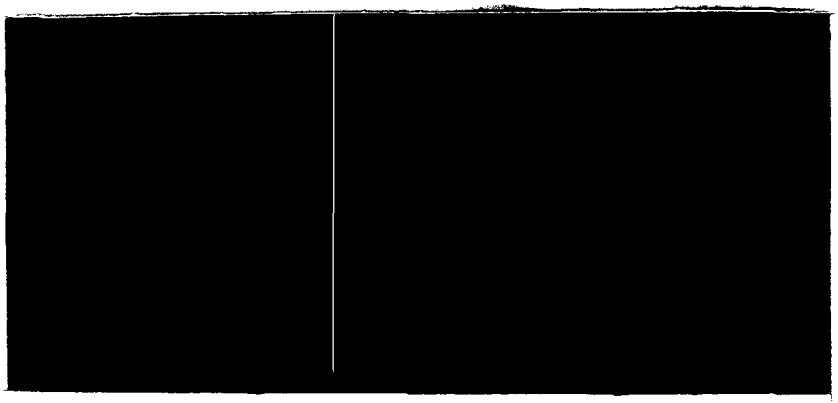
Islands Coastal Zone Management Program



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# COASTAL ZONE MANAGEMENT

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# ECONOMIC ASPECTS OF THE VIRGIN ISLANDS

## COASTAL ZONE MANAGEMENT PROGRAM

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## INTRODUCTION

It has long been recognized that the coastal zone plays a vital role in the life of every resident of the Virgin Islands. The coastal zone is not simply important: it is the essential resource that makes the islands what they are today. Such diverse demands as petroleum refining, major port activities, as well as breeding grounds for endangered species like the Hawksbill Seaturtle, the Brown Pelican and the Humpback Whale, depend significantly on the coastal resources. The Virgin Islands National Park on St. John, Magens Bay Beach on St. Thomas, and Davis Beach on St. Croix are all examples of the recreational resources of the coastal zone. Enthusiasts of big game fishing, sailing, and scuba diving find unsurpassed opportunities in the Virgin Islands coastal zone. World record marlin catches and world famous scuba diving and snorkeling locations, such as Buck Island Reef National Monument, make the Virgin Islands Coastal Zone a resource of vast economic and recreational value.

The coastal zone is literally the life line of the islands. From providing seawater for the desalinization plants, or the ports from which most food and goods enter the islands, to providing the resource base for the most important industry, tourism, the coastal zone performs an indispensable function to the people of the Virgin islands. Hence economic development must rely on careful cultivation of coastal assets.

### Some Basic Economic Problems

The existing system of allocating coastal resources among various uses is largely through private market forces and a federal-teritorial regulatory system which is complicated and uncoordinated. Individual regulations tend to address a fairly narrow scope of activities, purposes, and interests with little attention directed towards overall long-range goals, policies and priorities. The existing system fails to maximize the economic benefits of the Virgin Islands coastal resources for a number of reasons:

1) Many coastal resource users have a detrimental effect on other activities without considering the "costs" of these "external" effects in deciding whether or not to undertake their activity. Thus, the developer (public or private) of a facility which destroys or obstructs a scenic view, is not required to compensate all the people who would have otherwise received visual satisfaction. In effect, the private market does not properly value such common property resources as wetlands, scenic quality, clean air or clean water.

2) The private market tends to value present consumption much higher that future comsumption and this places a high discount rate on future needs. This makes sense to the private consumer because in the long-term future he will no longer be around. Thus, the present system tends to understate the value of scarce non-replaceable natural resources that will continue to be demanded by future generations.

3) The existing local permit and regulatory system for the shorelines can be time consuming and, potentially, arbitrary as a result of unclear public policy and lack of guidelines. Thus, the existing system can result in economic hardship upon developers as a result of delays or confusion. In any event, (whether there are delays or not) the uncertainty which accompanies the present system can frustrate the development of worthwhile projects.

The only way to correct the misallocation of resources and the ineffective management of the present system is through carefully reasoned and coordinated public intervention. This is essentially the objective of the Virgin Islands Coastal Zone Management Program.

## Background and Context for Planning

The population of the United States Virgin Islands has almost tripled since 1960, from about 33,000 to an estimated 95,000 inhabitants in 1976 (V.I. Department of Health estimates). This rapid population growth has occurred primarily as a result of increased employment opportunities associated with a developing tourism industry, and territorial government policies which have encouraged economic development by means of tax rebates and subsidies. As a result of this economic growth, Virgin Islanders enjoy a standard of living which is unsurpassed in the Caribbean. Estimated personal income per capita was $3,200 in 1972, approximately the same as for the state of Mississippi which ranked last in per capita among the states (McElroy, 1974). The national estimate for the same year was $4,500.

Employment Summary - Total employment in 1965 was about 23,000 and by 1977 it was expected to reach 40,500 (all employment estimates are from Virgin Islands Employment Security). The most prominent feature of the employment situation is the large local government sector, about 22 percent of total employment in 1965 (4,900) and 25 percent of the total in 1977. Employment estimates for 1965-1977 are shown in Table 1.

TABLE 1. ESTIMATED ANNUAL EMPLOYMENT - VIRGIN ISLANDS

| SIC Classification | Industry Name | 1965[1] | 1966 | 1967 | 1968 | 1969 | 1970[2] | 1971[3] | 1972 | 1973[4] | 1974[5] | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01-09, 14 | Agriculture, Forestry, Fisheries, Mining | 207 | 193 | 184 | 148 | 179 | 165 | 130 | 144 | 172 | 200 | 200 | 200 | 200 |
| 15-17 | Construction | 2699 | 4470 | 3733 | 4679 | 5474 | 4572 | 5517 | 4362 | 4781 | 5200 | 5675 | 5065 | 5430 |
| 20-39 | Manufacturing | 1568 | 1937 | 1878 | 1981 | 2500 | 2507 | 2727 | 2807 | 2708 | 2610 | 2890 | 2650 | 2875 |
| 41-49 | Transportation, Communications, Utilities | 1503 | 1929 | 1910 | 1859 | 2049 | 1949 | 1914 | 2032 | 2141 | 2250 | 2175 | 2160 | 2200 |
| 50-51 | Wholesale Trade | 294 | 310 | 300 | 319 | 414 | 425 | 440 | 474 | 442 | 410 | 480 | 525 | 535 |
| 52-59 | Retail Trade | 3213 | 4006 | 3890 | 4584 | 5442 | 5125 | 5223 | 5224 | 5207 | 5190 | 5490 | 5415 | 5600 |
| 60-67 | Finance, Insurance, Real Estate | 570 | 650 | 634 | 820 | 1556 | 1708 | 1249 | 1315 | 1627 | 1940 | 1450 | 1475 | 1475 |
| 70 | Hotels and Lodging Places | 2056 | 2094 | 2397 | 2521 | 3119 | 3182 | 2722 | 2500 | 2945 | 3390 | 3180 | 2550 | 2880 |
| 72-86-89 | Services, Other than Hotels | 1079 | 1196 | 1478 | 1558 | 1962 | 2004 | 2054 | 2273 | 2361 | 2450 | 2450 | 2475 | 2550 |
| 92 | Territorial Government | 4939 | 6076 | 6618 | 8194 | 8170 | 8647 | 9062 | 9700 | 9645 | 9690 | 10000 | 10114 | 10514 |
| 91 | Federal Government | N.A. | N.A. | N.A. | N.A. | N.A. | 356 | 368 | 362 | 371 | 380 | 450 | 508 | 508 |
| N.E.C. | Self-Employed, Domestics, Unpaid Family Workers | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | 5200 | 5450 | 5540 | 5740 |
| | Total Employment[6] | 22700 | 26220 | 29400 | 30940 | 32490 | 35100 | 36550 | 36683 | 37420 | 38910 | 39690 | 38677 | 40507 |
| | Estimated Employment | 150 | 190 | 200 | 231 | 230 | 480 | 700 | 1530 | 1560 | 2229 | 2270 | 4683 | 3763 |

NEC - Not Elsewhere Classified, N.A. - Not available

1. Estimates for 1965-1969 are for December
2. 1970 estimate is average monthly employment for calendar year.
3. 1971 and 1972 estimates are monthly averages for fiscal years.
4. 1973 estimate based upon 1972 and 1974 levels.
5. 1974-1977 estimates are monthly averages for fiscal years.
6. Income instances, total employment has been estimated independently, total may not correspond to estimates by industry.

SOURCE: Virgin Islands Employment Security Agency

The construction and manufacturing sectors have almost doubled in size since 1965. The number of workers engaged in construction has grown from about 2,700 in 1965 to 5,400 in 1977. Manufacturing employment increased from 1,600 to 2,900 from 1965 to 1977. Most of the manufacturing employment is accounted for by the two large industrial operations on St. Croix, Hess Oil and Martin Marietta Alumina. In addition to oil refining and alumina processing, other manufacturing activities include watch assembly, textiles, and the production of rum.

Retail trade establishments, with an estimated 1977 employment of 5,600, represent the largest single industry in the private sector. This was also true of the 1965 total of 3,200. Wholesale trade increased from 300 in 1965 to more than 500 in 1977.

Hotels and other lodging places accounted for 2,900 employees in 1977, an increase of about 800 over 1965 totals. The peak employment during the period was 3,400 in 1974. Other services employment grew from 1,100 in 1965 to 2,600 in 1977. From 1965 to 1977, employment in transportation, communications, and utilities increased from 1,500 to 2,200. Finance, insurance, and real estate grew from about 600 in 1965 to 1,500 in 1977.

Self-employed, domestics, and unpaid family workers have constituted a sizable portion of the employment total in recent years, and these workers comprised about 15 percent (5,400 employees) of the total in 1977.

The actual size of the agricultural and fishing industries is difficult to determine since most of these workers are self-employed or part-time only. Local estimates for covered employment (estimated 200 employees) undoubtedly understate the importance of the fishing industry in particular. There are presently about 500 licensed commercial fishermen and an additional 450 helpers in the Islands. The average number of days fished per month is low (5.2 days), indicating a great deal of part-time employment. The total fish catch for 1974-75 was valued at about $1 million. In addition, an estimated 50,000 pounds of lobster was harvested from nearby waters (V.I. Bureau of Fish and Wildlife, 1976). With the exception of several dairy and livestock operations and some small scale truck farming, there is little large scale commercial agricultural activity in the Territory.

Unemployment - Between 1965 and 1971, unemployment in the Virgin Islands was almost non-existant. The 1972 rate of 4.0 percent was double that of the preceeding year. The rate has climbed steadily since then. There have been sharp increases in the unemployment rate in the past three years, from about 5.5 percent in fiscal 1974 (weekly average 2,200) , to 10.8 percent is fiscal

1976 (4,700 per week). By December 1976, the unemployment rate was estimated to be about 8.5 percent for the Territory. Unemployment on St. Croix was estimated at 9.7 percent. For St. Thomas-St. John, the rate was 7.2 percent. The unemployment rate for 1977 is estimated to be about 8.5 percent (weekly average 3,800).

The Non-Resident Labor Force - In mid-1975, there were approximately 10,700 non-immigrant aliens residing and working in the United States Virgin Islands. By the end of 1976, there were only 6,500 aliens in the work force (all estimates furnished by U.S. Department of Labor, Manpower Administration). In 1976, these workers comprised about 17 percent of total employment. Many have resided in the Virgin Islands for long periods of time and have become a permanent part of the economic structure. These non-residents workers have been a significant part of the total work force for many years. Non-residents are employed in almost every industry; however, they are a major part of the work force in the construction industry and private household workers.

Population Growth - The population of St. Croix has increased from about 15,000 residents in 1960 to 48,000 in 1976 or 53 percent of the total increase for the Virgin Islands. During the same period, St. Thomas has grown by about 28,000 residents and St. John has added almost 1,300 new inhabitants. Population changes are summarized below.

