REPORT OF THE
JOINT SUBCOMMITTEE STUDYING

The Commonwealth's Tidal Shoreline Erosion Control Policy

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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Report of the Joint Subcommittee
Studying the Commonwealth's Tidal
Shoreline Erosion Control Policy (HJR 46)
Richmond, Virginia
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TO: Honorable Gerald L. Baliles, Governor,
and
The General Assembly of Virginia

I. Introduction

The 1987 Session of the General Assembly established a joint subcommittee to study the shoreline erosion policies of the Commonwealth (HJR 46). The subcommittee was charged with reviewing Virginia's current shoreline erosion control program and determining the appropriate balance between the rights of property owners and the stewardship responsibilities of the state. The subcommittee devoted a substantial amount of time during its first year reviewing the current shoreline control policies and programs of Virginia as well as other coastal states such as Maryland, North Carolina and Florida. Testimony received from a wide range of interested parties, including state officials with responsibilities for managing shoreline areas, scientists, and residents, documented the extent of shoreline erosion control problems.

During its first year the subcommittee recognized the role that sand replenishment efforts play as one element or strategy in comprehensive shoreline management programs which the state might undertake. Therefore, the subcommittee recommended that a statute be enacted giving the beaches of the Commonwealth priority as sites for the disposal of dredged material and authorizing the Secretary of Natural Resources to determine what portion of the dredged material would be suitable for beach nourishment. This legislation was passed by the 1987 Session of the General Assembly.

The subcommittee continued its work during 1987, pursuant to House Joint Resolution 226. It sought to identify those elements which are essential in the formulation of an effective shoreline management policy. Scientists and legal experts from the Virginia Institute of Marine Science (VIMS) provided testimony which described (a) the natural processes which shape Virginia's shoreline and (b) problems inherent in the current management program and how they might be resolved. It was clear to the subcommittee that before instituting any comprehensive shoreline management scheme several issues would have to be resolved. In order to be able to manage its shoreline the Commonwealth first had to know the resource it was proposing to manage. Therefore, the subcommittee recommended that the Commonwealth develop a comprehensive coastal inventory which would identify environmentally sensitive zones for future management considerations as well as document the legal ownership status of Virginia's shoreline. To provide more consistency in the current application of regulatory authority the subcommittee also recommended legislation to amend the Coastal Primary Sand Dune Protection Act.

II. Subcommittee Deliberation

In 1988, the subcommittee, pursuant to House Joint Resolution 109 reviewed the changes it had proposed to the Coastal Primary Sand Dune Protection Act (HB 692) which was carried over by the 1988 Session of the General Assembly. In addition the subcommittee received a status report on the shoreline inventory recommended the previous year. Because of the inconsistency in the use of the term "reach" when applied to the "Primary Coastal Sand Dune Protection Act" and the "Public Beach Conservation and Development Act" the subcommittee amended the former act so that the areas to be regulated would be sand dunes and the newly defined "beaches." Scientists indicated that the term "reach" was very specific in describing an along-shore process and was inappropriate when attempting to apply it to the cross shore regulatory jurisdiction of VMRC. In addition there was concern expressed by VIMS staff that current language appears to limit the Primary Coastal Sand Dune Protection Act to the Chesapeake Bay and the new language would make it clear that the act applies to the open coast (Atlantic Ocean) as well.

Those charged with the responsibility of carrying out the Act as amended indicated their support of the legislation. Mr. Bob Grabb of the Virginia Marine Resources Commission (VMRC) noted there may be a modest expansion of jurisdiction within the eight localities authorized to adopt and administer the Coastal Primary Sand Dune Ordinance. There are 600 miles of tidal beach in the Commonwealth, only 317 miles of which are found within the eight localities. Of the 317 miles, VIMS estimates that approximately 125 miles contain coastal primary sand dunes which are currently regulated. The remaining 192 miles are subject to partial regulation, but only up to the mean high water mark. It is along the nonregulated beach shorelines where a slight expansion on jurisdiction may occur. In these areas the limit of current jurisdiction under the Wetlands Act will be extended from the current mean high water mark to the effective limit of storm waves (wrack line). It was pointed out, practically speaking, the regulated public view the wrack line as the high water mark. Mr. Grabb concluded that the modest expansion would be "more than offset by the clarification which results from the change in terminology." According to him, the regulated public as well as his agency has not only had difficulty with the reach concept but also was frequently unclear of what constituted the landward limits as previously set forth in the statute.

