons is projected by 1985 and similarily a total of 3.8 million persons is projected by the year 2000.

TABLE 1. – EMPLOYMENT BY SECTOR FOR VIRGINIA'S COASTAL ZONE, 1960-1985

	Employment				Percent of Virginia				Annual Growth Rates		
	1960	1970	1976	1985[a]	1960	1970	1976	1985	1960-70	1970-76	1976-85[a]
Work force (including military)	892,710	1,175,020	1,379,070	1,635,600	58.7	59.0	59.6	59.6	4.7	1.8	1.9
Unemployment	32,190	29,960	79,020	59,300	48.0	51.0	53.1	53.9	-0.7	17.5	-3.2
Employment	860,520	1,145,060	1,300,050	1,576,300	59.2	59.1	60.0	59.8	2.9	2.1	2.2
Agriculture[b]	n.a.	19,360	18,660	17,150	n.a.	18.0	19.0	n.a.	n.a.	-1.0	-0.7
Fisheries[c]	10,400	7,490	6,160	5,150	100.0	100.0	100.0	100.0	-3.3	-3.3	-2.0
Construction	34,980	54,780	59,320	76,400	64.4	61.1	57.0	55.0	4.6	1.4	2.9
Manufacturing	112,020	139,590	151,160	174,400	41.4	38.1	39.6	39.1	2.2	1.3	1.6
Transportation and public utilities	53,170	60,700	65,970	75,700	63.6	63.7	64.0	63.2	1.5	1.3	1.6
Wholesale and retail trade	130,210	190,320	237,640	294,200	61.9	64.1	64.3	63.7	4.6	3.8	2.4
Finance, insurance, and real estate	27,610	46,570	58,820	77,800	65.3	70.8	70.9	70.5	5.5	3.9	3.2
Services	77,300	132,070	190,060	254,600	64.0	61.4	63.0	63.2	5.8	5.7	3.3
Government	164,220	246,810	301,010	379,200	71.2	70.4	69.6	69.0	4.1	3.5	2.6
Military[d]	132,570	154,160	121,090	124,400	98.0	98.3	98.6	98.5	1.5	-4.1	0.3
All other[e]	n.a.	93,210	90,160	97,300	n.a.	n.a.	n.a.	n.a.	n.a.	-0.6	0.8

a/ Employment trends in many of these sectors have followed trends similar to those experienced statewide. Because the Coastal Zone constitutes a large percentage of total State employment in the various sectors, projected rates of growth in many cases have been adapted from the publication, Commonwealth of Virginia: Demographic and Economic Trends, June 1978, Department of Planning and Budget.

b/ Agricultural employment data for the year 1960 were not available.

c/ Fisheries employment estimates were obtained from the U. S. National Marine Fisheries Service.

d/ Military employment estimates were obtained from the U. S. Bureau of Economic Analysis for the year 1970. Complete BEA military estimates for the year 1960 were not available and data from the 1960 Census of Population was used for some localities. Data for 1975 were used since comparable figures for 1976 were not available.

e/ Includes forestry and mining employment as well as self employed, unpaid family, and domestics.

Sources: Virginia Employment Commission, unpublished data; Virginia Department of Labor and Industry, unpublished data; U. S. Bureau of Economic Analysis, unpublished data; U. S. Bureau of the Census, Census of the Population 1960, U. S. National Marine Fisheries Service, unpublished data; Virginia Department of Planning and Budget, Commonwealth of Virginia: Demographic and Economic Trends, June, 1978.

TABLE 2. – EMPLOYMENT BY SECTOR[a] FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS
PART A: 1960

	Virginia	Virginia's Coastal Zone	Planning Districts								
			8[b]	15[c]	16	17	18	19[d]	20[e]	21	22
			Employment								
Fisheries	10,400	10,400	70	250	160	3,040	2,080	100	890	100	2,710
Manufacturing	270,600	112,040	4,000	42,330	4,960	2,210	2,470	10,300	22,410	21,280	2,060
Durable goods	102,600	44,740	1,970	11,220	1,110	630	1,180	2,200	8,560	17,460	410
Nondurable goods	168,000	67,300	2,040	31,110	3,850	1,590	1,290	8,100	13,850	3,820	1,650
Contract construction	54,300	34,980	9,760	9,590	410	270	220	1,070	9,770	3,660	230
Transportation and public utilities	83,600	53,170	13,680	15,670	750	420	350	1,760	16,210	3,750	580
Wholesale and retail trade	210,300	130,210	28,210	39,640	2,350	1,330	1,490	4,640	39,760	11,240	1,550
Finance, insurance and real estate	42,300	27,610	5,780	12,570	310	170	190	680	5,850	1,890	170
Services	120,800	77,300	22,140	22,370	1,380	430	590	2,670	18,800	8,190	730
Government	230,600	164,220	49,290	29,060	4,200	1,100	1,500	7,300	48,990	21,160	1,620
Military[f]	135,300	132,570	37,810	670	2,900	...	...	6,710	68,100	16,100	280
			Percentage Distribution								
Fisheries	100.0	100.0	0.7	2.4	1.5	29.2	20.0	1.0	8.5	10.6	26.1
Manufacturing	100.0	41.4	1.5	15.6	1.8	0.8	0.9	3.8	8.3	7.9	0.8
Durable goods	100.0	43.6	1.9	10.9	1.1	0.6	1.2	2.2	8.3	17.0	0.4
Nondurable goods	100.0	39.9	1.2	18.5	2.3	1.0	0.8	4.8	8.2	2.3	0.8
Contract construction	100.0	64.4	18.0	17.7	0.8	0.5	0.4	2.0	18.0	6.7	0.4
Transportation and public utilities	100.0	63.6	16.4	18.7	0.9	0.5	0.4	2.1	19.4	4.5	0.7
Wholesale and retail trade	100.0	61.9	13.4	18.9	1.1	0.6	0.7	2.2	18.9	5.3	0.7
Finance, insurance and real estate	100.0	65.3	13.7	29.7	0.7	0.4	0.4	1.6	13.8	4.5	0.4
Services	100.0	64.0	18.3	18.5	1.1	0.4	0.5	2.2	15.6	6.8	0.6
Government	100.0	71.2	21.4	12.6	1.8	0.5	0.6	3.2	21.2	9.2	0.7
Military	100.0	98.0	27.9	0.5	2.1	...	...	5.0	50.3	11.9	0.2

(Footnotes and Sources on page 22.)