Population Growth By Island 1960-1976

| Year | Virgin Islands | St. Thomas | St. John | St. Croix |
|---|---|---|---|---|
| 1960 | 33,425 | 17,392 | 928 | 15,105 |
| 1965 | 49,742 | 26,375 | 1,347 | 22,020 |
| 1970 | 75,151 | 37,285 | 1,924 | 35,942 |
| 1976 | 95,650 | 45,240 | 2,220 | 48,190 |

Source: V.I. Department of Health

Population Growth - Components of Change - Population growth in the Virgin Islands over the past 15 years has been largely attributable to an influx of migrants from the nearby islands, and to a lesser extent, migration from the continental United States. For the ten-year period 1960-1970, 64 percent of the total increase was due to net in-migration . The most striking aspect of population change in recent years is the complete reversal of the 1960-1970 growth trend. Between 1970-1975, only about 35 percent of the total

population change was accounted for by net migration with the remainder attributable to natural increase. Most of the natural increase of the past 5 years is the result of a very high birth rate rather than a lowering of the death rate. Table 2 and Table 3 detail the components of population change for 1950-1975. Table 2 shows a summary of the changes while annual estimates are listed in Table 3. During the 5 year period 1967-1971, average annual net migration was 4,100 as compared to about 450 per year for 1972-1975.

Population Distribution - Population increases and economic advances have brought about dramatic changes in the land use patterns of the Virgin Islands. The traditional activity centers of Charlotte Amalie, Cruz Bay, Christiansted and Frederiksted continue to be important as residential centers for commercial activity; however, their importance as residential centers has declined considerably in recent years. Most new housing developments have located in the formerly rural countryside, contributing to urban sprawl conditions in some areas. Comparative population distributions for each island by quarters are shown in Table 4.

On St. Thomas, the most striking population changes are those which have occurred on the eastern end of the island. In 1960, the combined population of East End, Red Hook, Frenchman's Bay, and New Quarters was 904; the estimated population of these areas in 1976 was 19,000. Growth in the Cruz Bay area of St. John has accounted for almost all of the population increase on that island. Central St. Croix (Company, Queen, King, and Prince Quarters) has grown from 5,200 inhabitants in 1960 to an estimated 31,200 in 1976.

The Tourism Industry - With the exception of Hess Oil, the single most significant economic activity in the Territory is tourism. In 1973, it was estimated that this industry was directly responsible for 20 percent of all employment in the islands. Indirect employment attributable to the tourist industry accounted for an additional 16 percent of the total (Checchi and Comapny, 1974). The industry has grown dramatically since 1960: annual visitor totals have increased from less than 200 thousand to well over a million, tourist expenditures have increased to more than six times the 1960 level, and the number of overnight accommodations has grown from 1,400 rooms in 1960 to more than 4,400 in 1976 (V.I. Department of Commerce estimates).

Overnight hotel visitors continue to play a central role in the tourism industry; however, the relative importance of this type of tourist activity has diminished in recent years. An increased level of day-trip shopping and sightseeing by visitors

TABLE 2

COMPONENTS OF POPULATION CHANGE-SUMMARY

| Time Period | Begin Population | End Population | Population Change | Births | Deaths | Natural Increase | Net Migration |
|---|---|---|---|---|---|---|---|
| 1950-1960 | 26,900 | 33,425 | 6,525 | 9,765 | 3,319 | 6,446 | 79 |
| 1960-1970 | 33,425 | 75,151 | 41,726 | 19,000 | 3,903 | 15,097 | 26,629 |
| 1970-1975 | 75,151 | 92,430 | 17,279 | 13,882 | 2,568 | 11,314 | 5,965 |
| 1950-1970 | 26,900 | 75,151 | 48,251 | 28,765 | 7,222 | 21,543 | 26,708 |
| 1950-1975 | 26,900 | 92,430 | 65,530 | 42,647 | 9,790 | 32,857 | 32,673 |
| 1960-1975 | 33,425 | 92,430 | 59,005 | 32,882 | 6,471 | 26,411 | 32,594 |

Source: V.I. Department of Health

TABLE 3

COMPONENTS OF POPULATION CHANGE

| Year | Mid-Year Population | Population Change | Births | Deaths | Natural Increase | Net Migration |
|---|---|---|---|---|---|---|
| 1950 | 26,900 | | | | | |
| 1951 | 27,700 | 800 | 923 | 374 | 549 | 251 |
| 1952 | 27,900 | 200 | 907 | 360 | 547 | -347 |
| 1953 | 26,900 | -1,000 | 866 | 312 | 554 | -1,554 |
| 1954 | 27,200 | 300 | 875 | 289 | 586 | -286 |
| 1955 | 27,600 | 400 | 896 | 309 | 587 | -187 |
| 1956 | 28,400 | 800 | 941 | 337 | 604 | 196 |
| 1957 | 29,400 | 1,000 | 1,004 | 341 | 663 | 337 |
| 1958 | 30,000 | 600 | 1,084 | 334 | 750 | -150 |
| 1959 | 31,000 | 1,000 | 1,119 | 332 | 787 | 213 |
| 1960 | 33,435 | 2,435 | 1,144 | 327 | 817 | 1,608 |
| 1961 | 34,450 | 1,025 | 1,187 | 329 | 858 | 167 |
| 1962 | 35,430 | 980 | 1,284 | 323 | 961 | 19 |
| 1963 | 38,270 | 2,840 | 1,443 | 351 | 1,092 | 1,748 |
| 1964 | 41,913 | 3,643 | 1,637 | 362 | 1,275 | 2,368 |
| 1965 | 49,742 | 7,829 | 1,880 | 379 | 1,501 | 6,328 |
| 1966 | 50,870 | 1,128 | 1,977 | 402 | 1,575 | -447 |
| 1967 | 56,699 | 5,829 | 2,114 | 380 | 1,734 | 4,095 |
| 1968 | 62,802 | 6,103 | 2,311 | 423 | 1,888 | 4,215 |
| 1969 | 69,649 | 6,847 | 2,439 | 475 | 1,964 | 4,883 |
| 1970 | 75,151 | 5,502 | 2,724 | 472 | 2,252 | 3,250 |
| 1971 | 81,740 | 6,589 | 2,914 | 503 | 2,411 | 4,178 |
| 1972 | 84,230 | 2,490 | 2,894 | 539 | 2,355 | 135 |
| 1973 | 87,010 | 2,780 | 2,773 | 518 | 2,255 | 525 |
| 1974 | 89,740 | 2,730 | 2,675 | 499 | 2,176 | 554 |
| 1975 | 92,430 | 2,690 | 2,623 | 505 | 2,118 | 572 |
| 1976 | 95,650 | 3,220 | | | | |

Source: V.I. Department of Health

TABLE 4

Population Distribution By Place

| Area | 1930 Census | 1940 Census | 1950 Census | 1960 Census | 1970 Census | 1970 Estimate | 1976 Estimate |
|---|---|---|---|---|---|---|---|
| Virgin Islands | 22012 | 24889 | 26665 | 32099 | 62459 | 75151 | 95650 |
| St. Thomas | 9834 | 11265 | 13813 | 16201 | 28960 | 37285 | 45240 |
| Charlotte Amalie | 7036 | 9801 | 11469 | 12880 | 12220 | 15977 | 15041 |
| East End | 122 | 126 | 188 | 246 | 607 | 809 | 1928 |
| Redhook | 126 | 93 | 125 | 253 | 1848 | 2462 | 2617 |
| Frenchbay | 15 | 64 | 57 | 129 | 1413 | 1883 | 4098 |
| New | 886 | 161 | 165 | 276 | 5265 | 6446 | 10347 |
| Great Northside | 434 | 302 | 414 | 625 | 1266 | 1687 | 2308 |
| Little Northside | 195 | 239 | 269 | 290 | 1596 | 2127 | 2404 |
| Southside | 1001 | 462 | 1126 | 1488 | 4365 | 5388 | 5595 |
| West End | 19 | 17 | - | 14 | 380 | 506 | 902 |
| St. John | 765 | 722 | 749 | 925 | 1720 | 1924 | 2220 |
| East End | 73 | 77 | 65 | 32 | 26 | 32 | 33 |
| Maho Bay | 115 | 52 | 39 | 16 | 15 | 18 | 24 |
| Cruz Bay | 278 | 263 | 279 | 599 | 1497 | 1640 | 1881 |
| Reef Bay | 19 | 14 | 61 | 18 | 19 | 23 | 38 |
| Coral Bay | 280 | 316 | 305 | 260 | 172 | 211 | 244 |
| St. Croix | 11413 | 12902 | 12103 | 14973 | 31779 | 35942 | 48190 |
| C'sted | 3767 | 4495 | 4112 | 5137 | 3020 | 3679 | 3579 |
| F'sted | 2698 | 2498 | 1961 | 2177 | 1531 | 1939 | 1939 |
| West End | 673 | 1033 | 1227 | 1641 | 5208 | 5748 | 7285 |
| Northside A | 235 | 263 | 181 | 210 | 270 | 298 | 289 |
| Northside B | 75 | 135 | 132 | 163 | 736 | 813 | 1092 |
| Prince | 1358 | 1041 | 1099 | 1322 | 2718 | 3000 | 8022 |
| King | 863 | 1045 | 1083 | 1258 | 4615 | 5181 | 6118 |
| Queen | 926 | 1078 | 1090 | 1372 | 4229 | 4668 | 7019 |
| Company | 673 | 1134 | 1005 | 1273 | 7360 | 8307 | 10068 |
| East End A | 145 | 180 | 204 | 346 | 1460 | 698 | 1115 |
| East End B | - | - | 9 | 74 | 632 | 1611 | 1664 |

Source: 1970 and 1976 distribution are Planning Office estimates.

TABLE 5

Air and Cruise Ship Passenger Arrivals 1960-1976

| Year (FY) | Air Arrivals [1] (thousands) V.I. Total | St. Thomas | St. Croix | Cruise Arrivals [2] (thousands) V.I. Total | St. Thomas | St. Croix |
|---|---|---|---|---|---|---|
| 1960 | 123.0 | 87.0 | 36.0 | 49.8 | 49.1 | .7 |
| 1961 | 146.0 | 104.0 | 42.0 | 58.6 | 57.5 | 1.1 |
| 1962 | 187.7 | 131.1 | 56.6 | 58.9 | 57.6 | 1.3 |
| 1963 | 215.8 | 151.6 | 64.2 | 66.1 | 64.2 | 1.9 |
| 1964 | 285.6 | 202.3 | 83.3 | 110.6 | 99.1 | 11.5 |
| 1965 | 354.4 | 270.8 | 83.5 | 109.3 | 103.5 | 5.8 |
| 1966 | 436.8 | 327.8 | 109.0 | 117.7 | 108.1 | 9.6 |
| 1967 | 516.3 | 400.5 | 115.8 | 133.4 | 125.1 | 8.3 |
| 1968 | 685.8 | 507.4 | 178.3 | 166.1 | 149.6 | 16.5 |
| 1969 | 795.0 | 566.6 | 228.4 | 213.5 | 195.1 | 18.4 |
| 1970 | 669.8 | 441.6 | 228.2 | 251.4 | 230.3 | 20.8 |
| 1971 | 657.1 | 425.7 | 231.4 | 253.9 | 237.9 | 16.0 |
| 1972 | 742.8 | 499.8 | 243.1 | 364.6 | 254.0 | 10.6 |
| 1973 | 681.9 | 464.7 | 217.2 | 491.0 | 449.3 | 41.7 |
| 1974 | 580.6 | 423.4 | 157.2 | 500.1 | 484.4 | 15.7 |
| 1975 | 531.0 | 372.0 | 159.0 | 450.5 | 447.9 | 2.5 |
| 1976 | 528.2 | 371.2 | 157.0 | 471.1 | 457.1 | 13.9 |

Notes:

1 Air arrivals are for Truman and Hamilton Airports only.

2 Cruise ships only, does not include other water borne passengers.

Source: Virgin Islands Department of Commerce.

from Puerto Rico and the many cruise ships which regularly call in the islands has accounted for this relative decline. In spite of some recent shifts in charter boat activity out of the Territory to the nearby British Virgin Islands, this segment of the tourist industry has also increased in importance in recent years.

St. Thomas is the focal point for most of the tourist industry in the Territory. More than three-fourths of all air visitors to the islands spend some portion of their stay in St. Thomas. In addition, the vast majority of cruise ship calls are also made to St. Thomas.

Air and cruise ship passenger arrivals for the period 1960-1976 are shown on Table 5. Air arrivals at Truman Airport in St. Thomas have increased from about 87 thousand in 1960 to 371 thousand in 1976. In the peak year of 1969, almost 567 thousand passengers deplaned in St. Thomas. Arrivals at Hamilton Airport in St. Croix have climbed from 36 thousand in 1960 to 157 thousand in 1976. The peak year was 1972, when 243 thousand were counted. Cruise ship passenger arrivals totaled about 50 thousand in 1960 and 470 thousand in 1976. Most of these visit St. Thomas only.