Dr. Suzette Kimball, a research scientist with VIMS, briefed the subcommittee on the status of the shoreline inventory project recommended by the subcommittee last year (Attachment A). The coastal shoreline inventory would be a component of a larger comprehensive Virginia rivers inventory, which would analyze such physical activities as storm wave attack, beach profiles, types of sediment, sediment supply, erosion and recession rates, and biological components (types of vegetation and habitat). This information is essential if the Commonwealth is to develop an effective management strategy or program. The subcommittee was informed that this information would also be useful in defining those critical areas under the new Chesapeake Bay Preservation Act.

The $121,300 recommended by the subcommittee and approved by the money committees for the first year of inventory activity would provide for one additional full-time employee and additional assistance from current staff. The subcommittee suggests that this effort be intensified and compressed from five years into a shorter time frame in light of the many new mandates being placed on coastal localities.

One element of the shoreline inventory is an analysis of the ownership status of Virginia's shoreline. Since 1619, there have been historical references to commons land in certain coastal areas. In the late 1700's the General Assembly enacted legislation which recognized certain commons lands and public rights in beaches and marsh area. There are in existence, according to Mr. Bart Theberge of the Department of Ocean and Coastal Law (VIMS), beach and marsh commons areas. This was affirmed in the 1982 Virginia Supreme Court decision in the Bradford Case, which found that certain beaches and marsh areas on Hog Island had such status. Mr. Theberge indicated that because the state has not had an effective mechanism to protect these areas, over the years such lands have gradually become private lands. He noted that if the state is serious about managing and regulating its coastal resources, it should know what lands are public and what lands properly remain in private hands. Mr. Theberge proposes to analyze ownership records and documentation available in certain specific localities in order to develop methodology which would assist in determining those lands either owned by the state or having certain public rights imposed on them. Secondly, he would then attempt to quantify how much land is private versus public or of questionable ownership. He proposed a one-year pilot study to perform such an analysis for the Counties of Accomack and Gloucester. He selected these counties because they represent different levels of record keeping; Accomack has continuous records whereas many of Gloucester's records have been destroyed. Mr. Theberge concluded by suggesting that over the past two hundred years the Commonwealth may have lost a significant amount of property.

III. Recommendations

The subcommittee recommends the following:

1. That the financing for the coastal inventory be accelerated and that a 1989 budget amendment be introduced to allow expenditure of the first year funding to commence upon approval of the Appropriation Act rather than July 1, 1989.

2. That the pilot study of the ownership status of Virginia's shoreline involve a search of records in the County of Northampton.

Respectfully submitted,

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DEVELOPMENT OF A COMPREHENSIVE COASTAL INVENTORY

Virginia Institute of Marine Science

INTRODUCTION

One of Virginia's most valuable resources is its coastal and wetlands area. The economic and aesthetic benefits that these areas contribute mandate responsible and attentive management policies. Without a complete understanding of the range of conditions along our coastlines, a comprehensive management policy cannot be defined. The first step in achieving this understanding is the compilation of a comprehensive coastal zone inventory.

Over the past 20 years a large volume of coastal information has been gathered by a variety of state agencies, local groups, and academic institutions. Unfortunately, these data are not coordinated in terms of format, resolution, sampling design, or method of archival. Most studies were commissioned to analyze a particular problem or locality. Consequently, there are large gaps in this fragmented data base. These problems make any attempt to perform a comprehensive analysis of temporal changes or trends problematical. Without a comprehensive, coordinated, and common-format inventory, we will not be able to effectively address coastal zone issues.