TABLE 2. – EMPLOYMENT BY SECTOR FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS
PART B: 1970

	Virginia	Virginia's Coastal Zone	Planning Districts								
			8 b/	15 c/	16	17	18	19 d/	20 e/	21	22
			Employment								
Agriculture	107,268	19,360	1,080	2,600	1,750	1,690	2,130	1,130	5,860	440	2,680
Fisheries	7,488	7,490	70	80	210	2,570	1,220	40	550	1,520	1,220
Manufacturing	366,100	139,590	7,600	51,510	4,580	3,220	3,030	12,340	27,100	27,710	2,490
Durable goods	149,100	60,390	5,120	14,170	1,710	750	1,250	2,110	11,780	23,120	390
Nondurable goods	217,000	79,210	2,480	37,340	2,880	2,480	1,780	10,230	15,320	4,600	2,100
Contract construction	89,700	54,780	16,670	14,420	650	410	310	3,530	13,310	5,190	290
Transportation and public utilities	95,300	60,700	18,130	17,360	840	550	280	1,680	16,690	4,670	500
Wholesale and retail trade	296,900	190,320	52,790	53,230	3,960	1,500	1,970	6,820	50,490	17,610	1,950
Finance, insurance and real estate	65,800	46,570	13,650	18,080	920	320	380	850	9,060	3,050	260
Services	215,100	132,070	40,780	35,020	2,250	760	1,080	3,890	32,070	15,050	1,170
Government	350,700	246,810	81,770	47,770	6,580	1,480	1,840	7,710	64,960	32,490	2,210
Military	156,845	154,160	43,140	600	400	30	80	11,050	72,120	26,540	200
			Percentage Distribution								
Agriculture	100.0	18.0	1.0	2.4	1.6	1.6	2.0	1.1	5.5	0.4	2.5
Fisheries	100.0	100.0	0.6	0.6	1.9	36.0	16.0	0.3	6.2	20.3	18.1
Manufacturing	100.0	38.1	2.1	14.1	1.2	0.9	0.8	3.4	7.4	7.6	0.6
Durable goods	100.0	40.2	3.4	9.5	1.2	0.5	0.8	1.2	7.9	15.5	0.2
Nondurable goods	100.0	36.4	1.1	17.2	1.3	1.1	0.8	4.7	7.1	2.1	1.0
Contract construction	100.0	61.1	18.6	16.1	0.7	0.4	0.3	3.9	14.8	5.8	0.3
Transportation and public utilities	100.0	63.7	19.0	18.2	0.9	0.5	0.2	2.1	17.5	4.8	0.5
Wholesale and retail trade	100.0	64.1	17.8	17.9	1.3	0.5	0.7	2.2	17.0	5.9	0.7
Finance, insurance and real estate	100.0	70.8	20.8	27.4	1.4	0.5	0.5	1.7	13.8	4.6	0.4
Services	100.0	61.4	18.9	16.3	1.0	0.4	0.5	3.7	14.9	7.0	0.5
Government	100.0	70.4	23.3	13.6	1.9	0.4	0.5	2.1	18.5	9.3	0.6
Military	100.0	98.3	27.5	0.4	0.3	...	...	7.0	46.0	16.9	0.1

(Footnotes and Sources on page 22.)

TABLE 2. – EMPLOYMENT BY SECTOR FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS
PART C: 1976

	Virginia	Virginia's Coastal Zone	8 b/	15 c/	16	17	18	19 d/	20 e/	21	22
			Employment								
Agriculture	98,140	18,660	1,030	2,740	1,730	1,680	2,120	950	5,260	360	2,780
Fisheries	6,160	6,160	60	250	190	1,630	1,460	40	500	710	1,310
Manufacturing	381,900	151,160	9,130	51,130	4,370	3,210	3,090	12,380	30,670	32,720	4,460
Durable goods	167,200	69,110	5,320	15,140	1,810	770	1,140	2,320	14,320	27,920	360
Nondurable goods	214,700	82,050	3,810	35,990	2,560	2,440	1,950	10,060	16,350	4,800	4,090
Contract construction	104,100	59,320	18,840	14,930	1,340	440	540	2,060	14,960	5,790	420
Transportation and public utilities	103,100	65,970	22,450	17,400	1,250	490	390	2,080	17,250	4,190	470
Wholesale and retail trade	369,600	237,640	71,750	64,200	5,950	1,810	2,430	7,460	58,900	23,060	2,080
Finance, insurance and real estate	83,000	58,820	17,840	21,590	980	380	410	1,040	12,210	4,030	340
Services	301,700	190,060	70,030	44,380	3,280	730	1,420	5,090	42,510	21,070	1,550
Government	432,400	301,010	104,320	59,700	8,180	1,740	2,580	10,370	75,460	35,770	2,890
Military g/	122,860	121,090	29,250	450	290	30	70	6,010	66,230	18,590	170
			Percentage Distribution								
Agriculture	100.0	19.0	1.0	2.8	1.8	1.7	2.2	1.0	5.4	0.4	2.8
Fisheries	100.0	100.0	1.0	4.1	3.1	26.4	23.7	0.6	8.2	11.6	21.3
Manufacturing	100.0	39.6	2.4	13.4	1.2	0.8	0.8	3.2	8.0	8.6	1.2
Durable goods	100.0	41.3	3.2	9.0	1.1	0.4	0.7	1.4	8.6	16.7	0.2
Nondurable goods	100.0	38.2	1.8	16.8	1.2	1.1	0.9	4.7	7.6	2.2	1.9
Contract construction	100.0	57.0	18.1	14.3	1.3	0.4	0.5	2.0	14.4	5.6	0.4
Transportation and public utilities	100.0	64.0	21.8	16.9	1.2	0.5	0.4	2.0	16.7	4.1	0.5
Wholesale and retail trade	100.0	64.3	19.4	17.4	1.6	0.5	0.7	2.0	15.9	6.2	0.6
Finance, insurance and real estate	100.0	70.9	21.5	26.0	1.2	0.5	0.5	1.3	14.7	4.9	0.4
Services	100.0	63.0	23.2	14.7	1.1	0.2	0.5	1.7	14.1	7.0	0.5
Government	100.0	69.6	24.1	13.8	1.9	0.4	0.6	2.4	17.5	8.3	0.7
Military	100.0	98.6	23.8	0.4	0.2	...	0.1	4.9	53.9	15.1	0.1

(Footnotes and Sources on page 22.)