Estimated tourist expenditures for selected years are shown in Table 6. The estimated expenditures in 1960 were $24.8 million and by 1976, these had climbed to more than $152 million. In 1976, expenditures by all air visitors (overnight and day trip) were about $119 million. Cruise ship visitors spent an estimated $33 million in 1976.

Table 6

Estimated Tourist Expenditures

| Year (FY) | Total ($mil.) | All Air Visitors | All Water Visitors |
|---|---|---|---|
| 1960 | 24.8 | n.a. | n.a. |
| 1965 | 54.0 | n.a. | n.a. |
| 1972 | 158.5 | 131.0 | 27.5 |
| 1973 | 148.8 | 112.3 | 36.5 |
| 1975 | 145.6 | 114.8 | 30.8 |
| 1976 | 152.2 | 118.9 | 33.3 |

Source: V.I. Department of Commerce

The local Department of Commerce conducted a survey of approximately 7,000 exiting air travelers throughout 1976. In addition, a number of

cruise ship passengers were interviewed during the first quarter of the year. Some of the results pertaining to expenditures are shown below. The expenditures represent dollars actually spent in the Virgin Islands and do not include any prepaid expenses which may have been incurred.

| | Average Group Expenditure | Average Travel Group Size |
|---|---|---|
| All air | $466 | 1.87 |
| Overnight only | 563 | 1.93 |
| One-day non-resident of Puerto Rico | 174 | 1.69 |
| One-day Puerto Rico businessman | 67 | 1.10 |
| One-day Puerto Rico non-businessman | 115 | 2.15 |
| Cruise ship | 114 | 1.96 |

Table 7 shows the changes in the number of overnight tourist accomodations and the estimated hotel occupancy rates for the period 1972-1976. The number of rooms shows considerable variability during the period as a result of hotel closures and openings and the shifts of condominium units to hotel type accommodations and vice-versa. The total number of rooms available in 1976 was only slightly higher than in 1972. Overall occupancy rates were about 48 percent in 1976, down from an estimated 58 percent in 1972.

Table 7

Overnight Visitor Accommodations

| Year | Rooms | Occupancy Rate-V.I. (%) | Occupancy Rate St. Thomas/St. John | Occupancy Rate St. Croix |
|---|---|---|---|---|
| 1972 | 4,317 | 57.7 | 62.2 | 53.5 |
| 1973 | 3,865 | 48.8 | 58.9 | 38.5 |
| 1974 | 3,939 | 43.8 | 42.4 | 37.8 |
| 1975 | 4,552 | 50.6 | 47.8 | 44.2 |
| 1976 | 4,460 | 48.2 | 55.0 | 40.3 |

Sources: Number of rooms and total occupancy rates are from V.I. Department of Commerce.
Occupancy rates by island are monthly averages from St. Croix and St. Thomas-St. John Hotel Associations.

Occupancy rates for St. Croix have been consistently lower than those for St. Thomas-St. John. In 1976, the St. Croix figure was about 40 percent compared to 55 percent for St. Thomas-St. John. Using an overall occupancy rate of 48 percent for 1976, the total number of vacancies for the year amounts to about 845,000 room nights.

Future Population and Employment - Population projections by the V.I. Department of Health indicate that by 1985, the total population of the Territory may reach 120,000, an increase of about 25,000 over 1976 estimates. More than 60 percent of this increase is expected to occur in St. Croix. If the population of the Territory in 1985 is 120,000, then the total number of people available for employment will be about 54,000. The estimated employment for 1977 is about 40,000. In 8 years, the employment need increase is 14,000 or about 1,700 new jobs per year, every year through 1985. This need, of course, includes finding employment for about 3,800 residents who are presently unemployed.

For the ten year period 1967-1977, employment in the Virgin Islands increased from about 29,000 to 40,000 or 3,000 less than the needed increase for the next 8 years. It should be remembered that about 4,000 of the 1967-1977 employment increase was attributable to increased employment by the local government. By 1985, the needed employment increase will be twice that of the private sector for the ten year period 1967-1977. It is unrealistic to assume that the local government can absorb another 4,000 or even 2,000 additional employees between now and 1985; therefore, most new jobs must come from the private sector. If these new job opportunities are not found, there will be considerable out-migration from the Territory.

The Virgin Islands Coastal Zone Management Program is premised upon the assumption that the public and private sectors will take positive steps to attempt to fill at least part of these employment needs. It can be anticipated that the federal government will also assist in meeting this objective. As a result, we can expect that development pressures and use conflicts for the shoreline area will increase greatly over the next 5-8 years. The necessity for long range development planning for coastal areas is thus paramount. The increased demand for port facilities, local and tourist recreational facilities, commerce and industry of all types, hotels, housing, schools, marinas etc., will only accentuate the basic economic problems outlined earlier. In essence this is the economic and social basis for the Coastal Zone Management Program.

## Socio -Economic Impacts

A study by the Real Estate Research Corporation of the potential impacts of coastal management programs identifies those sectors affected by coastal management. Benefits will be of various kinds and will occur in different ways and degrees. The following major categories of beneficiaries can be identified: owners of property directly affected by implementation decisions, neighboring property owners, owners of businesses whose productivity or market attractiveness would be enhanced by the Virgin Islands Management Program policies, government, and the general public.

The benefits of coastal zone management will be the positive changes which occur in the scale, distribution, and place of elements such as production (including manufacturing, agriculture, fishing), utility services and costs, business sales, employment opportunities, population and the labor force, housing demand and supply, construction, financing and investment, property values, government costs and revenues, educational and recreational opportunities, and aesthetics.

Planning and managing the coastal zone of the Virgin Islands consists of the use of foresight in cooperatively determining how to both preserve valuable natural resources and accommodate the needs of an expanding population and economy. To achieve this balance involves trade offs which include some short-run and long-run positive and negative effects. For example, long-run benefits from protection of marine habitat such as a mangrove lagoon include increased fisheries productivity. In the short-run, the loss of such an area for development is often perceived as a highly negative impact.

Potential economic benefits of the coastal zone policies have the following attributes:

- They can be "one time only" or "recurring,"
- They can cause net increase in economic activity or merely shift benefits among individuals or groups,
- Costs may be incurred in their attainment--such as, expenditures for shoreline restoration, and maintenance, pollution control, and
- Secondary "spin-off" effects may be felt--both positive and negative, depending on the nature of policies and the economic activities affected.

The following list of benefits of coastal zone planning and management is similar to the benefits of most State and local planning activities:

- Reduced cost of new development,

- Better preservation of natural environment and natural buffers,
- Increased recreational opportunities,
- Better preservation of existing buildings,
- Less pollution,
- Less congestion,
- Higher quality development,
- More efficient use of existing public facilities and services,
- More diversified tourism opportunities,
- Better fit of supply and demand,
- Greater awareness of needs and opportunities,
- Less uncertainty regarding future potentials, thus creating an atmosphere which is conducive to attracting outside investment and long-range economic development, and
- Improved posibilities for effective actions based on understanding and consensus regarding goals.

Potential economic benefits can include increased productivity, increased amount of commercial and industrial development, more jobs, increased property values, reduced or stabilized consumer prices, and heightened satisfaction with one's physical environment. Prudent coastal zone planning, therefore, results in balance between conservation of irreplaceable natural resources and the needs--job creation, housing, recreation, port facility and marinas--of an expanding economy. While some coastal zone actions result in net gain or net losses for the local economy, in most instances the short-term effects of the program cause a redistribution of assets.

Some lost expectations will undoubtedly be encountered, but gains elsewhere should offset these losses. In any case where regulations would actually result in a legally-determined taking, the regulations would be declared void or compensation paid. Planning stabilizes erratic "swings" in expectations because it results in less uncertainty in future prospects of land investment. While there may be short-term lags, the long-run benefits are likely to balance or exceed costs. For example, many non-water dependent activities may not be built in the coastal zone. These same regulations will result in heightened opportunities in coastal dependent economic activities--tourism, recreation, fisheries, port, and marina development.

## Property Values

The Real Estate Rechearch Corporation report states the following with respect to property values:

The key determinants of land values include

- Natural site characteristics and environment,
- Man-made site characteristics and environment,
- Community image,
- Demand for particular land uses,
- Access,
- Utilities,
- Public facilities and sservices,
- Taxes, and
- Land use and development regulations.

In general, about 55 percent of land value is attributable to government action, with the balance resulting from the actions of the property owner, his neighbors, and the general public. Governments influence land values through use or design regulations, improving access, providing public facilities and services, preserving favorable "images" and through its tax rates and policies. Table 8 shows the different types of government action that impact property values, and their relative importance in determining the overall net effect of coastal zone regulations on land value. Restricting land use options will lower land values of subject properties, but will also transfer any unsatisfied demand to other competitive sites not subject to use restrictions. Regulations requiring mitigation of adverse environmental impacts result in higher development costs but also result in more attractive, desirable sites. Improved access and public facility provision generally impact positively on land values; however, access improvements can have such negative effects as increased noise or reduced privacy.

TABLE 8

IMPACT OF GOVERNMENT ACTION ON PROPERTY VALUES

| Type of Action | Impact on Values of Subject Property | Impact on Values of Neighboring or Competitive Properties | Net Effect on Property Values | Relative Importance of Specific Actions in Determining Impacts |
|---|---|---|---|---|
| Restrictions on land use | Value declines | Value rises | Redistributional | Very important |
| Developer required to make improvements or pay fees | Value declines | Value rises | Slightly negative | Unimportant compared to other public actions |
| Resource amenities protected or restored by government action | Value rises | Value rises | Slightly positive to very positive | Very important |
| Shore access by the public maximized and protected | Value declines | Value rises. | Slightly negative | Less important than use restrictions or amenity protection |
| Concentrating development in existing communities | If still undeveloped, value declines; if already improved, value rises | Value rises | Positive | Very important |
| Providing infrastructure, public facilities, and services | Value rises | Values unchanged | Positive | Important |
| Tax reduction or deferral for regulated, restricted, or encouraged uses of coastal properties | Value rises | Values unchanged | Slightly positive | Less important than use restrictions or amenity protection |

Source: Real Estate Research Corporation.

The Virgin Islands Coastal Zone Management Program will be implemented through government action resulting in a loss in development potential (and hence lower profit expectations) for some sites--presently unserviced rural lands, agricultural and wooded acreage, areas with development hazards, and parcels with scenic, historic, or ecological significance. Recreation and other water dependent uses will be given priority over urban development along the waterfront. If a market for more intense use exists, the affected parcel will lose value. In a normal market, the demand for more intense use will be transferred elsewhere; this is encouraged by program policies fostering more compact development in already built-up communities. The overall net effect of the program on land values will ultimately be positive because of better management, improved amenity protection, and reduced uncertainty about future governmental policies.

## Property Rights

The individual right of property owner is one of the most sensitive issues with respect to the management of resources, whether the management is accomplished through coastal zone programs, Territorial land use plans, or regulation of development. Concern has been expressed about property regulation, and this concern will undoubtedly continue in the future.

The Virgin Islands law is clear on this point(Revised Organic Act of 1954, Section 3). It prohibits the taking or damaging of private property unless there is payment or just compensation. The Virgin Islands Coastal Zone Management Act requires that permits which affect the use or conservation of coastal resources also take into account social and economic needs of the people. These concerns will be incorporated into the Environmental Assessment form for major permits.

## Proposed Permit System

The existing regulatory system which controls development activities in the coastal zone includes:

- Zoning Permit from Department of Public Works
- Earth Change Permit from V.I. Conservation District (private sector projects) or the Department of Conservation and Cultural Affairs(public projects)
- Building Permit from Department of Public Works
- Subdivision approval from Planning Office
- Historic District approval from Virgin Islands Planning Board
- Provisions of the Trustlands, Occupancy, and Alteration Control Act administered by the Department of Conservation and Cultural Affairs
- Provisions of the Open Shoreline Act administered by the Department of Conservation and Cultural Affairs
- Provisions of the Oil Spill Prevention Control Act administered by the Department of Conservation and Cultural Affairs
- Water and Air Pollution Discharge Permits administered by the Department of Conservation and Cultural Affairs

The proposed permit system for the first tier coastal zone would consolidate the zoning permit, earth change permit, Trustlands Occupancy and Control, and Open Shorelines Act. The Oil Spill and Water and Air Pollution Permits would remain in the Department of Conservation and Cultural Affairs but would be coordinated with the consolidated permit by the proposed Division of Coastal Zone Management in the Department of Conservation and Cultural Affairs.