Compounding the issues of a lack of knowledge of coastal zone characteristics is the issue of state ownership of coastal lands. The Code of Virginia has long provided protection and recognition of state and public rights in beaches, marshes, and other coastal lands (see: Va. Code Ann. Sec. 41.1-4; 62.1-1; 62.1-3). The concept of state ownership of and public rights in such lands has been upheld in the highest court of the Commonwealth (see: Bradford v. The Nature Conservancy, 224 Va. 181, 294 SE2d. 866 [1982]). Research conducted under the auspices of the Virginia Institute of Marine Science suggest that: 1) coastal lands subject to public use and state claims of ownership do exist; 2) current state law and policy provide inadequate management for such lands; 3) private claims have and are being made on such lands; 4) no inventory of these lands exists; 5) no state agency has been specifically designated a steward of these lands; 6) no plans providing for the management of such lands exists; and 7) the state may be failing a public trust obligation with regard to such lands.

Any consideration of this complex issue must weigh the benefits associated with the state attempting to identify and manage such land against the cost associated with such an undertaking. An effort must be made to develop an estimate of the significance of such lands in terms of acreage and the value of increased coastal public access and recreation. This value must be weighed against the cost of identifying and preserving state and public interests in such lands.

The evaluation of state ownership and management policy must be coordinated with all inventory activities. One cannot manage an unknown.

WORK PLAN

The Virginia Institute of Marine Science will create and maintain a comprehensive inventory of the Virginia coastline. The inventory will be designed specifically to support shoreline management programs. The inventory will be a continuing effort, with a regularly scheduled review and update of the data base.

The first year's efforts will focus on the design and evaluation of inventory methodologies. The objectives will include: (1) production of a comprehensive shoreline inventory of the Atlantic coastline and the York River shoreline and (2) an evaluation of the efficacy of a land ownership inventory based on trial surveys of Gloucester and Accomack counties.

Based on a review and analysis of the first year's products, the inventory will be extended during subsequent years to achieve complete coverage of the Virginia shoreline in a five year period. Following protocols developed during the initial five years, the inventory will then be maintained and updated in a recurring five year cycle (one major section of the shoreline each year).

Outlined below are the specifics of this undertaking, including: (A) identification of the elements necessary for a comprehensive inventory; (B) the tasks to be accomplished in the first year's work; and (C) the personnel and funding required for the first year's work.

A. COASTAL INVENTORY ELEMENTS

A major focus of a comprehensive coastal inventory will be to delineate environmentally sensitive zones for future management considerations. Information necessary to achieve this objective includes the following:

1. Rates of erosion/accretion (50 yr record);
2. Shoreline mobility;
3. Landward limit of storm activity;
4. Elevation and volume of beach and dunes;
5. Nearshore profiles/coastal bathymetry;
6. Dune field or bluff characteristics;
7. Distribution of vegetation;
8. Sediment characteristics of beach and nearshore sediments (including but not limited to mean grain size and sorting coefficients);

9. Wave and wind characteristics;

10. Sediment budget;

11. Land use, level of development and valuation;

12. Distribution and performance of engineering structures;

13. Identification and distribution of marine resources;

    a. non-living: sand resources, navigation channels, economic mineral deposits, etc.

    b. living: SAV's, oyster beds, clam beds, crab grounds, etc.

14. Land ownership, including state and public claims to beaches, marshes, commons, public landings, and other coastal lands.

The system will be designed as a nested digital data base. Base scale will be 1:24,000 (standard U.S.G.S. topographic map scale), with developed and/or critical areas mapped at a larger scale (1:5,000). To be effective as a management tool, this system must be updated on a regular basis. It is anticipated that the data collection effort will be phased in over a five year period and subsequently updated on a five year schedule. Critical areas in terms of potential development or areas of potential risk will receive priority treatment. The land ownership portion of the inventory is intended as a pilot effort to provide members of the General Assembly with cost and benefit information better enabling them to determine a future course of action with regard to state policy and management of such lands.