Footnotes and Sources — Table 2

Note: Planning district totals may not add to Coastal Zone totals due to rounding.

a/ The agricultural sector is omitted on this table since employment estimates for 1960 comparable to those used for 1970 and 1976 are unavailable.

b/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

c/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

d/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

e/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

f/ Military estimates were provided by the U. S. Bureau of Economic Analysis for many of the localities. For areas in which BEA estimates were unavailable, data from the 1960 Census of Population were used.

g/ Because comparable 1976 military employment figures were unavailable, corresponding figures for 1975 were used.

Sources: Virginia Employment Commission, Virginia Department of Labor and Industry, U. S. Bureau of Economic Analysis, U. S. Bureau of the Census, U. S. National Marine Fisheries Services.

TABLE 3. – SELECTED AGRICULTURAL CHARACTERISTICS FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, PART A: 1959

	Virginia	Virginia's Coastal Zone	Coastal Zone As Percent Of Virginia	Planning Districts								
				8[a]	15[b]	16	17	18	19[c]	20[d]	21	22
1959												
Square miles of land in farms	20,509	3,770	18.4	237	588	540	457	563	246	786	71	280
Total square miles	39,780	10,052	25.3	781	2,125	1,406	746	1,293	584	2,011	410	696
Percent of land in farms	51.5	40.0	n.a.	30.3	27.7	38.4	61.3	43.6	42.1	39.1	17.4	40.2
Number of farms	97,623	15,019	15.4	907	2,492	2,117	1,672	2,443	983	2,873	357	1,175
Acres per farm	134.5	160.6	119.4	167.2	151.1	163.2	175.0	147.6	160.0	175.2	128.0	152.6
Total value of land and buildings (Millions of dollars)	17,822	467.1	26.2	70.6	99.7	40.6	32.2	48.7	22.0	104.9	17.0	31.4
Value of land and buildings per farm (dollars)	18,256	31,101	170.4	77,839	40,008	19,201	19,243	19,924	22,358	36,513	47,485	26,721
Value of farm products (Millions of dollars)	423.9	99.4	23.4	5.9	14.1	6.8	6.2	8.9	5.9	28.9	2.9	19.8
Crops[e]	168.7	53.8	31.9	0.4	3.3	2.2	4.1	4.0	3.3	16.6	0.6	16.0
Livestock and poultry[f]	244.3	40.0	16.4	5.2	9.2	4.1	1.9	4.0	2.3	8.6	1.6	3.1
Forest products[g]	10.9	5.6	51.4	0.3	1.7	0.6	0.3	0.9	0.3	0.3	0.6	0.6
Percent of sales from each category												
Crops[e]	39.8	54.1	n.a.	6.8	23.2	31.6	65.6	44.6	56.4	57.3	22.7	81.2
Livestock and poultry[f]	56.7	40.2	n.a.	88.1	64.8	59.9	30.1	45.3	38.8	38.6	56.7	15.7
Forest products[g]	2.6	5.6	n.a.	5.1	12.0	8.5	4.2	10.1	4.9	13.1	20.6	3.1

(Footnotes and sources on page 25.)

TABLE 3. – SELECTED AGRICULTURAL CHARACTERISTICS FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, PART B: 1974

	Virginia	Virginia's Coastal Zone	Coastal Zone As Percent Of Virginia	Planning Districts								
				8[a]	15[b]	16	17	18	19[c]	20[d]	21	22
1974												
Square miles of land in farms	15,122	2,739	18.1	118	353	333	288	372	188	812	34	241
Total square miles	39,780	10,054	25.3	789	2,125	1,406	746	1,293	578	2,011	410	696
Percent of land in farms	38.0	27.6	n.a.	15.0	16.6	23.7	38.6	28.7	32.5	40.4	8.4	34.7
Number of farms	52,699	7,772	14.7	462	1,235	957	846	1,001	472	2,015	134	650
Acres per farm	184	230.6	125.3	163.5	214.4	222.9	217.7	237.7	254.6	257.9	164.4	237.5
Total value of land and buildings (Millions of dollars)	5,395.8	1,316.7	24.4	132.0	195.5	159.9	112.9	149.3	68.5	362.3	30.1	106.2
Value of land and buildings per farm (dollars)	102,388	169,416	165.5	285,820	159,298	167,130	133,495	149,127	145,093	179,812	224,560	163,441
Value of farm products (Millions of dollars)	959.7	287.1	29.9	6.2	25.5	18.3	26.6	29.8	15.1	108.7	3.4	53.5
Crops[e]	435.6	199.9	45.9	2.1	15.5	9.6	23.3	20.7	11.4	69.7	2.5	45.1
Livestock and poultry[f]	514.2	83.7	16.3	4.0	9.7	7.9	3.0	8.6	3.6	37.6	0.9	8.4
Forest products[g]	9.8	3.5	35.7	...[h]	0.3	0.8	0.3	0.5	0.1	1.4	...[h]	...[h]
Percentage of sales from each category												
Crops[e]	45.4	69.6	n.a.	34.6	60.8	52.4	87.5	69.3	75.5	64.1	72.7	84.2
Livestock and poultry[f]	53.6	29.1	n.a.	65.1	38.4	43.0	11.4	28.9	23.8	34.5	27.2	15.7
Forestry products[g]	1.0	1.2	n.a.	0.2	1.2	4.6	1.1	1.8	0.7	1.3	0.1	...

(Footnotes and Sources on page 25.)

Footnotes and Sources – Table 3

n.a. = Not applicable

Details may not add to totals due to rounding.

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

e/ Includes nursery and greenhouse products.

f/ Includes livestock products and poultry products.

g/ Includes only sales of forest products reported in the Census of Agriculture.

h/ Less than $50,000 in sales.

Sources: U. S. Department of Commerce, Bureau of the Census, Census of Agriculture-1974.