As contrasted to the present system, the proposal calls for definite time limits for action on all the permits which are consolidated into the "Coastal Zone Permit." A well-defined appeals process through the existing Board Of Zoning, Subdivision and Building Appeals Board (renamed the Land Use Appeals Board) is also included in the proposal. Judicial review through the District Court is also included in the appeals process. In addition, a consolidated "Bureau of Enforcement" will be set up to monitor and enforce all rules and regulations of the Coastal Zone Permit and all other laws administered by DCCA including fish and wildlife protection and boating.

The proposed permit system makes distinction between "minor" and "major" permits. The time limits for administrative action are clearly defined. A decision on the coastal zone permit application by the Commissioner of Conservation and Cultural Affairs is required within 60 days for minor permits and 90 days for major permits. Presently, there is no time limit specified for most permits. If any decision of the Commissioner is appealed to the Land Use Appeals Board, this Board must render a decision within 90 days for minor permits and 90 days for major permits.

All single and two family residences will be "minor" permits and all development seaward of the line of mean high tide or which involves submerged lands will require a "major " permit. Applicants for "major" permit will be required to submit "Environmental Assessment Forms " which include information on both environmental and economic aspects of the proposal.

Economic Aspects of the Proposed Permit System

The stipulations of time limits for administrative action can potentially result in great savings for private developers and consequently the local public. Excessive delays resulting from the present system can cost private developers and the public additonal expenditures as a result of inflation, construction costs increases, and the cost of capital. In addition, excessive delays and unclear guidelines have undoubtedly discouraged economic development in some areas. The monetary value of the savings which could result from the proposed system is impossible to calculate; however, at the very least, a savings of 1.0 - 1.5 percent a month in construction costs increases could occur as a result of swift action in permits. Additional savings can be expected as a result of the elimination of uncertainty and confusion associated with the existing system.

The preparation of an impact evaluation for some major projects may require additional expenditures by a developer - private or public. In most cases, the proposed system will not require more detailed information than is now required. In addition, since many large coastal projects must have an Army Corps of Engineers permit, the preparation of such an assessment for those kinds of projects is necessary regardless of the local requirements.

The consolidated permit procedure and Bureau of Enforcement will require additional personnel, a much greater expenditure of funds than is presently allocated to DCCA for similar uses. Primarily these funds will be used for personnel, administration, and purchase of materials, supplies, and equipment. The Bureau of Enforcement will require substantial funds for personnel training and equipment. Purchase of boats and motor vehicles will account for much of the Enforcement Bureau expenditures. An approved program will enable the Territory to receive federal funds (80% matching grants) for the above purposes. The local share can be contributed as " in kind services." The exact amount of federal funds is unknown at

this time; however, the absolute minimum available is $180,000. According to federal officials, the likely amount is in the neighborhood of $500-600 thousand, an amount which the Territory can easily match with no additional out-of-pocket expenditures locally. A rough estimate of the minimum federal funding level necessary to implement the proposed program is $500 thousand. Congressional authorization for expenditures presently extend through federal fiscal year 1980. There is very little likelihood that this federal program will be discontinued.

Additional personnel and equipment expenditures will have a beneficial effect upon the local economy. An additional $500-600 thousand will be spent locally during the first year. It is highly unlikely that this amount will decrease in future years, rather it will likely increase if the program is indeed successful. It should be emphasized that this funding is for administration and day-to-day management activities. Additional funds are available for land purchases, on-going planning, research studies, personnel training programs, interstate planning, and energy impact mitigation. These provisions of the federal CZM Act are covered later in this analysis.

## The Coastal Policies

Section 902 of the proposed Virgin Islands Coastal Zone Management Act of 1977 (Bill No. 7665) outlines the general findings and goals of the management program. These goals have been developed based upon an analysis of existing governmental policies, resource capabilities and likely future needs of the Virgin Islands. These coastal goals reflect the need for economic development, the conservation and preservation of significant natural resources, and the perpetuation of traditional shoreline uses.

In order to accomplish these goals and to provide a context for establishing rules and regulations, a number of major policies are included in the proposed Act (Section 905 (a)). These policies must be used by the Commissionerof Conservation and Cultural Affairs as the basis for granting, denying or modifying coastal zone permit applications. The policies can be grouped into three broad areas: those relating to development practices, those relating to the natural environment, and those relating to coastal amenities. The following section of the analysis summarizes some of the likely social and economic aspects of these policies.

## SUMMARY OF SOCIAL AND ECONOMIC ASPECTS OF VICZM POLICIES (SECTION 905a, BILL NO. 7665)

NOTE: Policies with similar impacts have been grouped

| (1) Development Policies | Direct | Indirect |
|---|---|---|
| (A) Within the appropriate areas designated in the Coastal Land and Water Use Plan, to guide new development to the maximum extent feasible into locations within, contiguous with, or in close proximity to existing developed sites or, where such sites are not able to accomodate further such development, into other areas with adequate public services where it will have no significant adverse effects, individually or cumulatively, on coastal zone resources. | - Fewer miles of sewer, water, electricity lines and roads results in lower capital expenditures<br>- More efficient use of land resources<br>- More efficient use of waste-water treatment systems results in lower capital and maintenance and operating costs<br>- Undeveloped areas will tend to remain undeveloped<br>- Encourages hotel expansion rather than development of new sites | - Lower maintenance and operating costs for water, sewer electricity lines and roads<br>- Lessens development pressure on open space<br>- Preserves open spaces<br>- More efficient transportation results in energy savings<br>- Cost savings in infrastructure can be applied to other public services such as police, fire, schools |
| (B) To assure that development will be sited and designed to protect views to and along the sea and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas. To these ends, regulations of bulk, height, set-back, minimum lot coverage and associated matters provided in the applicable sections of the Virgin Islands Zoning and Subdivision Law may be made more restrictive by the Commissioner as applied to particular development. | - Helps to assure that scenic attractions are maintained<br>- Possibility of increased investment in site design | - Preservation of scenic features maintains attractiveness of islands for visitors and residents<br>- Minimize obstructions to views<br>- Increase property tax revenues |
| (C) To assure that development in areas of high flooding hazard is so designed as to minimize risks to life and property. | - Fewer losses of private and public property as a result of natural disasters<br>- Less risk to life<br>- Lower cost for protective measures<br>- May result in higher initial development costs | - Lower public and private outlays for clean up<br>- Helps to eliminate the need for expensive construction<br>- Lessen impact of social disruption as a result of a natural disaster |

| | Direct | Indirect |
|---|---|---|
| (I) The Commissioner, to the extent possible, shall prevent further growth and development in high hazard areas and preserve natural buffers throughout the first tier of the coastal zone. | - Will protect natural buffers such as reefs, mangroves, and salt ponds<br>- Shoreline erosion and destruction of beaches will be minimized<br>- Less sedimentation will occur<br>- Lessens impacts from flooding<br>- Restricts development | - Cost of providing man-made buffers is eliminated<br>- Water quality will be protected<br>- Beaches will be preserved<br>- Lessens flooding and erosion<br>- Protection of wildlife and fish habitat benefits fishing industry |
| (D) To assure that all new subdivisions, in addition to the other requirements contained in this chapter and in the Virgin Islands Zoning and Subdivision Law, are physically suitable for the proposed sites and are designed and improved so as to avoid causing environmental damage or problems of public health. | - May tend to increase initial development costs especially road construction | - Lower long-term maintenance costs for roads and utilities<br>- Will preserve property values<br>- Better designed roads results in less erosion and sedimentation impacts<br>- Water quality will be maintained or enhanced<br>- Visual concerns are protected<br>- Adjacent property values will be protected and enhanced |
| (E) To encourage urban waterfront redevelopment and renewal in developed harbors in order to link residential neighborhoods and commercial downtown areas with physical and visual access to the waterfront. | - Maintains traditional character of urban areas<br>- Assures that urban residents have adequate access to the waterfront<br>- Protects waterfront commercial activity | - Enhances visitor attraction<br>- Increases value of property with waterfront views |
| (F) Within appropriate areas as designated in the Coastal Land and Water Use Plan, to give highest priority along the shoreline to water dependent uses, particularly in those areas suitable for commercial, industrial, and port and marine facilities and recreation; to give secondary priority to those uses that are water related or have special siting needs; and to disapprove uses in areas suitable for industrial, commercial, and marine facility development which are neither water dependent related nor have special siting needs. | - Insures that space will be available for water and power, waste-water outfalls, bulk storage, warehousing, inter-island and trading boats, marinas, ports and docks, dry docks, and local fishing needs<br>- Prohibits non-water dependent uses as schools housing, and retail stores<br>- Insures space for expansion of marinas and port facilities | - Reduce time and provide greater convenience<br>- Lower cost of shipping and transport<br>- Lower fuel and energy costs for transport and storage<br>- Lower cost of imported goods<br>- Adequate provisions for export facilities<br>- Assures that economic expansion can occur with a minimum of disruption |

| | Direct | Indirect |
|---|---|---|
| (G) To encourage fishing and carefully monitored mariculture and, to the maximum extent feasible, to protect local fishing activities from encroachment by non-related development. | - Protects local fishing industry and related employment by preserving traditional uses<br>- Protects charter boat fishing | - Mariculture can increase local food production<br>- Fresh fish provided for local consumption<br>- Protects valuable tourist attraction |
| (H) To prohibit dredging or filling of submerged lands unless such dredging or filling is clearly in the public interest; to promote the widest possible benefit from port and harbor and channel dredging; and to ensure that such proposals are consistent with specific marine environment policies. Towards these ends, the diking, filling or dredging of coastal waters, salt ponds, lagoons, marshes or estuaries may be permitted, in accordance with other applicable provisions of this chapter, only where there are no feasible loss environmentally damaging alternatives, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and in any event shall be limited to the following: (i) maintenance dredging required for existing navigational channels, vessel berthing and mooring areas; (ii) incidental public service purposes, including but not limited to the burying of cables and pipes, the inspection of piers, and the maintenance of existing intake and outfall lines; (iii) new or expanded port, oil, gas and water transportation, and coastal dependent industrial uses, including commercial fishing facilities, cruise ship facilities, and boating facilities and marinas; (iv) except as restricted by federal law, mineral extraction, including sand provided that such extraction shall be prohibited in significant natural areas, and (v) restoration purposes. | - Removes uncertainty associated with expansion of port and marina facilities and other water dependent uses through dredge and fill<br>- Provides for maintenance dredging<br>- Protects fishing and swimming uses<br>- Allows for dredging of sand except in significant natural areas | - Adequate port facilities result in lower costs of imported goods<br>- Tourist oriented water sports will be protected<br>- Maintenance dredging protects existing developments<br>- Lowers construction materials cost<br>- Insures development will be consistent with public doctrine<br>- Vital marine systems will be protected<br>- Assures adequate space for future economic development needs |

| (2) Environmental Policies | Direct | Indirect |
|---|---|---|
| (A) To conserve significant natural areas for their contribution to marine productivity and value as habitats for endangered species and other wildlife.<br><br>(B) To protect complexes of marine resource systems of unique productivity, and assure that activities in or adjacent to such complexes are designed and carried out so as to minimize adverse effects on marine productivity, habitat value, storm buffering capabilities, and water quality of the entire complex.<br><br>(C) To preserve the function and integrity of reefs, marine meadows, salt ponds, mangroves and other natural systems.<br><br>(G) To preserve and protect the environments of offshore islands and cays.<br><br>(K) To protect environmentally sensitive habitat areas especially those of endangered species, against significant disruption.<br><br>(L) To assure that development in areas adjacent to environmentally sensitive habitat areas, significant natural areas, and parks and recreation areas, is sited and designed to prevent impacts which would significantly degrade such areas. | - Protects significant natural areas such as reefs, mangroves, marine meadows and salt ponds<br>- Natural buffers are maintained<br>- Maintains a balanced ecosystem | - Benefits commercial and recreational fishing<br>- Maintains water quality, important visitor attractions and activities such as snorkeling, swimming, diving<br>- Protects rare and endangered species<br>- Protects the educational and research value of natural systems<br>- Lessen losses from beach erosion, flooding |
| (D) To consider use impacts on marine life and adjacent and related coastal environments when assessing recommendations for development within the first tier of coastal zone.<br><br>(H) To control construction in water bodies to minimize interference with water circulation and sediment transport and to preserve water quality and marine productivity. | - May result in higher initial development costs as a result of required mitigation measures | - Protects water quality and marine habitat and productivity<br>- Benefits fishing, tourist industry and local recreation<br>- Protects the public's safety |