B. FIRST YEAR TASKS

The following tasks will be addressed during the first year of work:

1. Identify and acquire existing data sets, with an emphasis on the Atlantic coast of Virginia for which information is known to exist.

2. Design and implement a data base management system that is coordinated with other ongoing data collection efforts (e.g., Tidal Rivers Inventory project - see note below).

3. Collate, reformat, and enter existing data in the system.

4. Identify and inventory state and public claims to coastal lands in two test-case counties: (1) Gloucester--located on the York River and the most rapidly growing county in the state with records that date predominantly from the post Civil War; (2) Accomack--having both Atlantic and bay shores and subject to less development pressure than Gloucester as well as having public records dating back to the early 1600's.

5. Develop techniques of identification and claim categorization for state and public claims. The extent and value of such claims will be measured against the time, cost, and other difficulties associated with inventorying and preserving such lands.

6. Fly aerial reconnaissance of one river system and the open ocean coast. The York River system will be used for initialization stages of the inventory to coordinate with inventory activities listed in Tasks 4 and 5.

7. Acquire historical data for the York system. Measure parameters from historical and recent data collection and input to system.

8. Design and implement analytical methodology to compare temporal and spatial trends in coastal conditions.

9. Prepare report and map folio delineating coastal conditions and critical zones for the Atlantic Coast and at least one river system.

In subsequent years, additional river systems and the Chesapeake Bay stem will be added to the inventory. The base inventory should be complete within five years and update tasks will continue. However, information will be available at the completion of the initial year of study to permit the initialization of a management program along the Atlantic Coast and in certain estuarine locations.

C. PERSONNEL AND FUNDING

To adequately manage a project of this magnitude and to provide continuity throughout the early stages of inventory design and implementation, it is imperative to have an individual uniquely associated with this effort. Therefore, an additional FTE is requested by VIMS for a Marine Scientist B to be assigned to the inventory project. Other scientists at VIMS will be involved in the effort at some percentage of their total time.

The total cost for the first year of the Comprehensive Coastal Inventory project will be $121,300 distributed as follows:

	Year 1	Year 2
Personnel Services	$92,100	$99,500
Nonpersonnel costs	29,200	29,200
Total costs	$121,300	$128,700
TOTAL FOR BIENNIUM	**$250,000**	

REQUESTED: 1 FTE

NOTE: It is important that the Committee be aware of the fact that VIMS is currently under contract to the Council on the Environment to develop the tidal portion of the Commonwealth's Rivers Inventory Program. The work proposed here is related to this effort in the following manner. The Tidal Rivers Inventory project is an effort by the Institute to develop a computer based data management system for all the extant geographic, biological and physical data about Virginia's free flowing tidal surface waters. The project is specifically directed at identification of available information and assessment of the requirements for successful inclusion in the data base. The Comprehensive Coastal Inventory outlined here would develop a data set which could be included in the Tidal Rivers Inventory. It is important the Committee appreciate that the two efforts do not overlap, in that the Rivers Inventory is simply identification and incorporation of existing data sets and the Comprehensive Coastal Inventory is the creation of a data set which would then be appropriate for inclusion. It is significant that by having the opportunity to work on both projects simultaneously the Institute will be able to insure compatability and thus enhance the opportunities for productive use of the information once it is generated.

INTERNAL BUDGET BREAKDOWN

Development of a Comprehensive Coastal Inventory

Personnel:		
Marine Scientist B	$26,100	
Marine Scientist C (Suzette) (25%)	10,700	
Marine Scientist C (Scott) (15%)	5,900	
B. Theberge (8%); S. Carter (8%)	6,600	
		$ 49,300
Fringe Benefits (26%)		12,800
Graduate Students (3)	30,000	
		92,100
Operating Expenses		
Supplies (Base maps, film, digital bathymetry, etc.)	14,100	
Airplane Rental (40 hrs).	3,600	
Travel	3,200	
Computer Time	3,500	
APRC (Art, Printing, Publications)	4,800	
		$ 29,200
TOTAL		**$121,300**

1 FTE Requested