TABLE 4. – SELECTED FORESTRY STATISTICS FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, 1976

	Virginia	Virginia's Coastal Zone	Coastal Zone as Percent of Virginia	Planning Districts								
				8 a/	15 b/	16	17	18	19 c/	20 d/	21	22
Square miles of forest land e/	25,652	5,785	22.6	372	1,057	1,013	451	902	399	1,159	199	233
Total square miles	39,780	1,005	25.3	789	2,125	1,406	746	1,293	578	2,011	410	696
Percent of land in forests	64.5	57.5	n. a.	47.0	49.7	72.0	60.5	69.8	69.0	57.6	45.2	33.5
Type of forest land ownership b/												
Federal	2,662	238.1	8.9	53.1	0.7	134.0	. . .	0.9	4.0	8.7	36.4	0.3
State	286	35.3	12.3	5.1	22.1	0.6	. . .	0.6	1.7	3.7	1.5	. . .
County and municipal	108	38.1	35.3	3.0	3.5	6.0	0.3	1.5	0.4	7.0	16.4	. . .
Forest industry	2,609	827.1	31.7	. . .	152.6	84.6	64.7	162.1	127.1	207.0	9.3	19.7
Farmer	9,703	2,129.4	21.9	53.7	285.6	282.1	234.0	356.9	185.8	562.3	25.6	143.4
Miscellaneous corporate	1,821	430.1	23.6	74.9	105.7	70.6	. . .	23.9	3.8	85.9	44.8	20.5
Miscellaneous individual	7,769	1,922.6	24.7	138.4	477.5	422.5	149.1	355.9	73.3	208.9	53.3	43.7
Percentage of forest land in each ownership category:												
Federal	10.4	4.1	n. a.	14.3	. . .	13.2	. . .	0.1	1.0	0.8	18.3	0.1
State	1.1	0.6	n. a.	1.4	2.1	. . .	. . .	0.1	0.4	0.3	0.8	. . .
County and municipal	0.4	0.7	n. a.	0.8	0.3	0.6	0.1	1.7	0.1	0.6	8.2	. . .
Forest industry	10.2	14.3	n. a.	. . .	14.4	8.4	14.3	18.0	31.9	17.9	4.7	8.5
Farmer	37.8	36.8	n. a.	14.4	27.0	27.8	51.9	39.6	46.6	48.5	12.9	61.5
Miscellaneous corporate	7.1	7.4	n. a.	20.1	10.0	7.0	. . .	2.6	1.0	7.4	22.5	8.8
Miscellaneous individual	30.3	33.2	n. a.	37.2	45.2	41.7	33.1	39.5	18.4	18.0	26.8	18.8

Note: Details may not add to totals due to rounding.

n.a. - not applicable

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the Localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

e/ Includes forest land on farms.

f/ Forest land under the category productive-reserved is not included in the ownership categories but is included in total forest land.

Source: Virginia Division of Forestry, Forest Statistics for the Coastal Plain of Virginia, 1976, and Forest Statistics for the Northern Piedmont of Virginia, 1976.

TABLE 5. – FISHERIES EMPLOYMENT IN VIRGINIA'S COASTAL ZONE AND COASTAL ZONE PLANNING DISTRICTS, 1960-1976

		Virginia's Coastal Zone	Planning Districts								
			8 a/	15 b/	16	17	18	19 c/	20 d/	21	22
						Number of Fishermen					
1976	Regular Fishermen	3,573	20	52	72	1,127	798	13	217	363	911
	Casual Fishermen e/	2,585	42	201	120	501	662	24	286	351	398
	Total Fishermen	6,158	62	253	192	1,628	1,460	37	503	714	1,309
1970	Regular Fishermen	5,653	32	34	106	2,036	908	17	352	1,146	1,022
	Casual Fishermen	1,835	38	45	109	531	315	24	201	373	199
	Total Fishermen	7,488	70	79	215	2,567	1,223	41	553	1,519	1,221
1960	Regular Fishermen	7,321	39	82	58	2,252	1,460	39	680	754	1,957
	Casual Fishermen	3,076	34	166	103	788	615	62	208	346	754
	Total Fishermen	10,397	73	248	161	3,040	2,075	101	888	1,100	2,711
						Percentage Distribution					
1976	Regular Fishermen	100.0	.6	1.4	2.0	31.5	22.3	.4	6.1	10.2	25.5
	Casual Fishermen	100.0	1.6	7.8	4.6	19.4	25.6	.9	11.1	13.6	15.4
	Total Fishermen	100.0	1.0	4.1	3.1	26.4	23.7	.6	8.2	11.6	21.3
1970	Regular Fishermen	100.0	.6	.6	1.9	36.0	16.0	.3	6.2	20.3	18.1
	Casual Fishermen	100.0	2.1	2.5	5.9	28.9	17.2	1.3	11.0	20.3	10.8
	Total Fishermen	100.0	.9	1.1	2.9	34.3	16.3	.5	7.4	20.3	16.3
1960	Regular Fishermen	100.0	.5	1.1	.8	30.8	20.0	.5	9.3	10.3	26.7
	Casual Fishermen	100.0	1.1	5.4	3.4	25.6	20.0	2.0	6.8	11.2	24.5
	Total Fishermen	100.0	.7	2.4	1.5	29.2	20.0	1.0	8.5	10.6	26.1
						Percentage Change					
1960-1976	Regular Fishermen	-51.2	-48.7	-36.6	24.1	-50.0	-45.3	-66.7	-68.0	-51.9	-53.4
	Casual Fishermen	-16.0	23.5	21.1	16.5	-36.4	7.6	-61.3	37.5	1.4	-47.2
	Total Fishermen	-40.8	-15.1	2.0	19.3	-46.4	-29.6	-63.4	-43.4	-35.1	-51.7

(Footnotes and Sources on next page.)

Footnotes and Sources — Table 5

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

e/ A "casual fisherman" derives less than 50 percent of his total income from commercial fishing.

Sources: Virginia Employment Commission, Virginia Department of Labor and Industry, Virginia Marine Resources Commission, Virginia Institute of Marine Science, U.S. Bureau of Economic Analysis.