| | Direct | Indirect |
|---|---|---|
| (J) To assure that dredging and disposal of dredged material will cause minimal adverse effects to marine and wildlife habitats and water circulation. | | |
| (M) To evaluate the impact of refinery and deepwater ports and sites on the coastal environment, and to ensure that such facilities utilize technology that minimizes public health and safety risks. | | |
| (E) To assure that siting criteria, performance standards, and activity regulations are stringently enforced and upgraded to reflect advances in related technology and knowledge of adverse effects on marine productivity and public health. | - May result in higher initial development costs<br>- Encourages higher quality design and construction | - Encourages the use of new and innovative techniques<br>- Affords maximum protection to valuable resources |
| (F) To assure that existing water quality standards for all point source discharge activities are stringently enforced and that the standards are continually upgraded to achieve the highest possible conformance with federally promulgated water quality criteria. | - Protects water quality | - Benefits fishing, recreation, tourism, public health and marine life |
| (I) To accomodate offshore sand and gravel mining needs in areas and in ways that will not adversely affect marine resources and navigation. Towards this end, sand, rock, mineral, marine growth (including coral), natural materials, or other natural products of the sea, excepting fish and wildlife, shall not be taken from the shoreline without first obtaining a coastal zone permit, and no permit shall be granted unless it is established that such materials or products are not otherwise obtainable at reasonable cost, ant that the removal of such materials or products will not materially alter the physical characteristics of the area or adjacent areas on an immediate or long term basis, or unless the Commissioner has determined that a surplus of such materials or products exists at particularly designated locations. | - Allows sand and gravel mining with appropriate mitigation and protective measures | - Lowered cost of construction materials will benefit all sectors of the economy<br>- Will reduce the illegal sand mining on beaches |

| | Direct | Indirect |
|---|---|---|
| (N) To assure all of the foregoing development must be designed so as to assure that adverse impacts on marine productivity, habitat value, storm buffering capabilities and water quality are voided to the maximum extent feasible; so as to assure structural integrity and neither to create nor contribute significantly to erosion, sediment transport, land settlement or the environmental degradation of the site or surrounding areas; and, to the maximum extent feasible be designed, constructed, operated and maintained in a manner which mitigates or avoid the significant negative environmental effects of the development. Said effects shall be identified in the environmental assessment form prepared for, or used in the review of the development, or described in any other study, report, test results orcomparable documents. | - May result in higher development costs<br>- Minimizes the "social costs" of development. | - Marine productivity, habitat, natural buffers and water quality are protected<br>- Long-run benefits is to all sectors of the economy |
| (3) Amenity Policies | | |
| (A) To protect and, where feasible or appropriate, enhance and increase public coastal recreational uses, areas and facilities. | - Increases recreational opportunities<br>- Increases public expenditures for management, clean-up, lifeguards, acquisition, etc.<br>- Assures that the public's rights to shoreline use are protected | - Less competition between hotels and residents for beach recreation<br>- Promotes equity in the social system |
| (D) To assure that development does not encroach upon or adversely affect the use of public recreational areas. | | |
| (H) The Commissioner may require that public access from the nearest public roadway to the shoreline be dedicated in new development projects requiring a major coastal zone permit. Factors to be considered in requiring such dedication of public access include whether (i) it is consistent with public safety or protection of fragile coastal zone resources; (ii) adequate access exists nearby; and (iii) agricultural or other similar uses would be adversely affected. Dedicated accessways shall not be required to be opended to public use until a public agency or private association agrees to accept | - Protects public rights to use shoreline<br>- May require modification of site designs<br>- Increase employment in beach maintenance<br>- Additional expenditures for maintenance, etc. | - Benefits local residents<br>- Protects beach resources<br>- Increased employment in beach maintenance |

| | Direct | Indirect |
|---|---|---|
| responsibility for maintenance and liability of the accessway. Nothing in this subsection shall restrict existing public access nor shall it excuse the performance of duties and responsibilities of public agencies as provided by law to acquire or provide public access to the shoreline. | | |
| (B) To protect and enhance the characteristics of those coastal areas which are most valued by the public as amenities and which are scarce, or which would be significantly altered in character by development, or which would cause significant environmental degradations if developed. | - Protects scenic and environmental quality<br>- May condition or restrict development | - Locally important scenic areas will be protected<br>- Tourist attractions will be protected |
| (C) To preserve agricultural land uses in the coastal zone by encouraging either maintenance of such present agricultural use or use as open-space areas. | - Protects open space<br>- May restrict development | - Visual quality is protected<br>- Benefits local consumers<br>- Benefits tourist industry |
| (E) To incorporate visual concerns into the early stages of the planning and design of facilities proposed for siting in the coastal zone and, to the extent feasible, expand and maintain visual access to, and provide views of, the coastline and coastal waters. | - Visual quality protected<br>- May increase initial development costs<br>- Will result in a long-term enhancement of property values<br>- Can lower energy costs for air conditioning, etc. | - Benefits tourist industry and local residents |
| (G) Development shall not interfere with the public's right of access to the sea where acquired through use, legislative authorization or dedication, including without limitation the use of beaches to the landward extent of the shoreline. | - Increases recreational opportunities<br>- Maintains access | - Will insure public rights |

## The Land and Water Use Plan

The Coastal Land and Water Use Plan constitutes a suggested comprehensive plan for the development of the first tier of the coastal zone. Ideally, all zoning amendments, capital improvement programs or projects, government land acquisition programs, land subdivisions, and other development activities should be consistent with the Coastal Land and Water Use Plan. A plan of this type is intended to serve as a policy guide for decision-making relative to development activities in the first tier of the coastal zone. The proposed Land and Water Use Plan represents an attempt to identify those areas of the shorelines which should be reserved for certain water-dependent, industrial uses, environmental protection uses, and public use areas.

In its present state of development, this land and water use plan is offered as a recommended guide to the public and to public decision-makers concerning future development in the coastal zone. The proposed legislation clearly identifies this plan as a working plan which is to be futher refined within one year of the passage of the proposed act. It does not and will not modify the property development rights that presently accompany the existing zoning law. Under the proposed law(Bill NO. 7665), the Planning Office, the Legislature and the interested public will be afforded an opportunity to review the existing zoning law and make recommendations within a year regarding any zoning changes. Until such time as zoning changes are approved by the Legislature, the present zoning regulations remain in full force and are unaltered.

The principal mechanism which has been used to allocate and manage land uses in the Territory is the Zoning Law. Since many future land and water uses will be dependent in part upon development patterns associated with the present zoning, the existing system is an integral part of any future planning or economic development process.

The Virgin Islands Zoning Law establishes seventeen separate zoning districts, ranging from agricultural, residential, industrial, and waterfront to public use classifications. In all of the districts a variety of uses are permitted as a matter of right, as accessory, ur under specified conditions, The present Zoning Law was enacted in 1972 (Act. No. 3284). All zoning changes or amendments require public notice and hearings in addition to legislative and gubernatorial approval.

Under the present zoning, most, if not all, of the remaining sandy recreational beaches not presently developed are zoned for high or medium intensity uses (W-1 or R-3), while the vast majority of the shoreline is zoned for low density residential uses(R-1 or R-2). If the shoreline were to be developed strictly in terms of present zoning, local recreational needs would have to be met using

existing publicly owned shoreline areas. The growing population centers in eastern St. Thomas and central north-central St. Croix presently have limited recreational areas and even in the absence of additional population growth in these areas, additional beach/ recreation areas are needed.

With the exception of National Park Service lands on St. John, very little of the shoreline is protected for conservation, or wildlife habitat or as natural buffer zones. In addition, the existing zoning law makes no provision for allocating scarce shoreline areas for water dependent uses.

## Economic Aspects of the Proposed Action

Since the Land and Water Use Plan will be superceded by the existing zoning, there is, in effect, no change from the present situation. What the Land and Water Use Plan does do is to clearly establish the intent of the Legislature and the Planning Office to carefully review existing shoreline uses and needs including local recreation needs to determine if zoning changes or other actions are required. It is unlikely that this one year study period will affect the economy in any way. Should any development occur during this period, the applicable zoning regulations are in full force.

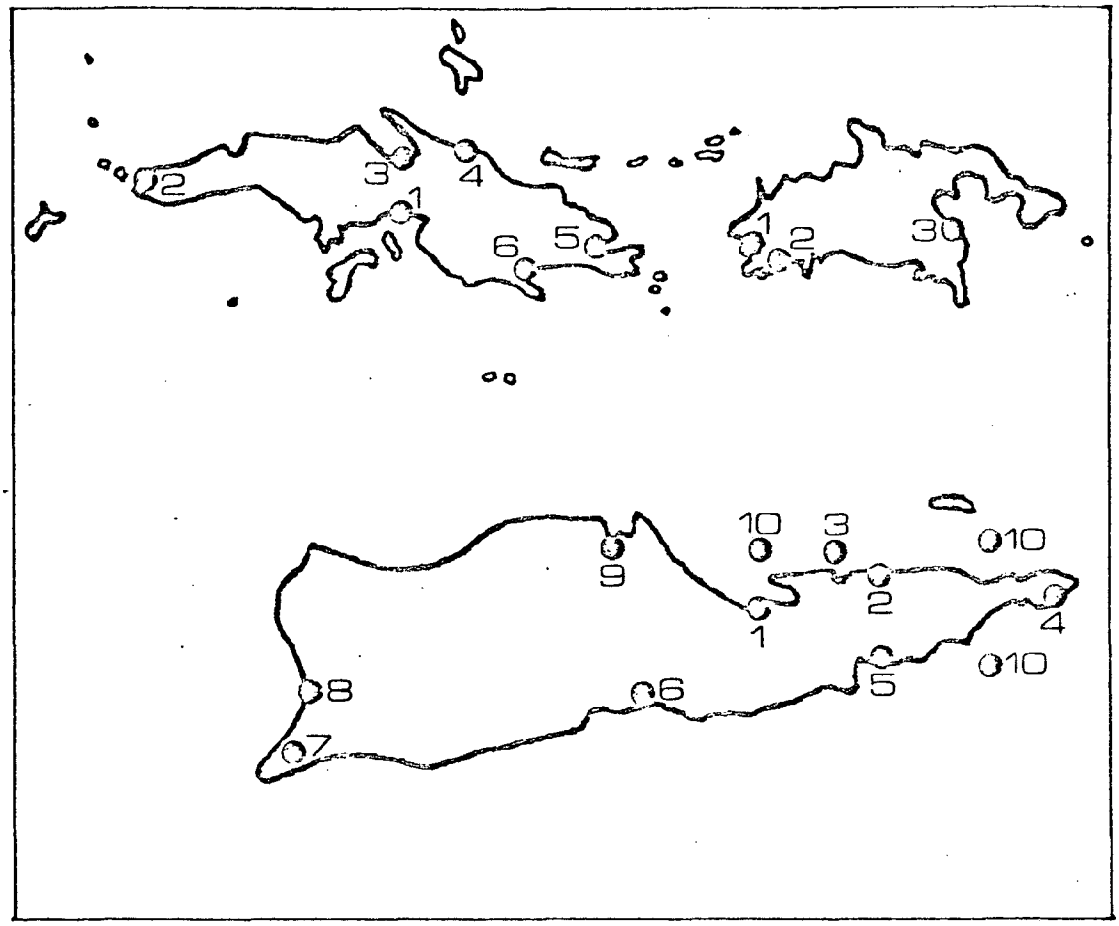
## Areas of Particular Concern

The detailed examination of all the coastal areas of the Territory has revealed that there is a definite need for guidelines to be established for development in certain limited locations in order to assure that proper development occurs. Presently, there is no comprehensive development plan for the Virgin Islands. As a result, priorities and recommendations for future development of the coastal zone must be clearly identified through the Coastal Zone Management Program. Just as the proposed land and water use plan is an advisory plan, the identification and recommendations for "areas of particular concern" also function as advisory plans for development of specific geographic areas. Existing zoning regulations will remain in full effect for these areas also.

The proposed Coastal Zone Management Act includes provisions for the adoption of the recommendations and priorities for areas of particular concern as a guide for evaluating future development in these areas (section 905 (b)). These recommendations are detailed in Chapter 7 of the Preliminary Coastal Zone Management Program, and as an appendix to the proposed Legislation. These areas are identified in Figure 1.

FIGURE 1

AREAS OF PARTICULAR CONCERN




ST. THOMAS

1. St. Thomas Harbor and Waterfront
2. Botany Bay
3. Magens Bay and Watershed
4. Mandahl Bay
5. Vessup Bay - East End
6. Mangrove Lagoon - Benner Bay

ST. JOHN

1. Enighed Pond - Cruz Bay
2. Chocolate Hole - Great Cruz Bay
3. Lagoon Point - Coral Harbor

ST. CROIX

1. Christiansted Waterfront
2. Southgate Pond - Cheney Bay
3. Green Cay
4. Isaac Bay - East End
5. Great Salt Pond Bay
6. Southshore Industrial Area
7. Sandy Point
8. Frederiksted Waterfront
9. Salt River - Sugar Bay
10. St. Croix Coral Reef System

The specific recommendations are an outgrowth of the coastal zone planning process and represent a synthesis of many diverse considerations. In most cases, the recommendations reflect a refinement of the policies and use recommendations included in the proposed legislation. A brief examination of the recommendations for each of the areas is included in the following section.

## SUMMARY OF RECOMMENDATIONS AND IMPACTS FOR AREAS OF PARTICULAR CONCERN

| Recommendations | Direct | Indirect |
|---|---|---|
| **St. Croix** | | |
| 1) Christiansted Waterfront | | |
| a) Fort Christiansvaern to Vicinity of Antilles Airboats | | |
| It is recommended that pedestrian access to the downtown area be improved by constructing a pedestrian walk-way along the waterfront. Safe, continuous lateral movement should be provided by extending and improving the existing waterfront commercial development. Existing parking areas along the waterfront near the Scalehouse should be relocated to insure that the integrity of the Historic Site is maintained and that safe and adequate access to the entire waterfront is available. Any maintenance dredging which may be required should be undertaken only after careful study. In order to protect the remaining habitat fot the endangered wildlife and to maintain the scenic quality of the waterfront, it is recommended that no further development activities be permitted on Protestant Cay. | - Improved access to waterfront<br>- Relocated Parking<br>- Restricts further development of Protestant Cay | - Encourages waterfront development<br>- Expanded business opportunities along waterfront<br>- Improves visual quality in Historic Area<br>- Protects tourist attraction<br>- Will require additional expenditure for development of alternative parking areas<br>- May restrict expansion of existing hotel development on Cay<br>- Provisions for maintenance dredging will benefit boating industry |
| b) Fort Louise Augusta-Altona Lagoon-Gallows Bay | | |
| It is recommended that the Gallows Bay area be redeveloped for recreational boating upon completion of the new Southport. New or expanded marina sites should be developed within this area. All heavy cargo operations should be relocated to the new Southport location. Adequate facilities for the small inter-island trading vessels should be maintained.<br>The southshore of Altona Lagoon should be an area for preservation and restoration. The remaining perimeter of the pond should be devoted to conservation, recreation, and | - Increased facilities for recreational boating<br>- Local trading vessels insured space<br>- Enhance scenic and recreational potential of Altona Lagoon | - Promote local and tourist-oriented boating through provision for marinas<br>- Increased employment in recreational boating<br>- Traditional uses maintained<br>- Improve water quality in Lagoon Area<br>- Less congestion in Christiansted |

| Recommendations | Direct | Indirect |
|---|---|---|
| traditional use. It is recommended that the lagoon itself retain its function as a scenic and wildlife area. The drainage of Altona Lagoon should be restored by improving water flow from the lagoon to the bay. | | as a result of relocated freight handling<br>- Increased boating use may affect water quality |
| c) Western Christiansted Habor | | |
| It is recommended that the development of this area for recreational use be undertaken as expeditiously as possible. The CZM program endorses the preliminary plans for the area which have been developed by the Department of Conservation and Cultural Affairs. | - Area reserved for local recreation/ open space needs | - Will require expenditure funds<br>- Will provide space for future recreational use<br>- Enhance visual quality |
| 2) Southgate Pond-Cheney Bay | | |
| The eastern portion of the former Southgate pond should be preserved as a wildlife-educational area. Public access to the Cheney Bay Beach should be secured. The impacts of having opened the western portion of the pond should be investigated. If no severe impacts are found, the western portion of the pond could be devoted to a protected anchorage for recreational boating. | - Increased recreational opportunities<br>- Eastern portion of pond protected for wildlife/educational use<br>- Establishes potential for boating use in western portion | - May require expenditure of funds for access acquisition<br>- May restrict development<br>- May benefit local boating by providing space |
| 3) Green Cay | | |
| Green Cay should remain in its present undeveloped state. The inclusion into the Territorial Park System would protect this important resource. The report "Potential National Natural Landmarks" strongly recommends that Green Cay be entered into the Registry of Natural Landmarks. The CZM Program concurs with this recommendation. | - Area reserved for wildlife protection and limited recreational use | - May require expenditure of funds for acquisition<br>- Protects endangered species and valuable habitat<br>- Will restrict development<br>- Enhances scenic quality |

| Recommendations | Direct | Indirect |
|---|---|---|
| 4) Isaac Bay-East End<br><br>Isaac Bay-East End should remain in its present undeveloped state. Inclusion of this area into the Territorial Park System would be the best means to preserve this wild scenic area. | - Recreational opportunities protected<br>- Scenic quality protected<br>- Protects educational/scientific values | - Restrict development<br>- May result in increased recreational use to detriment of resource values |
| 5) Great Salt Pond and Bay<br><br>The Great Salt Pond and Bay area should be preserved as a wildlife, educational, and natural area. | - Protects wildlife/educational value for future enjoyment<br>- Protects scenic natural buffer attributes | - Restricts development |
| 6) Southshore Industrial Area<br><br>It is recommended that special procedures be established for monitoring the environmental impacts, especially water and air quality impacts associated with the shouthshore industrial area. Therefore, future development should be in close coordination with the EPA. Oil spill contingency plans should be formulated and reviewed regularly for adequacy. Any future dredging activity, such as that between the Hess and Martin Marietta channel or the dredging and backfilling necessary for the proposed submarine pipelines, should be carefully monitored to insure that undue damage does not occur. Mangrove restoration should be undertaken along the southern boundary of the Martin Marietta site. | - Will require additional expenditures for constant monitoring and impact evaluation<br>- Additional expenditures for oil spill contingency and environmental restoration | - Will benefit long-term aspects of water quality<br>- Provisions for minimizing risk and loss from industrial pollution.<br>- Benefit tourist industry by protecting beaches from oil spills |

| Recommendations | Direct | Indirect |
|---|---|---|
| 7) Sandy Point<br><br>This important recreation, scenic, and wildlife value of Sandy Point and the West End Salt Pond need protection. Therefore, this area should be managed for conservation, recreation and traditional uses. | - Protects important natural area | - May restrict development<br>- Benefits in terms of wildlife habitat, recreation, scenic quality, natural buffer, educational and scientific value |
| 8) Frederiksted<br><br>The Coastal Zone Management Program endorses the major proposals for Frederiksted as outlined in the 1974 Port Authority Study "Plans for Seaport Development and Relocation". It is recommended that a revitalization plan for Frederiksted include the following elements:<br><br>(a) Active encouragement of cruise ships to visit Frederiksted, repairs and improvements to the existing pier, construction of a visitor center plus other waterfront amenities for both visitors and residents;<br><br>(b) Development and improvements of Frederiksted beach and the waterfront park with special emphasis upon integrating of historical areas (especially Fort Frederik) into the shoreline park areas; and<br><br>(c) Relocation of all cargo shipping to the Southport with any future marina construction encouraged to locate adjacent to the cruise ship area. | - Establishes priorities for revitalization<br>- Pier improvements and expanded visitors facilities<br>- Protect distinctive character of town<br>- Protect scenic quality | - Increased employment opportunities<br>- Will require additional expenditures<br>- Increased recreational opportunities<br>- Protect and enhances visitor attractiveness |

| Recommendations | Direct | Indirect |
|---|---|---|
| 9) Salt River-Sugar Bay | | |
| The Salt River-Sugar Bay area should be utilized for preservation and conservation. Inclusion of this area in the Territorial Park System is recommended. | - Protects important natural area for future enjoyment<br>- Protects visual quality<br>- Protects historic site | - Enhances visitor attractiveness<br>- May restrict development |
| 10) St. Croix Coral Reef System | | |
| This portion of the St. Croix coral reef system should be preserved as an underwater park and placed in the Territorial Park System. | - Protects water quality and natural buffer | - Bnefits in terms of fishing<br>- Less beach erosion<br>- Protects visitor attraction |
| St. Thomas | | |
| 1) Charlotte Amalie Harbor and Waterfront | | |
| a) West Indian Company and Vicinity | | |
| It is recommended that any dredge and fill activities which may be undertaken by the West Indian Company be carried out in a manner which will minimize long-term adverse impacts to the water quality of the harbor. It is recommended that close coordination between the Company and the coastal zone management agency be maintained in order to insure that all future development activity will be consistent to the maximum extent feasible with the coastal zone management plan. | - Provisions to protect environment<br>- Provisions to protect concession rights of company and public interest | - With adequate safeguards, expanded facilities will result in increased business opportunities with minimum environmental losses |
| b) Long Bay and Downtown Waterfront | | |
| Future development activity west of the proposed landfill at Frederiksberg Point and extending to the vicinity of Antilles Airboats operation should be restricted to maintain this area in its | - Maintains traditional uses<br>- Protects scenic quality | - Restrict development<br>- Benefits local fishermen, inter-island traders, tour boats |

| Recommendations | Direct | Indirect |
|---|---|---|
| present use. Any shoreline alterations for this area should be minimal. The native fishing boat uses, recreation uses and traditional waterfront commerce activities should be protected from encroachment by other uses. Any public service facilities for this shoreline area, including land transportation, public buildings; utilities, or public recreation, should be designed in such a way that the public's physical and visual access to the waterfront is enhanced, not hindered. Safety measures such as cross-walks should be utilized to insure safe and adequate access to the waterfront. | - Ensures safe, adequate access to waterfront | - Protects tourist attraction<br>- Protects public safety and public rights to waterfront |
| c) Frenchtown and Vicinity | | |
| It is recommended that the waterfront area of Frenchtown and vicinity be maintained in its present use. Continued attention to congestion and safety problems in the marine area is warranted. | - Maintains traditional uses | - May restrict development<br>- Benefits local fishermen and consumers<br>- Minimal controls may result in congestion and serious safety problems |
| d) Crown Bay | | |
| It is recommended that the general Crown Bay redevelopment plan suggested by the Port Authority be endorsed. Specific configurations and facility plans for the filled lands should be decided upon after consultations with the coastal zone management agency, the Port Authority, and the Department of Commerce. The marina facility should be included in the Crown Bay redevelopment with additional attention given to the need for a larger facility than that outlined in the Port Authority plan. | - Establishes priority for development | - Will require large expenditures<br>- Additional land for commercial-industrial uses, port facilities, marina<br>- Benefits consumers, promotes indusrial development<br>- Restricts non-water dependent uses<br>- Enhances cruise ship potential<br>- Benefits recreational boating |

| Recommendations | Direct | Indirect |
|---|---|---|
| e) Krum Bay<br><br>It is recommended that this area be maintained for heavy industrial type activities such as those which presently operate here. The quality of the water in the bay which is processed by the desalinization plans should be protected from industrial pollution. | - Protects water and power supply | - May restrict development |
| f) Hassel Island<br><br>Hassel Islands should be preserved it its present state. The best use of the island as a historic park, recreation area and nature study area. It is further recommended that the entire island be considered for possible inclusion in the Territorial Park System. | - Protects scenic quality, historic area for future enjoyment | - Restricts development |
| g) Water Island<br><br>Based upon the finding that Water Island development does not involve the "national interest", and the finding that direct impacts may occur, it is recommended that Water Island be developed in a manner consistent with the CZM Land and Water Use Plan and policies. | - Establishes need for controlling impacts | - May limit development |
| 2) Estate Botany Bay<br><br>It is strongly recommended that Estate Botany Bay, including the offshore reefs, be included in the Territorial Park System. The archaeologic and historic sites should be protected from degradation and serve as an outdoor classroom for students. The basic natural character of both the terrestrial and marine portions of this site should be protected. | - Protects historic, educational value of area | - May restrict development |

| Recommendations | Direct | Indirect |
|---|---|---|
| 3) Magens Bay | | |
| Viewshed/Watershed Management - The viewshed (the area of Lerkenlund, Misgunst, Canaan, Lovelund and Peterborg Peninsula) from Drake's Seat seaward should receive careful management. The view should be protected and enhanced. Watershed management of this area is needed to protect Magens Bay, the beach, and the archaeological sites. Upland development should be held at a minimum, and conducted in a manner that will prevent erosion of the hillsides and subsequent siltation and sedimentation of the Bay. | - Protects scenic quality<br>- Protects water quality<br>- Restoration of degraded arboretum | - Protects valuable tourist-scenic resource<br>- May restrict development<br>- Will require additional expenditures for general management, clean-up, restoration<br>- Increased access and usage may result in degradation of resource |
| Improvement of Public Access to the Beach and Park - Magens is difficult to reach without a car. Public bus service, especially on weekends, should be developed from Charlotte Amalie and Estate Tutu. | | |
| Arboretum Restoration - The coconut grove and entire arboretum area should be restored and managed. | | |
| 4) Mandahl Bay | | |
| The recommended use for the area is as a wildlife and scenic park. Accessibility should not be significantly improved. While it is not feasible to restore the salt pond to its original condition, a "lagoon" may be created by replanning and restoring damaged vegetation. | - Restricts development | - Protects wildlife and scenic quality |
| 5) Vessup Bay-East End | | |
| The expansion of boating facilities at Vessup Bay should be encouraged. The salt pond adjacent to the ferry dock should be utilized as the site for future expansion of marine terminal and associated facilities. | - Expands port and marina area<br>- Requires additional expenditures<br>- Removes natural buffer and wildlife habitat | - May degrade water quality<br>- Better port facilities benefit St. John residents<br>- Maximum efficiency of use requires improvements on St. John also |