TABLE 6. – WEIGHT AND DOCKSIDE VALUE OF FISHERY CATCHES IN VIRGINIA'S COASTAL ZONE 1960-1976

Year	Weight (in pounds)	Value (in dollars)
1960	366,684,000	20,925,000
1961	411,414,000	24,315,000
1962	453,901,000	21,701,000
1963	374,746,000	19,056,000
1964	465,768,000	24,219,000
1965	504,862,000	26,969,000
1966	418,380,000	20,959,000
1967	347,651,000	18,093,000
1968	382,070,000	20,550,000
1969	279,251,000	17,926,000
1970	550,553,000	21,977,000
1971	488,981,000	21,937,000
1972	663,845,000	25,992,000
1973	631,421,000	39,381,000
1974	507,293,000	33,836,000
1975	444,814,000	32,478,000
1976	530,470,000	44,382,000
1960-1976 Percent Increase	44.7%	112.1%

Source: National Marine Fisheries Service, Fisheries Statistics of the United States, selected years.

TABLE 7. – MAJOR TYPES OF FINFISH AND SHELLFISH LANDED IN VIRGINIA'S COATAL ZONE, 1960, 1970, 1976

	Pounds (Millions)			Dockside Value (Millions of Dollars)		
	1960	1970	1976	1960	1970	1976
Menhaden a/	246.0	446.0	440.8	2.2	7.5	13.0
Flounder	2.9	2.3	3.3	0.4	0.6	1.2
Croaker	3.9	0.1	5.9	0.6	b/	0.8
Sea Trout	0.9	2.2	4.0	0.1	0.3	0.6
Bluefish	0.1	0.6	4.2	b/	0.1	0.3
Sea Bass	3.7	1.5	0.8	0.5	0.3	0.2
Stripped Bass	2.3	1.8	1.0	0.3	0.4	0.5
Shad	1.3	4.1	0.9	0.2	0.3	0.3
Eels	0.2	1.2	0.6	b/	0.3	0.2
Miscellaneous Finfish	46.1	35.6	17.5	2.2	1.8	1.0
Total Finfish	307.4	495.4	479.0	6.5	11.6	18.1
Clams	1.7	2.2	15.0	0.8	1.0	8.4
Oysters	15.3	8.0	6.6	10.9	5.4	6.8
Crabs	40.9	43.3	26.6	2.4	2.7	5.7
Sea Scallops	0.8	0.8	2.9	0.3	1.0	4.9
Miscellaneous Shellfish	0.6	0.9	0.4	0.1	0.2	0.5
Total Shellfish	59.3	55.2	51.5	14.5	10.3	26.3
Total Finfish and Shellfish	366.7	550.6	530.5	20.9	22.0	44.4

Note: Details may not add to totals due to rounding.

a/ Includes menhaden taken by purse seines for reduction for use as cattle feed, fertilizer, etc.

b/ Less than $50,000.

Source: National Marine Fisheries Service, Fisheries Statistics of the United States, selected years.

TABLE 8. — FISHERIES PROCESSING AND WHOLESALING EMPLOYMENT IN VIRGINIA'S COASTAL ZONE, 1960-1976

Part A: 1960-1969 a/
Wholesaling and Processing

	Number of Plants	Employment b/
1960	378	2,726
1961	341	2,725
1962	341	3,916
1963	357	3,130
1964	350	3,069
1965	336	2,194
1966	304	3,109
1967	314	3,845
1968	310	3,522
1969	306	3,565

Part B; 1970-1976 a/

	Processing		Wholesaling	
	Plants	Employment b/	Establishments	Employment b/
1970	120	3,452	140	569
1971	144	3,854	104	307
1972	153	3,692	78	250
1973	133	3,718	63	293
1974	130	3,772	54	306
1975	133	4,119	53	394
1976	132	4,128	61	319

a/ Wholesaling and processing activities were not reported separately until 1970.

b/ Average annual employment.

Sources: Fishery Statistics of the United States, U. S. Department of the Interior, U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries, Statistical Digests Nos. 53-61. Fishery Statistics of the United States, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Statistical Digest Nos. 62-68.

TABLE 9. – MANUFACTURING EMPLOYMENT IN VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, 1960, 1970, AND 1976

	Virginia	Virginia's Coastal Zone	Coastal Zone As Percent of Virginia	Planning Districts 8 a/	15 b/	16	17	18	19 c/	20 d/	21	22
1976								Employment				
Total Manufacturing	381,900	151,156	39.5	9,131	51,132	4,372	3,210	3,087	12,377	30,669	32,723	4,455
Durable Goods	167,200	69,111	41.3	5,322	15,144	1,807	771	1,140	2,322	14,316	27,924	365
Nondurable Goods	214,700	82,045	38.2	3,809	35,988	2,565	2,439	1,947	10,055	16,353	4,799	4,090
1970												
Total Manufacturing	366,100	139,592	38.1	7,597	51,511	4,584	3,224	3,032	12,342	27,096	27,715	2,491
Durable Goods	148,800	60,386	40.6	5,119	14,170	1,708	746	1,250	2,107	11,779	23,116	391
Nondurable Goods	217,300	79,206	36.4	2,478	37,341	2,876	2,478	1,782	10,235	15,317	4,599	2,100
1960												
Total Manufacturing	270,600	112,045	41.4	4,004	42,334	4,965	2,213	2,473	10,303	22,411	21,279	2,063
Durable Goods	102,600	44,743	43.6	1,966	11,223	1,112	626	1,180	2,207	8,564	17,456	409
Nondurable Goods	168,000	67,302	40.1	2,038	31,111	3,853	1,587	1,293	8,096	13,847	3,823	1,654
1960-1976								Percentage Change				
Total Manufacturing	41.1	34.9	n.a.	128.0	20.8	-11.9	45.1	24.8	20.1	36.8	53.8	115.9
Durable Goods	63.0	54.5	n.a.	170.7	34.9	62.5	23.2	-3.4	5.2	67.2	60.0	-10.8
Nondurable Goods	27.8	21.9	n.a.	86.9	15.7	-33.4	53.7	50.6	24.2	18.1	25.5	147.3

n.a. = not applicable

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the city of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

Source: Virginia Employment Commission, unpublished statistics.

TABLE 10. – EMPLOYMENT IN MARINE TRANSPORTATION IN VIRGINIA'S COASTAL ZONE, 1960-1976

Year	Employment
1960	4,600
1961	5,000
1962	4,800
1963	4,700
1964	4,600
1965	4,400
1966	4,600
1967	4,800
1968	4,900
1969	4,700
1970	4,700
1971	3,900
1972	4,400
1973	4,700
1974	5,000
1975	4,700
1976	5,200
1960-1976 Percent Increase	13.0%

Source: Virginia Department of Labor and Industry, unpublished statistics.

TABLE 11. – TOTAL FOREIGN TRADE FOR THE PORTS OF VIRGINIA, 1960-1976

Year	Tonnage	Value (In Dollars)
1960	33,164,405	1,056,347,000
1961	32,038,036	1,092,746,000
1962	34,016,596	1,099,067,000
1963	38,715,698	1,233,063,000
1964	39,968,978	1,361,432,000
1965	41,418,752	1,342,493,000
1966	41,832,792	1,508,134,000
1967	42,444,222	1,561,676,000
1968	42,717,055	1,702,272,000
1969	48,624,523	1,907,638,000
1970	58,287,876	2,521,046,000
1971	46,559,451	2,728,046,000
1972	47,698,244	3,276,038,000
1973	49,279,526	4,095,296,000
1974	56,789,217	5,912,852,000
1975	54,261,375	6,986,849,000
1976	52,436,458	7,994,617,000
1960-1976 Percent Increase	58.1%	656.8%

Source: Virginia Port Authority, Foreign Trade Annual Report, selected years.

TABLE 12. – TONNAGE AND DOLLAR VALUE OF EXPORTS AND IMPORTS SHIPPED THROUGH VIRGINIA'S PORTS, 1970 AND 1976

	1970				1976			
	Tonnage (Millions)	Percent of Total	Dollar Value (Millions)	Percent of Total	Tonnage (Millions)	Percent of Total	Dollar Value (Millions)	Percent of Total
				Exports				
Hampton Roads								
Bulk Cargo	48.2	97.0	802.9	43.6	38.3	94.8	2,373.8	45.3
General Cargo	1.2	2.4	1,019.6	55.4	1.7	4.2	2,839.9	54.2
Total Cargo	49.5	99.4	1,822.5	99.0	40.0	99.0	5,213.7	99.6
River Ports								
Bulk Cargo	0.2	0.4	2.4	0.1	0.4	1.0	10.6	0.2
General Cargo	0.1	0.2	15.3	0.8	. . a/	. . .	11.5	0.2
Total Cargo	0.3	0.6	17.7	1.0	0.4	1.0	22.1	0.4
Total Virginia Ports								
Bulk Cargo	48.5	97.4	805.3	43.7	38.6	95.5	2,384.4	45.5
General Cargo	1.3	2.6	1,034.9	56.2	1.7	4.2	2,851.4	54.5
Total Cargo	49.8	100.0	1,840.2	100.0	40.4	100.0	5,235.8	100.0
				Imports				
Hampton Roads								
Bulk Cargo	7.1	83.5	84.7	12.4	10.3	85.1	671.1	24.3
General Cargo	1.1	12.9	559.9	82.2	1.5	12.4	1,976.4	71.6
Total Cargo	8.2	96.5	644.6	94.7	11.9	98.3	2,647.5	96.0
River Ports								
Bulk Cargo	0.1	1.2	3.7	0.5	. . a/	. . .	1.8	0.1
General Cargo	0.2	2.4	32.6	4.8	0.2	1.7	109.6	4.0
Total Cargo	0.3	3.5	36.3	5.3	0.2	1.7	111.4	4.0
Total Virginia Ports								
Bulk Cargo	7.2	84.7	88.4	13.0	10.4	86.0	672.9	24.4
General Cargo	1.3	15.3	592.5	87.0	1.7	14.0	2,086.0	75.6
Total Cargo	8.5	100.0	680.9	100.0	12.1	100.0	2,758.8	100.0

Note: Details may not add to totals due to rounding. a/ Less than 50,000 tons. SOURCE; Virginia Port Authority, Foreign Trade Annual Report, selected years.

TABLE 13. – MAJOR PRODUCTS EXPORTED THROUGH VIRGINIA'S PORTS, 1976

Type of Export	Tonnage	Percent of Total
General Cargo		
Iron and steel scrap	229,772	13.3
Tobacco, unmanufactured	173,722	10.0
Resins and synthetic plastic materials	79,028	4.6
Soybean oil, except hydrogenated	76,015	4.4
Cigarettes, cigars, and smoking tobacco	65,523	3.8
Logs and lumber	65,280	3.8
Pulp and wood pulp	56,261	3.3
Paper and paperboard in rolls or sheets	46,884	2.7
Made-up articles of textile materials	40,104	2.3
Textile yarn and thread	39,990	2.3
Synthetic rubber	38,742	2.2
Total General Cargo Exported	1,732,885	100.0
Bulk Cargo		
Coal, anthracite and bituminous	31,852,275	82.5
Corn or maize, unmilled	4,581,959	11.9
Soybeans	644,636	1.7
Fertilizers, manufactured	514,272	1.3
Oilseed cake, meal, and residues	428,238	1.1
Wheat, unmilled	281,038	0.7
Total Bulk Cargo Exported	38,630,470	100.0

Source: Virginia Port Authority, Foreign Trade Annual Report, 1977.

TABLE 14. – MAJOR PRODUCTS IMPORTED THROUGH VIRGINIA'S PORTS, 1976

Type of Import	Tonnage	Percent of Total
General Cargo		
Crude rubber	252,805	14.8
Standard newsprint paper	156,805	9.2
Plywood, including wood veneer panels	151,978	8.9
Crude minerals	104,743	6.1
Tobacco, unmanufactured	101,561	6.0
Passenger motor vehicles	88,931	5.2
Natural abrasives	62,494	3.7
Alcoholic beverages	43,594	2.6
Natural and manufactured gas	43,497	2.6
Motor vehicle and tractor parts	39,857	2.3
Iron and steel, miscellaneous shapes	35,839	2.1
Total General Cargo Imported	1,705,556	100.0
Bulk Cargo		
Residual fuel oils	6,142,983	59.3
Petroleum, crude and partly refined	2,812,030	27.1
Ammonia, sodium and potassium hydroxide	342,612	3.3
Gypsum plasters and crude limestone	295,673	2.9
Cement and other concrete mixes	295,362	2.8
Fertilizers, manufactured	196,277	1.9
Total Bulk Cargo Imported	10,367,547	100.0

Source: Virginia Port Authority, Foreign Trade Annual Report, 1977.