Recommendations

6) Jersey Bay: Mangrove Lagoon /Benner Bay

The overall policy for Jersey Bay should be one in which the mangrove area receives either protection or restoration with limited marina expansion.
All of the management guidelines and recommendations set forth in the "Permissible Land and Water Uses" section of Chapter Five should be stringently enforced in the Mangrove Lagoon area (for more detailed information, See VICZM, Marine Environments, 1977).
A portion of the Mangrove Lagoon area should be preserved. The proposed boundary of the mangrove preservation zone is as follows:

> A line from the coastal road through parcel no. one, to the northeast point of Bovoni Cay shall divide the mangrove preservation zone from the area of permitted marina development. Land to the west of this line will be within the mangrove preservation zone (this boundary approximates the line dividing the present W-1 zone from P zone on the zoning map). The preservation zone should extend west to Long Point. A second preservation zone should consist of an area from Compass Point north to the existing marina.

A program of mangrove restoration should be initiated for the old race track area near the Lagoon, and for the former lagoon area between Antilles Yachting and Compass oint Road.
The area of Brenner Bay east from the preservation boundary to Compass Point should be a area where marina development is permitted if it is consistent with the provisions for the protection or restoration of mangroves. Limited dredging of Benner Bay should be permitted contingent upon an environmental impact assessment. Ancillary marina facilities (e.g., parking,

Direct

- Limited marina expansion benefits boating industry
- Establishes protected areas
- Provisions for limited dredging
- Provisions for environmental monitoring

Indirect

- May restrict development
- Protects important local and tourist boating activities
- Protects fishing industry through habitat conservation
- Maintains natural buffer
- Increased use may affect water quality and habitat in some areas

| Recommendations | Direct | Indirect |
|---|---|---|
| boat cleaning, solid waste disposal, fueling) has had significant impact on the water quality of the entire bay. Therefore, careful attention should be given to the impacts of fueling, runoff, and other related activities. A public dock should be constructed and marina owners should be encouraged to construct public facilities in return for various tax concessions. Those who moor boats within the preservation area, and who cannot afford commercial docking space, should be given first priority in relocating to any new public docks. Watershed management of Turpentine Run gut and other water courses is needed to protect the water quality of both the Lagoon and Benner Bay. | | |
| **St. John** | | |
| 1) Enighed Pond-Cruz Bay | | |
| In addition to these activities, a wastewater treatment facility is planned for the Enighed Pond area. It is recommended that the general concepts of the proposed master plan suggested by the Port Authority be endorsed. Plans for the wastewater treatment plant should be reviewed to insure that this activity will not interfere with future development. It is also recommended that ferry boat docking be relocated to Little Cruz Bay ( Creek Area). This measure would enable the water quality in Cruz Bay to improve and in turn make Cruz Bay Beach a more viable recreation resource. In addition, the area surrounding Little Cruz Bay can better accomodate taxis and tour buses. All detailed site plans should be subject to review by the coastal zone management agency. As a | - Provisions for marina and related port facilities at Enighed Pond will benefit local consumers and boating industry<br>- Increased recreational opportunities<br>- Increased expenditures for relocation and development | - Expanded employment opportunities<br>- Will encourage development<br>- Loss of pond area may affect water quality<br>- Increased activity in Little Cruz Bay may degrade water quality<br>- Dredging may adversely impact water quality<br>- Increased development may detract from character of area |

| Recommendations | Direct | Indirect |
|---|---|---|
| condition for any work in Enighed Pond, the constraints on development of Salt Pond areast must be considered. Protection of themmarine environemnt must be given high priority during construction of any proposed improvements. Strong erosion and drainage control measures must be taken to replace the salt pond's function as a sediment trap. | | |
| 2) Chocolate Hole-Great Cruz Bay | | |
| Generally, the policies outlined in this plan should suffice to insure that development of Great Cruz Bay and Chocolate Hole will not destroy the amenities that the area presently enjoys. The Coastal Zone Management recommendations with respect to salt ponds, mangroves, beaches, and steep slopes development should be strictly applied to these areas. Future development of Great Cruz Bay and Chocolate Hole should be done in such a manner as to minimize environmental and visual impacts. | - Protects visual and environmental quality | - May restrict development |
| 3) Lagoon Point-Coral Bay | | |
| The Coastal Zone Management Program strongly endorses the inclusion of Lagoon Point into the Territorial Park System. Careful park management to balance utilization with protection will be needed. It is strongly recommended that Lagoon Point serve as an Environmental Studies Program outdoor classroom to expose students to the lessons to be learned from this area. It is also strongly recommended that development in the upland watersheds adjacent to Lagoon Point be monitored and controlled to minimize adverse impacts to coastal water quality. | - Protects valuable sceintific and educational resources | - Protect scenic quality<br>- May restrict development |
| The on-going mangrove restoration project should be encouraged and its success monitored. The use of Hurricane Hole for fishing, recreational boating, and as a storm anchorage should be maintained. | | |

## Intergovernmental and Public Involvement

One of the most beneficial socio-economic impacts of the proposed program is that it encourages citizens to become involved in the management of coastal resources. The Program exhorts and/or requires the direct involvement of Federal and local government agencies as well as further efforts from the public and private sectors. Public involvement measures are found in the development and continual revision of rules and regulations, the issuance of permits, appeals procedures and the process for making program amendments and zoning changes.

Because of the Federal consistency requirements of Section 307 of the federal act, actions of Federal agencies must be consistent with the provisions of the management program. The Planning Office and the Department of Conservation and Cultural Affairs will be developing rules and regulations both immediately to implement the program, and from time to time to revise standards. Working on these guidelines will entail public input and participation in the development stages. Furthermore, the VICZMA requires that public hearings be held before formal adoption of the rules and regulations. These rules and regulations are of course subject to review at any time by the Legislature (VIC, Title 3, Chapter 35).

Activities which will require a major permit will require public notification and hearing at which time public views concerning the possible consequences of the activity can be voiced. In addition, section 906 of the VICZMA requires review of major permits by relevant Virgin Islands public and private groups and Federal agencies.

There is clearly defined appeals procedures for any aggrieved person (Section 910). The Board of Land Use Appeals is a citizen board which may overide the action of the Commissioner of Conservation and Cultural Affairs. Furthermore, the Board is required to hold public hearings on appeals to provide a public forum for discussion of the appealed permit decision.

Amendments to the Management Program must follow the same procedures as amendments to the zoning law. Public notification and public hearings must be held and the Legislature must act on the proposed change. Any zoning amendments must follow the prescribed procedures in the Virgin Islands Code (Title 29, Section 238). Each individual, as well as adjacent property owener, must be notified of the proposed amendment. Public hearings must be held and the Legislature must act on the amendment.

## Public Access/Acquisition

The policies for access are one of the most unique to coastal zone management since they deal with the problems of social equity, the benefits of which are not easily quantified. The issue is directed toward the responsibility of a society to protect the

rights of all of its citizens. Despite the provisions of the Open Shorelines Act which reaffirm the customary use of lateral shoreline access, and the provisions for requiring access found in the Industrial Incentive Act, access to the shoreline is still a coastal issue of consequence.

Physical access is addressed in section 905 (a) policies, as well as in the existing statutes. While the policies will assure the social benefits of physical landward access, it will not be required in all instances. Access may be a provision of a major coastal zone permit under certain circumstances and with certain stipulations. The rules and regulations will serve to further operationalize these circumstances. It is likely that landward access would be required of all new hotel and beachfront condominium developments. In any event, dedicated accessways will not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway. The most likely economic impact of increased access will be the necessity for expending additional funds for maintenance, lifeguards, clean-up, etc.

Visual Concerns

Perhaps the most apparent impact of human activity on the Virgin Islands coastal zone has been a visual one. In some areas the visual resource remains natural, and in others development has respected the special visual qualities of the coastal environment, but some of the coastline has been degraded by poorly designed development. In these areas there are buildings that are obtrusive being inappropriate to nearby landforms and inconsistent with the pattern and scale of existing development. There are signs and overhead utility lines that block views and create visual clutter. There are visual scars left by cutting, grading, filling, and vegetation removal, and this is often accompanied by the erosion that results from the alteration of natural landforms. There are, also, inadequately landscaped developments that detract from their natural setting rather than being enhanced by it.

The Territory's coastal zone is a visual, educational, and aesthetic resource of considerable worth. Both residents and visitors alike benefit from the visual attractions which our natural setting affords. The policies on protecting visual resources will provide long-term benefits, and will not be an irretrievable committment of resources. While individuals may resent the permit process regulating the siting characteristics for development (design standards, location, landscaping, etc.) the policies recognize that scenic and visual qualities are resources important to the public as well as to the economy of the Territory. In some instances, the policies may result in additional development expenses. Long-term benefits in the form of visitor attractiveness and protection of property values will likely occur.

## Economic Development

The management program's impact on employment and other business investments will vary for major industry sectors. Investment and employment potential in fisheries, certain tourism activities, and commercial recreation, marinas and port facilities will be enhanced through the incentives of the regulatory policies. The long-range viability and security of these industries in the coastal area will be protected and encouraged, but the costs of doing business in the coastal zone may go up for some industries which must allow for public access and environmental protection standards. This added investment stimulates other businesses, but it might also make certain business development or expansion programs questionable. Coastal dependent industries will benefit as they have not done before from the priority siting they are given under the Act. The trend in many areas has been for non-dependent activities which preclude space for coastal dependent industries, such as fisheries, marinas and port facilities that depend on a shoreline location.

### (1) Construction and Commercial/Industrial Activities

One of the primary economic reasons for the management program is that it will promote, through reduced uncertainty and water-dependent siting priorities, an atmosphere which is conducive to the long-run economic development of the Territory. If this economic development does not occur, the construction industry in the Islands will be forced to rely mainly upon maintenance and replacement construction activities for its survival. This industry will also benefit from construction of port facilities and harbor improvements and sustained growth in residential development which will accompany economic development. The program's policies with regard to sand extraction will lower construction costs and encourage development.

The permit process, with its specified time limits for action and reduced uncertainty, will result in cost savings as a result of less delays and clear delineation of procedures. This will benefit development activities of all kinds. It is likely that the permit process and some required mitigation measures provided for by the policies will result in higher initial construction and development costs. Benefits to all sectors of the economy will occur as a result of higher quality development. These include protection of water and visual quality, and enhanced property values. Investment in rehabilitation of urban areas will also benefit the construction industry. It is likely that there will still be periods of general economic decline, and growth spurts; however, these impacts cannot be totally attributed to coastal zone management.