TABLE 15. – ANNUAL ATTENDANCE AT VIRGINIA'S COASTAL STATE PARKS, 1960-1976

Year	Total	Westmoreland	Seashore a/
1961	205,052	150,837	54,215
1962	216,882	148,937	67,945
1963	287,843	150,118	137,725
1964	413,587	165,917	247,670
1965	464,345	142,144	322,201
1966	487,384	140,339	347,045
1967	620,005	129,387	490,618
1968	759,462	148,700	610,762
1969	721,501	142,298	579,203
1970	774,646	162,718	611,928
1971	853,391	157,489	695,902
1972	755,938	119,101	656,837
1973	773,038	141,690	591,348
1974	842,950	130,015	712,935
1975	883,999	130,794	753,205
1976	899,562	132,157	769,405
1961-1976 Percent Change	338.7%	–12.4%	1,319.2%

a/ Seashore State Park opened in 1961.

Source: Virginia Division of State Parks, unpublished statistics.

TABLE 16 – TOTAL PERSONAL INCOME IN VIRGINIA, VIRGINIA'S COASTAL ZONE AND COASTAL ZONE PLANNING DISTIRCTS, 1962-1976

Year	Virginia	Virginia's Coastal Zone	8 a/	15 b/	16	17	18	19 c/	20 d/	21	22
					Total Personal Income (Millions of Dollars) e/						
1976	31,692.9	21,003.6	8,372.2	4,204.7	553.4	199.5	274.6	651.7	4,545.2	1,997.3	205.0
1970	17,134.9	11,414.6	4,394.6	2,336.1	259.3	100.5	141.0	383.7	2,559.0	1,134.9	105.5
1962	8,537.0	5,408.3	1,751.1	1,190.2	117.9	51.0	79.8	189.3	1,371.6	587.1	70.3
					Percentage Distribution						
1976	100.0	66.3	26.4	13.3	1.7	0.6	0.9	2.1	14.3	6.3	0.6
1970	100.0	66.6	25.6	13.6	1.5	0.6	0.8	2.2	14.9	6.6	0.6
1962	100.0	63.4	20.5	13.9	1.4	0.6	0.9	2.2	16.1	6.9	0.8
					Annual Growth Rates						
1970-1976	10.8	10.7	11.3	10.3	13.5	12.1	11.7	9.2	10.0	9.9	11.7
1962-1970	9.1	9.8	12.2	8.8	10.4	8.8	7.4	9.2	8.1	8.6	5.2

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

e/ Current dollars, not adjusted for inflation.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, unpublished statistics.

TABLE 17. – PER CAPITA PERSONAL INCOME FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, 1962-1976

Year	Virginia	Virginia's Coastal Zone	Planning Districts								
			8 a/	15 b/	16	17	18	19 c/	20 d/	21	22
			Per Capita Income e/								
1976	6,298	7,024	9,107	7,324	5,528	5,063	5,057	5,737	5,609	6,005	4,399
1970	3,677	4,136	5,272	4,410	3,349	2,715	2,962	3,499	3,356	3,556	2,428
1962	2,042	2,379	2,881	2,426	1,793	1,366	1,755	1,977	2,018	2,212	1,470
			Percent of State's Per Capita Income								
1976	100.0	111.5	144.6	116.3	87.8	80.4	80.3	91.1	89.1	95.3	69.8
1970	100.0	112.5	143.4	119.9	91.1	73.8	80.6	95.2	91.3	96.7	66.0
1962	100.0	116.5	141.1	118.8	87.8	66.9	85.9	96.8	98.8	108.3	71.9
			Annual Growth Rates								
1970-1976	9.4	9.2	9.5	8.8	8.7	10.9	9.3	8.6	8.9	9.1	10.4
1962-1970	7.6	7.2	7.8	7.8	8.1	9.0	6.8	7.4	6.6	6.1	6.5

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell, and Petersburg Cities.

d/ All of the Localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin City.

e/ Current dollars, not adjusted for inflation.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, unpublished statistics.

TABLE 18. – PAST AND PROJECTED POPULATION FOR VIRGINIA, VIRGINIA'S COASTAL ZONE, AND COASTAL ZONE PLANNING DISTRICTS, 1960-2000

Year	Virginia	Virginia's Coastal Zone	Planning Districts 8[a/]	15[b/]	16	17	18	19[c/]	20[d/]	21	22
					Number of Persons						
2000	6,455,000	3,829,500	1,208,300	760,500	186,600	44,300	74,700	121,000	977,800	393,500	62,800
1985	5,602,100	3,310,500	1,027,100	636,200	133,300	41,400	62,500	113,800	877,500	365,300	53,400
1976	5,052,400	2,990,300	919,300	574,100	100,100	39,400	54,300	113,600	810,300	332,600	46,600
1970	4,651,448	2,759,959	833,483	529,777	77,425	37,011	47,600	109,645	762,491	319,081	43,446
1960	3,954,429	2,177,911	544,588	446,040	64,302	36,776	45,501	90,652	659,577	242,874	47,601
					Percentage Distribution						
2000	100.0	59.3	18.7	11.8	2.9	0.7	1.2	1.9	15.1	6.1	1.0
1985	100.0	59.1	18.3	11.4	2.4	0.7	1.1	2.0	15.7	6.5	1.0
1976	100.0	59.2	18.2	11.4	2.0	0.8	1.1	2.2	16.0	6.5	0.9
1970	100.0	59.3	19.7	11.4	1.7	0.8	1.0	2.4	16.4	6.9	0.9
1960	100.0	55.1	13.8	11.3	1.6	0.9	1.2	2.3	16.7	6.1	1.2
					Annual Growth Rates						
1985-2000	0.9	1.0	1.1	1.2	2.0	0.5	1.2	0.4	0.7	0.5	1.1
1976-1985	1.2	1.1	1.8	1.1	3.2	0.6	1.6	0.0	0.9	1.0	1.5
1970-1976	1.4	1.3	1.6	1.3	2.0	1.0	1.9	0.6	1.0	0.7	1.2
1960-1970	1.6	2.4	4.3	1.7	1.9	0.1	0.5	1.9	1.5	2.8	-0.9

a/ Localities in Planning District 8 which are included in the Coastal Zone are Arlington, Fairfax, and Prince William Counties and the City of Alexandria.

b/ Localities in Planning District 15 which are included in the Coastal Zone are Charles City, Chesterfield, Hanover, Henrico, and New Kent Counties and the City of Richmond.

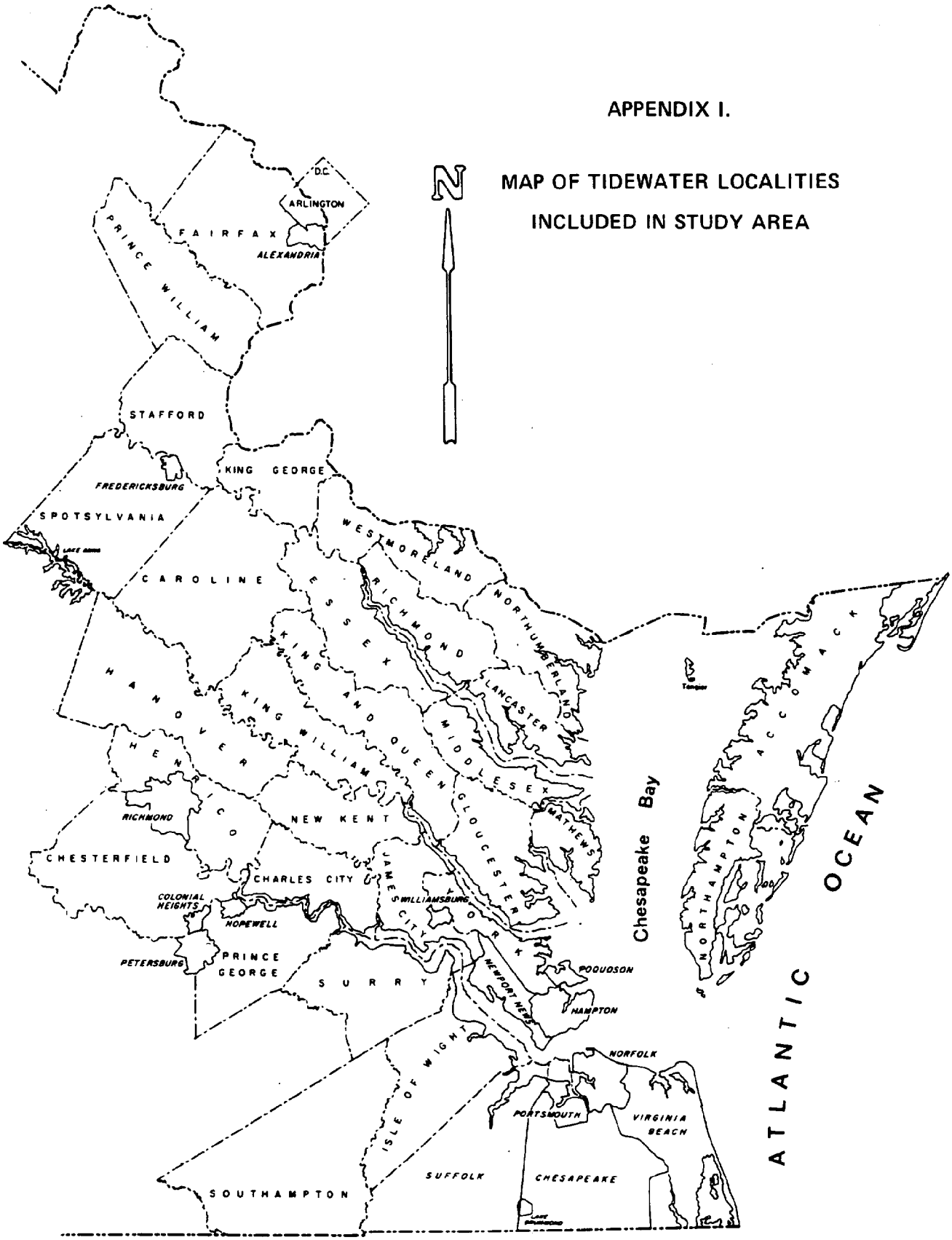
c/ Localities in Planning District 19 which are included in the Coastal Zone are Prince George and Surry Counties and Colonial Heights, Hopewell and Petersburg Cities.

d/ All of the localities in Planning District 20 are included in the Coastal Zone with the exception of Franklin County.

Sources: U. S. Department of Commerce, Bureau of the Census, Census of Population (1960 and 1970); University of Virginia, Tayloe Murphy Institute, Estimates of the Population of Virginia Counties and Cities: July 1, 1976 and July 1, 1977; Commonwealth of Virginia, Department of Planning and Budget, Population Projections, Virginia Counties and Cities, 1980-2000

APPENDIX I.

MAP OF TIDEWATER LOCALITIES INCLUDED IN STUDY AREA



APPENDIX 2. – LIST OF COUNTIES AND CITIES IN VIRGINIA'S COASTAL ZONE[1/]

Planning Districts	Counties	Cities
Northern Virginia (8)	Arlington Fairfax Prince William	Alexandria
Richmond Regional (15)	Charles City Chesterfield Hanover Henrico New Kent	Richmond
RADCO (16)	Caroline King George Spotsylvania Stafford	Fredericksburg
Northern Neck (17)	Lancaster Northumberland Richmond Westmoreland	
Middle Peninsula (18)	Essex Gloucester King and Queen King William Mathews Middlesex	
Crater (19)	Prince George Surry	Colonial Heights Hopewell Petersburg
Southeastern (20)	Isle of Wight Southampton	Chesapeake Norfolk Portsmouth Suffolk Virginia Beach
Peninsula (21)	James City York	Hampton Newport News Poquoson Williamsburg
Accomack-Northampton (22)	Accomack Northampton	

1/ Localities in the "Coastal Zone" were defined above in June 1978. Final definition of the localities in the Coastal Zone was pending at the time of publication.

NOTES

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