There are several policies that will impact the commercial/industrial activities and subsequent employment. Water dependent

activities will be assured of sufficient suitable locations. Ports, marinas, and docking facilities, power and desalinization plants and other water dependent activities are given a high priority along the shoreline. This type of commercial/industrial use is necessary for the future economic well being of the Virgin Islands. Subsequent employment benefits will result. These new and expanded activities will bring an increase in the number and quality of job opportunities. The transfer of goods will be enhanced. This will have the beneficial social impacts of greater availability of consumer goods and increased competition which will tend to lower costs to the consumer. Increased employment will result in higher tax revenues with resultant positive impacts upon local public services and facilities. There are several policies which may impact the manufacturing industries and subsequently employment as well. The implementation of the program over the next several years could mean that some new manufacturing industries that are not coastal-dependent must be sited further inland and not near the more accessible waterfront areas. This could increase the costs of transportation for those industries, whereas before they were in a more competitive position as a result of their waterfront sites. The policies and recommendations which relate to development of potential industrial areas such as Sub-Base in St. Thomas and inland sites on St. Croix will tend to offset this potential negative impact.

(2) Commercial Fishing and Recreational Boating

The Coastal Zone Management Program will protect and enhance the commercial fishing industry and recreational boating. Fishing uses have received a high priority use designation which ensures that needed facilities will not be lost to non-water dependent uses. Not only does the program support the commercial fisheries by protecting their harbor and support facilities, but it also protects the waters and habitat necessary to support the fisheries. The continued discharge of wastes into coastal waters and the alteration of wetlands, which the program seeks to prevent, could mean a significant loss of jobs for the Territory as a result of decreased fisheries production.

The recreational boating industry will also benefit from the Program. The policies which relate to water quality. water dependency maintenance dredging, wildlife habitat and all of those which positively impact the tourist industry will promote boating in the Territory. Because of the increased demand in this activity, it is expected that there will be increased demands for new marinas and support facilities. The program encourages the maximization of use of existing facilities with as little adverse environmental impacts as possible, and where feasible the development of new facilities. The program recommendations with regard to additional marina areas for Crown Bay, Red Hook, Cruz Bay, Christiansted and Frederiksted will increase the available marina facilities on all three islands.

(3) Tourist/Recreation

The Virgin Islands Coastal Zone Management Program will protect and enhance tourism. As is the case with fishing (except on a much larger scale), the thousands of jobs and millions of dollars in income from tourism are directly dependent upon the protection and wise use of the coastal resources. This is one of the major reasons for the detailed policies on development, environmental resources, and amenity resources. The permit system and the policies both seek to insure that the Virgin Islands will continue to be an attractive and competitive tourist destination. The proposed permit system will insure that all projects are considered in a timely and even-handed manner, with adequate safeguards to protect existing or potential tourist attractions. The program policies will encourage expansion of existing hotel facilities rather than new construction on undeveloped sites. The permit system may result in higher development costs for beachfront hotels as a result of required mitigation measures and provisions for physical access and visual concerns. The policies, especially those which relate to water quality, reef systems, and mangroves will help protect beaches from erosion as well as protecting and enhancing fishing, snorkeling and scuba diving - all important tourist attractions.

In addition, policies and recommendations regarding marine facilities and maintenance dredging will have a positive impact upon charter boat and sport fishing industries. In effect, the permit system and the policies promote the development of a diversified tourist economy in which special attention is given to the needs of fishing and boating industries, snorkeling and scuba diving, beach recreation, and cruise ship oriented tourism as well as beachfront hotels. Important considerations such as scenic quality and beach erosion are also included in the program. The provisions for public access and impact mitigation may result in additional development costs.

The cruise ship oriented tourist industry is encouraged by water-dependency policies, maintenance dredging policies and recommendations for additional facilities in Crown Bay and Frederiksted. The direct beneficiaries of a successful tourist industry are, among others, establishments engaged in the sale of food and beverages, hotels and guest houses, theaters, sports and other recreational business, automobile services, professional and personal services, clothing, gift shops, taxis, tour buses, and travel agents. Indirectly, the entire economy benefits from the industry including the local government through increased tax revenues.

The Program policies will continue to encourage the further development of recreation and tourism in the coastal zone to perhaps the disadvantage of private, residential, general industrial, and general commercial development. It must be recognized that there is a limit to the amount of tourist and recreation growth which can be accommodated by the coastal zone. At some point congestion and resource limitations will bring about unavoidable cumulative impacts

and social costs which cannot be satisfactorily mitigated. At some point in the future, this issue must be confronted and resolved. While this issue is usually viewed in the context of industrial, commercial, residential and hotel-condominium development, similar results may occur with beach use, fishing and water sports development.

The provisions of the Coastal Zone Management Program including the permit system, the policies, the land and water use plan, shoreline erosion, and energy development siting will assure that adequate monitoring and mitigation measures are carried out to insure that the greatest possible public benefits will occur while minimizing adverse impacts from worthwhile and necessary uses. The potential economic and social benefits of this activity cannot be valued in dollars and jobs.

The policies on shoreline access, recreation and visitor facilities, protect the rights of the public to enjoy access to the coastal environment and increases the opportunity for recreation. Increased access and recreation is especially important for areas such as eastern St. Thomas and Christiansted and central St. Croix where large population concentration occur and which presently have limited recreational opportunities. Although numerous attempts have been made, it is difficult to quantify the quality experience of a day at the beach or a look at a view such as from the scenic road on St. Croix or the Drake's Seat overlook, or from the highway overlooking Coral Bay.

Potential adverse impacts related to access will include increased maintenance and public service costs, and negative impacts on private property holders who prefer exclusive use. There may be additional costs to developers for conveyance of access rights.

Many of the policies may be potentially growth inducing, resulting in adverse impacts upon water quality and related environmental and amenity resources, and public infrastructure. There will be heavier use impacts on natural resources especially from the line of vegetation to the coastal waters, and, in some cases, the coastal waters and marine life. Other policies are provided to mitigate these impacts.

(4) Ports

With the exception of some locally produced fruits and vegetables and some seafood, almost all consumption goods and construction materials (Including sand) uses in the Virgin Islands are imported. While an increasing amount of imports arrive by air, most bulk materials are shipped to the Territory by ocean freight. Provisions for adequate port facilities are thus absolutely necessary for each of the three main islands. Port facility development is addressed by specific policies and recommendations of the Management Program. In addition, the policies which relate to the maintenance dredging are applicable. Specific recommendations for each island are included in the program.

Upon completion of the new Southport on St. Croix, the Management Program recommends that the existing facilities at Gallows Bay be developed for marine recreation purposes including a marina. Adequate space will continue to be provided for small inter-island trading vessels which frequent the area presently. It is recommended that all heavy freight traffic be shifted to the new public port. The program also recommends that the limited port facilities at Frederiksted be expanded, primarily for cruise ship docking and recreational boating including marina facilities. Positive economic impacts will result from conversion of the existing areas for cruise ship and recreational boating. Increased tourist potential and recreational opportunities will occur with resultant increases in employment and overall economic activity. Economic savings will be achieved by consolidating all heavy port needs in a single, well-equipped and centrally located port. Likely benefits include lower handling costs, lessened traffic congestion in Christiansted, more timely scheduling for imports and exports, and a greater variety of available goods, all of which should lead to lower consumer costs.

The port related recommendations for St. Thomas are directed mainly toward the Crown Bay-SubBase area. The program endorses the Port Authority proposal for dredge and fill activity in the Crown Bay area for the purpose of cruise ship docking, freight and related uses. A marina proposal for the area is also endorsed. Presently, the existing facilities of the West Indian Company docks and the limited shallow draft facilities near Aspinall School are inadquate to accommodate an increase in the number of cruise ships. The Crown Bay proposal would provide benefits in terms of additional docking and warehousing and bulk storage facilities and also in terms of encouraging the redevelopment of the entire SubBase area for industrial and commercial uses. Additional benefits include those resulting from the proposed marina and repair and maintenance facilities. Potential adverse impacts could occur as a result of lowered water quality and construction impacts. Construction of the project would result in the displacement of several businesses along the shoreline including 2 restaurants, and existing dock and boat storage, several automobile sales and service operations, and warehouses. These activities would be forced to find other locations inland. Existing businesses would be adversely affected. Mitigation measures provided for in other policies would lessen possible negative environmental impacts.

The program also recommends additional facilities for Red Hook including use of an existing salt pond for expansion. Since the primary use of the Red Hook facilities is for St. John traffic, the additional facilities recommended for Cruz Bay and Enighed Pond are directly related. Most of the economic benefits from these projects would accrue to residents of St. John in the form of better service at less cost. In addition, positive impacts from well planned development of the Cruz Bay beach and the recommended marina and recreation facilities at Enighed Pond would also occur. Potential adverse environmental impacts from destruction of the salt pond at Red Hook and Enighed could occur. Mitigation measures called for in other policies could lessen these impacts.

## ADDITIONAL PROVISIONS OF THE FEDERAL COASTAL ZONE MANAGEMENT

(1) CEIP Program

The Coastal Energy Impact Program (CEIP) was created by one of the 1976 Amendments to the Coastal Zone Management Act of 1972. The purpose of the program is to assist states and local communities to meet the needs arising from new or expanded coastal energy activities. To be eligible for assistance under the CEIP, a coastal state must be receiving a grant under section 305 of the Coastal Zone Management Act, must have an approved management program, or must be making satisfactory progress toward the development of a management program.

There are four forms of assistance available under the CEIP:

a) Planning grants, 80% federal match - these can be used to help plan for socio-economic or environmental consequences of coastal energy activities. The amount of the planning grant available is based upon relative need of a particular area including considerations such as new employment from energy activities, population density, safety and environmental factors, and local planning costs.

b) Credit assistance, federal loan guarantee - these funds can be used to help finance new or improved public facilities or public services necessitated by new or expanded coastal energy activities. The amount of credit assistance available is determined by a process similar to that of planning grants. Use for funds could include schools, roads, hospitals, police and fire protection, etc.

c) Repayment assistance - this is available to states in case they cannot meet obligations incurred under credit assistance program.

d) Environmental amelioration grants, 100 % federal grant. These are primarily to help prevent, reduce, or repair damage to environmental or recreation resources. This allotment is made on basis similar to planning grants.

The Virgin Islands allotment for FY 77 (beginning October 1, 1976) was made on May 16, 1977. Only one new or expanded energy activity qualified for allotment purposes- Hess Offshore Terminal. Based upon this single facility expansion, the Virgin Islands was allotted:

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| $ 59,423 | planning grants |
| 1,794,200 | credit assistance |
| 24,466 | environmental grant |

The exact amount of next year's allotment is unknown. Recent action by the Legislature in ratifying the proposed VIRCO agreement will allow for the inclusion of this project in the calculation of the amount we may receive. If VIRCO had been included last year, the amount of the planning grant and environmental grant would have doubled and the credit assistance would have been $8-10 million. Next year's funding may reach this higher amount.

The expenditure of approximately $85,000 in planning and environmental grants this year will have a beneficial impact upon the economy. More importantly, this planning money will allow the financially strapped Virgin Islands government to continue planning on vital issues which would not otherwise occur. The credit assistance funds are of the utmost importance to the Territory and especially St. Croix. The present need for additional schools, hospitals, police and fire, roads, water etc., is obvious. Employment and population impacts of the VIRCO project will add to this need. These funds will allow for the much needed economic expansion on St. Croix, while at the same time, insuring that necessary public facilities are avilable. The economic impacts of this program are clear.

(2) Interstate Grants Program

This program provides federal matching funds (90% federal share) for planning and coordination between two or more coastal states (for example Puerto Rico and the Virgin Islands). The exact amount of next year's funding is unknown. The amount the Virgin Islands can receive will depend upon the total budgeted by Congress and the nature of the proposal.

(3) Research and Training Grants Program

This program can provide 80% federal matching funds to undertake further research studies related to coastal zone management problems. Possible uses of funds include: (a) erosion problems (both first and second tiers) (b) beach access problems (c) a complete study of the impact of the boating industry (d) location of off-shore sand deposits suitable for mining (e) marine productivity studies relating to the fishing industry. Benefits from this kinds of studies would accrue to the entire economy in the form of better information upon which to make decisions and actual recommendations for future courses of action.

The provision for training funds is an issue of vital concern for the Virgin Islands. The economic and social development of the Territory cannot occur without adequate training programs. Potential positive impacts would occur in the form of increased

employment opportunities and provisions for upgrading the local work force skills. The total amount of funds available is not known.

(4) Beach Access and Preservation of Islands Program

This program provides 50% matching grants for the purchase of beach access and preservation of islands. The use of these funds to acquire important beach lands will benefit all residents. Total amount of funding for next year is unknown.

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